LIFESTYLE MODIFICATION EDUCATION IN CHRONIC DISEASES OF LIFESTYLE:

INSIGHT INTO COUNSELLING PROVIDED BY HEALTH PROFESSIONALS AT PRIMARY HEALTH CARE FACILITIES IN THE WESTERN CAPE, SOUTH AFRICA

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Abstract

Background: South Africa is following the global trend of urbanisation and the population is currently experiencing a nutrition transition. This is reflected in the mortality patterns in the country as the prevalence of chronic diseases of lifestyle have increased, especially in the Western Cape Province. Thus large numbers of diabetic and hypertensive patients receive treatment for their chronic conditions at primary health care facilities in the Western Cape.

Aim: The aim of this study is to conduct a formative assessment to explore health professionals' capacity as well as the conditions within primary health care facilities in the Western Cape Metropol that facilitate or impede the provision of lifestyle modification education and counselling to patients with chronic diseases of lifestyle in order to make recommendations for an intervention programme that utilises available resources.

Objectives: This thesis was conducted in 5 phases and the objectives are fivefold. 1) To determine the knowledge and practices of health professionals currently working in the public health sector in the Western Cape Metropol regarding the role of lifestyle modification in the prevention and management of chronic diseases of lifestyle. 2) To determine the knowledge of final year medical and nursing students at tertiary institutions in the Western Cape Metropol regarding the role of lifestyle modification in the prevention and management of chronic diseases of lifestyle. This is an outcome of the training provided by their tertiary institutions. 3) To determine the availability and efficacy of equipment as well as health promotion methods and materials currently used by health professionals in the Western Cape Metropol. 4) To identify patient preferences regarding the health promotion materials and methods used for providing education on lifestyle modification and chronic diseases of lifestyle at primary health care facilities in the Western Cape Metropol district. 5) To gain a better understanding of health professionals' capacity as well as the conditions within primary health care facilities that facilitate or impede the provision of lifestyle modification education and counselling to chronic diseases of lifestyle patients.

Methodology: A formative assessment approach combining both quantitative and qualitative research methods was used to conduct this study. Quantitative methods were employed during the first four phases of the study, while the last phase utilised qualitative methods, namely semi-structured interviews with health professionals. During the quantitative phases both self-administered and interviewer-administered structured questionnaires were used.

Results: The results of this study reflected a large range in lifestyle modification knowledge of both current and emerging health professionals with less than 10% of health professionals achieving the desired scores of 80% or higher. In addition, the majority of health professionals seem to be promoting the theoretical concepts of lifestyle modification however, they experience difficulty in providing practical advice to patients. Furthermore, doctors, medical students and health promoters appeared to be far more knowledgeable than nursing staff or students.

With respect to equipment, health professionals reported that although they had access to items such as baumanometers and glucometers, these were often in short supply. Although there are a variety of sources that produce health education materials, the awareness and presence of these were less than optimal, especially those in local languages.

This study further showed that 90% of patients wanted to receive education and counselling from health professionals at primary health care facilities, with the majority preferring health education methods that do not involve reading, such as individual counselling or support groups.

Health professionals identified caring for patients and patient adherence as intrinsic and extrinsic factors respectively that motivated them to provide lifestyle modification education and counselling to patients. They further provided both individual and environmental (organisational) barriers that impeded the provision of counselling. The latter included factors related to time, equipment, staff, and administration. In addition they provided suggestions to overcome these barriers.

Recommendations: The successful treatment of patients with chronic diseases is multi-faceted and requires a collaborative approach that addresses issues related to the organisational structure of the health system as well as health professionals' and students' knowledge and training on effective lifestyle modification education and counselling,

Based on the results of this study the following recommendations are made:

- Primaryt health care system in South Africa should be adapted such that it can effectively address both acute and chronic conditions simultaneously.
- Continuity of care is central to effective chronic care, therefore designated staff members that will be trained and retained within chronic care services in the form of a dedicated chronic care team are required.
- The scarcity of equipment needs to be addressed and a schedule of maintenance and repair of equipment should be implemented in order to avoid a shortage of equipment.
- The chronic medication delivery system should be ammeded by 1) implemenmting separate queues for chronic and acute patients at primary health care dispensaries, 2) issueing medications for longer durations where appropriate, 3) developing a system whereby medication can be delivered to the community

- Adoption of a patient-centred approach to chronic care by advocationg patient empowerment and developing support groups for patients at primary health facilities. These support groups can then form the foundation for support groups in the community which would cater for long term care and management of chronic patients.
- The paper-based administration systems at primary health care facilities should be replaced with computer-based systems for record keeping and featured appointments.
- The undergraduate curricula of medical and nursing students should be restructured to include training on actual lifestyle modification modules, which is not solely restricted to theory but includes practical workshops on how to apply theoretical knowledge. Furthermore, both health professionals and students require training in adult health education methods as well as the application of behaviour change models and theories in their counselling sessions. The necessary advocacy will need to take place to create space in the curricula to allow the inclusion of these programmes. Planners of medical school curricula need to be made aware that building the skills of students to promote LM using adult education methods will have wide ranging benefits for students throughout their careers.
- HPs that are already practicing at PHC facilities can be trained by providing continuous education by 1) adviocating chronic care career pathing and introducing a postgraduate diploma in CDL management at tertiary institutions, 2) including lifestyle modification education as part of continuing medical education courses and 3) providing in-service training to staff via expanding an existing in-service training program (PALSA PLUS) to address chronic conditions.
- Promoting the use of health promoters and nutrition advisors as lifestyle modification educators.

Conclusions: The data generated in this thesis is timely as there are many plans and policies being developed by the Western Cape's Department of Health to improve health care for patients with chronic diseases. The DoH's plans and policies will now have to be fleshed out into practical approaches addressing specific shortcomings that currently exist in the system of care for patients with chronic conditions. The data presented in this thesis goes a long way to identify some of those shortcomings that need to be addressed to improve the promotion of a healthy lifestyle in the DoH's plan of work for chronic diseases. Furthermore this data can be used to motivate for the resources required to develop adequate LM methods and tools appropriate for patients with chronic diseases who attend PHC facilities in the Western Cape.

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List of Abbreviations

BMI	Body mass index
BOD	Burden of disease
CDL	Chronic diseases of lifestyle
CHD	Coronary heart disease
CHSO	Community Health Services Organisation
CHW	Community Health Worker
COSMO	Community Service Medical Officer
DOH	Department of Health
DPAS	Global Strategy on Diet, Physical Activity and Health
E&C	Education and counselling
ECA	Ethnographic content analysis
GP	General practitioner
HP	Health professional
HSRC	Human Sciences Research Council
IEC	Information, Education and Communication
IMR	Infant mortality rate
INP	Integrated Nutrition Programme
LM	Lifestyle modification
NCDs	Non-communicable diseases
NHS	National health system
PGWC	Provincial Government of the Western Cape
PHC	Primary health care
PREP	Preparation
QCA	Qualitative content analysis
SADHS	South African Demographic and Health Survey
SANCA	South African National Council on Alcoholism and Drug Dependence
SANTA	South African National Tuberculosis Association
SUN	Stellenbosch University
UCT	University of Cape Town
UWC	University of the Western Cape
WCCN	Western Cape College of Nursing
WCM	Western Cape Metropol
WHO	World Health Organization

CHAPTER 1

INTRODUCTION,
RATIONALE,
AIM, OBJECTIVES,
OVERVIEW OF THE STUDY DESIGN
AND ETHICAL CONSIDERATIONS

1.1. INTRODUCTION

South Africa is classified as a developing country in which huge disparities are evident. This is illustrated by the Gini coefficient, which is a measure of inequality of income or wealth distribution, and can vary from 0 in the case of a highly even distribution, to 1 in the case of a highly uneven distribution. Historically, South Africa has had one of the most unequal distributions of income in the world. Reports from the Human Sciences Research Council indicates that this seems to be escalating since South Africa's Gini coefficient rose from 0.69 in 1996 to 0.77 in 2001.[1]

In the past inequality in South Africa was largely defined along racial lines, however, it has now become increasingly defined by inequality within population groups as the gap between rich and poor within each group has increased substantially. The Gini coefficient for the African population has risen from 0.62 in 1991 to 0.72 in 2001.[1]

These disparities are reflected in the poverty rates for South Africa. In 2001 approximately 57% of South Africans were living below the poverty income line. More recent estimates show that the proportion of people living in poverty in South Africa has not changed significantly between 1996 and 2001. However, those households living in poverty have deteriorated and the gap between rich and poor has widened.[1]

Chronic diseases such as hypertension, diabetes and cardiovascular disease, were previously thought to be limited to affluent societies and also to be diseases of the elderly. As such these diseases received far less attention in developing countries such as South Africa, while more attention was paid to acute conditions such as infectious diseases, maternal and perinatal conditions, and nutritional deficiencies. However, chronic diseases have emerged in developing countries to such an extent that 80% of deaths attributable to chronic diseases now occur in developing countries and a larger proportion of these deaths are occurring in people younger than 70 years of age.[2] It is therefore important to develop and implement strategies that will prevent the increased emergence of these conditions in addition to effectively treat patients with chronic diseases.

In order to successfully prevent and manage chronic diseases two complementary approaches are required. The first requires intersectoral collaboration across organisations and involves reducing the risk profile of the whole population by promoting healthy lifestyles. This requires legislative, environmental and societal changes. The second is centered in the health services sector and calls for the early diagnosis and cost-effective management of risk factors and disease in order to prevent or delay the onset of complications associated with chronic diseases.

Health promotion programmes target the population as a whole and are thus an effective means of preventing the emergence of chronic diseases. However, health service interventions provide an important avenue through which effective management can be provided to the proportion of the population that are already living with chronic diseases. Although these patients only represent the tip of the distribution of risk and need, this thesis focuses on the services at health facilities that are available to this proportion of the population.

In order to understand the context in which this study was conducted it is important to understand the background of the health care system in South Africa. South Africa's health system comprises parallel private and public systems. Health care varies from the most basic primary health care (PHC), offered free by the state, to highly specialised services available in the private sector.[3] The wealthiest 20% of the population uses the private system and is far better served than the vast majority (80%) of the population served by the public system which is chronically under-funded, under-resourced and understaffed.[4] Annually the government spends the equivalent of approximately US $ 3.1 billion on 35 million people while the private sector spends US $ 36.5 billion on just 7 million people and as a result services and resources are not equitably distributed.[5]

After South Africa's first democratic elections in 1994, the health sector was reformed. Prior to 1994, the health sector consisted of 14 different health departments and as such it was fragmented and rife with duplication. It was largely focused around hospitals and there was no real attempt to deliver PHC to the majority of people and as a result those living in rural areas had to travel long distances for medical care.[3]

In order to make health care more equitable and accessible to the needy the health sector has undergone rapid changes. A district-based health system is being implemented to ensure local-level control of public health services. It will also standardise and co-ordinate basic health services around the country to ensure that health care is affordable and accessible to everyone. There are 42 health regions and 162 health districts in the country. A new administrative structure is being put in place which will see PHC facilities fall under the auspices of district authorities while hospitals remain under the control of provincial authorities.[3]

Since 1994, more than 700 clinics have been built or upgraded, 2 298 clinics have been given new equipment, and 125 new mobile clinics have been introduced. There are now more than 3 500 clinics in the public sector providing free PHC to all patients.[3]

There is however a severe lack of health professionals (HPs) in South Africa as the country continues to suffer from a tremendous "brain drain" of South African doctors who are highly sought after in countries like the UK and Canada because of the high standard of training and the cutting-

edge medical experience they receive here. In 2000, 29 788 doctors in both public and private sectors were registered with the Health Professions Council of South Africa, however by 2005 only 7 784 doctors were employed in the public health sector. [3]

To combat the shortage of HPs, newly graduating South African doctors and allied HPs now complete a year of compulsory community service in understaffed hospitals and clinics. Furthermore, 450 foreign doctors, mainly from Cuba, were employed to combat shortages in rural areas. [3]

To address some of the resource and personnel shortages facing the public sector, partnerships between the public and private sectors are slowly being forged. Some private hospitals are now offering beds and providing medical care to public sector patients. They are also beginning to offer post-graduate teaching facilities to university medical faculties in an effort to stop the flow of doctors out of the country. [3]

1.2. RATIONALE

The public health sector serves 80% of the South African population. The vast majority of overweight or obese diabetic and hypertensive patients with poor glycaemic and/or blood pressure control commonly present at state run PHC facilities. Numerous studies have shown that lifestyle modification (LM) such as adopting a healthier diet, increasing physical activity levels and smoking cessation can be effective in the prevention and management of chronic diseases.[6-43] However, as of July 2007 there were only 1709 dietitians registered with the Health Professions Council of South Africa of which fewer than 600 are employed at all levels of care within the public health sector. This implies that even less than 600 dietitians are employed at PHC facilities. Essentially there are too few experts in diet and physical activity to provide specialised LM education and counselling to the South African population. Similarly there are very few trained smoking cessation counsellors available at PHC facilities. Patients are more likely to be in contact with HPs such as doctors, nurses and health promoters at PHC facilities, than with dietitians or smoking cessation counsellors. These HPs are therefore perfectly positioned to provide education and counselling on LM to these patients. Furthermore, patients view doctors and nurses as reliable sources of LM information.[44-48]

In order to effectively utilise HPs employed at PHC facilities as LM educators/counsellors, it is necessary to fully understand the issues related to education and counselling in PHC facilities. Firstly, the knowledge and practices of HPs regarding LM in CDL needs to be established. Secondly, the environment in which such counselling is done needs to be assessed in terms of the availability and efficacy of equipment and health education materials. Finally, it is critical to identify factors which may enhance or impede the provision of counselling to patients.

1.3. OVERALL AIM

The aim of this study is to conduct a formative assessment to explore HPs' capacity as well as the conditions within PHC facilities in the Western Cape Metropol that facilitate or impede the provision of LM education and counselling to CDL patients in order to make recommendations for an intervention programme that utilises available resources.

1.4. OBJECTIVES

This thesis was conducted in 5 phases and the objectives are fivefold. The objectives of each phase are outlined below.

Phase 1: To determine the knowledge and practices of HPs currently working in the public health sector in the Western Cape Metropol regarding the role of LM in the prevention and management of CDL by means of a validated questionnaire in a cross sectional survey of doctors, nurses and health promoters.

Phase 2: To determine the knowledge of final year medical and nursing students at tertiary institutions in the Western Cape Metropol regarding the role of LM in the prevention and management of CDL by means of a validated questionnaire in a cross sectional survey. This is an outcome of the training provided by their tertiary institutions.

Phase 3: To determine the availability and efficacy of equipment as well as health promotion methods and materials currently used by HPs in the Western Cape Metropol by means of a health facility audit utilising direct observation and interviews with key informants.

Phase 4: To identify patient preferences regarding the health promotion materials and methods used for providing education on LM and CDL at PHC facilities in the Western Cape Metropol by means of a questionnaire in a cross sectional survey.

Phase 5: To gain a better understanding of HPs' capacity as well as the conditions within PHC facilities that facilitate or impede the provision of LM education and counselling to CDL patients by means of non-scheduled structured interviews with doctors, nurses and health promoters.

It is important to note though, that this thesis focuses on LM as a means of preventing and managing chronic diseases and as such, all aspects of chronic disease care related to medical management in terms of access to and the use of certain drugs or clinical guidelines are excluded.

1.5. OVERVIEW OF THE STUDY DESIGN

A formative assessment approach aimed at establishing both current and emerging HPs' knowledge and practices as well as the conditions within PHC facilities that influence the provision of LM education and counselling to CDL patients attending PHC facilities was used to conduct this study. Figure 1.1 illustrates the formative assessment framework within which this study was conducted.

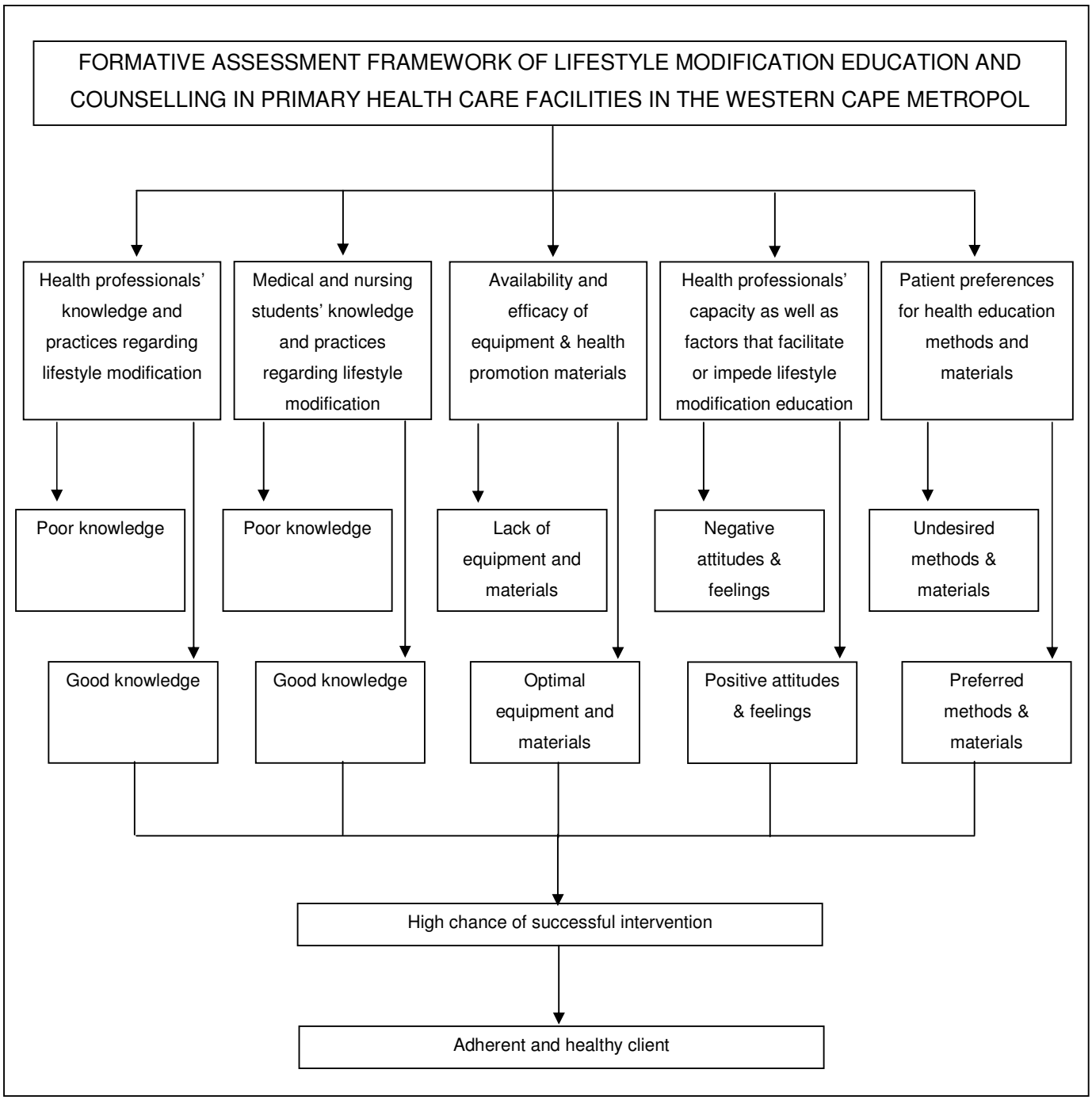

Figure 1.1: Formative assessment framework for data collection in order to make recommendations for a LM education and counselling intervention

1.6. STUDY SITE

The study was conducted in the Metropolitan Region of the Western Cape province of South Africa as illustrated in Figure 1.2. This region consists of 11 districts which house 44 PHC facilities that render services to CDL patients.

Figure 1.2: The site in which the study was conducted.

1.7. ETHICAL CONSIDERATIONS IN THIS STUDY

Ethical clearance to conduct this study was granted by the Research Ethics Committee of the University of Cape Town (Appendix A). Permission to conduct this study was also formally obtained from the health authorities in the region, namely the Community Health Services Organisation of the Provincial Government of the Western Cape.

A detailed explanation of the study procedure was provided to participants in each phase of the study. Thereafter, informed written consent was obtained from all participants. Information sheets and consent forms were available in three languages, namely English, Afrikaans and Xhosa and were approved by the Research Ethics committee of the University of Cape Town. All information and results were treated as confidential and participants' anonymity was ensured by allocating study numbers to participants and removing their names from all questionnaires.

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CHAPTER 2

LITERATURE REVIEW

2.1. GLOBAL PREVALENCE AND TRENDS OF CHRONIC DISEASES

Chronic diseases (also referred to as non-communicable diseases or NCDs) such as heart disease, stroke, cancer, diabetes and chronic respiratory disease are currently a major cause of death in almost all countries. Estimates from the World Health Organization (WHO),[1-2] indicated that 60% (35 million) of deaths globally were attributable to chronic diseases in 2005. This was double the number of deaths for all infectious diseases (including HIV/AIDS, tuberculosis and malaria), maternal and perinatal conditions, and nutritional deficiencies combined.

The growing threat of chronic diseases is indicated by the WHO[2] projected estimates that chronic disease mortality will increase by 17%, while the combined mortality from infectious diseases, maternal and perinatal conditions, and nutritional deficiencies will decrease by 3% in 2015. Thus, of the 64 million deaths projected to occur in 2015, 41 million will be as a result of chronic diseases.

The projected increase in mortality due to chronic diseases was first reflected in the global burden of disease study published by Murray and Lopez[3] in 1996. Using a baseline model these authors predicted that annual mortality from infectious, maternal, perinatal and nutritional disorders worldwide would decline from 17.2 million deaths in 1990 to 10.3 million in 2020. Conversely, they predicted a considerable increase in NCDs, with a rise in annual mortality from an estimated 28.1 million deaths in 1990 to 49.7 million in 2020. These authors also predicted that tobacco-attributable mortality will increase from 3 million deaths in 1990 to 8.4 million in 2020.

In 2002 Mathers and Loncar[4] revisited the predictions made by Murray and Lopez and indicated that the previous authors had substantially underestimated the spread of HIV/AIDS in their predictions. Mathers and Loncar[4] predicted that total deaths due to infectious, maternal, perinatal and nutritional disorders would decline from 15.5 million in 2002 to 9 million in 2030, while HIV/AIDS attributable deaths would increase from 2.8 million in 2002 to 6.5 million under baseline conditions or under optimistic conditions to 3.7 million in 2030. They further predicted that total deaths due to NCDs will increase such that they account for almost 70% of all deaths in 2030. Of these, global cancer and cardiovascular deaths are projected to increase from 7.1 million and 16.7 million in 2002 to 11.5 million and 23.3 million in 2030 respectively. Mathers and Loncar thus concurred with the initial predictions by Murray and Lopez regarding the increase in total deaths from NCDs albeit at a somewhat slower rate.

There are currently widespread misunderstandings about chronic diseases. These include the assumptions that these diseases are restricted to the elderly, they are 'diseases of affluence', an issue exclusively in high income countries and the result of overindulgence in risk factors for disease.[2] In reality, chronic diseases are an ever increasing problem in low and middle income

countries and among those without the opportunities or resources to pursue healthy choices. Only 20% of chronic disease deaths occur in high income countries, while 80% occur in low and middle income countries. These diseases occur in poor countries and within the poorer populations in richer countries.[2] Low socio-economic status leads to cumulative exposure to risk factors, greater co-morbidity and decreased access to quality health care. In low and middle income countries the shift from infectious diseases to chronic diseases is occurring at a much faster rate than it did in industrialised countries half a century ago, thus the onset and subsequently the age of death from chronic conditions is younger. In 2005 almost half of the chronic disease deaths (16 million) were considered to be premature as they occurred in people under the age of 70 years. As a result chronic diseases are no longer just an issue for the elderly.[2]

The move away from predominantly infectious as well as diseases related to children and reproductive health in women towards a larger burden of chronic diseases in developing countries has been termed the epidemiologic transition, a theory developed by Omran in 1971[5] This theory conceptualises three ages of disease epidemiologies: pestilence and famine, receding epidemics and the current age of degenerative and human-made chronic diseases. Omran's predictions regarding a greater burden of chronic diseases were correct. In South Africa for example a substantial increase in chronic diseases was first reported in the 1970s.[6] However, the transition from infectious to chronic diseases has not been as complete as predicted in developing countries. The disease patterns in these countries are characterised by a combination of poverty-related diseases together with the emerging chronic diseases which result in a double burden of disease. This double burden of diseases is exacerbated by high injury rates associated with the social instability of violence or high crime rates and by the epidemic of HIV/AIDS in these countries which further result in these countries having to contend with triple and even quadruple burdens of disease respectively.

2.2. PREVALENCE AND TRENDS OF CHRONIC DISEASES IN SOUTH AFRICA

By July 2007, the population of South Africa was estimated to be 47.9 million of which approximately 24.3 million (51%) was female. The population comprises Africans (79.6%), Whites (9.1%), Coloureds (people of mixed ancestry) (8.9%) and Indians / Asians (2.5%).[7]

Over the past few decades the mortality pattern in South Africa has changed. In 1900 the infant mortality rate was 330 per 1000 live births. In 2001 this had fallen to 50-60 and by 2007 it was estimated to be 45.2.[7-8] In the past life expectancy was only 25-30 years but by 1995, this increased to 63 years.[8] However, by 2007, as a result of the HIV pandemic, life expectancy has decreased to 49 years for males and 52 years for females.

Previously, most adult deaths occurred as a result of infectious diseases. As late as 1970, people of African descent, who reached 50 years of age, had a longer life expectancy than those of European descent due to the low prevalence of chronic diseases in this population. However, due to increases in the prevalence of chronic diseases in this population, this is no longer so.[8] By 1996 CDL were reported to be the cause of 40% of deaths in the economically active age group of 24 to 64 years.[9] In 2000, Bradshaw and co-workers[10] conducted the first national burden of disease study for South Africa. These authors adapted the list of causes of death from the 1990 Global Burden of Disease Study taking into account the disease profile in South Africa. They reported that 37% of deaths in South Africa were attributable to chronic diseases while 30%, 21% and 12% were attributable to 1) HIV/AIDS and related conditions, 2) pre-transitional disorders including infections, maternal and childhood diseases as well as 3) injuries respectively.

The mortality profile of the Western Cape Province is distinctly different from the national profile. The major causes of death in this province are due to chronic diseases. There are fewer HIV/AIDS deaths and deaths due to injuries are much higher than elsewhere in South Africa.[11]

The 1998 South African Demographic and Health Survey (SADHS)[12] recorded the self-reported prevalence of chronic conditions across all ethnic groups. In men 7.9% for hypertension, 2.9% for coronary heart disease, 2.4% for type 2 diabetes, 9.3% for obesity and a further 19.8% for overweight. In women the prevalence was reported as 18.6% for hypertension, 5.9% for coronary heart disease, 3.7% for type 2 diabetes, 30.1% for obesity and a further 26.1% for overweight. Furthermore, 1998 survey reported a prevalence of 42.3% and 10.7% for smoking in men and women, respectively. With respect to physical activity levels, the 2003 SADHS[13] reported that 48% and 28.4% of men as well as 63.2% and 22.9% of women were inactive and minimally active respectively, while only 23.6% of men and 14% of women were sufficiently active to provide health benefits.

2.3. IMPACT OF CHRONIC DISEASES ON ECONOMIES

Chronic diseases have a significant impact on national economies, specifically in developing countries since the onset of chronic diseases occurs at a younger age and thus affects a larger proportion of the economically active age group in these countries.[15] In addition to expected increased health care and treatment costs, there is an associated escalation in the number of productive years lost. The economic impact of chronic diseases resulting from lost productivity is therefore of particular concern in developing countries.

Popkin and associates[16] estimated that diet related chronic diseases accounted for 22.6% and 13.9% of health care costs, while the estimated costs of lost productivity was 0.5% and 0.7% of gross domestic product in China and India respectively in 1995. It is important to note that these

estimates were based on mortality and did not account for lost productivity as a result of morbidity and were therefore under estimations of the true economic impact of chronic diseases.

Cardiovascular disease is known to have significant costs in the developed world. In the United States it accounted for 61% of all health care spending[17] while the total cost of cardiovascular disease was £7.06 billion in the United Kingdom in 1999.[18] Since a higher proportion of 'younger people' are affected by cardiovascular disease in developing countries, the economic costs of cardiovascular disease are potentially higher in these countries. In the publication, 'A race against time - The challenge of cardiovascular disease in developing economies', Leeder *et al.*[15] provided information on the macroeconomic costs of cardiovascular disease in Brazil, China, India, Russia and South Africa. The authors estimated that in these five countries, the productive years of life lost in the age range 35-64 years would increase from 20.5 million in 2000 to 33.7 million in 2030. This is equivalent to an increase of 64% in Brazil, 57% in China and 95% in India compared to a 20% and 30% increase in the United States and Portugal. Not only does the increased prevalence of chronic diseases have a debilitating impact on the health of the population, the above information shows that it has a debilitating effect on global economies, especially in the developing world. It is therefore necessary to successfully stem the emergence of chronic diseases globally.

2.4. CAUSES OF CHRONIC DISEASES

The determinants and risk factors associated with chronic diseases are illustrated in Figure 2.1.[2]

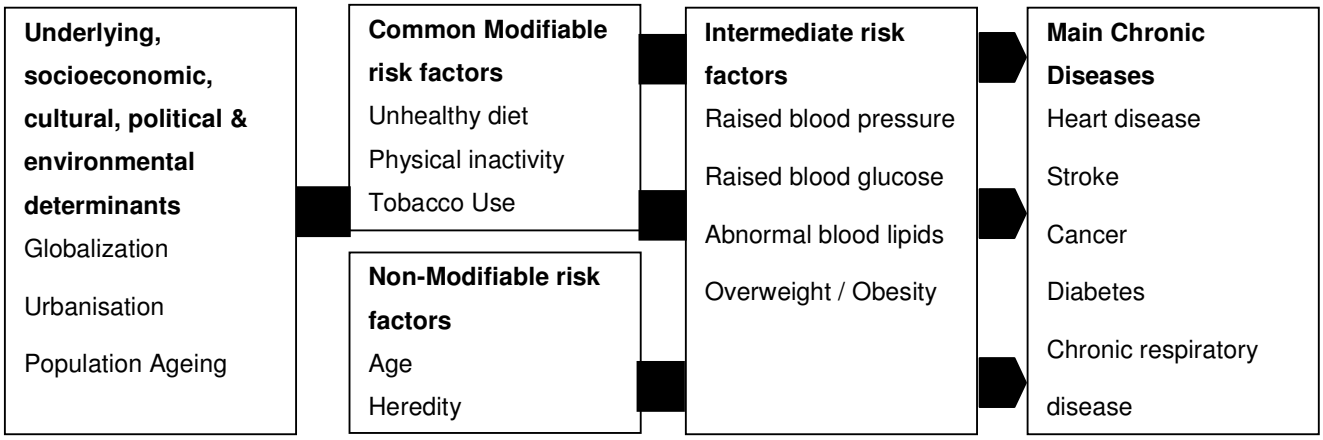

Figure 2.1: Causes of Chronic Diseases

2.4.1. Underlying determinants

The underlying determinants or the 'causes of the causes' of chronic diseases are a reflection of the major forces driving social, economic and cultural change. They surpass the individual and are characteristics and dynamics of both the social and structural environment. These include globalisation, urbanisation and population ageing.[2, 19-20]

Population ageing is mainly due to a decline in fertility rates and a higher proportion of children living into adulthood and is an important underlying determinant of chronic disease epidemics.[21] The number of individuals aged 60 years or older is escalating worldwide. Globally the total number of people aged 70 years or more is expected to increase from 269 million in 2000 to 1 billion in 2050. The elderly population in high income countries will increase from 93 million to 217 million, while those in low and middle income countries will increase from 174 million to 813 million.[2]

Globalisation is part of the process of global economic development and refers to the increasing interconnectedness of countries and the openness of borders to ideas, people, commerce and financial capital. Globalisation has both positive and negative health related effects on chronic disease populations and as a result it has implications for both the alleviation and the spread of chronic diseases.[2, 22]

Urbanisation is a phenomenon in developing / industrialising countries in which inhabitants from traditional rural communities migrate to more population-dense urban environments.[23] At the beginning of the 20th century there were only 16 cities in the world that had over a million people, now there are 400 of which about three quarters are in developing countries.[24] From 1950 to the present day, the migration to and natural growth of the cities in developing countries have been accelerating and long term projections show that globally urban populations will soon exceed rural populations.[25-26] Like globalisation, urbanisation has both positive and negative effects on chronic diseases. It can stimulate chronic disease prevention by improving access to a wider variety of foods, to health systems for early diagnosis and effective treatment and to knowledge and information about healthy living. Concurrently, it facilitates chronic disease development by creating conditions in which people are exposed to products, technologies, marketing of unhealthy foods, and a different social and working environment.[2, 22] Furthermore urbanisation distances people from the point of food production and as a result it is associated with changes in customary dietary practices. Although greater diversity of food is available, diets are dependent on processed and commercialised foods. Options such as fast foods and street foods are available in urban areas invariably resulting in fewer meals being prepared at home in urban than in rural areas.[25] Generally, 'traditional diets' which are high in fibre and low in fat are replaced by 'western diets'. The latter is more easily accessible and comprises a higher proportion of fats, sugars and refined foods which are lower in fibre. This process has been termed the nutrition transition.[23, 27-28]

The nutrition transition is also associated with other factors such as decreased levels of physical activity. Generally energy expenditure on physical activity is less in urban than in rural settings as most of the employment activities for adult men require less physical work than is involved in agriculture, while labour saving devices such as electricity and running water as well as shorter

walking distances to markets or to visit neighbours reduces the energy requirements for women.[25] Unplanned urban sprawl can further reduce pedestrian activity by discouraging walking and bicycling, and thus facilitate personal or public transport in the form of motor vehicles or buses, trains and taxis further reducing physical activity expenditure for men, women and children.[2, 22]

In order to assess the experience of the nutrition transition in low and moderate-income countries', the Bellagio conference was held in Italy in 2001. It focussed on changes in patterns of behaviour that lead to rapid increases in obesity and cardiovascular diseases in countries from Latin America, the Middle East, Asia and Africa.[29]

Latin America: As malnutrition decreased in Brazil and Chile, obesity rapidly replaced undernutrition in the adult population in these countries.[30-31] Albala *et al*.[31] relates the increased prevalence in obesity in Chile to a largely sedentary population in addition to the fact that low income groups who improve their income, buy high-fat / high-carbohydrate energy dense foods which results in a prominent increase in total fat intake. Rivera *et al*.[32] conducted a study in Mexico in which they reported an evident increase in dietary fat intake as well as an increase in the purchasing of sugars, refined carbohydrates and sodas. As a result the prevalence of obesity has increased in Mexico and has been accompanied by a parallel increase in mortality due to diabetes, hypertension and acute myocardial infarctions. Rodriguez-Ojea *et al*.[33] reported that the nutrition transition in Cuba has evolved 3 times. In the early 1960's it was characterised by a diet gradually richer in fat, meat and sweeteners and poorer in carbohydrates and fibre. Between 1989 and 1990 the collapse of the Eastern European socialist countries induced a second stage characterised by a decrease in the per capita food availability. Following the economic recovery in 1996, the third stage of the transition resembled those of the 1980's due to the increase in food availability.

Middle East: Ghassemi *et al*.[34] reported that the nutrition transition in Iran is occurring rapidly and is characterised by a dietary pattern of over-consumption at higher income levels and low nutrient density at all income levels. As a result obesity, diabetes and heart disease are becoming significant health problems.

Asia: Du *et al*.[35] showed that the Chinese population have shifted toward an energy dense diet, increased inactivity at work and leisure and an increased prevalence of obesity which resulted in high levels of hypertension and emerging patterns of diabetes and cardiovascular disease. Shetty[36] reported that although the change in energy intake in India is small, there are large changes in the consumption of animal products, sugars and fats. Dietary surveys from India have shown that higher-income groups consume a diet with 32% of energy from fat while lower income groups consume only 17% of energy from fat. In Thailand and Malaysia, Kosulwat[37] and Noor[38] respectively reported that the nutrition transition is occurring as a result of the economic structure

changing from an agricultural to an industrial one. As the population achieves affluence, the food consumption pattern changes and staples are replaced by diets containing a higher proportion of fats, sugars, and animal meat. Furthermore, the rapid growth of the fast food industry has resulted in a shift in the proportion of expenditure on food prepared at home and that expended on ready-to-eat food in both urban and rural settings. Conversely, South Korea has experienced the nutrition transition differently. Lee *et al.*[39] reported that despite rapid economic growth and the introduction of Western culture, the level and rate of increase in fat intake has remained very low, whereas vegetable and fruit intake has increased greatly. This is attributed to government and nutrition specialists' efforts to retain the healthful element of the traditional South Korean diet.

Africa: The situation on the African continent is no different. Although historical data on the depth and quality of diets in these countries are scarce Benjelloun,[40] Galal,[41] and Maletnlema[42] stated that the nutrition transition is evident in Morocco, Egypt and Tanzania respectively as a result of dietary changes accompanying urbanisation. In Morocco overweight and obesity constitute major health problems as it has increased from 26% and 4% in 1984 to 36% and 10% in 1998 respectively. Furthermore, overweight seems to be positively associated with economic status but negatively associated with education level.[40] Galal[41] reported similar results in Egypt stating that the prevalence of diabetes and hypertension parallel that of obesity which is very high in adults, particularly among women. Information on physical activity in this population is scarce however, these authors state that it is quite likely that a large proportion of the population is quite sedentary, particularly in the cities. Maletnlema[42] reported an increase in the prevalence of diabetes and hypertension, specifically in high ranking executives in Tanzania.

These studies have shown that the nutrition transition is occurring in developing (low and moderate-income) countries and that it gains momentum as populations achieve affluence. Furthermore they have provided evidence of the impact of the nutrition transition on the prevalence of CDL in these countries.

Other studies have further supported the increased prevalence of CDL on the African continent. Agyemang[43] and Cappuccio *et al.*[44] have independently shown that hypertension, which was once rare in traditional African societies, is rapidly becoming a major public health problem in Ghana, West Africa. These authors show that hypertension is more prevalent in women than in men and more so in the urban population than in their rural counterparts. Furthermore, the detection rates for hypertension were suboptimal in both men and women, especially in rural areas. Lawoyin *et al.*[45] reported a prevalence of 12.4% for hypertension in an urban community in Nigeria however, there were no significant differences with respect to gender in this community. The prevalence of hypertension and diabetes in Cameroon was reported to have increased from 8.3% and 1.1% in

1994 to 17.6% and 6.2% in 1998 respectively.[46-48] In 2007, Kengne *et al.*[49] reported that the prevalence of hypertension in the urban population in Cameroon had increased to 20.8%.

South Africa has been following the trends of globalisation and urbanisation. Bourne *et al.*[50] reported that while the majority of the black population reside in 'non-urban' areas, the urban proportion is increasing steadily with many living in informal housing on the fringes of cities. This population therefore has to adapt to a new lifestyle and as a result they succumb to the nutrition transition. Shifts in dietary intake to a less prudent pattern are occurring with apparent increasing momentum. Data has shown that among urban blacks, fat intakes have increased from 16.4% to 26.2% of total energy, while carbohydrate intake has decreased from 69.3% to 61.7% in the past 50 years. Concurrently numerous studies have shown that urbanisation is associated with an increase in chronic diseases risk factors. As early as the 1960s Seftel *et al.*[51] provided evidence that urbanisation is associated with the development of diabetes, while data from the THUSA study[52-53] provided evidence that urbanisation is accompanied by an improvement in micronutrient intakes, overweight, obesity, and several risk factors for chronic disease such as an increase in the incidence of stroke. It is important to take cognisance of the fact that stunting exists alongside rising levels of obesity and is in fact an independent risk factor for overweight. This should be considered when changes to health care systems and public policy are developed and implemented.

2.4.2. Risk factors

Tobacco use, unhealthy diet and physical inactivity, which are fortunately modifiable, are the major risk factors responsible for the incidence of most chronic diseases.[22] These are expressed through intermediate risk factors such as raised blood pressure, raised blood glucose, abnormal blood lipids and overweight and obesity as can be seen in Figure 2.1.[2] Fortunately these risk factors are modifiable.

There is abundant evidence to support the argument that chronic diseases are preventable by changing modifiable and intermediate risk factors, otherwise known as lifestyle modification (LM), which includes dietary modification, increased physical activity and smoking cessation.

Smoking or tobacco use is responsible for 4.9 million deaths each year and as a result smoking cessation has an invaluable role in LM and the prevention and management of chronic diseases.[2] This literature review, however, will mainly emphasize the dietary and physical activity components of LM.

Poor diet and physical inactivity directly account for 4.8 million deaths each year and further impact on intermediate risk factors which are attributable for a further 14.1 million deaths each year.[2, 54]

Recommended changes to dietary practices for the prevention of chronic diseases include achieving energy balance and a healthy weight, limiting energy intake from total fats, free sugars, and salt and increasing consumption of fruits, vegetables, legumes, whole grains and nuts. A lack of fruit and vegetable consumption has been shown to result in 2.7 million deaths a year, cause significant morbidity equating to 26.7 million lost years of healthy life each year and attribute to 85% of cardiovascular diseases and 15% of cancers.[55-56] Increasing fruit and vegetable consumption could prevent 31% of ischaemic heart disease, 19% of ischaemic stokes, 19% of stomach cancers and 20% of oesophageal cancer. [55-56]

Physical inactivity is the most prevalent risk factor for chronic diseases with an estimated 40.6% of the world's population not achieving sufficient physical activity for health benefits.[57] Globally, physical inactivity results in 1.9 million deaths and causes significant morbidity equating to 19 million lost years of healthy life every year. A further 10-16% of cancers of the breast and colon, 22% of ischaemic heart disease, 11% of ischaemic stroke and 14% of diabetes can be attributed to physical inactivity.[57] Increasing physical activity reduces CVD risk and is beneficial for many conditions, not only those associated with obesity. It also reduces blood pressure, improves levels of high density lipoprotein cholesterol, assists in control of blood glucose in those who are overweight and reduces risks of colon and breast cancer.[1-2, 57]

Dietary habits and levels of physical activity have an impact on intermediate risk factors including raised blood pressure, abnormal blood glucose and lipids and overweight and obesity. Raised blood pressure and raised cholesterol result in 7.1million and 4.4 million deaths respectively every year. Overweight and obesity result in 2.6 million deaths every year. It is also a risk factor for coronary heart disease, type 2 diabetes and certain cancers. It is attributable for 58% of type 2 diabetes, 21% of ischaemic heart disease and between 8 and 42% of various cancers.[2, 58]

Major risk factors together account for 80% of deaths from heart disease and stroke. Thus LM interventions that address these risk factors can lead to major reductions in morbidity and mortality from chronic diseases.[2]

2.5. RESPONSES TO THE GROWING BURDEN OF CHRONIC DISEASES

In order to manage the growing burden of chronic diseases it is important to adopt policies that will aim to reduce the burden of these diseases. However, there are many obstacles that hinder the management of chronic diseases, some of which are attributed to myths or misunderstandings surrounding the burden and management of these diseases.

Some of these have already been mentioned such as the assumptions that these diseases are restricted to the elderly; they are 'diseases of affluence' and an issue exclusively in high income

countries. Evidence to dispute these assumptions has already been presented. Furthermore the fact that economic growth can facilitate the improvement of all health conditions has previously been alluded to. It is important to note that economic growth in the form of globalisation and urbanisation can have both positive and negative health consequences. Thus although economic development can improve health in developing countries, it can also exacerbate chronic diseases. Other myths hindering the management of chronic diseases are summarised in Table 2.1.

Table 2.1: Myths hindering chronic disease management and evidence disputing them[22]

Myth	Evidence to dispute
Chronic diseases result from freely adopted risks and choices	Personal choices are ultimately affected by the cultural and environmental context within societies or communities. These factors therefore play an important role in the development of chronic diseases and as a result individuals cannot be solely accountable for failing to be responsible for their health.
Benefits of chronic disease control accrue only to individuals	Chronic disease control cultivates positive social development and provides economic benefits to societies and benefits the public as a whole. Chronic disease control is therefore an appropriate public investment
Infectious diseases should be controlled before chronic diseases are addressed	It is well known that the epidemiologic transition from acute infectious diseases to chronic diseases in developing countries is not a smooth one. Many developing countries contend with a double, triple or even quadruple burden of disease. This necessitates the development of health systems that are able to address all disease burdens (infectious, chronic, injuries and HIV/AIDS) simultaneously.
Acute infectious disease models are applicable to chronic diseases	Health care approaches and intervention models for acute, infectious diseases are relatively simple, whereas those applicable to chronic diseases require a planned proactive approach as well as the active participation of patients, families and communities.
Treating individuals in the health sector is the only appropriate chronic disease strategy	Screening of high risk individuals have been the traditional approach used by the medical community, however, prevention of chronic diseases requires a multi-sectoral commitment as well as comprehensive health service interventions for clinical prevention.

Although the above myths have been proved false, they have been successful in creating a policy-making environment in which it is easy to justify neglect of chronic disease management.[22] There have been haphazard responses to address the growing burden of chronic diseases, resulting in a lack of policy coherence between the stakeholders who are responsible for the management of chronic diseases. This is exacerbated by the absence of adequate global governance of chronic diseases.[59]

The need for health promotion was first expressed by the Alma Ata declaration thirty years ago.[60] This declaration urged national and international action to protect and promote the health of all the people by implementing primary health care (PHC), especially in developing countries. However,

the prevention and management of chronic diseases was not included in the sphere of PHC activity.

A few years later the Ottawa Charter[61] was published in response to growing expectations for a new public health movement around the world. It built on the progress made through the Declaration on PHC at Alma Ata, the WHO's Targets for Health for All document as well as the debate at the World Health Assembly on intersectoral action for health.
Health Promotion, as defined by the Ottawa Charter[61] is the process of enabling people to increase control over, and to improve, their health. To reach a state of complete physical, mental and social well-being, an individual or group must be able to identify and to realise aspirations, to satisfy needs, and to change or cope with the environment. Health is therefore seen as a resource for everyday life, not an objective of living. It is a positive concept emphasizing social and personal resources, as well as physical capacities. Therefore health promotion goes beyond healthy lifestyles and is thus not just the responsibility of the health sector.

2.5.1. Key stakeholders for developing global chronic diseases policy

Among others, the stakeholders responsible for developing global chronic disease policies include the United Nations, the World Health Organization (WHO), Heads of State, Health Ministries and Academic Health Centres, Research Institutions and Journals.

United Nations health and development reports are vital in setting priorities for global health. The Millennium Development Goals have accurately focused on the plight of the world's poorest mothers and children and on selected infectious disease epidemics. However, the emphasis on communicable diseases has for the most part excluded consideration of chronic diseases, despite the fact that chronic diseases are the leading cause of adult mortality in almost all regions of the world. As such chronic diseases were not recognised as a health and development issue by the Millennium Development Goals. Although one of the goals is to "Combat HIV/AIDS, malaria and other diseases," and thus theoretically includes chronic diseases, in practice, chronic diseases are ignored when resources are allocated to health and when countries report on how they are addressing the Millennium Development Goals.[62] However in 2006 for the first time, the United Nations recognised diabetes as a serious global health threat that is on par with the threat of HIV/AIDS. As such the first landmark resolution recognising diabetes (Resolution 61/225) was passed by the United Nations General Assembly on the 20th December 2006. This resolution recognises diabetes as a chronic, debilitating and costly disease associated with major complications that pose severe risks for families, countries and the entire world and designates the 14th November, the current World Diabetes Day as a United Nations Day to be observed every year beginning in 2007. Although the Resolution's passage is a major achievement it is still only the first step in the struggle to reverse the diabetes epidemic.[63]

The WHO has a responsibility to address the global burden of chronic diseases. WHO member states first requested action on chronic diseases in 1956 at the 9th World Health Assembly, with a resolution from India requesting the Director General to establish an expert committee on cardiovascular disease and hypertension.[64] Member states have demanded action and as such 46 chronic disease resolutions have been passed since 1956. The first report dealing specifically with nutrition and chronic diseases in both developed and developing countries was published in 1990.[65] In 2003 a revised version of the report was published with policy principles for the promotion of healthy diets and physical activity and advice on how strategies should be developed and implemented in order to prevent CDL.[55] Other actions include the global strategy on the prevention and control of non-communicable diseases in 2000, the landmark resolution on the Framework Convention on Tobacco Control (FCTC) in 2003 and a resolution and subsequent Strategy on Diet, Physical Activity and Health (DPAS) in 2004.[1-2, 22, 66] Chronic diseases have only recently started receiving attention in policy, political and resource terms such that the latest WHO document on chronic diseases (WHA 61/8) for the first time considers chronic diseases within the context of the Millennium Development Goals.[67] In 2005, the Lancet series on chronic diseases and the WHO's 'Preventing chronic disease: A vital investment' proposed that a new goal - to reduce chronic disease death rates by an additional 2% annually be added to the existing Millennium Development Goals. If this goal is achieved, it is estimated that it would prevent 36 million deaths by 2015, most of which would occur in low and middle income countries and just under half would be in people under 70 years of age.[19]

At the G8 Summit in 2000, the Heads of State[68] of the G8 countries recognised health as a global challenge when they acknowledged that health is the "key to prosperity" and that "poor health drives poverty." Although this led to the establishment of the global Fund for HIV/AIDS, tuberculosis and malaria, no subsequent commitment has been made for chronic diseases. Similarly, when the G77, who represent heads of state from 130 developing countries, discussed global health issues in 2003, they focussed on communicable diseases. They did however support the Framework Convention on Tobacco Control but at the same time they were critical of the draft global strategy for diet, physical activity and health.

Individual ministries of health do recognise that the prevention and control of chronic diseases is a significant health priority. However, Alwan *et al.*[69] stated that this has not been translated into comprehensive policy development or fiscal and human resources. In 2001, these authors conducted a review of government policies and actions in 185 countries from which they concluded that the capacity of health systems to prevent and treat chronic diseases is generally low; few countries have developed comprehensive national plans to address chronic diseases and legislative and fiscal policies to support health promotion and prevention are not in place; most

governments do not provide a budget line for chronic disease control; and few countries have essential medicines for chronic disease management available in their PHC settings.

2.6. APPROACHES TO PREVENT AND MANAGE CHRONIC DISEASES

Comprehensive approaches are required to control the increasing burden of chronic diseases in order to simultaneously prevent the emergence of CDL risk factors and manage the complications associated with these diseases. As previously mentioned, one of the myths regarding chronic diseases is that it is only appropriate to treat it within the health sector. The phrase 'health system' has been used to describe all forms of treatment for diseases including aspects of rehabilitation as well as primary prevention or health promotion. As a result the aspect of health promotion often receives less attention than that of rehabilitation or health care. It is therefore important to develop chronic disease treatment strategies within and outside of the health sector.

Several approaches have been proposed. These either involve the promotion of healthy lifestyles for the entire population or the early diagnosis and cost-effective management of risk factors and disease. In the textbook, 'International Public Health', Yach *et al.*[22] splits this distinction further in terms of its implications for who should take responsibility for actions. These authors thus propose that three sets of actions are required.

1. Health promotion aimed at shifting the entire distribution of risks in populations through intersectoral actions
2. Prevention programmes aimed at reducing the prevalence of specific major risks, especially tobacco use and unhealthy diets.
3. Health service programmes to identify and reduce risk for patients with risk behaviour and/or preclinical signs of chronic diseases, and programmes to prevent the onset of complications in those with disease.

The WHO built on the Wagner model[70] for chronic disease care and based on the abovementioned approaches developed the 'Innovative care for chronic conditions framework' (ICCC).[71] This framework is illustrated in Figure 2.2 and illustrates the needs at the levels of patient care, health-care organisation and community participation, as well as at the macro-level of policy and financing requirements. It identifies the productive interaction between informed, motivated and prepared patients, families, community partners and a prepared proactive and equipped practice teams. The latter implies the availability of appropriate management guidelines, other decision support tools, and essential supplies (including clinical examination supplies, diagnostic tests and medications). The ICCC framework also implies continuity and coordination of services between primary, secondary and tertiary care. The third aspect of the ICCC Innovative care for chronic conditions framework refers to policy and financing aspects of chronic care.[72] The ICCC Innovative care for chronic conditions framework also indicates the importance of evidence-based behavioural

medicine and social science studies; these improve the complex issues of the implementation of interventions that have been shown to be effective after implementation efforts in health services of developing countries.[73]

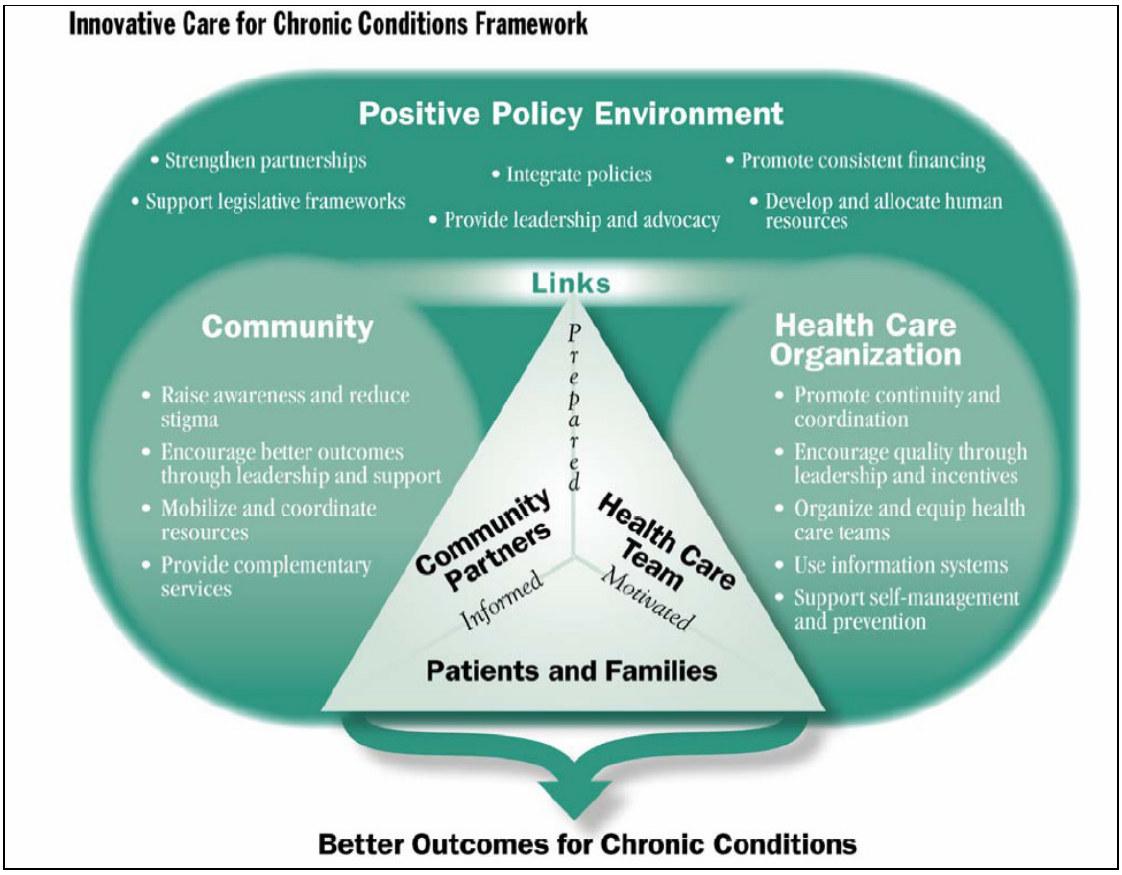

Figure 2.2: WHO Innovative care for chronic conditions framework [71]

2.6.1. Health promotion

A system that is centred on health care focuses on providing treatment and emphasizing quality of care, cost effectiveness and equity in access to lifelong care, while a system that is concerned with health promotion would be broader and focus more on determinants and underlying causes of ill health. A health promotion system therefore includes government sectors such as agriculture, sports, education and welfare in addition to the health sector, thereby affording it the ability to tap into resources from any of these sectors. Systems for health promotion should be governed at a national level by the cabinet as a whole and not just by the Health Ministries.

The report by Derek Wanless,[74] entitled 'Securing Good Health for the Whole Population', focuses on prevention, the wider determinants of health in England and on cost-effective actions that can be taken to improve the health of the whole population and reduce health inequalities. This report can be used as a guide to how various sectoral ministries or government departments can contribute to improving the overall health of the population.

2.6.2. Prevention Programmes

Tobacco has long since been reported as a risk factor for chronic disease and policies to tackle tobacco have been developed over the years. These policies have evolved and have culminated in the WHO Framework Convention on Tobacco Control (FCTC), which enshrines international consensus on the constituents of a comprehensive approach to tobacco control. By August 2004, the FCTC was adopted by 192 countries.[75]

Other risk factors for chronic diseases such as unhealthy diets and physical inactivity have recently received more attention. As a result the WHO Global Strategy on Diet, Physical Activity and Health has recently been adopted. This strategy proposes a range of key elements of a comprehensive approach but it is only now reaching the policy agenda and compared with tobacco, the level of active intervention and support by many governments has been low. Yach *et al.*[76] reviewed the potential relevance of the FCTC to diet and physical activity. Their synopsis of the way in which the FCTC can be applied to diet and physical are summarised in Table 2.2.

Table 2.2: Potential relevance of the FCTC provisions to diet and Physical activity.[76]

Measure	FCTC tobacco provision	Application to diet and physical activity
Pricing and taxes	Increase price by raising excise taxes and imposing prohibitions or restrictions on sales / imports of tax and duty free tobacco products	Use price measures to make fruit and vegetables more affordable; conduct research to consider whether taxing certain foods will promote healthier eating.
Packaging and labelling requirements	Provisions address the size of health warnings and labelling, especially with respect to misleading language	Health warnings and disclosure of nutritional information: adherence to Codex nutrition labelling guidelines and science-based criteria for health claims
Product content	Guidelines for testing, measuring and regulating the contents of emissions of tobacco products	Regulation of harmful ingredients; labelling that discloses significant ingredients; food safety regulations
Education campaigns	Promotion of public awareness of health risks of tobacco use / exposure, and of the benefits of cessation of tobacco use and of tobacco free lifestyles	Educational campagns in schools, workplaces, PHC settings and other sites reaching the general public; information and skill building to encourage optimal nutrition and physical activity
Restrictions on advertising, sponsorship and promotion	Restrictions (preferably a complete ban) advertising, sponsorship and promotion of tobacco products	Restrictions on advertising, sponsorship and promotion of some food products to children; discouragement of sedentary behaviours and unhealthy lifestyles
Clinical interventions	Cessation programmes, diagnosis and treatment of tobacco dependence	Clinical interventions based on collaborative goal setting, skill building, self-monitoring, personalised feedback, planned follow up and links to community resources

2.6.3. Health service programmes

Universally, health care systems are not equipped to provide effective and efficient prevention and care for chronic diseases. Countries often struggle with insufficient resources and inadequate access to necessary drugs and technology.

The WHO PREMISE study[77] shows that opportunities for secondary prevention of coronary heart disease and cardiovascular disease are being missed. This study showed that the knowledge and treatment of these diseases are underutilised for patients in low and middle income countries as the measurement of cardiovascular risk factors and provision of preventative medication were not sufficiently regular. Furthermore, studies conducted in the Caribean,[78] South Africa[79] and India[80] have reported that very few patients attending health care clinics in these countries receive advice on LM. This study thus concluded that inadequate resources and facilities of health care systems in low and middle income countries are largely responsible for the insufficiencies of secondary prevention.

In developing countries the underlying problem in the health sectors is the existence of a double, triple or even quadruple burden of disease. Most health care systems are still trying to manage chronic conditions using acute care methods and systems. Currently health systems are designed to address urgent and pressing concerns and are characterised by one-to-one visits with health care workers whose purpose is to diagnose and treat a patients' pressing problem. This type of health care is not suitable for patients with chronic diseases since these patients require proactive care that is organised around the concepts of planned care and prevention. Furthermore, health care workers often fail to recognise the importance of empowering patients to play an active role in the management of their chronic diseases. There is substantial evidence that interventions designed to promote the role of the patient in the prevention and management of their diseases are associated with improved outcomes (cited Yach *et al.*[22]).

The model of health care required for chronic diseases is fundamentally different to that required for acute health conditions. While the approach for acute care is disease-centred, hospital based, focused on individual patients, symptom driven and treatment focused, the approach required for chronic care is patient centred, PHC based, focused on the needs of the population, proactive and planned and focused on prevention. It is therefore important for health care centres to expand and adapt their health systems to provide effective care to chronic disease patients.

A patient centred approach recognises the patient as a person, fully informs patients of the risks and benefits associated with treatment, tailors decision making in response to individual patients' values, needs and expressed preferences; shares power and responsibility amongst patients and providers; and develops patients' abilities to participate in their care.

In developing countries, most chronic patients present and are treated at PHC facilities. This represents a shift from health care systems that are based at a tertiary level. Developing countries such as Oman[81] and Iran, have successfully made the shift to a decentralised PHC system.

Health care that is focused on the needs of the population implies that health care systems assess and monitor the health of communities, emphasize prevention and promote healthy behaviour, assure universal access to appropriate and cost effective services and contribute to the evidence base for effective treatments and systems of care.

Proactive care anticipates patients needs rather than rely on patient-initiated care. Coleman *et al.*[82] showed that nurses using a proactive care approach in which planned care was introduced for chronic patients in rural South Africa were able to achieve good disease control amongst 68%, 82% and 84% of hypertensive, diabetic and asthmatic patients respectively.
Health systems approaches to improve quality, efficiency, effectiveness and affordability have been well documented in the literature and have been demonstrated through clinic-based intervention studies to yield improved health outcomes on populations. Bailie *et al.*[83] conducted a quality improvement intervention that was found to be highly acceptable in the Indigenous Australian primary care setting. During the study period, health centres initiated and implemented a number of system changes which resulted in improvements of systems and processes of care at these facilities. Their intervention was further associated with an improvement in the quality of diabetes care and HbA1c control but not in blood pressure control or cholesterol levels. Similar results were reported in the first "Breakthrough" series in the United States.[84-87]

It is important to take cognisance of the reality that there are limitations when using clinic-based approaches to improve health behaviours. This occurs in the form of both health professionals' (HPs') and patients' readiness to change. It is therefore important to apply behavioural theories to health promotion interventions. Behavioural theories provide the foundation for understanding the behaviours which researchers are trying to change when undertaking intervention trials. Table 2.3 provides a summary of the most common behaviour change theories or models.

Table 2.3: Summary of the most common behaviour change theories or models.

Theory or model	Description	Reference
Health Belief Model	- Developed with a concern for public health issues. - It is comprised of the following constructs o perceived susceptibility to a health condition; o perceived severity of the condition; o perceived benefits for behaviour change; o perceived barriers to changing; o cues to action in the environment; o self-efficacy (a person's belief that they can perform a specific behaviour) - The primary motivation for change is readiness to act. - The primary resource for change is self-efficacy.	Janz et al.[88]
Transtheoretical Model (Stages of change Theory)	- One of the major attributes is the reasoning that behaviour changes in stages. - These stages can be explained by virtue of their differences - There is some controversy regarding the number of actual stages involved. - Commonly these stages include o *precontemplation* (not thinking about change); o *contemplation* (thinking about change without taking action); o *planning* (preparing for change) o *action* (where actions are involved). o *maintenance* whereby efforts are made to keep the desired changes which have been made.	Prochaska & DiClemente; [89] Prochaska *et al.*;[90] Weinstein *et al.*[91].
Social Learning / Social Cognitive Theory	- Encompasses the concept of reciprocal determinism. - In theory this means that behaviour is a function of the person and of aspects of the environment which are in constant reciprocal interaction. - Based on the principle of self-control. - Self-control can be achieved by setting specific goals, monitoring ones own behaviour and ultimately rewarding the attainment of preset goals.	Baranowski *et al.* [92]
Theory of Reasoned Action	- Defines a relationship between attitudes and behaviour. - Proposes that a person is likely to perform an action when they have an intention to do so and the intention to do so is greater in those who have a more positive attitude towards the behaviour. - Simply put this leads to the theory of planned behaviour which proposes that intention is also influenced by perceived behavioural control which in turn is a function of control beliefs and perceived power.	Fishbein & Ajzen[93] Ajzen & Madden[94]
Ecological Model	- Also called the social ecological model - It is an expression of the environment and its influences on health. - It includes the influence of different levels of the environment, the nature of these influences and the interrelationships among them. - It also proposes that behaviour can be changed by altering the environment, such as for example making an environment smoking-free.	Bronfenbrenner[95]

Knowledge-Attitude -Behaviour Model	- Proposes that behaviour changes gradually - Based on the view that knowledge is required for behaviour to change. - As knowledge accumulates attitudes are changed, which will eventually lead to behaviour change. - Also called the theory of enlightened self-interest. - A common method of promoting change based on this model is by the provision of information/knowledge.	Baranowski[96]
Behavioural Learning Theory	- According to this theory behaviours are performed in response to stimuli - the frequency of occurrence of the behaviour will increase if the behaviour is reinforced. - Also known as operant conditioning. - The process of changing behaviours is to control the stimuli and reinforcers and to reinforce only desired behaviours and to present only stimuli linked to desired behaviours.	Skinner[975]
Social Marketing	- Social marketing is not a theory to explain behaviour but in fact a set of actions to change health related behaviours - It is based on marketing principles used to sell products to consumers.	Maibach *et al.*[98]

2.7. APPROACHES TO PREVENT AND MANAGE CHRONIC DISEASES IN SOUTH AFRICA

2.7.1. Prevention strategies targeting the population as a whole

South Africa has undertaken prevention strategies that target the population as a whole. The most successful strategy thus far has been the implementation of the tobacco products control act of 1993 and its subsequent modifications in 1999. Enforcement and implementation of this act has significantly reduced the prevalence of tobacco use, as well as the amount of tobacco products sold in the country.

The Soul City Institute for Health and Development Communication, a nongovernmental Organisation, was responsible for the implementation of another successful intervention strategy. This Organisation uses the power of mass media for social change.) "The Soul City 4 intervention set out to impact positively on health and social outcomes by addressing the broader social and community environment (e.g. policy implementation, public debate as reflected in the media nationally, community action and collective efficacy, community norms and access to services) and the immediate interpersonal environment (e.g. social norms and peer pressure, support-giving behaviour, as well as interpersonal dialogue and debate) in addition to influencing individual determinants of health (e.g. knowledge and awareness, personal attitudes, self-efficacy, perception of risk, support-seeking behaviour and intention to change) in the behaviour change process."[99]

Hypertension was one of the themes of the Soul City 4 intervention. An extensive evaluation of Soul City 4 was designed to assess the extent to which the series (and its partners) succeeded or failed as a comprehensive health promotion intervention.[100] The results of the evaluation of the hypertension theme[101] showed that it was successful in increasing knowledge and/or awareness of the following statements:

- High blood pressure can seriously harm people if not treated properly.
- You do not only need to take medication for high blood pressure until you feel better.
- You can not feel if you have high blood pressure.
- Where to have one's blood pressure checked.
- People should ask health workers to check their blood pressure every time they visit a clinic or hospital.

Responses from people who did, and did not have contact with a health worker about hypertension during exposure to Soul City suggest that Soul City was an effective substitute for face-to-face communication between people and health care providers regarding accurate knowledge on hypertension. There was also qualitative evidence suggesting that Soul City is associated with hypertension support-giving behaviour over the evaluation period. However, this observation is not supported by quantitative results. There was also evidence to suggest that exposure to Soul City is associated with positive change in intention and its maintenance (to seek information and to have one's blood pressure checked) and in actual behaviour change (having one's blood pressure checked, and in trying to adopt a more healthy lifestyle). However, there was no quantitative evidence of a direct association between Soul City and increased perception of personal risk. Decreases in perception of risk and information-seeking behaviour were observed that might be related to increased knowledge, positive intention and positive actual behaviour associated with exposure to Soul City. Further analysis is necessary to substantiate or refute this hypothesis. Qualitatively, Soul City is associated with increased perception of risk: "new" knowledge that hypertension can affect anyone have been attributed to Soul City."

The Provincial Government of the Western Cape have undertaken a project to reduce the burden of disease and promote equity in health in the Western Cape Province. This project aims to achieve the following objectives:[11]

- "To determine the extent of the burden of disease in the Western Cape Province along with the causes risk factors disaggregated to burden of disease components and suitably prioritised"
- "To determine the extent of the capacity and role of the provincial government and non-governmental organisations and their responses in this regard"

- "To identify and prioritise appropriate interventions to reduce the burden of disease and their associated risk factors, and to construct a framework for reducing substantively the measurable burden of disease"
- "To formulate an approach to the phasing in and scheduling of interventions and activities within a designated time-frame"
- "To enable the monitoring and evaluation of the disease burden and the associated risk factors, and evaluating the performance of interventions which targeted risks over time"
- "To bring about sustainable and continuous reduction of burden of disease over time"

The authors of this project proposed numerous recommendations to reduce the burden of cardiovascular diseases.[102] These recommendations are summarised in Box 2.1 and included LM methods to improve the diets and physical activity and reduce the tobacco and alcohol use of the residents in the Western Cape Province. These authors further propose that immediate action should be taken to:

- "Evaluate food currently sold or provided free at schools in the Western Cape Province"
- "Evaluate the current nutrition (and healthy lifestyle) curriculum taught to children at schools in the Western Cape Province"
- "Determine whether there have been any "healthy lifestyle" interventions in the Western Cape Schools, worksites and communities"
- "Pilot a school-based intervention on healthy nutrition, physical activity and against smoking in the Western Cape"
- "Pilot a healthy nutrition, physical activity and anti-smoking intervention at worksites in the Western Cape"
- "Develop a school-based programme for overweight and obese children"

Box 2.1: Recommendations to reduce the burden of cardiovascular diseases [102]

Recommendations of methods to improve diets

- "Ban advertising of foods during children's programmes on radio and TV, or reduce the market pressure on children by regulating advertising and obtaining cooperation from the mass media and internet providers"
- "Introduce advertising and educational campaigns (multi-media) to promote the increased consumption of fruit and vegetables and the decreased consumption of fat, saturated fats, sugar and salt. Include the development of, and building on to the food based dietary guidelines of the DOH"
- "Ensure that communities have access to healthy and safe foods (food security) – such as food gardens and informal food outlets"
- "Develop and implement a policy for schools on those foods which are allowed to be sold or provided free at the schools – including feeding schemes and tuck shops"
- "Introduce a nutrition and healthy lifestyle curriculum aimed at school children for the prevention of cardiovascular diseases"
- "Ensure that all state facilities provide healthy foods (high in fruit and vegetables; low in salt, sugar and fats to inmates and patients)"
- "Develop a system of incentives for companies who introduce healthy canteens and physical activities for their staff"

Recommendations to improve physical activity

- "Ensure that urban development includes access to areas for physical activity"
- "Introduce advertising campaigns (multi media) to promote physical activity"
- "Introduce a physical activity curriculum aimed at school children for the prevention of cardiovascular diseases"
- "Ensure that all schools have adequate space and facilities for physical activity"
- "Ensure that all communities have access to safe areas where they can be physically active"

Recommendations to reduce tobacco and alcohol use.

- "Increase the price of alcohol and cigarettes"
- "Ban all advertising of alcohol"
- "Introduce a school policy of a smoke free environment"

2.7.2. Changes in the health system

In order to prevent chronic diseases and improve the health of South Africans as well as reduce the barriers experienced by HPs in its public health sector, the South African government has implemented various strategies within its health care system. This includes a District Health System and Decentralisation of health services, the Health Sector Strategic Framework and the Integrated Nutrition Programme.

The District Health System and Decentralisation:[103] In 1994 a national district health system committee was formed with the intention of moving away from a curative system to one based on the PHC approach. The PHC approach is a philosophy which forms the basis of the Alma Ata declaration of 1978 and conceptual model for an ideal health system. It promotes essential health care based on sound methods made universally acceptable and equitable at a cost that is

affordable, with community participation. The PHC philosophy underpins the basic human right to adequate basic nutrition. As a result 'nutrition' has been given a very high priority by the Department of Health (DOH). However, this translates into a high requirement for an adequately trained workforce to implement it in an affordable and sustainable manner.

The Integrated Nutrition Programme (INP):[104] The INP was developed in 1994 to facilitate a co-ordinated inter-sectoral approach to solving nutrition problems in South Africa. It aims to implement programmes which are people and community driven, sustainable and target the most vulnerable people. The programme is grounded in the UNICEF conceptual framework on the basic causes of malnutrition and uses the Triple A Cycle of Assessment, Analysis and Action. The INP has developed specific, broad strategies in order to meet its objectives. Disease-specific nutrition support, treatment and counselling and nutrition promotion, education and advocacy comprise two of these strategies. These strategies require certain levels of nutrition knowledge and expertise to implement at all levels of care. This means that the nutrition directorate and the DOH are faced with the challenge of ensuring that the PHC workforce are up to date and adequately trained to meet the nutritional health needs of the population.

The Health Sector Strategic Framework of the Department of Health (2004-2009):[105] This framework was developed in order to focus on priorities to improve the health of the nation. The key focus of this framework is to improve health status through the prevention of illness and the promotion of healthy lifestyles and to consistently improve the health care delivery system by focusing on equity, efficiency, quality and sustainability. One of the priorities identified by the Health Sector Strategic Framework is that of human resource development. The DOH developed the *National Human Resources for Health Planning Framework* in 2005/2006,[106] in order to address issues related to human resources. As part of this framework, policies / legislation addressing health service delivery have been implemented. These include the following:

- *Policy on Internship*: This policy ensures that newly qualified HPs experience supervised training before they can register in independent practice.
- *Policy on Community Service*: This policy came into operation in 1996. It aimed at ensuring that there is equitable distribution of newly qualified HPs in under-served communities, particularly those in remote rural areas. Despite the implementation of this policy, staffing at rural hospitals remains problematic since there is no guarantee of employment upon completion of the community service. Although community service provides short-term solutions to staffing problems in under-served areas, the development of a long-term retention strategy is necessary.
- *Policies to attract HPs to underserved* communities: These include financial incentives such as a rural allowance, a scarce skills allowance as well as payment of commuted overtime

for HPs. In addition there is also a policy on recruitment and employment of foreign HPs which restricts these HPs to providing services in the public health sector.

- *Policy on Continuing Professional Development*: This was established in 1999 and introduced the principle that all registered HPs must update their skills on an ongoing basis by means of a range of professional development activities. These include conference attendance and participation, publications, self and group study as well as teaching and the acquisition of additional qualifications.

2.8. THE EFFECTIVENESS OF LIFESTYLE MODIFICATION INTERVENTIONS

Studies conducted in the USA, the UK and Canada have compared the effectiveness as well as the cost-effectiveness of LM interventions and pharmacological treatments. Varying results have been reported. In 2002, Knowler *et al*.[107] reported that a lifestyle intervention reduced the incidence of type 2 diabetes by 58% while treatment with metformin reduced the incidence by 31% in non-diabetic persons with elevated fasting and post-load plasma glucose concentrations, thereby concluding that the lifestyle intervention was more effective than pharmacological treatment. In 2005, Herman *et al*.[108] reported similar findings in a cohort of adults (25 years or older) with impaired glucose tolerance. Compared with their placebo intervention the lifestyle and metformin interventions were estimated to delay the onset of type 2 diabetes by 11 and 3 years respectively and to reduce the absolute incidence of diabetes by 20% and 7% respectively. Furthermore from a societal perspective the estimated cost of the lifestyle intervention was $8 800, while the metformin intervention was $29 900 per quality adjusted life years respectively. These authors therefore provided evidence that LM was both more effective and more cost effective than pharmacological treatment. Caro *et al*.[109] reported slightly different findings in Canada in 2004 when they used a model simulating the course of individuals with impaired glucose tolerance. These authors reported that although pharmacological treatments tended to be less costly, intensive LM, if maintained, led to the greatest health benefits. Concurrently Avenell *et al*.[110] conducted a systematic review of the long term effects and economic consequences of treatments for obesity and implications for health improvement. They concluded that low fat diet and exercise interventions are of comparable cost to drug treatments in individuals at risk of obesity-related illness, such as diabetes. Furthermore these authors reported that studies combining low fat diets and physical activity, with or without behaviour therapy, suggested improved control of hypertension and type 2 diabetes. The addition of a behaviour therapy or an exercise programme to diet was associated with improved weight loss for at least 1 year, while the latter was additionally associated with improved risk factors for at least 1 year.

A review of more than 300 interventions for the prevention of cardiovascular diseases that have been undertaken globally since 1995 found that very few programmes were located in developing countries and that none of those published were from sub-Saharan Africa. Numerous successful

sustainable and cost-effective interventions, however, have the potential to be used in sub-Saharan Africa as well as other developing countries. These interventions were conducted in various settings including, schools, worksites, universities, churches, communities and PHC facilities. For the purposes of this literature review examples of interventions will be limited to those conducted in PHC facilities. Tables 2.4 and 2.5 provide examples of successful and unsuccessful interventions in PHC facilities respectively.

Key factors in successful interventions include the following:[102]

- Physician-endorsed advice to patients generally yield better results.
- Consultations by a dietitian with follow up is generally effective in inducing behavioural change.
- Consultations and follow up with nurses also yield beneficial outcomes.
- Intervention based on the stages of change model yielded the best behavioural outcomes.
- The use of motivational or negotiation methods of interviewing appeared to be effective counselling methods.

On the other hand, Tripp Reimer *et al.*[111] concluded that there are three key reasons why diet therapy in diabetes has been less than successful among ethnic groups. These include:

- The dietary goals have not been clearly articulated.
- Dietary recommendations have been unrelated to patients' cultural and economic situations.
- Dietary recommendations have been represented in ways that are difficult for patients with low literacy to understand and implement.

Although there is paucity of LM interventions in developing countries, especially African countries within the published literature, the few studies available report similar results regarding the effectiveness of LM. Table 2.6 summarises the findings from LM interventions as well as interventions to improve patient care in developing countries.

Table 2.4: Successful interventions in PHC settings

Interventions	Outcomes	Policy Implications	References
WATCH-Worcester Area Trial for Counselling in Hyperlipidemia -Massachusetts, USA -Adults in upper 25th percentile cholesterol at first meeting (n=1162 at baseline & exit interviews with n=325) -Intervention 1 year (4 visits) & follow up at 1 year -Aimed at decreasing fat & SF intake and LDL-C ***Intervention:*** -45 Primary care physicians trained to do the intervention: -Physicians in groups 2 & 3 received a 3-hour training -Usual care -Physician nutrition counselling care -As for 2) and included office care support	**Behaviour:** Group 3 reported a 10.3 % decrease in SF intake. Condition 3 physicians demonstrated significantly greater implementation of the nutrition counselling sequence **Clinical Markers:** Significant decreases in weight, triglycerides & total C-HDL ratio in group 3.	Overall the study showed that brief supported physician nutrition counselling can produce beneficial effects in diet, weight and blood lipids. However training of physicians alone was not sufficient to bring about significant changes.	*Ockene et al. 1996* [112] *Ockene et al. 1999* [113]
WATCH-Worcester Area Trial for Counselling in Hyperlipidemia -Massachusetts, USA -Adults in upper 25th percentile cholesterol at first meeting (n=1162 at baseline) -4 Sessions evaluated after 1 year -Aimed at decreasing fat & SF intake and LDL-C ***Intervention:*** -2 Group & -2 Individual sessions conducted over 6 weeks by a dietitian.	**Behaviour:** Significant reductions in saturated (22%) and total fat intake (8.2%) for patients attending at least 3 sessions **Clinical Markers:** Significant reductions in LDL-C (0.48mmol/L and body weight (4.5 kg) in group 3	This intervention shows the effectiveness of a dietitian-delivered intervention in the care of patients with hyperlipidaemia. These effects were additive to those of the physician-delivered intervention.	*Herbert et al. 1999* [114]
Nutrition Counselling in General Practice -Australia -Adults with overweight, hypertension or diabetes; n=273 -12 Month intervention -Aimed at improving diet of patients ***Intervention:*** -One arm(Gp1) dietitian provided counselling over 6 sessions -One arm dietitian with doctor (Gp2)gave counselling of 6 sessions -Control group	**Clinical Markers:** Group 2 lost 6.7kg at a cost of $A9.76 per kg and Group 1lost 5.6kg at a cost of $A 7.30per kg. Higher weight loss found in those who attended all sessions. Both groups also significantly improved BP	This study showed that general practitioners with a dietitian could produce significant weight and blood pressure improvements with health promotion methods.	*Pritchard et al. 1999* [115]

Behavioural Counselling on Fruit and Vegetable Consumption -Inner city, UK -Adults; low income (IG=169 CG=351) -Intervention over 2 weeks & post-test at 4 months & 12 months -Aimed at increasing F & V intake & reducing fat intake (also other CVD risk factors) ***Intervention 1:*** -2-3 x 20 Minute behavioural counselling consultations over 2 weeks by active nurses -Active control group received nutrition counselling. -Intervention group received behavioural counselling founded on social learning theory and the stages of change model. ***Intervention 2:*** -2 x 20 Minute behavioural counselling consultations over 2 weeks by research nurses -Active control group received nutrition counselling. -Intervention group received behavioural counselling founded on social learning theory and the stages of change model.	**Knowledge & Attitudes:** Odds of moving to action/maintenance for fat reduction were 2.15 times in IG. **Behaviour:** Significant improvements in the IG for dietary fat intake, regular PA & smoking cessation at 4 & 12 months. IG increased F & V by 1.5 portions/day vs 0.87 in CG ($p<0.05$) at 12 months. The proportion eating 5 F & V per day increased by 42% in the IG Significant decreases in smoking prevalence **Clinical Markers:** No differences were found between groups for serum cholesterol, BMI, DBP. Systolic pressure was reduced at 4 months but not at 12 months. There were no significant changes in body weight, BMI, blood pressure or serum cholesterol at 12 months B-carotene & tocopherol increased in both groups but most in IG.	Consultations by nurses who were trained over 3 days by psychologists. This may be feasible in any PHC centre where nurses work except that it would increase their workload. Behavioural intervention for fat reduction was particularly effective for patients in pre-contemplation and contemplation stages at baseline.	*Steptoe et al. 1999* [116] *Steptoe et al. 2003.* [117] *Steptoe et al. 200l* [118]
Health Lifestyle Pattern –Secondary Data Analysis of The Eating Patterns Study -Puget Sound, Seattle, USA -Adults (IG=1010; CG=1111) at 12 month follow up from 29 physician's practices. -Once off intervention with a 12 months follow up visit -Aimed at increasing dietary fibre intake and decreasing fat intake. ***Intervention 1:*** -Physician provided self-help booklet and a brief endorsement/ motivational message on diet. -A reminder letter sent by physician two weeks after intervention. -Booklet developed on basis of social learning theory. ***Intervention 2:*** -Participants were grouped into 6 lifestyle patterns according to diet, alcohol, PA & smoking status	**Knowledge & Attitudes:** Intervention effect for fat & fibre score was greater in the group at the action or maintenance stage **Behaviour:** Significantly greater intervention effect for % fat, fat and fibre scores in the IG vs CG at 12 months. Intervention was most effective for the most physically active and least effective for the high risk behaviour individuals. Clients in the *fitness & good diet groups* made the most significant changes for fat and fibre intake **Clinical Markers:** Decreased total cholesterol though not significant different to control No change in BMI in either group.	Low intensity intervention which could be incorporated into routine delivery of healthcare. Process evaluation indicated that only about 50% of patients received the booklet from their physician, the remainder from other clinic staff. Overall 93% reported reading at least part of the booklet.	*Beresford et al.1997* [119] *Lazovich et al.2000* [120] *O'Halloran et al. 2001* [121]

Fruit and Vegetable Trial -Thame, Oxfordshire, UK -Healthy 25-64 year olds (IG=344 CG=346) from 2 general practices in a health centre -Intervention 6 months with post-test -Aimed at increasing fruit and vegetables to at least 5 daily ***Intervention:*** -Comprised of 2 sessions -Individual counselling by a nurse with leaflets and other materials given as needed. -Telephone follow up at 2 weeks -Mail (booklet and checklist) at 3 months The intervention approach was based on the brief negotiation method.	**Knowledge & Attitudes:** The intervention was effective in promoting stages of change. Significantly greater changes were reported in groups at all 3 different stages **Behaviour:** Fruit and vegetable consumption increased by a mean of 1.4 portions vs 0.1 portions in the control group (p<0.0001) **Clinical Markers:** Plasma concentrations of &-carotene, b-carotene, lutein, b-cryptoxanthin & ascorbic acid increased significantly more in the IG. Diastolic and systolic blood pressure decreased significantly more in the IG	Nurses conducted the trial and were trained in the brief negotiation method. Overall this intervention can be regarded as being reasonably cost-effective since the clients only have 2 visits and individual counselling is at a minimum. Women reported that children & men partners were obstructive to their attempts to eat more F & V, whilst men reported that women were supportive of the change.	*John et al.2002* [122] *John et al. 2003.* [123] *John & Ziebland 2004* [124] *for qualitative study of barriers*
Women's Health Initiative Dietary Modification Trial (WHIDM) plus Motivational Interviewing -USA -At 3 clinical centres -Post menopausal women participating in the WHI Dietary Modification Intervention (IG= 82; CG= 82) -5 Month intervention & post-test after 12 months -Aim was to test an added intervention component based on motivational interviewing to decrease fat intake ***Intervention:*** -Three individual motivational interviewing contacts in person or by phone from a dietitian plus the usual WHI dietary intervention. -Theory based on stages of change	**Behaviour:** %E from fat between baseline and 1year follow-up decreased by -1.2% in IG while it increased by 1.4% in the CG	Difficult to implement outside of a research setting, especially in developing country settings. Very labour intensive with trained dietitians. Study can't really be generalised to ethnically diverse or impoverished groups.	*Bowen et al. 2002* [125]
Women's Health Initiative Dietary Modification Trial (WHIDM) -USA -Menopausal women (IG=5004, CG=7426) aged 50-79 years from 40 clinical centres across USA -8 Year intervention-2 year results -Aimed at decreasing fat (<20%E) and increasing F &V intake. ***Intervention:*** -18 Group sessions in first year followed by group maintenance sessions once every three months by nutritionists -Additional sessions with dietitian when non compliant with goals. -Theory based on motivational interviewing	**Knowledge & Attitudes:** Adherent women were more likely to report assertiveness, a life-long commitment to reduced dietary fat, satisfaction with lifestyle changes & having applicable knowledge & skills **Behaviour:** IG reduced fat by 24.3g/d compared with CG	Trained nutritionists run intervention sessions which make it costly. Race and ethnicity differences observed in food selections which highlights the importance of designing culturally appropriate interventions. See also comments below.	*Patterson et al. 2003* [126] *-2 year results* *Kearney et al. 2002* [127] *for influences on adherence to WHIDM* *Hopkins et al. 2001* [128] *for predictors of dietary maintenance* *Langer et al. 2003* [129] *&* *Ritenbaugh et al. 2003* [130] *for baseline findings* *Anderson et al. 2003* [131] *for implementation*

Women's Health Initiative Dietary Modification Trial -USA -Menopausal women (IG=19 541; CG=29 294) aged 50-79 from 40 clinical centers -5 Years of 8 year intervention -Aimed at reducing diet to a low-fat (<20%), high-fibre, high F & V dietary pattern ***Intervention:*** -18 group sessions in year 1 followed by quarterly annual maintenance sessions. -Self-monitoring of dietary intake -Theory based on stages of change	**Behaviour:** Control – Intervention group differences at 1 and 5 years respectively; % energy from fat 10.9 & 9.0; F&V -1.2 and -1.3 servings/day; grains -0.8 & -0.5 servings/day **Clinical Markers:**	Used a Special Populations Advisory Committee to make intervention culturally appropriate. Group sessions attendance was strongly associated with poorer adherence as were low income, being African American or Hispanic, being older and being obese.	*Patterson et al. 2003* [132] *Patterson et al. 2004* [133]
Women's Health Initiative Dietary Modification Trial -USA -Menopausal women (IG=19 541; CG=29 294) aged 50-79 from 40 clinical centers -5 Years of 8 year intervention -Aimed at reducing diet to a low-fat (<20%), high-fibre, high F & V dietary pattern ***Intervention:*** -18 group sessions in year 1 followed by quarterly annual maintenance sessions. -Self-monitoring of dietary intake -Theory based on stages of change	**Behaviour:** Dietary fat intake was significantly lower in IG (8.1% at year 8). F & V consumption was significantly higher in the IG (by at least 1 serving per day) **Clinical Markers:** There were no significant differences in breast cancer, colorectal cancer or CVD after 8 years intervention. The authors recommend having a more focused diet and lifestyle plan. However there was a *significant difference in weight* between the groups	It needs to be recognised that this was a very comprehensive and extensive study which required large capital and human resources. This may not be an option in developing countries.	*Beresford et al. 2006* [134] *Prentice et al. 2006* [135] *Howard et al.2006* [136] *Howard et al. 2006* [137]
Oxford Fruit & Vegetable Study -Oxfordshire, UK -Healthy adults (IG= 70; CG= 58) aged 25 to 64 years. -2 Consultations 6 months apart & follow up -Aimed at increasing F&V intake to at least 5 portions/day ***Intervention:*** -Nutrition education by a brief negotiation model done by a trained research nurse	**Behaviour:** IG increased F& V intake by 1.4 portions per day at 6 months with no change in the CG **Clinical Markers:** No change in plasma flavonol concentrations.	Interviews done by trained nurses. The outcomes need to be measured in the long term.	*Huxley et al. 2004.* [138]

Table 2.5: Unsuccessful interventions in PHC settings

Interventions	Outcomes	Policy Implications	References
Physician Recommendations for Dietary Change -Washington State, USA -Adults (n=395) who had received physician's recommendations in the past year reported their experiences -Study was aimed at determining the number & content of patients who had received physician's recommendations for dietary change in the previous year and whether receiving recommendations was associated with changed dietary habits.	**Knowledge & Attitudes:** Patients who received advise were more likely in the maintenance stage of dietary change. **Behaviour:** After adjustment for age and history of chronic disease there were no significant differences in any measure of current dietary behaviour. However, those who received advise were more likely to report decreased use of high fat foods & increased use of high fibre foods	The use of a physician as a source of recommendations did not appear to make significant changes in dietary intake.	*Hunt et al. 1995* [139]
NC WISEWOMAN Project (Well Integrated Screening and Evaluation for Women across the Nation): CVD Risk Factor Intervention in Low-income Women -North Carolina, USA -Women (IG=721, CG =742) from 14 health departments. -Women >=50 years; low income; majority at least 1 CVD risk factor -6 Month intervention, revaluated at 6 &12 months -Aimed at reducing CVD risk by reducing fat & cholesterol intake ***Intervention:*** -Expanded established cancer screening programme -3 Counselling sessions on diet and PA using an assessment and counselling programme designed for low literacy and low income patients. -Also tailored and culturally appropriate. -CG usual care given -Based on social cognitive theory, trans theoretical model and basic behaviour modification principles	**Knowledge & Attitudes:** **Behaviour:** Diet score summarising fat and cholesterol intake improved significantly by 2.1 points compared with no improvement in the CG. **Clinical Markers:** Changes in total cholesterol, HDL, DBP and BMI in IG but not significantly different to CG.	The "New Leaf Programme" adapted to be used by a variety of HPs with limited training in nutrition.	*Rosamond et al. 2000* [140]
EatSmart: Preventive Nutrition Intervention in Clinical Practice -Harvard, USA -Adult PC patients; IG= 195 (28 PC providers); CG=252 (50 PC providers) from 6 group practices -3 Month intervention – one provider visit and phone follow up at 2 weeks and 2 months -Aimed at increasing F & V and decreasing fat intake ***Intervention:*** -Personalized recommendations and stage matched educational booklets -Provider endorsement of recommendations (nurses or physicians) -2 Motivational interviewing counselling sessions by telephone. Consultation with nutritionist available if needed -Phone counsellors were trained Masters public health students. Booklets written by a dietitian -Stages of change theory used	**Behaviour:** IG had 0.6 servings/day higher intake F & V than CG. No changes in red meat & dairy products	Provider input does not require large amount of time due to other support systems such as mail outs and phone calls. May be difficult to implement in developing setting due to cost and expertise factors.	*Delichatsios et al. 2001* [141] *Hunt et al. 2001* [142] *for process evaluation*

Table 2.6 Interventions in developing countries

Interventions	Outcomes	References
Indian Diabetes Prevention Programme -India -prospective randomised control trial in urban Asian Indian 531 (421 men 110 women) subjects with impaired glucose tolerance -aimed to compare the effectiveness of LM to metformin as well as LM and metformin. -4 groups -Group 1 was the control, -Group 2 was given advice on lifestyle modification (LSM), -Group 3 was treated with metformin (MET) -Group 4 was given LSM plus MET	The cumulative incidence of diabetes in the control group was 55%, however, it was significantly lower in all three intervention groups. LM and metformin significantly reduced the incidence of diabetes in this population, however, there was no additional benefit seen by combining metformin with LM.	*Ramachandran et al. 2007* [143]
The Chennai Urban population study -Chennai, India -education regarding the benefits of physical activity provided by mass awareness programmes like public lectures and video clippings	Residents constructed a unique public park with their own funds. Significant change in physical activity patters. At baseline, only 14.2% of the residents did some form of exercise more than three times a week, which increased to 58.7%. The number of subjects who walked more than three times a week increased from 13.8% at baseline to 52.1% during follow-up. This study provides evidence of how community empowerment can promote physical activity which could lead to prevention of diabetes and other NCDs.	*Mohan et al. 2006* [144]
The Pasos Adelante or Steps Forward programme -border counties between the United States and Mexico -community-based intervention -primary prevention of chronic diseases for at risk populations -12 week programme facilitated by community health workers -interactive sessions on chronic disease prevention, nutrition and physical activity.	The programme has an 87% completion rate, with a 120 min median increase in physical activity minutes per week and 4 serving increase in fruit and vegetables per week. This programme demonstrated that an educational curriculum facilitated by community health workers can motivate people in the community to adopt healthy lifestyle behaviours such as increasing moderate to vigorous walking as well shifts in nutritional patterns.	*Staten et al. 2004* [145]
Effect of General Practitioner Education on Adherence to Antihypertensive Drugs: Cluster Randomised Controlled Trial - Karachi, Pakistan - impact of a simple educational package for general practitioners on adherence to antihypertensive drugs -Randomized controlled trial. -Intervention-Care by general practitioners specially trained in management of hypertension compared with usual care. -Primary outcome-correct dosing, defined as percentage of prescribed doses taken, measured with electronic medication event monitoring system (MEMS) bottle. -A total of 200 patients (38% men; mean age 55 years) were enrolled, and 178 (89%) were successfully followed up at six weeks	Adherence was higher in the special care group compared with the usual care group (unadjusted mean percentage days with correct dose 48.1% versus 32.4%). Blood pressure lowering was greater in the patients who adhered to treatment. Key patient related factors that influenced higher adherence were educational status, encouragement by family members to take the drug and belief in the effect of drugs. The key physician related factor was explanation of the purpose of the drugs. The findings underline the importance of appropriate communication about treatment strategies between the physician and the patient in improving adherence. Notable, a simple intervention for physicians was found to increase adherence substantially in a setting with very low hypertension treatment and control rates, indicating the fact that low cost educational programmes for healthcare professionals could potentially be useful in improving hypertension treatment rates and related outcomes. Given that many hypertensives in developing countries also come in regular contact with non-physician HPs such as nurses, pharmacists and health workers, educating them as well could be an additional strategy to further improve adherence to hypertension treatment.	*Qureshi et al. 2007* [146]

Community based nutrition and exercise programme -Costa Rica -group-centred public health intervention addressing nutrition and exercise in the improvement of glycaemic control and associated cardiovascular risk factors in type 2 diabetic patients -A total of 75 adults with type 2 diabetes, mean age 59 years, -All participants received basic diabetes education. -Intervention group participated in 11 weekly nutrition classes (90 min each session). Subjects for whom exercise was deemed safe also participated in tri-weekly walking groups (60 min each session).	The intervention group lost 1.0 +/- 2.2 kg compared with a weight gain in the control group of 0.4 +/- 2.3 kg (P = 0.028). Fasting plasma glucose decreased 19 +/- 55 mg/dl in the intervention group and increased 16 +/- 78 mg/dl in the control group (P = 0.048). HbA1c decreased 1.8 +/- 2.3% in the intervention group and 0.4 +/- 2.3% in the control group (P = 0.028). This pilot study provides an economically feasible model for programmes that aim to improve the health status of people with type 2 diabetes.	*Goldhaber-Fiebert et al. 2003* [146]
An educational intervention to improve quality of care of diabetic patients **-**Pretoria Academic hospital, South Africa -Diabetes attitude scale; -Diabetes practice scale -Interventional education sessions on diabetic care	A short educational intervention resulted in an improvement in attitude, knowledge and clinical management of diabetic patients	*Oosthuizen et al. 2002* [148]
Impact of a structured medical record card on glycaemic and blood pressure control among diabetic patients at PHC clinics. -South Africa -Design of a structured diabetic record card for inclusion into patients' folders in order to record all clinic visits, tests and examinations performed, medication prescribed and education sessions conducted over the period of one year.	Post intervention the number of patients with poor long term glucose control (HbA1c > 9%) dropped from 47.3% to 40%, while the number of patients with a compromised blood pressure reading > 160/95mmHg decreased from 47.3% to 16.4%. These authors concluded that the use of this card facilitated blood pressure and glycaemic control of diabetic patients.	*Reddy et al. 2004* [149-150]
Knowledge about diabetes and metabolic control in diabetic patients -Sri Jayawardenepura General Hospital, Sri Lanka -A randomised controlled clinical trial in patient education -Two groups of diabetic patients matched for age, gender and duration of diabetes were allocated randomly to conventional care at general medical clinics or to a diabetes clinic where specific educational objectives were defined and patients trained to achieve these objectives.	The patients attending the diabetic clinic showed significant improvement in both knowledge scores (67% vs 34%, $p < 0.01$) and mean fasting blood glucose 6.38 +/- 0.85 mmol/l vs 9.7 +/- 1.7 mmol/l, $p < 0.01$) at 6 months. Diabetes education improves patient knowledge and diabetes control.	*Fernando DJ 1993* [151]
Coronary risk factor study (CORIS) -3 rural towns, South Africa -community based hypertension control intervention -2 intervention towns and 1 control town -Intervention model: blood pressure (BP) station for hypertension screening. Hypertensive patients invited to return monthly for blood pressure monitoring and lifestyle modification advice. Uncontrolled hypertensive patients were referred to a doctor. -Two levels of intervention 1)high intensity intervention (HII) - (active follow up: N = 2278) and 2)low intensity intervention (LII) - (no active follow up: N = 2620). Control group: N = 2290) - low intensity intervention: 3 year small mass media programme - high intesity intervention: an additional interpersonal intervention	Net decrease in systolic BP in the LII town was 0.5 ± 2.2mmHg for men (4.5 ± 2.2mmHg for women), while it was 5.6 ± 2.3mmHg for men (7.5 ± 2.2mmHg) in the HII town. The net decrease in diastolic BP was 3.4 ± 1.2mmHg in men (4.4 ± 1.1mmHg) in the LII town while it was 6.1 ± 1.2mmHg for men (5.9 ± 1.1mmHg) in the HII town. Decreases in mean BP were accompanied by marked increases in the proportion of hypertensive patients on drug treatment and the proportion under control. The CORIS programme successfully reduced the risk for CVD in the intervention towns compared with the control town. In the HII town knowledge improved by 8.1% in males and 7.5% in females, while it improved by 7.1% and 6.5% in men and women respectively in the LII town compared to 5.5% and 4.8% in mean and women respectively in the control town. Diet knowledge improved more than risk knowledge and females scored highest.	Steyn *et al.* [152] Langenhoven *et al.* [153]

2.9. HEALTH PROFESSIONALS AS LIFESTYLE MODIFICATION EDUCATORS

Even though it has been shown that health promotion and LM counselling is effective in the prevention and management of NCDs, as of July 2007 there were only 1709 dietitians registered with the Health Professions Council of South Africa of which fewer than 600 dietitians were employed in the public health sector. Essentially, there are too few experts in diet and physical activity to provide specialised LM education and counselling to the South African population. Similarly there are very few trained smoking cessation counsellors available at PHC facilities. Patients are more likely to be in contact with HPs such as doctors, nurses and health promoters at PHC facilities, than with dietitians or smoking cessation counsellors.

The possibility therefore exists that these HPs could serve as LM educators at PHC facilities. Before proposing this though, the following questions should be raised:

- Firstly, are there opportunities to provide LM education and counselling at PHC facilities?
- Secondly, do HPs at these facilities have the capacity, in terms of their knowledge attitudes and practices, to provide LM education and counselling to patients?
- Thirdly, what are the factors that facilitate or impede the provision of LM education and counselling in a PHC environment?

2.9.1. Are there opportunities to provide lifestyle modification education and counselling at Primary Health Care facilities?

2.9.1.1. Opportunity to provide LM education and counselling

There is a large body of evidence that has proposed the use of HPs such as doctors, nurses and pharmacists as LM educators in developed countries. These studies have shown that the opportunity for LM education and counselling exists in PHC. In the UK, 98% of the population is registered with a general practitioner through the NHS and access is free.[154] Furthermore, these studies have shown that more than 25% of all visits to PHC providers are nutrition-related and that diet is raised as a topic for discussion in 14-28% of consultations.[154--156] The situation in Spain presents similarly where doctors reported that more than 42% of their patients required nutritional advice.[157] Furthermore, the demand for nutrition related advice is expected to increase as a result of the improved life expectancy of elderly patients with CDL.[158]

In South Africa, 80% of the population use the PHC services and thus overweight or obese diabetic and hypertensive patients with poor glycaemic and/or blood pressure control, commonly receive their treatment at PHC facilities.[159] This confirms findings from other studies that HPs in a PHC environment are therefore perfectly positioned to provide LM education and counselling to CDL patients.[156, 158, 160-161]

2.9.1.2. Publics' perception of HPs

The public regard HPs as a reliable and valued source of information. Kolasa[155] and van Dillen *et al*.[162] reported that patients identified their doctors as the most reliable and valued source of nutrition information, while Hiddink *et al*.[156] stated that patients perceive doctors to be the most credible source of health information and after the media, the source most often used. A study undertaken by Serra-Majem[163] in Spain, showed that 80% of study participants perceived GPs to be the most reliable source of nutrition information, followed by nurses and dietitians (52%), pharmacists (50%) and mass media (38%). Butrriss[164] conducted a study in the UK in which she reported that although patients obtain most of their nutritional information from the media, they assign a low credibility to this information and 53% of patients stated that their doctor was their most trusted source of information. In addition Pelto *et al*.[165] writes that the credibility that HPs are typically assigned suggests that LM advice delivered by these HPs may be particularly persuasive.

2.9.1.3. Efficacy of HPs as educators

An additional incentive for advocating HPs at PHC facilities as LM educators is the fact that studies have reported that counselling provided by HPs is effective in inducing LM. Westa *et al*.[166] evaluated smoking cessation interventions and reported that approximately 40% of smokers in the UK made an attempt to quit in response to advice from HPs. Furthermore they showed that smoking cessation interventions delivered through the National Health Service are an extremely cost effective way of managing CDL. HPs, specifically general practitioners (GPs), are generally involved with patients over a long period and thus have the advantage of continuity of care, which implies that a GP's advice on LM will not be a single event but can occur on suitable occasions over a long term.[158] It has been reported that patients who successfully stop smoking mentioned that counselling by their health providers provided important motivation for them to do so.[167] Furthermore, Harris *et al*.[168] showed that most people reported that they would more likely engage in health promoting behaviour if the recommendation came from their GP rather than any other source. With regard to physical activity, a survey in Canada showed that 23% of patients cited a GP's recommendation as a significant reason for being active. Allen *et al*.[169] reported that recommendations from physicians are more likely to influence patients' lifestyle than those from any other source. Truswell *et al*.[154] reported on findings from a PhD at the University of Exeter in which advice by a GP was as effective as that of a dietitian. The GP spoke to patients, used broad, simple principles and avoided detail, taking 10 minutes, while the dietitian used more detailed advice in consultations that lasted for 30 minutes. Lancaster and Stead[170] supported these findings when they conducted a review in which they reported that brief simple advice from doctors about smoking cessation increased the likelihood that a smoker would successfully quit and remain a non-smoker 12 months later. Peiss *et al*.[171] further confirmed these findings when they reported that PHC doctors and nurses using less time than dietitians, could be as effective as they were in providing patient education for coronary risk reduction. Kreuter *et al*.[172] reported that doctors also

have a priming effect on patients' ability to change their behaviour. Printed materials designed to encourage patients to modify their lifestyles were made available to patients. These authors reported that the patients who received advice on LM prior to receiving the intervention materials were more likely to attempt to quit smoking and make changes to their diets and physical activity levels than the patients who did not receive advice from the doctor prior to receiving the intervention materials. In 2003, Egede[173] further supported these findings when he showed that a physician's advice appears to be effective in changing hypertension-related lifestyles in people with diabetes regardless of age or ethnicity.

There is minimal evidence in the published literature regarding the efficacy of HPs as providers of LM education and counselling in developing countries. Gill *et al.*[174] reported implementing a nurse-led community based care system in rural KwaZulu Natal in South Africa, which utilised empowerment-based education to patients. On average baseline HbA1c levels were 11.1 +/- 4.2%, at 6 months it had decreased to 8.7+/- 2.6% and at 18 months a further reduction to 7.9 +/- 2.2% occurred. Thus these authors concluded that nurse-led care of diabetic patients can be highly effective in rural Africa.

Therefore, not only are HPs effective in educating patients about LM, they can also be effective in increasing patients adherence to pharmacological treatment. Qureshi *et al.*[146] conducted a study in Pakistan in which they showed that appropriate communication about treatment strategies between physicians and their patients improved adherence to medication and resulted in better blood pressure control in these patients.

HPs at PHC facilities have the opportunity to reach a large proportion of patients in a given population and they are thus ideally positioned to provide LM education and counselling to them. Furthermore, patients value information they receive from HPs and are more likely to engage in LM when they receive recommendations from their HPs.

2.9.2. Do health professionals at Primary Health Care facilities have the capacity, in terms of their knowledge, attitudes and practices, to provide lifestyle modification education and counselling to patients?

Evidence regarding the efficacy of HPs as LM educators has been presented. However, the capacity of these HPs to provide LM still needs to be investigated. Doctors and nurses have less basic training in the areas of nutrition and physical activity, and therefore the need to determine their knowledge on LM exists. Furthermore, HPs attitudes as well as their practices regarding the role of LM in the prevention and management of CDL also needs to be established.

2.9.2.1. Knowledge

Once again there is an abundance of literature from developed countries that have focused on determining HPs knowledge regarding LM. These studies have shown that GPs are more knowledgeable about information distributed via the medical press than they are of other less publicised topics on nutrition.[175-177]

Moore *et al*.[178] conducted a nutrition knowledge survey in PHC facilities in North East England and reported that 65% of the questions were answered correctly by most HPs. A survey of nutrition knowledge of Canadian physicians conducted between 1992-1993, showed that 73% of GPs scored between 50 – 75%, with the remainder equally divided between a lower (44% or less) and higher (81% or more) score.[175] Similar results were reported in a study conducted by Mlodinow *et al*.[176] where he assessed the nutrition knowledge of family doctors and internists in San Diego, California and showed that knowledge scores ranged from 46.8% - 89.3%, averaging 69.2%. He also reported that there was no significant difference in the scores obtained by physicians and those achieved by internists. Conversely, when Podell *et al*.[177] conducted his study comparing clinical nutrition knowledge of physicians and medical students he found that the practicing physicians scored modestly lower (44%) than the medical students (51%) in New Jersey, USA, thus providing further evidence that these HPs have a low level of clinical nutrition knowledge.
Similar results were achieved in 2002 when a survey was conducted in Cape Town, South Africa among GPs at a small number of public health facilities and interns at Groote Schuur Hospital.[179] In this survey, only 3% of all respondents obtained a knowledge score of more than 75%. The majority scored between 50 – 70% and 31% scored less than 50%. However, it is important to note that the questionnaire used in the Cape Town study and many of the international studies were not validated. During a questionnaire validation study also conducted in Cape Town, Talip *et al*.[180] showed that although LM knowledge was not ideal in both groups, doctors achieved higher scores than medical students.

Knowledge surveys have also been conducted in other developing countries however, these surveys focussed on the diagnosis and screening of hypertension and diabetes more so than they do on LM or nutrition knowledge. Al-Kashman[181] reported that doctors in PHC facilities in Saudi Arabia displayed poor knowledge of screening for hypertension, while Shera *et al*.[182] reported that doctors in Pakistan answered 62% of questions relating to diagnosis, treatment and complications of diabetes correctly. Questions that were answered correctly by less than 50% of doctors were related to diagnostic blood values of glucose, treatment of children with diabetes, pregnant diabetics and technique of insulin injection. Conversely the questions regarding the diagnosis of impaired glucose tolerance, insulin in pregnancy, importance of education in diabetics and diabetes screening, complications and management were answered correctly by more than 50% of doctors.

Similar results were reported by Sengwana *et al*.[183] when they explored the attitudes, beliefs and perceptions of community health workers (CHWs) about hypertension in an informal settlement (Khayelitsha) in South Africa. The role of CHWs is becoming increasingly important in health promotion as they can facilitate reducing the prevalence of hypertension by influencing communities to adopt healthy lifestyles. The authors further assessed the CHWs basic knowledge about causes, prevention and control of hypertension and discovered that CHWs have insufficient knowledge on these topics. Many CHWs believe in traditional medicines and home-brewed beer as the best treatment for hypertension. They also believe that people who take medical treatment become sicker and that their health deteriorates rapidly. However, a positive outcome of these results were indications that CHWs were familiar with the risk factors for hypertension since they mentioned lack of physical activity, consuming salty and fatty food as well as inheritance (family history) as risk factors.

Studies reveal that there are important gaps in the nutritional knowledge of both doctors and nurses in developed as well as developing countries. Although knowledge of certain nutritional concepts is sound, most HPs experience difficulty when trying to translate these concepts into practical information and advice to patients. Butriss[164] reported that patients in the United Kingdom had been informed regarding fibre and starchy foods, however, very few patients were able to identify examples of each. In 2004, Hankey[184] reported results from a study conducted in Scotland regarding HPs' knowledge on obesity, nutrition and weight management. His results confirmed that HPs have some knowledge of nutrition and weight management but are unclear on how to deliver effective weight management advice to patients. Ezenwaka *et al*.[185] assessed the theoretical knowledge of diabetes control and risk factors of patients attending PHC facilities in Trinidad. Their results showed that although these patients were well informed regarding these issues, most patients still displayed poor metabolic control. They therefore stated that application of patients' theoretical knowledge in controlling their diabetes is doubtful.

In 2001 Barrat[186] reported that there was little difference in LM knowledge between HPs and the general population in Derbyshire, UK, as both groups achieved low scores. This is obviously of concern. Although the public regards HPs as reliable sources of nutrition information, there is still a definite knowledge gap among these HPs. As a result, even though they are sceptical and critical about the accuracy of the information presented, HPs also turn to the media for advice on nutrition.[164]

In 2003 Truswell *et al*. reported discussions held during 2001 at the Third Heelsum International workshop on nutrition guidance of family doctors towards best practice.[187] At this workshop,

participants identified the following recommendations for the essential nutrition knowledge that HPs should have:

- "Know and use available resources"
- "Know where to research"
- "Know a good dietitian"
- "Know the principles of diet for coronary heart disease, diabetes, nutrition for infants and the elderly and obesity"
- "Do not forget to ask about alcohol intake".
- "Know about the cultural aspects of diet (eg, Ramadaan)"
- "Measure weight routinely, derive BMI and inform the patient what it means"
- "Have the tools for assessing the patient's present diet"
- "Be able to translate dietary guidelines into foods"
- "Have a copy of ABC of Nutrition or equivalent resource"

2.9.2.2. Attitudes

Studies in developed countries have examined HPs attitudes regarding LM education and counselling in addition to the role LM plays in the management of CDL. Conflicting evidence regarding HPs attitudes exists.[168, 178-179, 188-191]

Some studies have shown that HPs have a positive attitude toward the role of LM in the management of CDL. Cornuz *et al*.[188] explored attitudes of physicians in Switzerland towards prevention, in which they showed that the majority of HPs acknowledged the general importance of preventive health strategies while all HPs acknowledged it as one of their responsibilities. Douglas *et al*.[192] and Moore *et al*.[178] echoed these findings when they reported that HPs in Scotland and England agreed that health promotion was an important part of their work and that promoting physical activity and nutrition respectively were key factors in primary care. Similar findings were reported by Brown *et al*.,[193] LeTouze *et al*.[194] and Cade *et al*.[195] in the UK, and by Wilt *et al*.,[196] Levine[197] and Ienatsch[198] in the USA and by Jallinoja *et al*.[199] in Finland. However, Harris *et al*.[168] reported that although physicians believe that exercise is an important health promoting behaviour, they do not assign a high priority to it. This was demonstrated by a survey conducted in Maryland, USA in which HPs ranked engaging in exercise 19th in importance out of 25 health promoting behaviours.

Conversely, studies have reported that HPs have a negative attitude regarding the role of LM in the management of CDL.[200-201] Brotons *et al*.[190] conducted a study among doctors in 10 European countries, in which they indicated that more than half the doctors were sceptical about helping patients achieve or maintain normal weight. Similar results were obtained by Grant *et al*.[202] in Canada where 48% of PHC doctors believed that dietary change has little effect and more than

half stated that interventions for obesity have limited effect. Despite recommendations in medical treatment protocols to use dietary intervention as the primary treatment for several CDL, Shai[191] reported that doctors in Israel did not rate nutritional treatment as the most important treatment for these conditions.

There is scant evidence for HPs attitudes regarding the role of LM in CDL management in developing countries however, the available evidence also shows conflicting HP attitudes. Wang *et al.*[189] conducted a study among 948 physicians and specialists in China in which they reported that one half to two thirds of these HPs did not believe that LM reduces blood pressure, while Al-Khashman[181] reported that HPs in Saudi Arabia had favourable attitudes towards screening people for hypertension, however, no enquiry regarding attitudes toward the role of LM was made in that study.

Vengetasami *et al.*[179] conducted a study in Cape Town, South Africa in 2002, to assess nutritional knowledge, attitudes and practices of general practitioners in the Western Cape regarding CDL. These authors reported that 87% of HPs in their study considered nutrition to be important in the prevention and management of CDL.

2.9.2.3. Practices

Despite the increasing public demand for health promotion Allen *et al.*[169] stated that only a few physicians in the USA practiced preventive cardiology to the extent that might be expected. Shai[191] reported that 50% of physicians in their study conducted at Ben-Gurion University's School of Medicine did not provide nutritional counselling to patients. At a teaching hospital in the USA in 2004, Tsui *et al.*[203] reported that counselling rates for physical activity and diet were the lowest (16% and 20% respectively), and somewhat higher although still not ideal for medication adherence and smoking (52% and 88%). Furthermore, Thun[167] reported that approximately half the current smokers that had been surveyed in the USA in 2000 reported that they had never been counselled by their HPs to quit smoking, even though 70% of smokers visit a health care practice each year. Similarly Poirier *et al.*[204] stated that there is evidence that less than half the obese adults surveyed in Canada in 2001 reported being advised to lose weight under the guidance of a HP.

The situation in developing countries are quite similar to those in developed countries as Gulliford *et al.*[78] showed that a medical record review of patients attending health care clinics for diabetes in the Caribbean indicated that over a 12 month period less than one third of patients had received dietary advice and only 5% had received exercise advice. Similar findings have been reported in South Africa[79] and India.[80]

Similar results were reported by Steyn *et al*.[205] when they stated that even though lifestyle and dietary management form the backbone of hyperlipidaemia management, only 30% of hypercholesterolaemia patients attending general practitioners in private practice in 1998 received LM advice and only 25% were given a specific low-cholesterol diet.

HPs attitudes have a direct influence on their practices. It is well documented that HPs who have a positive attitude regarding the role of LM in the management of CDL, are more likely to provide LM education and counselling to their patients. However, this is not always the case. Some studies have reported that although physicians assign a high priority to LM education they do not always implement or provide LM counselling to their patients. Various reasons for this phenomenon have been identified and will be discussed in detail under the barriers to counselling section.

Kolasa[155] provided evidence that shows that although doctors are supportive, they are not delivering nutrition services to their patients. The work by Brotons *et al*.[190] and Jallinoja *et al*.[199] supports this statement. In Brotons' study, doctors were asked questions related to LM, firstly whether it should be provided and secondly if they do provide it in their own practices. Between 62% and 97% concurred that LM should be provided, however, only between 47% and 71% mentioned that they do provide it in their own practices.

The prevalence of LM education and counselling is dependent on various factors, including patients' risk categories. Patients that are in a higher risk category for disease will also usually receive more counselling than patients who are at a lower risk, thus implying that HPs see LM as more of a disease management strategy that a preventative strategy. Egede *et al*.[160, 173] reported that physicians were more likely to advise patients with diabetes to lose weight and increase physical activity for blood pressure control than patients who did not have diabetes. Furthermore, hypertensive patients with diabetes were twice as likely to receive advice from a physician than patients who were not diabetic. Harris *et al*.[168] supported these findings when they reported that physicians are most likely to engage in physical activity counselling for patients with pre-existing heart disease, but less often for healthy patients. Mellen *et al*.[206] also reported similar findings in that patients with 2 cardiovascular co-morbidities were counselled for diet (53%) and exercise (32%) more than those with one (44% and 31%) or none (30% and 23%) but surprisingly that older patients received less dietary counselling than younger patients. Xu *et al*.[207] also reported that physicians were more aggressive in recommending LM for hypertensive patients that were obese compared to those patients that were not obese, while Douglas *et al*.[192] reported that doctors were more likely to advise patients on physical activity if it was linked to the presenting condition.

A more positive picture is depicted in developing countries. In 1997 Goodman *et al*.[208] reported that more than 75% of staff in the public sector in Cape Town, South Africa stated that they were providing dietary advice to most of their diabetic patients. A study conducted in PHC facilities in

Gauteng, Free State and Limpopo provinces of South Africa reported that most of the advice provided to CDL patients at these facilities centred on body weight (34.4%) and nutrition (54.6%). Almost 60% of patients were advised to modify their lifestyles while 45% of patients were advised to participate in physical activity.[209] A second study in Cape Town in 2002 supported these findings when they reported that more than 80% doctors surveyed indicated that they would prescribe LM when necessary.[179] Furthermore, these authors mentioned that doctors who had reportedly modified their own diets were more likely to apply clinical nutrition in their professional practices, thus HPs personal practices further influence their counselling practices.

The above results were supported by Abramson *et al*.[210] in a study conducted in the USA, wherein they reported that HPs who performed exercise regularly were more likely to counsel their patients on the benefits of exercise.

Studies in developing countries have also demonstrated an improvement in HPs LM education and counselling practices as a result of an educational LM intervention. Pelto *et al*.[165] reported that 76% of physicians included nutritional advice as part of their consultation compared to the 44% of physicians that did not receive the nutrition training programme in Brazil in 2004. Furthermore, the trained physicians provided patients with 81 nutrition related messages in contrast to the 20 messages given by the physicians in the control group.

In 2002, Oosthuizen *et al*.[148] reported an improvement on knowledge, attitudes and practices regarding the management of diabetes patients at Pretoria Academic Hospital in South Africa, after doctors had participated in a short educational intervention to improve the quality of care for diabetic patients.

2.9.3. What are the factors that facilitate or impede the provision of lifestyle modification education and counselling in a PHC environment?

Although studies show that health promotion, LM counselling or preventative treatments do occur, there is consensus that more often than not the prevalence is less than optimal. The reasons for this are discussed in this section.

2.9.3.1. Motivating factors

Evidence regarding factors that motivate HPs to provide LM education and counselling in both developed and developing countries is sparse. Aira *et al*.[211] conducted a qualitative study based on providing counselling to patients rearding alcohol consumption. These authors mentioned that HPs awareness that the patient had an alcohol problem and patients that actively sought advice, were factors that motivated HPs to provide counselling. In another study focused on the Mother-Infant Health programme in Spain, March *et al*.[212] stated that ongoing training was rated very highly by

both professionals and directors, as it was seen as a motivating element and thought to be an activity almost solely carried out at health centres. Kolasa[155] stated that although it was only reported by 21% of physicians, personal gratification obtained when providing LM counselling was also cited as a motivating factor. Truswell[154] summarised motivating factors as factors which include enabling factors such as actual skills in patient counselling, available materials and resources as well as reinforcing factors which include reimbursement received, visible results, support from colleagues and feedback from patients.

2.9.3.2. Barriers

Numerous studies in developed countries have identified barriers that prevent HPs from providing LM education and counselling to CDL patients. These barriers occur in the form of both personal / individual barriers and environmental barriers. Studies in developing countries are scant. However, those that exist demonstrate similar barriers to those in developed countries but more often than not far more environmental barriers are reported in developing countries.[165, 181, 208, 213-220]

Personal / individual barriers: These barriers include HPs attitudes and beliefs, lack of knowledge or training to provide LM education and counselling to patients, inadequate counselling skills, low expectations of effectiveness of counselling, lack of financial re-imbursement as well as lack of confidence in LM information.

Tripp-Reimer *et al.*[111] proposed the following HP attitudes and beliefs as those that prevent HPs from providing counselling to patients:

- Patients who do not practice healthy behaviours “don’t care about their health”
- Biomedicine is “right”
- Science is the only appropriate basis for practice
- Traditional beliefs should be changed rather than built upon
- Everyone understands the concept of “chronic illness”
- Adherence failure is the patients’ problem

The majority of studies investigating barriers preventing HPs from providing LM education and counselling reported that HPs felt that they have not had adequate preparation for their role as promoters of good nutrition and as such they were reluctant to provide LM education and counselling to patients.[154-155, 157, 161, 164-165, 168, 175, 180-181, 186, 192, 199, 210, 220-224] The lack of knowledge or training on LM is thus clearly a barrier to counselling.

The literature provides evidence that physicians have limited training in counselling techniques and as such they lack confidence in their nutrition assessment and counselling skills.[155, 160-161, 175, 179, 188, 221-222, 225] Jallinoja *et al.*[199] conducted a study in Finland to explore HPs views on patient and

professional roles in the management of CDL. They showed that although HPs agreed that providing information, motivating and supporting patients to change their lifestyles are part of their responsibilities, only 55% and 58% of doctors and nurses respectively, reported that they have sufficient skills in LM counselling.

In addition, there are reports that HPs are doubtful about the effectiveness of their counselling efforts.[154, 160-161, 168, 178, 179-180, 190, 192, 203, 211, 225-226] Hiddink (cited Truswell[154]) explained that HPs' perceptions of their own ability to influence lifestyles and eating habits of patients as well as their interest in the topic influences whether or not they provide counselling to the patient. Eley (cited Truswell[154]) showed that although 83% of doctors in Scotland agreed that they could offer healthy eating advice to patients, 65% thought that they could not effectively help people with obesity. Brotons[190] provided similar findings when he reported that 58% of GPs in Europe reported advising overweight patients to lose weight, however, 58% indicated that they felt minimally effective or ineffective in helping patients achieve or maintain normal weight.

The lack of financial re-imbursement was also cited as a barrier by a number of authors. Cornuz[188] provided evidence that insufficient compensation was reported by 36% of HPs, while Green (cited Truswell[154]) mentioned that negative enabling factors included inadequate re-imbursement and Eaton *et al*.[225] and Douglas *et al*.[192] reported that the lack of financial incentives presented itself as a barrier to LM counselling.

Furthermore the credibility, of LM information was cited as a barrier. Buttriss[164] reported that the general public assigned a low credibility to LM messages, especially those that were distributed via the media. The majority of participants in this study were reported to have said that "the experts never agree on what foods are good for you". Pereira Gray (cited Truswell[154]) further stated that physicians will not give advice unless they can understand and believe the information themselves.

Environmental barriers: These barriers include the lack of nutrition education in the curriculum, the lack of time, the lack of patient adherence as well as barriers associated with the PHC facility such as lack of space, equipment, staff and language barriers.

The lack of knowledge previously identified as a barrier stems from HPs reports that there was a lack of nutrition education in the curricula offered during their training. This appears to be an international phenomenon as Moore *et al*.[161] reported that PHC staff in the UK often cited dissatisfaction with the quality of nutrition education they received during their training. Kolasa[155] reports that the Association of the American Medical Colleges recognised that doctors are not as well prepared as they should be to meet society's expectations, while Mihalynuk *et al*.[221] stated that HPs in Washington State lack proficiency in nutrition counselling skills as a result of inadequate

training. Serra Majem *et al.*[163] supported these findings when they stated that the level of nutrition training in the medical undergraduate curriculum in Spain is very low, considerably lower than that of pharmacists and nurses. Flores *et al.*[157] further supported the lack of nutrition and dietetics training as a barrier for physicians in Spain after conducting a study on PHC physicians belonging to the Tarragona Province Medical Association. Temple[175] stated that physicians in Canada had reported receiving meagre nutrition instruction during their training programme (43% had under 5 hours, 28% had 5 – 10 hours, 23% had 1 – 20 hours, and the remaining 6% had over 20 hours). Maiburg (cited Truswell[154]) reported similar findings for Dutch physicians. Although there is a paucity of published evidence to support this barrier in developing countries, one can reasonably assume they are experiencing the same barrier.

Over and above the personal barriers to counselling, the literature largely reflects that a lack of time is cited by most HPs in both developed and developing countries as the most important barrier that restricts their ability to provide LM education and counselling to their patients. Aira *et al.*[211] supported this statement when they reported that most doctors in Finland considered a lack of time to be an important barrier since there were many other tasks to perform during a consultation. Brotons[190] further provides evidence saying that resources at PHC facilities in Europe were limited and as such, if HPs spend 5 minutes of a 10 minute consultation on LM advice, it will result in 5 minutes less to spend on the rest of the consultation. Allen *et al.*[169] supports this statement when they reported that physicians in the USA may perceive that the time required to care for acute conditions may leave little time to explain risk factors to patients and motivate them to change their lifestyles. Pelto *et al.*[165] mentioned that there is evidence that characteristics regarding the health service management in Brazil such as the heavy demand relative to personnel results in a limitation of the time that HPs have available for nutrition counselling. The study by Talip *et al.*[180] in Cape Town reported that the majority of doctors and nurses cited a lack of time a barrier that prevented them from providing education on nutrition, physical activity and smoking cessation. These findings are further supported by other studies in the literature.[160, 175, 178, 188, 192, 208, 210, 223-224]

Eaton *et al.*[225] stated that a lack of a systematic and organised approach within the practice acted as a barrier to effective preventive counselling, while Lim[220] stated that good diabetes care requires organisation with supportive patient education. Tripp Reimer *et al.*[111] supported these findings when they reported that 'care-system' or organisational barriers such as issues of availability prevented LM education and counselling. They define issues of availability as the location of the facility, the number and type of providers in the facility as well as the equipment available at the facility. He further states that HPs often flee or display reluctance to locate to rural or PHC services. Brotons[190] alluded to the fact that the limited resources in the PHC setting could contribute to the lack of education and counselling services provided, while Hallin *et al.*[224] more

clearly stated that the number of patients at Swedish PHC facilities had increased and as a result HPs' capacity to manage these patients effectively was impeded. Ruhe *et al*.[227] presented similar yet slightly different results when they reported that there was no association between staff turnover and patient satisfaction or preventive service delivery, however, they stated that staff turnover could have a disruptive effect on practice functioning and longitudinal relationships between staff and patients.

The lack of staff at PHC facilities appear to be more resonant in developing countries as these countries often describe the 'brain drain' or migration of HPs from resource poor settings to developed countries. This is a common phenomenon in African countries, such as Malawi,[213-214] Tunisia[219] and South Africa.[228]

Two studies conducted in Cape Town investigated PHC delivery at Mitchells Plain[229] and Khayelitsha[230] PHC facilities. These studies measured the extent of PHC services associated with maternal health, Integrated Management of Childhood Illnesses, tuberculosis, sexually transmitted infections and HIV/AIDS as well as the constraints that inhibited the implementation of these programmes. The authors reported that a lack of staff and a lack of equipment at PHC facilities were constraints that impeded the efficacy of these programmes.

The National PHC survey conducted by Reagon *et al*.[228] in South Africa in 2003 supported these findings and showed that not only is there poor availability of allied HPs such as pharmacists, radiographers, dentists, occupational therapists, physiotherapists and dietitians, there is also a shortage of medical and nursing professionals and more often than not they are inequitably distributed across the country with the majority residing in urban areas.

Reagon *et al*.[228] further presented evidence for the lack of equipment at PHC facilities in South Africa. These authors listed 12 items as essential equipment including scales, stethoscopes, baumanometers, thermometers, otoscopes and glucometers. Their results indicate that PHC facilities in the Western Cape appear to be in advantageous position since at least one of each of these items was reportedly available at 100% of facilities, while this is not the case in the rest of the country. However, for HPs to practice effectively, they calculated the proportion of professional nurses with at least one of four essential items of equipment in a working condition. These results indicated that there is a severe lack of sufficient equipment at the majority of PHC facilities in South Africa. The fact that there is an indisputable lack of HPs at PHC facilities and that there is still not sufficient equipment available for the existing HPs indicates the severity of the lack of equipment in these facilities. In today's day and age, computers are not only a valuable resource but are seen as a necessity, be it for documentation, administration or information purposes. However, in the survey conducted by Reagon *et al*., [228] only 17% of PHC facilities in South Africa had access to a

computer, of which only 3% had internet access. This phenomenon is not exclusive to South Africa as studies in other developing countries such as Tunisia reported similar findings.[219]

Tripp Reimer *et al*.[111] provides another example of organisational barriers, namely issues of service accessibility and defines these as linguistic features. This addresses the presence of bilingual staff or professional interpreters as well as bilingual health education materials such as posters, pamphlets and booklets. This is of utmost significance in the South African context as the country has 11 official languages firmly rooted in 9 provinces.

Goodman *et al*.[208] reported that 75% of staff at PHC facilities in Cape Town, South Africa reported communication problems between staff and patients. Furthermore, language was cited as a barrier that prevented counselling to patients by another 23% of staff. In another study conducted in Cape Town, Haque *et al*.[216] stated that language barriers further prevented doctors from initiating insulin therapy in diabetic patients. Although the literature did not provide substantial evidence for language or communication as barriers that prevent education and counselling, if they do exist, they clearly present an immense issue.

Studies in South Africa by Summerton *et al*., [229] Engelbrecht *et al*.[230] and Reagon *et al*.[228]provide evidence that there is a lack of appropriate Information, Education and Communication (IEC) materials for promoting health and preventing disease, especially materials written in local languages in all provinces of the country.

Aira *et al*.,[211] Moore *et al*.[161] and Douglas *et al*.[192] reported that HPs stated that a lack of intervention tools and teaching materials contributed to the barriers that prevented HPs in Finland and the UK respectively from providing LM education and counselling to patients. Moore *et al*.[179] additionally identified the lack of space at PHC facilities as a barrier that prevents the provision of education and counselling.

Reagon *et al*.[228] described the adequacy of physical facilities at PHC facilities in South Africa. These authors assessed the adequacy of consultation rooms, waiting areas, toilets and access for the disabled. Consultation rooms were considered adequate if they contained examination couches, working examination lights, hand wash basins with running water and soaps well as both audio and visual privacy. Nationally 59% of facilities had consultation rooms that met these criteria, while the Western Cape Province appeared to be in a more favourable position with 96% of facilities meeting these criteria. The adequacy of waiting rooms was assessed in terms of available seating for patients, ventilation and natural lighting. Nationally 48% of facilities had adequate waiting areas, while 73% of facilities in the Western Cape were considered to have adequate waiting areas.

Numerous studies show that HPs perceive a lack of patient interest and adherence as a barrier that prevents them from providing LM counselling. In the study conducted in Switzerland by Cornuz *et al.*,[188] 44% of HPs cited lack of patient interest, while Goodman *et al.*[208] reported that 27% of HPs in the Cape Town study cited poor patient attitude as a barrier to LM education and counselling. Moore *et al.*[161] and Jallinoja *et al.*[199] reported that HPs believe that the public are simply unwilling to make dietary changes and as such they cite poor patient adherence as a barrier to counselling. Similar findings were reported by other studies in both developed and developing countries.[211, 219, 231]

2.10. THE PATIENTS' PERSPECTIVE ON RECEIVING LIFESTYLE MODIFICATION EDUCATION AND COUNSELLING

This is an area that has received less attention in the published literature. As previously indicated numerous studies have reported that HPs cite patient non-adherence as a barrier that prevents LM education and counselling. Given that the literature provides indisputable evidence that patients view HPs as reliable and valuable sources of information and that patients are more likely to attempt to change their lifestyles in response to advice they receive from HPs, the need to determine the patients' perspective on receiving and implementing LM exists.

Berry *et al.*[232] state that the patient-physician relationship is the cornerstone of health service delivery, while Tripp-Reimer[111] reported that continuity of care, with consistent HPs enables patients to develop trusting relationships with them. Berry *et al.*[232] supported these findings when they reported that patients' trust in their physician and commitment the relationship favorably influence patients' health behaviours.

In South Africa continuity of care is not always guaranteed at PHC facilities as HPs often migrate from PHC services. Chabikuli *et al.*[233] reported that increased workloads, poor salaries, lack of recognition and an unfriendly working environment are responsible for this migration. According to Subedar,[234] although 34 264 professional nurses were trained between 1996 and 2004, only 10 707 nurses registered with the Nursing Council of South Africa in the same time period. Consequently 68.5% of nurses were lost from the public health system as many moved into the private health sector or took up positions outside of South Africa. The loss of HPs from PHC facilities inevitably affects the extent to which patients experience continuity of care and thus acts as a barrier to continuous education and counselling of patients. Furthermore, staff rotations are often implemented for nursing staff within a particular PHC facility, thereby further limiting continuity of care.

Tripp-Reimer *et al*.[111] further reported that receiving consistent messages in which issues in diabetes management are most important such as diet, urine checks, foot screening and blood glucose levels increases patients' satisfaction with care. Conversely, Butriss[164] concluded that patients assign a lack of credibility to nutrition education information when they reported that "experts never agree on what foods are good for you" and that "the experts keep changing their minds".

Barriers experienced by patients include issues of accessibility. These were defined by Tripp-Reimer *et al*.[111]as issues that relate to geographic and linguistic accessibility, where geographic accessibility addressed issues of location including expense, convenience, safety and ease of transportation, while linguistic accessibility addressed the presence of bilingual staff or professional interpreters as well as bilingual health education materials. It is quite conceivable that patients would not be receptive to education and counselling while they are concerned about their safety and ease of transportation once they leave the PHC facility. Furthermore if health education materials and education and counselling sessions are not provided to patients in a language that they can comprehend, this could result in the lack of patient interest. Lukoschek *et al*.[226] reported that both language barriers as well as education level were predictive of insufficient comprehension, which could be perceived as patient non-adherence.

Cultural beliefs and behaviours could further facilitate patient non-adherence. Tripp-Reimer *et al*.[111] mentioned that HPs often relay their frustrations with ethnic patients who do not seek regular or preventive health care and as a result they erroneously believe that these patients simply do not care about their health. However, cultural beliefs and priorities are often reasons why ethnic patients do not regularly participate in health screenings. Many people do not seek health care unless their condition interferes with social or personal activities of daily living. Seeking care when not functionally impaired may be seen as a self-indulgent luxury. Furthermore, reluctance is to seek professional care is often displayed because patients are fearful that discussing a potential health problem before it occurs could increase the likelihood of developing the condition. [235] As a result conditions such as diabetes would not be detected until advanced unless it is identified when care is sought for a different health problem.

Other beliefs may contribute to non-adherence and health risks. A common belief among many ethnic groups in both developed and developing countries is that a heavier physique is indicative of health. American Indian tribes such as the Navajo and Utes believe a heavy body indicates both health and happiness, while some Chinese people believe that extra weight is a blessing related to health and happiness.[236-237] Puoane *et al*.[238] provided evidence that black South African women associate dignity, respect, confidence, beauty and wealth with a moderately overweight body shape. Interestingly, Duda *et al*.[239] provided evidence that Ghanaian women who constitute the

bulk of hypertensive and diabetic patients in Ghana, opted to change their body image by reducing their weight instead of promoting the traditional concept of beauty, wealth and affluence.

Food is usually used in culturally defined ways and is an essential aspect in many religious or cultural ceremonies and as such it is a key component of tribal identities. For example, some Native American groups believe that corn products, beef, mutton stew, coffee and fry bread provide satiety, strength for heavy work and illness prevention and therapy.[236]

Nthangeni *et al*.[215] investigated barriers to dietary adherence in African type 2 diabetic patients in urban and rural areas in the Northern Province of South Africa. Their results showed that patients receive dietary advice from HPs at PHC facilities however, these HPs often have poor knowledge with respect to foods that are culturally acceptable. Consequently the dietary advice that patients receive is frequently inconsistent, sometimes incorrect and often confusing to patients, thus resulting in perceived patient non-adherence.

Studies have provided various reasons for dietary non-adherence including the reluctance to use new foods, new cooking practices, low income and expense of foods as well as the lack of knowledge of measuring foods and the need to prepare food for others.[240-241]

Van Dillen *et al*.[162] conducted a qualitative study in the Netherlands where they sought to understand nutrition communication between HPs and their patients in which they reported that patients viewed tasty and healthy food as two different and mutually exclusive things. This misconception could be another reason for patient non-adherence. Haque *et al*.[216] supported this when they mentioned that misconceptions regarding the understanding of diabetes and insulin therapy additionally resulted in non-adherence.

Information overload due to repetition of the same health education message was cited as a reason for lack of patient interest which led Van Dillen *et al*.[162] to suggest that providing some novelty in the repeated message, maintains patient interest.

Another barrier that patients experience is their inability to recall or comprehend all the advice that HPs provide. It has been reported that patients recall or comprehend as little as half of what HPs convey during an outpatient encounter. This introduces the concept of health literacy which has been defined as a measure of a patients' ability to read, comprehend and act on medical instructions. Poor health literacy is common among elderly persons and patients with chronic conditions, especially in the public health sector. [242] Schillinger *et al*.[243] reported that patients whose physicians assessed recall or comprehension were more likely to have favourable clinical outcomes than those patients whose physicians did not. The same authors reported that poor

health literacy is independently associated with poor glycaemic control and higher rates of retinopathy.[242]

The manner in which HPs present information to patients also influences the patients' recall of the advice.[244] Schillinger *et al*.[245] stated that patients with low literacy levels are more likely to have a restricted vocabulary, making HPs use of medical or technical terms problematic. These authors also indicate that while individuals from different social classes, race and educational backgrounds usually do not differ in their desire for information, there are differences with regard to the predisposition to seek information. Patients with less than high school education seldom ask HPs questions pertaining to their conditions and thus rate visits with HPs as less participatory. Lukoschek *et al*.[226] suggests that HPs base their health information delivery on the false perception that patients comprehend all explanations and as such could lead to miscommunication and perceived patient non-adherence.

In order for health education and counselling to be effective, these barriers need to be addressed.

2.11. APPROACHES TO OVERCOME BARRIERS

Numerous approaches have been suggested to overcome the barriers experienced by both HPs and patients.

In order to address the shortage of human resources in African countries such as Malawi, parliamentarians suggested training more, but lower cadres of health workers that are not marketable to the outside world in addition to improving their working conditions and remuneration.[214]

Suggestions to overcome barriers that HPs in PHC in South Africa experienced included improving staff relations by conducting feedback meetings between staff, induction and education of new staff as well as improved tolerance among staff members.[208] Further suggestions included improving the relationship between staff and patients by spending more time with patients or reducing the patient load, educating patients on all aspects of their conditions and ceasing staff rotation between facilities. The implementation of a feasible appointment system, improving patient education, access to health promotion material, access to dietetic services, a patient default or recall system, improving the administrative system as well as improving access to adequate hospital supplies and resources were also suggested.[208, 222] A study conducted by Mshelia *et al*.[246] in Nigeria showed that increased patient-physician contact time was effective in inducing LM and reducing the risk of several diabetes-related complications.

Studies also suggest that the kind of information as well as the way in which it is delivered to patients determines whether or not the counselling provided will be effective. Wens *et al*.[231] stated that HPs often assume that the best methods to increase patient adherence are shocking the patients, putting pressure on them and threatening to refer them to hospital. However, these authors have demonstrated that communication that is tailored and providing shared care within a multidisciplinary team often improves patient adherence. Furthermore, van Weel[247] concluded that HPs should approach their patients with advice and counselling in 'ready bits' that fit into the time constraints of regular consultations and they should make sure that these bits are consistent over time and address specific individual patients' values and barriers with regard to modification of food habits. Harris *et al*.[168] mentioned that an approach to physical activity counselling that emphasizes brisk walking is more likely to achieve greater effectiveness than programmes requiring more strenuous and lifestyle intrusive adaptations. In addition, Adamolekun *et al*.[248] suggested that oral communication by HPs has a greater impact than printed materials, especially in communities with low levels of literacy.

Various methods of counselling techniques have also been suggested. These include the stages of change model as well as the 5 A's of patient-centred counselling. These models are based on the following steps: addressing the agenda; assessing the patients motivation, past diet experience and current dietary habits; advising the patient by providing relevant information; assisting the patient by negotiating simple, yet specific goals and determining whether referral to a dietitian is required; arranging frequent follow up, either by phone, email or a return visit.[225, 249-250]

Recommendations for patient education and counselling include:[250]

- *Develop a therapeutic alliance* – act as a consultant available to help patients who remain in control of their own health choices.
- *Counsel all patients* – HPs tend to talk more to patients who pose more questions, but those who are quieter are often in greater need of education.
- *Ensure that patients understand the relationship between behaviour and* health – do not assume that patients know the health effects of smoking, lack of exercise, poor nutrition and other lifestyle factors.
- *Work with patients to assess barriers to behaviour change* – address beliefs that are not conducive to healthful behaviours as well as other obstacles including lack of skills, motivation, resources and social support.
- *Gain commitment from patients to change* – if patients do not agree that their behaviours are significantly related to health outcomes attempts at patient education may be irrelevant.
- *Involve patients in selecting risk factors to change* – let patient need, patient preference and HPs assessment dictate recommendations of which risk factor to tackle first.

- Use a combination of strategies – educational efforts that integrate individual counselling, group classes, audiovisual aids, written materials and community resources are far more effective than one single technique.
- *Design a behaviour modification plan* – discuss behaviours that need to be modified to achieve goals, paying special attention to patient cultural beliefs and attitudes that might facilitate or impede success.
- *Monitor progress through follow up contact* – schedule follow up appointments and reinforce successes through positive verbal feedback.
- *Involve other staff* – use a team approach and share the responsibility with other HPs.

Approaches outside the realm of the PHC facility include increasing publications on successful LM interventions instead of studies that describe barriers to LM counselling and as such alter HPs negative perception of the credibility of LM information.[155] Numerous studies have shown that HPs themselves have suggested that nutrition as well as training on counselling techniques be added to the medical education curriculum.[160, 163-164, 179, 191, 203] As long ago as 1975, Podell *et al*.[177] suggested that nutrition training should be incorporated more extensively into national board and other standard physician certification exams. More than twenty years later these suggestions are still being made as Moore *et al*.[161] as well as Hiddink *et al*.[156] further suggested that nutrition education should form part of HPs continuing medical education programmes.

2.12. CONCLUSION

The burden of disease displayed in South Africa reflects the global increase in the prevalence of CDL. This has been attributed to an overall change in lifestyles, which occurs in response to the increasing rates of urbanisation in South Africa and has been projected to increase over the next few decades.

In order to successfully prevent and manage chronic diseases health promotion programmes aimed at reducing the risk profile of the whole population should be accompanied by programmes or interventions in the health sector that are aimed at preventing or delaying the onset of complications associated with chronic diseases.

This thesis focuses on the services at health facilities that are available to the proportion of the population that are already living with chronic diseases.

Indisputable evidence exists regarding the effectiveness of health promotion and LM in the prevention and management of CDL. The need for LM education and counselling within the community is evident as identified by the current lifestyle practices. Similarly evidence supporting the effective use of HPs employed in a PHC environment as LM educators and counsellors also

exists. However, the barriers that prevent HPs from providing LM education and counselling have been reported in detail. Whilst sustainable interventions have been implemented successfully in PHC facilities in developed countries, they have the potential to be used in the South African context as well.

The aim of this study is to conduct a formative assessment to explore HPs' capacity as well as the conditions within PHC facilities that facilitate or impede the provision of LM education and counselling to CDL patients in order to make recommendations for an intervention programme that utilises available resources.

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CHAPTER 3

METHODOLOGY: STUDY DESIGN

3.1. STUDY DESIGN

A formative assessment approach was used to conduct this study. The purpose of conducting this assessment was:

- To assist health professionals (HPs) in educating and counselling their patients on the role of lifestyle modification (LM) in the prevention and management of chronic diseases of lifestyle (CDL).
- To identify the strengths and weaknesses of HPs in terms of their knowledge, attitudes, practices and feelings regarding LM.
- To identify the strengths and weaknesses of final year medical and nursing students in terms of their knowledge regarding LM.
- To assess and make recommendations for improving the effectiveness of curriculum programmes for both medical and nursing students.
- To assess the effectiveness of current health promotion methods available to HPs.
- To assess and improve the effectiveness of health promotion materials.
- To assess and make recommendations for improving effective LM education and counselling provided to patients.
- To communicate with and involve patients by assessing their preferences for health education materials and methods.
- To provide data that assists in planning a LM intervention that utises available resources.

The principles that guided this assessment included the following:

- The assessment of LM education and counselling by HPs begins with the HPs values regarding LM and whether or not they believe that it is effective in the management of CDL.
- Assessment is most effective when it reflects an understanding of education and counselling as multidimensional, integrated and revealed in performance over time. Thus education and counselling should encompass all aspects of LM such as diet, physical activity as well as smoking cessation. In addition HPs would be more likely to continue education and counselling with patients if they could see the effectiveness of counselling on patients. For example better blood glucose control, better blood pressure control, fewer myocardial infarctions and strokes, correct use of medication, etc.
- Assessment works best when the programme it seeks to improve has clear, explicitly stated purposes. The purpose of this assessment would be to improve the prevention and management of CDL within the public health sector.
- Assessment requires attention to outcomes such as prevention and management of CDL but also and equally to the experiences such as diabetic complications, stroke, myocardial infarctions that lead to those outcomes.
- Assessment works best when it is ongoing not episodic, for example continuity of care with the same HP, a sustainable support group or chronic club.

- Assessment fosters wider improvement when members from a multidisciplinary team are involved in the programme. This would include doctors, nurses, health promoters, medical and nursing students as well as health managers.
- Assessment makes a difference when it begins with issues of use and illuminates questions that people really care about. It is therefore important to determine what the HPs attitudes and feelings are regarding LM. The next step would be to determine the patients' readiness for change.
- Assessment is most likely to lead to improvement when it is part of a larger set of conditions that promote change.

Formative assessment is also referred to as needs assessment, pre-programme or developmental research and has been defined as research that is conducted before a programme is developed in order to obtain detailed information about the people for whom and the context in which an intervention will be designed.[1-2] The aim of conducting a formative assessment is therefore to collect as much information as possible to assist in forming the goals, objectives and content of an intervention programme.

Intervention programmes are usually designed according to an etic (outsider's) perspective and are therefore generally limited to the investigators frame of reference. Formative assessment however, obtains information from both etic and emic (insider's) perspectives, thereby facilitating designing an intervention that would be feasible, relevant, and appropriate to as well as acceptable to the target population.[1]

Numerous studies have shown how formative assessment has been used in both developed and developing nations as the basis for developing health education and promotion programmes on a wide variety of public health problems including tuberculosis, diabetes, teenage pregnancy as well as HIV/AIDS.[1, 3-14]

According to Gittelsohn,[1] the type of information collected by formative assessment activity include determinants of behaviour, access to communication channels, antecedents and consequences of behaviour, resources available to the programme, information about programmes and policies that may affect the intervention and community attitudes that might inhibit or promote both the programme and the behaviour of interest.

Gittelsohn[1] further states that various research methods can be used to investigate determinants of behaviour. These may include in-depth interviews, focus group discussions, observations, household surveys and behaviour trials among others. Ideally, formative assessment should include a combination of qualitative and quantitative research methods. While qualitative

approaches provide an opportunity for new and unexpected information to emerge that may have direct implications for the success or failure of an intervention, quantitative approaches enable the comparison and confirmation of patterns of beliefs and behaviours of importance among different settings.

Most of the literature in qualitative methodology focuses on data collection in single rather than in multiple sites but Pelto and Pelto[15] argued that mulitisite research requires a quantitative component since comparability among several sites is a basic requirement of multisite research and should be established through the use of survey research. These authors suggest that a structured, systematically administered instrument is required to permit linkages and comparisons between sites and qualitative data collected at different sites. Furthermore Miles and Huberman[16] argue that although exploring multiple sites can lead to the destruction of the local web of causality, it can however enhance generalizability.

A formative assessment approach similar to that used in the Pathways study was used to conduct this study.[1] This approach was a compromise between in-depth exploration and cross-site comparability and as such it combined the use of qualitative and quantitative research methods.[1] The format of the questions addressed, centralised training in data collection techniques, determination of the types of data collected, the use of a common protocol and analysis using standardised coding and data summary formats contributed to achieving standardization during this study. This formative assessment therefore aimed to establish both current and emerging HPs' knowledge and practices as well as the circumstances within PHC facilities that influence the provision of LM education and counselling to CDL patients attending PHC facilities.

A detailed methodology section including the study population, process of consultation, instruments used, sampling, data collection and data analysis for each of the phase of this study is described in its entirety in separate chapters in this thesis. A combined conclusion of the main results as well as recommendations for an intervention programme is provided in the final chapter.

3.2. REFERENCES

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CHAPTER 4

KNOWLEDGE AND PRACTICES OF HEALTH PROFESSIONALS AT PRIMARY HEALTH CARE FACILITIES IN THE WESTERN CAPE REGARDING THE ROLE OF LIFESTYLE MODIFICATION IN THE PREVENTION AND MANAGEMENT OF CHRONIC DISEASES OF LIFESTYLE

4.1. INTRODUCTION

Chapter 2 presents evidence from numerous studies regarding health professionals (HPs) knowledge on lifestyle modification (LM) and their efficacy as LM educators.[1-6] In addition to determining HPs knowledge, these studies also investigated the sources from which HPs obtain information.[2-4, 7]

A survey of nutrition knowledge of Canadian physicians conducted between 1992-1993, showed that 73% of GPs scored between 50 – 75%, with the remainder equally divided between a lower (44% or less) and higher (81% or more) score.[2] Similar results were reported in a study conducted by Mlodinow *et al.*[3] when he assessed the nutrition knowledge of family doctors and internists. He showed that knowledge scores ranged from 46.8% - 89.3%, averaging 69.2%. He also reported that there was no significant difference in the scores obtained by physicians and those achieved by internists. On the other hand, when Podell *et al.*[4] conducted his study comparing clinical nutrition knowledge of physicians and medical students he found that the practicing physicians scored modestly lower (44%) than the medical students (51%), thus providing further evidence that these HPs have a low level of clinical nutrition knowledge. Similar results were achieved in 2002 when a survey was conducted in Cape Town, among GPs at a small number of public health facilities and interns at Groote Schuur Hospital.[5] It showed that nutritional knowledge regarding chronic diseases of lifestyle (CDL) is not at optimum levels. In this survey, only 3% of all respondents obtained a knowledge score of more than 75%. The majority scored between 50 – 70% and 31% scored less than 50%. However, it is important to note that the questionnaire used in the Cape Town study and many of the international studies was not validated.

The aim of this phase of the study was thus to determine the knowledge and practices of HPs currently working in the public health sector in the Western Cape Metropol regarding the role of LM in the prevention and management of CDL.

4.2. METHODS

4.2.1. Study Design

This phase of the study employed a comparative multi-centre descriptive quantitative study design.

4.2.2. Study population

The study population included doctors and nurses (and other HPs) that render services to CDL patients at primary health care (PHC) facilities in the Western Cape Metropol.

4.2.3. Process of consultation

Permission to conduct this study was obtained by the health authorities in the region, namely the Provincial Government of the Western Cape. A list of health facilities rendering services to CDL patients within the public sector of the Western Cape Metropol was obtained from the Provincial Government of the Western Cape. Once the information was sourced, each health facility was contacted directly in order to make enquiries regarding the current staff complement. Further enquiries were made in order to establish the number of staff members that directly render services to CDL patients. A total of 125 doctors (both permanent staff members as well as those conducting their community service years) and 638 nurses were currently practicing in the public health sector. Locum doctors were excluded from the sample on the basis that they would not be present at a given facility for an extended period of time. The nursing component included professional nurses, enrolled nurses and enrolled nursing assistants.

In order to facilitate co-operation and reduce any opposition to the study at each facility, meetings were held with the management of the Community Health Services Organisation in order to gain their co-operation with the study. These included meetings with the Chief Medical Officer and the Assistant Director of Nursing Services. The project was also presented at the Regional Management Meeting at the PHC facility in Woodstock. Similar presentations were held for some of the doctors and the facility managers of the health facilities.

Once awareness of the project was raised, the facility managers of the selected health facilities were contacted and appointments to conduct the study were made.

4.2.4. Sampling

In order to achieve a representative sample based on geographical location, stratified random sampling was used to identify the health facilities that would be included in the study. Of the 44 health facilities available, 30 facilities were randomly selected for participation. (Figure 4.1)

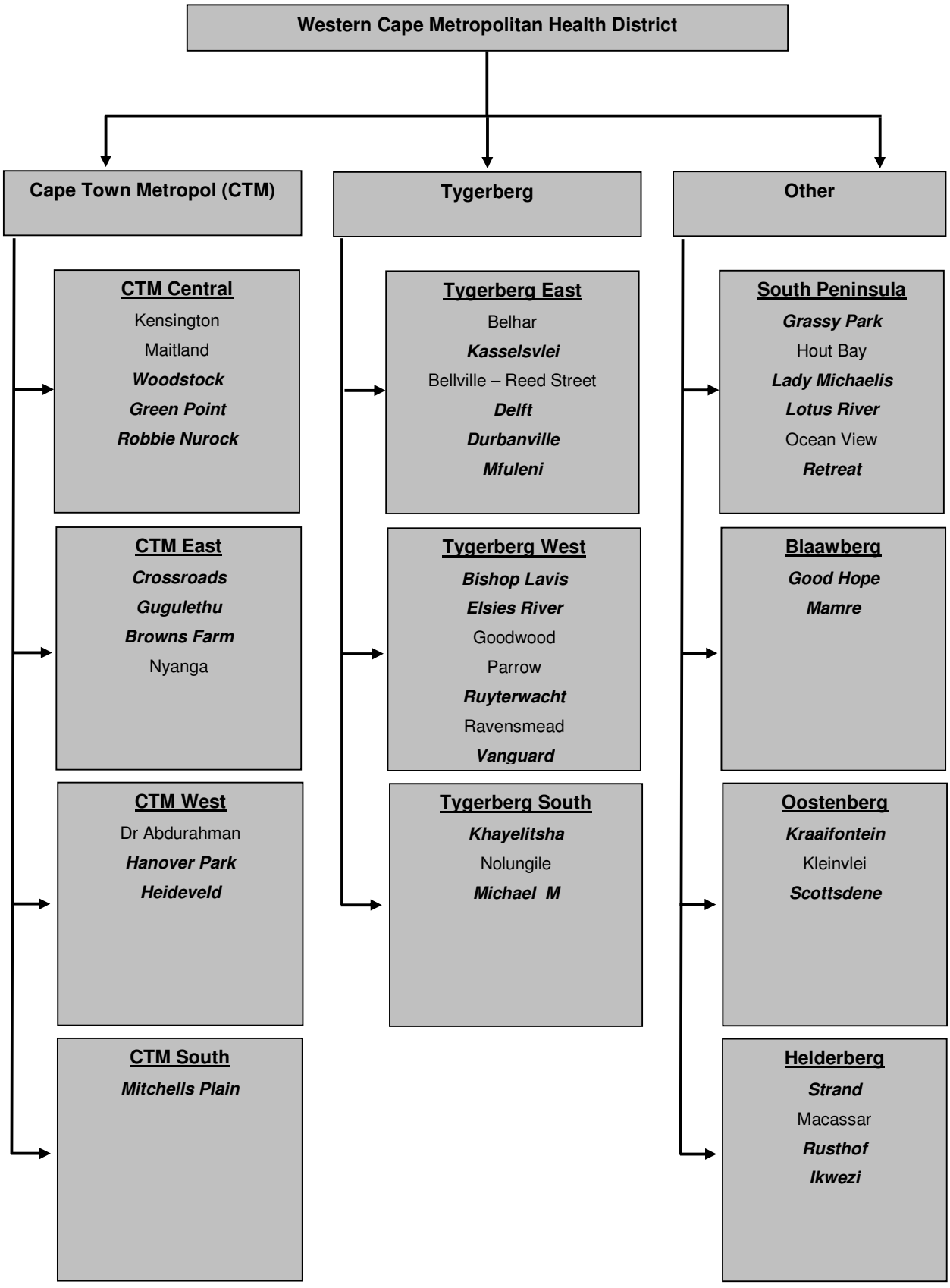

Figure 4.1: Sampling frame showing the study population as well as the selected study sample

The sample size was calculated on a precision of 10% and an expected response rate of 70%. In a finite population of 125 doctors and 638 nurses, a precision of 10% provided a sample of 60 doctors and 110 nurses. A 30% adjustment of the sample size was allowed for non-response, thereby inflating the required sample size to 86 doctors and 140 nurses. This sample would be reflective of 69% of doctors and 22% of the nurses in the study population.

All the doctors present on the day of our appointment were invited to participate in the study. However, the nurses underwent a second stage of sampling – cluster sampling – 1/3 of nurses practicing at the facility were requested to participate in the study. Cluster sampling was based on those nurses who directly rendered services to CDL patients, those nurses that were currently on CDL rotation and those present on the day that the study was conducted. There may have been selection bias with respect to the nursing sample since there was no control over the process. The nurses included in the study were those who were on day shift (vs night shift staff).

4.2.5. Instruments

A previously validated self-administered questionnaire, aimed at identifying knowledge and practices regarding LM in CDL was used in this study. The questionnaire (Appendix B) was developed by Talip *et al.*[6] in 2002 (see abstract in Box 4.1) and comprised examples of test cases on obesity, diabetes and hypertension. For further details on the test planning and development as well as the test evaluation and validation design see Boxes 4.2 – 4.4

Box 4.1: Abstract by Talip *et al.* for the development and validation of the knowledge test[6]

OBJECTIVES: To develop and validate a test that assesses the knowledge and practices of HPs with regard to the role of nutrition, physical activity, and smoking cessation (lifestyle modification) in CDL.

METHODS: A descriptive cross-sectional validation study was carried out. The validation design consisted of two phases, namely 1) test planning and development and 2) test evaluation. The study sample consisted of five groups of HPs: dietitians, dietetic interns, general practitioners, medical students, and nurses. The overall response rate was 58%, resulting in a sample size of 186 participants. A test was designed to evaluate the knowledge and practices of HPs. The test was first evaluated by an expert group to ensure content, construct, and face validity. Thereafter, the questionnaire was tested on five groups of HPs to test for criterion validity. Internal consistency was evaluated by Cronbach's alpha.

RESULTS: An expert panel ensured content, construct, and face validity of the test. Groups with the most training and exposure to nutrition (dietitians and dietetic interns) had the highest group mean score, ranging from 61% to 88%, whereas those with limited nutrition training (general practitioners, medical students, and nurses) had significantly lower scores, ranging from 26% to 80%. This result demonstrated criterion validity. Internal consistency of the overall test demonstrated a Cronbach's alpha of 0.99. Most HPs identified the mass media as their main source of information on LM. These HPs also identified a lack of time, lack of patient adherence and lack of knowledge as barriers that prevent them from providing counselling on LM.

CONCLUSIONS: The results of this study showed that this test instrument identifies groups of HPs with adequate training (knowledge) in LM and those who require further training (knowledge).

Box 4.2: Description of the test planning and development of the knowledge test by Talip *et al.* [6]

Test planning and development procedures conducted by Talip et al., followed those outlined by Dwyer et al.,[17] Byrd-Bredbenner,[18] and Lackey et al.[19] Test planning involved identifying a framework for the content that the test instrument would cover.[17] The knowledge and practices of HPs regarding the role of lifestyle modification (nutrition, physical activity, and smoking cessation) in the prevention and management of CDLs were chosen as the framework for the test construction.

A panel, comprising seven experts in the fields of nutrition, physical activity, and smoking cessation, was established to determine the concepts that the test instrument should cover. Test items were constructed with input from these experts. South African nutrition guidelines and position papers were used as further resource material.[20–24] Initially 85 knowledge test items and 24 scaled practice items were constructed. Members of the expert panel were consulted to address the relative importance of the designed test items, thus further ensuring content validity. Test items were revised accordingly.

Prior to validation, the test comprised 157 test items: six of which pertained to demographic questions, 93 were related to knowledge (40 avoid/allowed, 46 true/false, and 7 multiple choice), and 58 were related to practices (7 multiple choice, 19 yes/no, and 32 scaled). Each knowledge item carried a '*don't know'* response. Responses to knowledge items scored 1 point if correct or 0 points if incorrect or answered as *'don't know'*. Thus, the possible scores ranged from 0 to 93. Data from practice items were summarized on a qualitative ranking.

The test was divided into six sections. Section A included demographic items related to age, sex, educational background, and current position of employment. It also addressed the respondents' perceived knowledge, confidence in counseling, and barriers that prevent counseling and identified their main source of information on lifestyle modification. Sections B, C, and D comprised items that were designed to assess the respondents' knowledge and practices regarding the role of nutrition, physical activity, and smoking cessation in the management of CDLs. Each section was based on a case study related to a particular CDL and its associated complications.

Section B included items on the dietary management of coronary heart disease and practices regarding smoking cessation counseling. Section C comprised items relating to the dietary management of hypertension and obesity and items regarding physical activity. Section D included items that focused on the dietary and medical management of type 2 diabetes. Section E focused on general nutrition knowledge items related to all chronic diseases. Section F identified the practices that HPs undertake during an initial consultation with patients with chronic disease and the frequency of access to and consultation with registered experts in the field of nutrition, physical activity, and smoking cessation.

The test also included a section for feedback from respondents regarding the content, design, and layout of the test. These consisted of three open-ended items. The responses to these items were taken into consideration in the development of the final test, thereby further ensuring face and construct validity. In addition, respondents were asked to record the times at which they started and completed the test to estimate respondents' average completion time.

Box 4.3: Description of test evaluation and validation design of the knowledge test by Talip *et al.* [6]

To establish criterion validity, the test was administered to different groups of HPs. These groups were identified and selected on the basis of their training, education, and exposure to nutrition and lifestyle modification.[17] Five groups of HPs were selected: registered dietitians, dietetic interns, GPs, registered nurses, and medical students.

By necessity (mainly due to different working conditions) testing procedures and test items relating to practices differed slightly between and within groups. The dietetic interns (final-year students at the University of Cape Town, University of the Western Cape, and Stellenbosch University) and nurses at Cape Technikon (registered nurses attending a course in public health) generally completed the test under supervised testing conditions.

Nurses at community health centers performed the test outside of classroom conditions due to time and physical space constraints. The dietitians completed the test during a break at a symposium on continuing professional development; tests were returned the same day. GPs also were addressed at a course on continuing professional development but opted to return the completed tests by mail. Thus, with the exception of the GPs, test conditions were similar.

Box 4.4: Validation results of the knowledge test by Talip *et al.* [6]

Dietitians had the highest mean score followed by dietetic interns and medical practitioners. Medical students and nurses had the lowest mean scores. Using the Kruskal-Wallis analysis of variance by sum of ranks test, significant differences ($P < 0.03$) between groups in all sections were calculated. This is an indication of criterion validity.

Based on the combined test results for the nurses, GPs, and medical students, the split-half reliability of the test per section was calculated. An α value of 0.89 was reported for section B, and α values of 0.99 were reported for sections C, D, and E and for the overall test.

To determine the degree of difficulty of the individual test items, item analysis was undertaken. Overall, 34 of the 93 items had a high difficulty index (0.90 to 1.00), indicating that 90% or more of respondents correctly answered these 34 items. Among dietitians and interns, 59 and 51 items, respectively, had a high difficulty index (more than 90% answered correctly). This decreased to 34, 26, and 13 items for GPs, medical students, and nurses, respectively. This showed that test items were easier for persons with training in nutrition than for persons with limited training, thus further ensuring criterion validity. Very easy or very difficult items do not discriminate between groups who have different levels of expertise in an area.17 For this reason, 12 items with difficulty indices above 0.9 and one item with a difficulty index of 0.34 were eliminated. There were, however, six items that reflected difficulty indices of 0.30 or less. These items were retained because they provided valuable information regarding specific areas of nutrition that require further attention. These areas included misconceptions regarding food sources of cholesterol, fad diets for weight loss, and dietary management of type 2 diabetes.

After ensuring criterion validity, the final knowledge test was comprised of 81 questions. Of these 15, 19 and 26 questions pertained to the role of diet in heart disease, hypertension, diabetes respectively, 5, 10 and 6 questions were related to general nutrition knowledge, weight loss and physical activity respectively. Smoking questions included in the questionnaire were related to practice questions.

4.3. DATA COLLECTION

Prior to conducting the study, a pilot study was undertaken in order to assess whether or not the questionnaire needed to be made available in any language other than English. The pilot study indicated that no translation would be required since the questionnaire was easy to understand.

The researcher visited each clinic and was accompanied by a fieldworker at times. On arriving at the facilities, all study participants were gathered in a meeting area; more often than not it would be the staff tearoom. The purpose of the study was then discussed with all the study participants. Participants were required to complete consent forms before undertaking the study. Thereafter, participants completed the LM questionnaire. The time required for completion of the questionnaire ranged between 20 and 45 minutes. Respondents were asked to indicate whether or not they wanted personal feedback on the test.

In order to determine an accurate response rate, records were kept of the number of individuals that were invited to participate in the study (those present when the purpose of the study was discussed) and the number of individuals that participated.

4.4. DATA ANALYSIS

Questionnaires were checked for completion at each clinic before the researcher departed. Completed questionnaires were then coded and computerised. Data cleaning was performed. Data was analysed using the SAS programme.

4.5. RESULTS

A total of 318 HPs were invited to participate in the study, 223 of whom completed and returned the test, resulting in an overall response rate of 71%. A total of 61 doctors, 149 nurses and 9 health promoters participated in the study. Of the 223 respondents 187 (84%) provided information regarding their age. The HPs' ages ranged from 25 to 77 years with a mean (median) age of 42 ± 11 (41) years.

4.5.1. Knowledge

Overall knowledge scores: A cut-off point of 80% was chosen as a desired knowledge score. Across all professional groups, knowledge scores ranged from 22.2% - 88.9%. Six percent of HPs scored poorly (less than 40%), 40% had mediocre scores (40 – 59%) and although 48% had good scores (60 – 79%), only 6% of HPs achieved the desired score of 80% or higher. Table 4.1 displays the range of scores across all professionals groups.

Table 4.1: Health professionals ranking for their overall knowledge test scores

Group (n = 223)	Minimum	Maximum	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
Health professionals	22.2	88.9	6	40	48	6
Medical officers	45.7	88.9	0	18	61	20
COSMOs	45.7	82.7	0	17	75	8
Professional nurses	32.1	77.8	4	42	54	0
Enrolled nurses	22.2	77.8	10	60	30	0
Nursing assistants	24.7	72.8	18	58	24	0
Health promoters	27.2	85.2	8	23	54	15

COSMOs = Community Service Medical Officers

Actual versus perceived knowledge scores: In Section A of the test HPs were requested to rate their perceived knowledge on diet, physical activity and smoking cessation as either poor, mediocre, good or excellent. These ratings were assigned percentage values in order to compare their perceived knowledge rating to the knowledge score they obtained on the test (their actual knowledge). A poor knowledge rating was assigned a score of 40% or less, while mediocre, good and excellent rankings were assigned scores of 40 – 59%, 60 – 79% and 80% or higher respectively. Table 4.2 shows the actual knowledge scores of HPs and compares it to their perceived knowledge rating. From this table it is evident that the majority of HPs overestimated their actual knowledge of LM. Although 18% and 60% of all the HPs rated themselves as having excellent and good knowledge on LM respectively, only 6% and 48% achieved these scores.

Table 4.2: Actual versus perceived knowledge scores for all health professionals

Group (n = 223)	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
Actual scores	6	40	48	6
Perceived rating	5	18	60	18

Table 4.3 provides a breakdown of the comparison between actual and perceived knowledge for each HP category. From Table 4.3 it can be deduced that medical officers actually underestimated their knowledge of LM with only 14% rating their knowledge as excellent when 20% actually achieved excellent scores. Generally community service medical officers' ratings were on par with their actual scores. However, within the nursing profession, approximately 20% of nurses in each category rated themselves as having excellent knowledge in LM, yet, none achieved scores greater than 80%. A much larger proportion of nurses achieved poor scores compared to their perceived ratings. Other than professional nurses, the majority of nurses achieved mediocre scores. On the other hand, health promoters also tended to underestimate their knowledge.

Though 20% of them rated their knowledge as poor and only 15% rated their knowledge as excellent, yet only 8% achieved poor scores and 32% achieved excellent scores.

Table 4.3: Actual versus perceived knowledge scores for individual health professional categories

Group (n)	Score	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
Medical officers (49)	Actual	0	18	61	20
	Perceived	3	22	60	14
COSMOs (12)	Actual	0	17	75	8
	Perceived	3	14	72	11
Professional nurses (81)	Actual	4	42	54	0
	Perceived	2	17	61	20
Enrolled nurses (30)	Actual	10	60	30	0
	Perceived	4	18	59	19
Nursing assistants (38)	Actual	18	58	24	0
	Perceived	8	12	62	18
Health promoters (13)	Actual	8	23	54	15
	Perceived	20	17	31	32

COSMOs = Community Service Medical Officers;

Comparative mean knowledge scores: Permanently employed doctors had the highest overall mean knowledge score (70% ± 10), followed by doctors completing their community service years (67% ± 10). Professional nurses had a mean score of 60% ± 10, followed by enrolled nurses (54% ± 12) and enrolled nursing assistants (49% ± 12), while health promoters had a mean score of 66% ± 15.

Table 4.4 displays the mean knowledge scores per section for each professional group. The doctors obtained the highest mean scores for each section, followed closely by both the community service doctors as well as health promoters. Nursing staff had mediocre scores across most sections with enrolled nursing assistants attaining the lowest mean scores. As far as knowledge on dietary modification was concerned, all HPs achieved the highest mean knowledge scores for the section on diet and hypertension. Excluding the enrolled nursing assistants, all groups of HPs achieved good mean scores on the physical activity section. However, the section on weight loss was answered poorly by all categories of nursing staff.

Despite the mean scores remaining more or less in the same region, the range of scores depicted in most sections of the test was large, especially for the nursing staff. For example, although the physical activity mean scores for professional nurses, enrolled nurses and enrolled nursing assistants were 74% ± 17, 70% ± 21 and 57% ± 23 respectively, the scores ranged between 0 and 100% across all three categories of nursing staff.

Table 4.4: Comparative mean knowledge test scores of health professionals

Professional Group (n)	Test scores per section* (%)						
	Diet and CHD	Diet and HPT	Diet and Diabetes	Diet and CDL	Physical Activity	Weight Loss	Overall
Doctors (49)	64 ± 17	79 ± 14	68 ± 13	68 ± 18	81 ± 13	71 ± 13	70 ± 10
COSMOs (12)	58 ± 16	82 ± 13	63 ± 14	60 ± 23	78 ± 11	71 ± 10	67 ± 10
Professional Nurses (81)	50 ± 16	74 ± 16	60 ± 12	62 ± 19	74 ± 17	47 ± 15	60 ± 10
Enrolled Nurses (30)	41 ± 15	60 ± 21	60 ± 16	59 ± 20	70 ± 21	41 ± 14	54 ± 12
Nursing Assistants (38)	38 ± 14	56 ± 21	53 ± 13	56 ± 19	57 ± 23	41 ± 16	49 ± 12
Health Promoters (9)	61 ± 21	77 ± 19	64 ± 19	63 ± 23	77 ± 19	59 ± 23	66 ± 15

* Values indicate mean % ± standard deviation

CHD, coronary heart disease; HPT, hypertension; CDL, chronic diseases of lifestyle

COSMOs = Community Service Medical Officers;

Identified problem areas: Questions that were poorly answered reflected areas of LM that require further education and training. Some of these questions are illustrated in Table 4.5. Between 70% and 94% of participants answered these questions incorrectly.

Table 4.5: Top 10 questions answered incorrectly

No.	% Respondents	Question
1	94	Consumption of coffee creamers in a CHD patient's diet
2	94	Advice regarding alcohol consumption
3	89	Consumption of oats porridge with sugar in a diabetic patient's diet
4	86	Classification of body mass index (BMI)
5	83	Cholesterol content of margarine
6	79	Health benefits of brown sugar compared to white sugar
7	78	Claim that apple cider vinegar promotes weight loss
8	74	Consumption of fruit juice in a diabetic patient's diet
9	73	Consumption of amasi (sour milk) in a diabetic patient's diet
10	70	Duration of physical activity required for health benefits

Messages being promoted: Table 4.6 presents some of the questions that were answered correctly by the majority of participants, thereby reflecting the messages that are currently being promoted. More than 90% of HPs had the correct knowledge regarding some of the most important messages for patients with CDL.

Table 4.6: Top 10 messages being promoted (Questions answered correctly)

No.	% Respondents	Question
1	95	Consumption of fruit is allowed in a diabetic patient's diet
2	94	Weight loss requires eating smaller portions of all food types
3	94	Consumption of sugar in tea / coffee should be avoided
4	94	Walking and gardening increases physical activity levels
5	94	A low fat diet is beneficial in all chronic diseases of lifestyle
6	92	Saturated fats such as those found in full cream milk, butter, meat, and chicken skin increase blood cholesterol levels
7	91	Adding salt to food at the table should be avoided
8	91	Diabetic patients should avoid consumption of full cream milk
9	91	Lentils and dried beans should be allowed in a CHD patient's diet
10	91	Herbs can be used to flavour foods instead of salt

4.5.2. Practices

Self-reported health of HPs: HPs were asked to indicate whether or not they smoked cigarettes, do regular exercise, describe themselves as overweight or obese, and whether or not they follow a healthy diet. Figure 4.2 shows the proportion of HPs that indicated 'yes' to the abovementioned questions. Eleven percent of HPs indicated that they smoked, 60% indicated that they participate in exercise regularly to maintain their fitness levels, 39% indicated that they are overweight and 68% indicated that they follow a healthy diet. Regression analysis of HPs self-reported health, demonstrated that HPs who indicated that they followed a healthy diet were significantly (p=0.0012) more likely to achieve higher scores on the knowledge test than those who did not.

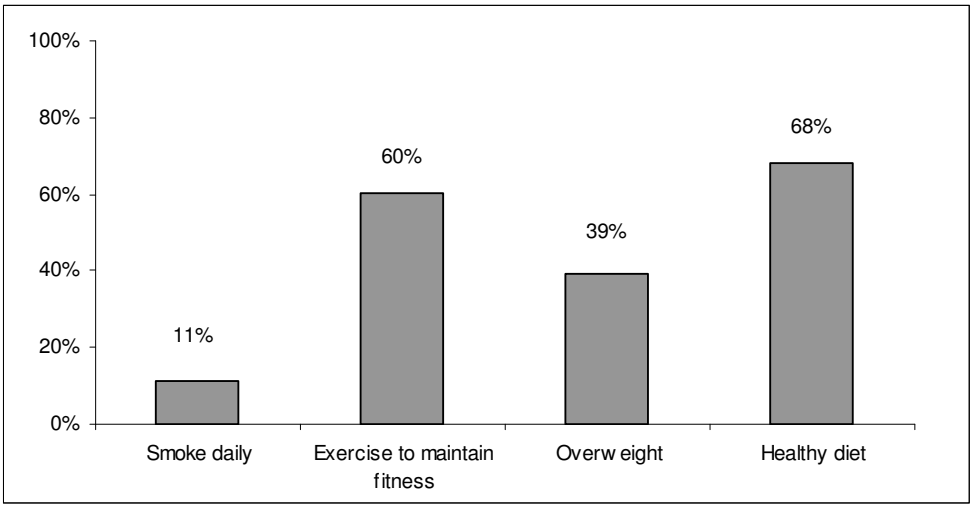

Figure 4.2: Self-reported health professionals' health status

Main sources of information: Many HPs (36% and 27%) identified the mass media as their main source of information on smoking and physical activity respectively, while 33% identified textbooks as their main source of information on diet. A large proportion (25% and 26%) of HPs also identified textbooks as their main source of information on smoking and physical activity respectively, while 22% identified workshops as a further source of information on diet.

Confidence in counselling skills: The majority of respondents indicated that they were quite confident or very confident in providing counselling on diet (60% and 20%), physical activity (56% and 21%) and smoking cessation (52% and 31%).

Barriers preventing counselling: Lack of time, lack of patient adherence and language barriers were identified by the majority of HPs as factors that prevent them from providing counselling on LM (Figure 4.3). Very few HPs cited a lack of knowledge (26%) and inadequate counselling skills (36%) as barriers to counselling.

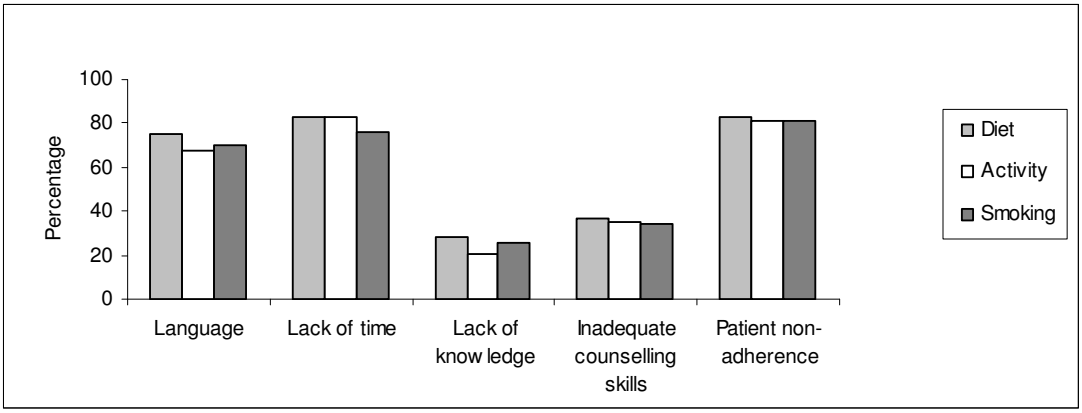

Figure 4.3: Barriers preventing counselling

Access to equipment: Figure 4.4 illustrates that the majority of HPs indicated that they had access to equipment. Eighty seven percent had access to scales, 75% had access to height measures, 61% had access to tape measures, 98% had access to baumanometers and 97% had access to blood glucose machines.

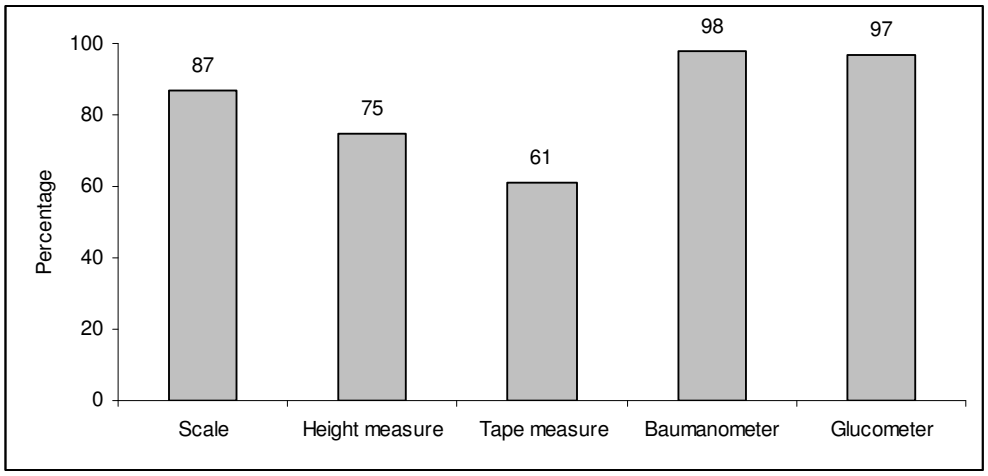

Figure 4.4: Access to equipment

Practices implemented on initial observation: Figure 4.5 indicates that although most HPs often measure weight, take a dietary history and enquire about both smoking and physical activity habits, less than half the HPs measure height and calculate body mass index (BMI).

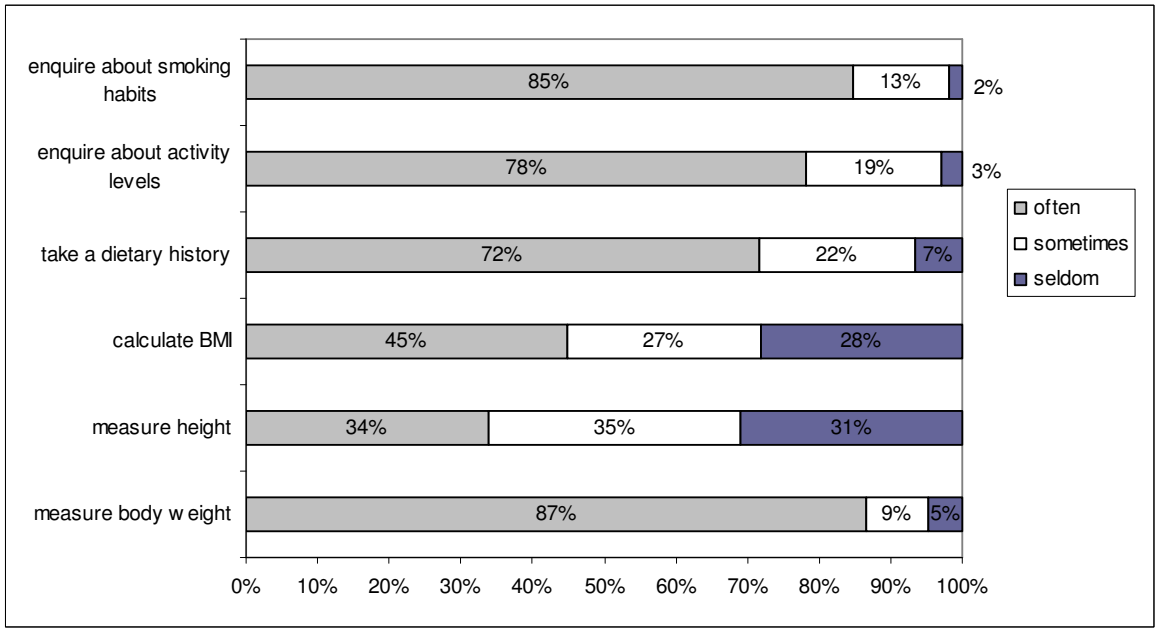

Figure 4.5: Practices of health professionals at a first consultation

Access to and consultation with lifestyle modification experts: Figure 4.6 illustrates that the majority of HPs indicated that they do not have access to or consult with experts in physical activity (90% and 88% respectively) or smoking cessation (82% and 84%). Furthermore, only 39% of HPs indicated that they often have access to dietitians, compared with 26% who indicated that they often consult a dietitian.

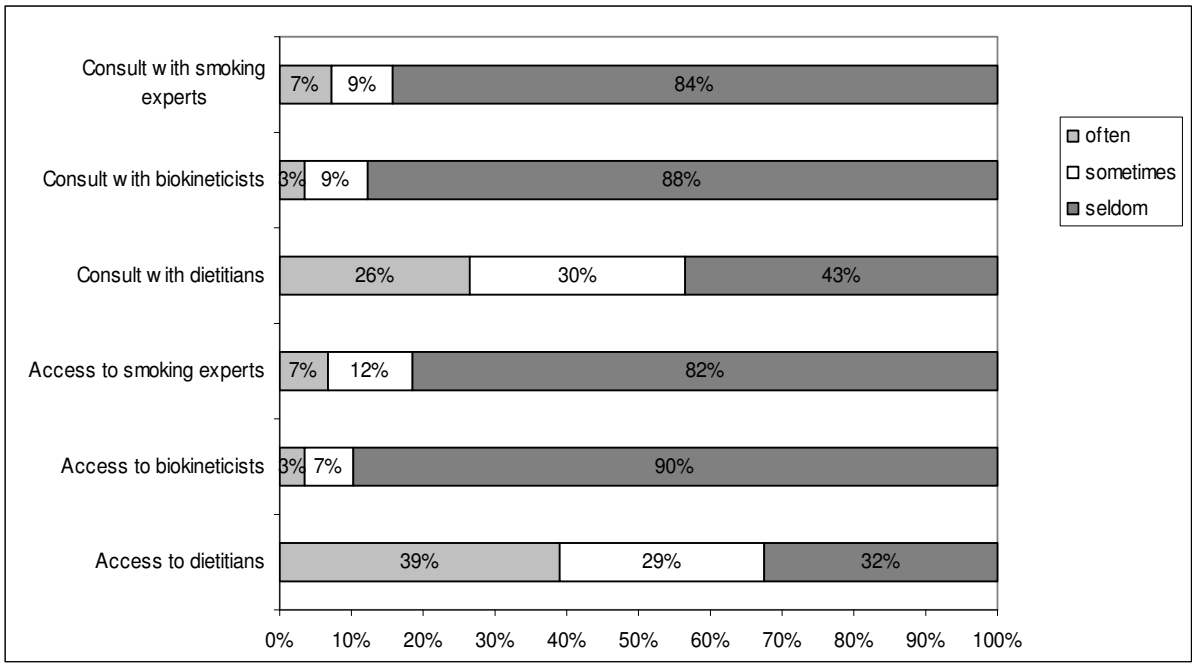

Figure 4.6: Access to and consultation with experts in lifestyle modification

4.5.3. **Knowledge and practices regarding smoking cessation**

From Figure 4.7 it can be deduced that HPs often enquired about smoking habits from CDL patients, coronary heart disease (CHD) patients, pregnant women and adult males. They were less likely to enquire about smoking habits from female patients than male patients.

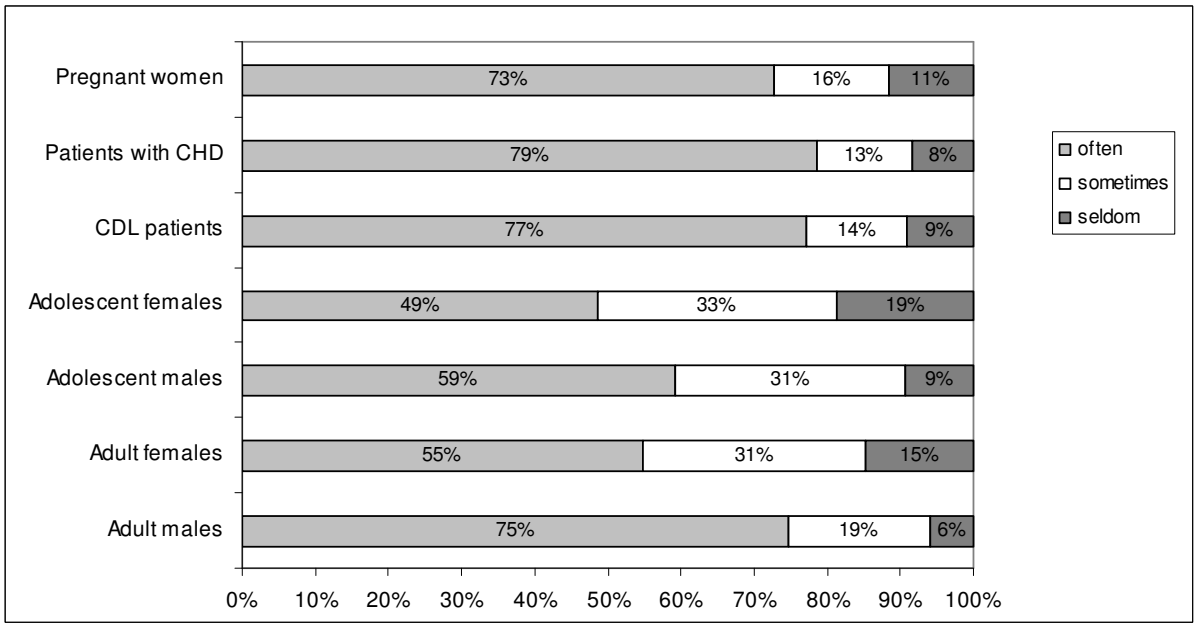

Figure 4.7: Frequency of enquiries about smoking habits

CHD = coronary heart disease; CDL = chronic diseases of lifestyle

Most HPs (84%) indicated that they routinely advised patients to stop smoking, 14% and 2% respectively indicated that they would sometimes or that they would not routinely advise patients to quit smoking.

Figure 4.8 illustrates that the most common methods of smoking cessation recommended by HPs were tapering off (61%), counselling by HPs (49%), nicotine replacement therapy (33%) and instant cessation (26%).

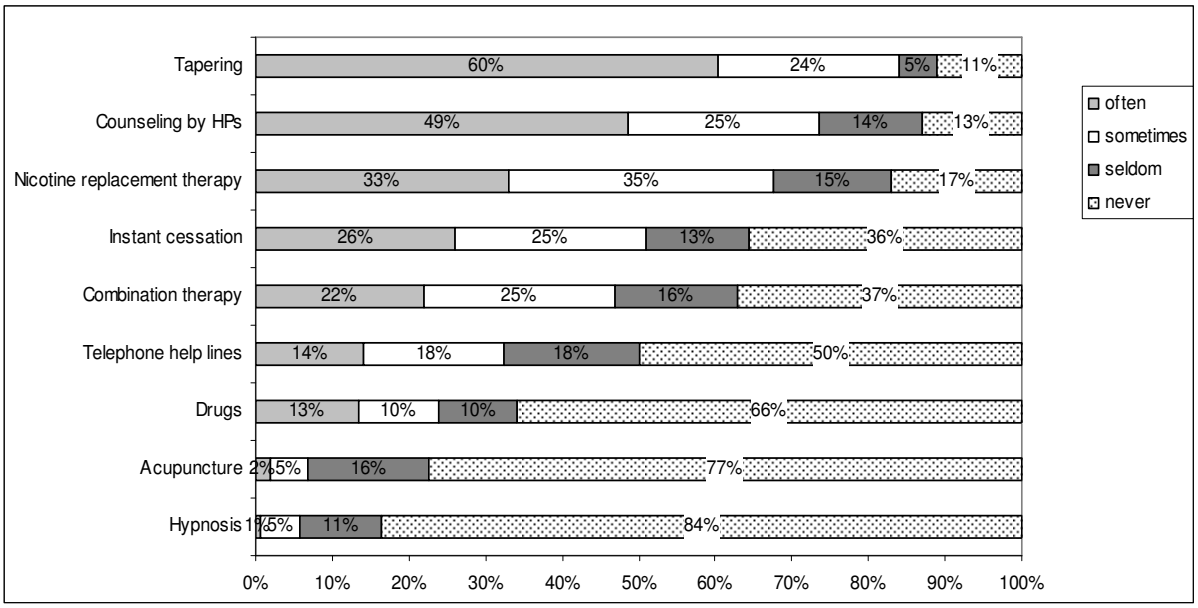

Figure 4.8: Recommended smoking cessation methods

Eighteen percent of HPs indicated that they were aware of other methods of smoking cessation. These methods included substitution, avoidance, faith, changing behaviour and mindsets, exercise, joining support groups as well as providing patients with information regarding the health consequences of smoking.

HPs recommended various options for substitution. These included sweets, fruit, raw carrots, peanuts, chewing gum, high doses of vitamin C, drinking water, joining a library to keep busy, smoking fruit leaves (available at herbal shops) and participating in recreational sports or exercise.

Avoidance referred to not indulging or having the opportunity to smoke and avoiding situations that are associated with smoking such as alcohol consumption.

When describing faith as a method of cessation, HPs described it as prayer and belief as well as meditation and practicing by fasting to seek spiritual guidance and support in resisting temptation.

HPs also suggested changing behaviour or mindsets by having the determination to stop, to think positively about being responsible for ones own health and to set goals when tapering.

Furthermore HPs suggested belonging to a support group or attending a clinic for smoking cessation.

Lastly HPs suggested providing information regarding the health consequences of smoking to patients. This could either be done by shocking patients with the possibility of developing lung cancer or requiring an amputation, or by forming a partnership / relationship with a patient and provide individual counselling with tailored information

Eighteen percent of respondents indicated that they were aware of smoking cessation services in the community. These included rehabilitation or recreation centres, churches as well as organisations such as Smoke-Enders, the South African National Council on Alcoholism and Drug Dependence (SANCA), South African National Tuberculosis Association (SANTA). Other services included pharmacies, telephone help lines on cigarette packets, social workers, school health nurses, psychologists and group sessions at private hospitals and Tygerberg hospital antismoking clinic.

When HPs were asked to indicate what percentage of patients that they advise about quitting smoking would achieve long term success, the majority (54%) indicated that less than 10% of patients would achieve long term success. Twenty five percent and 16% of HPs indicated that 10-20% and 20-50% of patients would achieve long term success respectively, while only 4% of HPs indicated that more than 50% of patients would achieve long term success.

4.6. DISCUSSION

This phase of the study evaluated the knowledge and practices of a representative sample of HPs practicing at PHC facilities in the Western Cape Metropol, regarding the role of LM in the prevention and management of CDL.

Since the knowledge test was based on practical information that could be provided to patients, a desired knowledge score of 80% was selected. The results indicated that there was a large range in knowledge scores across all professional groups. Even though 54% of HPs scored above 60% on the test, only 6% achieved a score of 80% or higher. This supports results from other studies.[2-6]

When comparing knowledge scores across HP categories, the test results also indicated that doctors appeared to be more knowledgeable about LM than nursing staff since the majority of doctors (81%) and community service doctors (83%) achieved scores greater than 60%, while a

large proportion of professional nurses (46%), the majority of enrolled nurses (70%) and nursing assistants (76%) scored less than 60% on the test. It is also important to note that health promoters achieved significantly higher scores than nursing professionals with 63% achieving scores higher than 60%.

Furthermore, when the perceived knowledge rating was compared to the actual knowledge scores achieved by HPs it was evident that doctors tended to underestimate their knowledge on LM while the nursing staff grossly overestimated their knowledge. None of the nursing staff managed to achieve a score of 80% or higher and only 54% of professional nurses, 30% of enrolled nurses and 24% of nursing assistants achieved good scores (60-79%) on the test. Yet, when they rated their knowledge on LM, 81% of professional nurses, 78% of enrolled nurses and 80% of nursing assistants believed that their knowledge on this topic was good or even excellent. Bearing this in mind, it is not surprising that very few HPs cited a lack of knowledge as a barrier that prevented them from providing LM counselling to patients. It can therefore be assumed that the majority of HPs at PHC facilities are confidently providing incorrect LM information to their patients. It is therefore imperative that the nursing staff be provided with the necessary training and education to provide LM E&C to patients.

On the other hand, language barriers, a lack of time and patient non-adherence were cited as reasons for preventing HPs from providing LM E&C to patients. This supports findings from other studies[6, 8-11] Since there are ultimately more nurses than doctors at health facilities, the task of health promotion and health education often falls on the shoulders of the nursing staff. This further supports the fact that nurses should receive LM training and education.
The sections of the test in which all professional groups, other than nursing assistants, scored the highest were the sections on diet and hypertension as well as physical activity. However, nursing staff scored very poorly in the section on weight loss. This section included a few questions on the BMI, which appeared to be a very unfamiliar concept to the majority of nurses.

Further analysis of the content of the knowledge tests established that the majority of HPs were promoting the theoretical concepts behind LM, such as limiting fat intake, decreasing the consumption of sugar and salt, increasing the consumption of foods high in fibre, increasing physical activity and promoting weight loss. However, while these messages are being promoted, HPs seem to experience difficulty in providing their patients with practical information and examples of how to do so. These results correspond to the findings of other studies which reveal that there are important gaps in the nutritional knowledge of both doctors and nurses. Although knowledge of certain nutritional concepts are sound, most HPs experience difficulty when trying to translate these concepts into practical information and advice to patients. Butriss[7] reported that patients had been informed regarding fibre and starchy foods however, very few patients were able

to identify fibre containing and starchy foods. In 2004 Hankey *et al*.[12] reported results from a study conducted in Scotland in which HPs knowledge regarding obesity, nutrition and weight management was documented. His study confirmed that HPs have some knowledge of nutrition and weight management but are unclear how to deliver effective weight management advice to patients. Furthermore, Taljaard *et al*.[13] reported similar findings when they conducted a study in 2004 to determine how HPs applied the 1997 South African dietary guidelines for people living with diabetes. The results of this study indicated that although HPs were familiar with the theoretical concepts behind the guidelines, in practice, the application of these guidelines were poor.

In 2002 Vengetasami *et al*.[5] reported that doctors who had reportedly modified their own diets were more likely to apply clinical nutrition in their professional practices. The relationship between self-reported health and clinical practices was not measured in this study however, there was a positive association between following a healthy diet and achieving higher knowledge test scores.

Although a wide variety of health promotion materials have been developed, the mass media still appears to be the main source of information on both smoking cessation and physical activity for most HPs, even though this information may not always be accurate. Only a third of HPs cite textbooks as their main source of information on diet. More effort should therefore be focussed on making reliable information on LM accessible to HPs. Numerous studies have suggested including LM in continuing medical education courses as an approach to increasing HPs knowledge on the subject.[14-15] The majority of respondents indicated that they were quite confident or very confident in providing LM counselling to patients. Thus if they were provided with factual or valid information they would be able to provide reliable and adequate counselling to patients.

Studies have also shown that inadequate access to equipment also acts as a barrier that prevents HPs from providing E&C to patients.[16-18] The results of this phase of the study indicate that HPs in these facilities do have access to equipment. However, the questionnaire used in this phase of the study did not address the issue of the condition of the equipment or whether or not the equipment was available in sufficient numbers.

On initial consultation of CDL patients 85% of HPs in this study indicated that they enquired about smoking habits while 78% and 72% indicated that they enquired about physical activity levels and conduct dietary histories respectively. Eighty seven percent of HPs also indicated that they measure body weight, however only 45% and 34% indicated that they calculated BMI and measured height respectively. When asked about the frequency of their enquiries regarding smoking in various patient categories, HPs were more likely to enquire about smoking habits from pregnant women, CDL patients, patients with coronary heart disease and male patients. This supports the findings from other studies that have previously shown that HPs are more likely to

engage in counselling with patients who are in a higher risk category than those who are not.[8, 19-21] Although nicotine replacement therapy was the third most common method of smoking cessation recommended by HPs, this service is not currently available at PHC facilities.

HPs' access to and consultation with experts in LM needs to be addressed. Less than 40% of HPs indicated that they have access to dietetic services, while less than 30% indicated that they consult with a dietitian. The situation for access to and consultation with physical activity and smoking cessation experts is far more dismal with less than 10% of HPs indicating that they have access to these services. Brotons *et al* reported that HPs did not easily refer patients to dietitians because these referrals are not usually covered by medical insurance.[17] However, in this situation, this is unlikely since these referrals and consultations would occur within the primary heath care setting. The lack of access and consultations more likely occur as a result of the scarcity of dietitians in the public health sector in South Africa. In order to facilitate the provision of correct LM information to both HPs and their patients, it becomes necessary to provide them with access to experts such as dietitians, biokineticists and psychologists. Failing this it may be necessary for health care managers to ensure that their staff attend specialised courses that can provide them with the knowledge they require.

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CHAPTER 5

KNOWLEDGE AND PRACTICES OF FINAL YEAR MEDICAL AND NURSING STUDENTS AT TERTIARY INSTITUTIONS IN THE WESTERN CAPE REGARDING THE ROLE OF LIFESTYLE MODIFICATION IN THE PREVENTION AND MANAGEMENT OF CHRONIC DISEASES OF LIFESTYLE

5.1. INTRODUCTION

As stated in the previous chapters, this phase of the study also aimed to determine knowledge and practices. However, during this phase the sample population included medical and nursing students and not practicing health professionals (HPs). This was conducted in order to determine the level of lifestyle modification (LM) knowledge that students have on completing their tertiary education. As such, it would reflect the training provided in both the medical and nursing curricula. Studies have compared the knowledge of practicing HPs to students and their results have varied with students scoring less than, more than or the same knowledge scores as practicing professionals.[1-4] Furthermore studies have shown that that medical and nursing curricula is limited in the amount of nutrition education it provides.[5-11]

The aim of this phase of the study was thus to determine knowledge of final year medical and nursing students at tertiary institutions in the Western Cape Metropol regarding the role of LM in the prevention and management of chronic diseases of lifestyle (CDL).

5.2. METHODS

5.2.1. Study Design

Similar to phase one, this phase of the study also employed a comparative multi-centre descriptive quantitative study design.

5.2.2. Study Site

The study was conducted in 4 tertiary institutions offering medical and / or nursing programmes in the Western Cape Metropol.

5.2.3. Study Population

The study population included final year medical and nursing students attending 4 tertiary institutions within the Western Cape. The overall study population consisted of 199 final year nursing and 327 final year medical students.

5.2.4. Process of consultation

Tertiary institutions offering medical and nursing programmes were identified. Course convenors, co-ordinators, heads of departments or deans of health faculties were contacted directly in order to make enquiries regarding the current student complement. Meetings were held with the management staff of each institution and appointments were made to conduct the survey.

5.2.5. Sampling

In order to achieve a representative sample of emerging HPs, final year medical and nursing students at 4 tertiary institutions were selected to participate in the survey. These institutions included Stellenbosch University, The University of Cape Town, The University of the Western Cape and the Western Cape College of Nursing. Convenience sampling was used to include these students in the survey. All students present at a specified lecture period were included in the survey.

5.2.6. Instruments

The same questionnaire developed by Talip *et al*.[4] in 2002 (Appendix B), which was used to test HPs knowledge and practices regarding LM, was used to test the students knowledge and practices. However, the demographic and practices sections of the questionnaire were adapted for applicability to the students. (Appendix C).

5.3. DATA COLLECTION

The researcher visited each tertiary institution. However, data collection methods for students differed slightly among tertiary institutions. At the University of the Western Cape all the final year nursing students were gathered in a lecture theatre where the purpose of the study was discussed with them. All students present on the day were invited to participate in the study. At the Western Cape College of Nursing, there were 4 final year classes, the researcher visited each class individually and discussed the purpose of the study with the students. All students present on the day were invited to participate in the study. At the University of Cape Town, the final year medical students were on various rotations within their curriculum. The researcher discussed the purpose of the study with the course convenor and the students on the first visit. The course convenor then distributed the questionnaire to a new group of students once every 2 weeks until the end of the university year. At Stellenbosch University, the final year class representative convened a class meeting where the researcher discussed the purpose of the study with the students and invited all present to participate in the survey. The survey was conducted at a follow up class meeting and everyone present was invited to participate in the study. Participants at each tertiary institution were required to complete consent forms before undertaking the study.

In order to determine an accurate response rate, records were kept of the number of individuals that were invited to participate in the study (the number of students that were registered for their final year) and the number of students that participated.

5.4. DATA ANALYSIS

Questionnaires were checked for completion at each institution before the researcher departed. Completed questionnaires were then coded and computerised. Data cleaning was performed. Data was analysed using the SAS programme.

5.5. RESULTS

A total of 199 nursing students were registered for their final year, 70 of whom attended the University of the Western Cape and 129 of whom attended Western Cape College of Nursing. At the University of the Western Cape and Western Cape College of Nursing 64 and 115 students participated in the study respectively resulting in a response rate of 91% and 89% respectively, with an overall nursing student response rate of 90%. A total of 327 medical students were registered for their final year, 176 of whom attended Stellenbosch University and 151 of whom attended the University of Cape Town. At Stellenbosch University and the University of Cape Town 73 and 108 students participated in the study resulting in a response rate of 41% and 72% respectively with an overall medical student response rate of 55%. This resulted in an overall student response rate of 68%. Of the 360 students 348 (97%) provided information regarding their age. The students' age ranged from 20 to 49 years with a mean (median) age of 25 ± 4 (24) years.

5.5.1. Knowledge

Overall knowledge scores: Table 5.1 illustrates that knowledge scores ranged from 18.5% - 85.2% across all students. The same cut-off point (80%) that was chosen as a desired knowledge score for the HPs was applied to the students. Five percent of students scored poorly (less than 40%), 37% had mediocre scores (40 – 59%) and although 55% had good scores (60 – 79%), only 3% of students achieved the desired score of 80% or higher.

Medical students obtained knowledge scores which ranged from 22.2% - 85.2%. One percent of medical students scored poorly (less than 40%), 19% had mediocre scores (40 – 59%) and although 75% had good scores (60 – 79%), only 5% of students achieved the desired score of 80% or higher.

Nursing students obtained knowledge scores which ranged from 18.5% - 82.7%. Ten percent of nursing students scored poorly (less than 40%), 54% had mediocre scores (40 – 59%) and although 36% had good scores (60 – 79%), only 1 student achieved the desired score of 80% or higher.

Table 5.1: Medical and Nursing students ranking for their overall knowledge test scores

Group (n)	Minimum	Maximum	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
All students (360)	18.5	85.2	5	37	55	3
Medical students (181)	22.2	85.2	1	19	75	5
Nursing students (179)	18.5	82.7	9.4	54	36	0.6

Actual versus perceived knowledge scores: In Section A of the test students were requested to rate their perceived knowledge on diet, physical activity and smoking cessation as either poor, mediocre, good or excellent. These ratings were assigned percentage values in order to compare their perceived knowledge rating to the knowledge score they obtained on the test (their actual knowledge). A poor knowledge rating was assigned a score of 40% or less, while mediocre, good and excellent rankings were assigned scores of 40 – 59%, 60 – 79% and 80% or higher respectively.. Table 5.2 shows the actual knowledge scores of the students and compares it to their perceived knowledge rating. It is evident that a large proportion of students overestimated their actual knowledge of LM.

Table 5.2: Actual versus perceived knowledge scores for all students

Group (n)	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
Actual scores (360)	5	37	55	3
Perceived scores (360)	3	20	57	20

Table 5.3 provides a breakdown of this comparison for both medical and nursing students and illustrates that 75% of medical students achieved good scores while 5% of medical students achieved excellent scores compared to the 57% and 17% of students that rated themselves as having good and excellent scores respectively. As for the nursing students, although 24% perceived themselves as having an excellent knowledge base for LM less than 1% of these students achieved scores greater than 80%. Furthermore 58% of nursing students rated their knowledge as good, yet only 36% of them achieved good scores. In actual fact more than 60% of nurses scored poor or mediocre scores.

Table 5.3: Actual versus perceived knowledge scores for medical and nursing students

Group (n)	Score	Poor (< 40%)	Mediocre (40 – 59%)	Good (60 – 79%)	Excellent (80 – 100%)
Medical students (181)	Actual	1	19	75	5
	Perceived	3	24	57	17
Nursing students (179)	Actual	9.4	54	36	0.6
	Perceived	3	15	58	24

Comparative mean knowledge scores: Medical students had the highest overall mean knowledge score (66% ± 9) compared to nursing students (55% ± 12). Table 5.4 displays the mean test scores per section for the students. Medical students had the highest mean scores. Nursing students had mediocre scores across most categories. As far as knowledge on dietary modification was concerned, students achieved the highest mean knowledge scores for the section on diet and hypertension. Both groups of students achieved good mean scores on the physical activity section. Medical students also achieved good scores for the weight loss section of the test; however, nursing students only achieved mediocre scores in this section.

Table 5.4: Comparative mean knowledge test scores of medical and nursing students

Professional Group (n)	Test scores per section (%)*						
	Diet and CHD	Diet and HPT	Diet and Diabetes	Diet and CDL	Physical Activity	Weight Loss	Overall
All students (360)	53 ± 16	68 ± 16	57 ± 14	58 ± 22	75 ± 20	60 ± 20	61 ± 12
Medical students (181)	60 ± 13	74 ± 14	60 ± 13	62 ± 22	78 ± 18	71 ± 15	66 ± 9
Nursing students (179)	46 ± 16	63 ± 17	54 ± 15	53 ± 22	72 ± 21	48 ± 18	55 ± 12

* Values indicate mean % ± standard deviation

CHD, coronary heart disease; HPT, hypertension; CDL, chronic diseases of lifestyle

Identified problem areas: Questions that were poorly answered reflected areas of LM that require further education and training. Between 70% and 87% of participants incorrectly answered the questions illustrated in Table 5.5.

Table 5.5: Top 10 questions answered incorrectly

No.	% Respondents	Question
1	87	Consumption of oats porridge with sugar in a diabetic patient's diet
2	86	Cholesterol content of margarine
3	84	Advice regarding alcohol consumption
4	83	Health benefits of brown sugar compared to white sugar
5	78	Claim that apple cider vinegar promotes weight loss
6	74	Cholesterol content of avocado pear
7	74	Oral agents and meal patterns
8	74	Consumption of fruit juice versus diet cold drinks for weight loss
9	70	Classification of body mass index (BMI)
10	70	Consumption of lentils as well as fruit juice in a diabetic patient's diet

Messages being promoted: Table 5.6 presents some of the questions that were answered correctly by the majority of participants. More than 89% of students had the correct knowledge regarding some of the most important messages for patients with CDL.

Table 5.6: Top 10 messages being promoted (Questions answered correctly)

No.	% Respondents	Question
1	96	Consumption of soft maize meal porridge in a hypertension patients diet
2	95	Walking and gardening increases physical activity levels
3	92	Consumption of avocado pear in a diabetic patients diet
4	91	Consumption of fruit is allowed in a diabetic patient's diet
5	91	Saturated fats such as those found in full cream milk, butter, meat, and chicken skin increase blood cholesterol levels
6	91	Lentils and dried beans should be allowed in a CHD patient's diet
7	91	Herbs can be used to flavour foods instead of salt
8	89	Patient should be advised to perform at least 30 minutes of moderate exercise daily
9	89	A low fat diet is beneficial in all chronic diseases of lifestyle
10	89	Weight loss requires eating smaller portions of all food types
11	89	Consumption of sweet potatoes in a diabetic patient's diet

5.5.2. Practices

Self-reported health of students: Students were asked to indicate whether or not they smoked cigarettes, do regular exercise, describe themselves as overweight or obese and whether or not they follow a healthy diet. Figure 5.1 shows the proportion of students that indicated 'yes' to the abovementioned questions. Ten percent of students indicated that they smoked, 51% indicated that they participated in exercise regularly to maintain their fitness levels, 18% indicated that they were overweight and 58% indicated that they followed a healthy diet. Regression analysis of students self-reported health demonstrated that those students who indicated that they followed a healthy diet were significantly (p=0.0064) more likely to achieve higher scores on the knowledge test than those who did not.

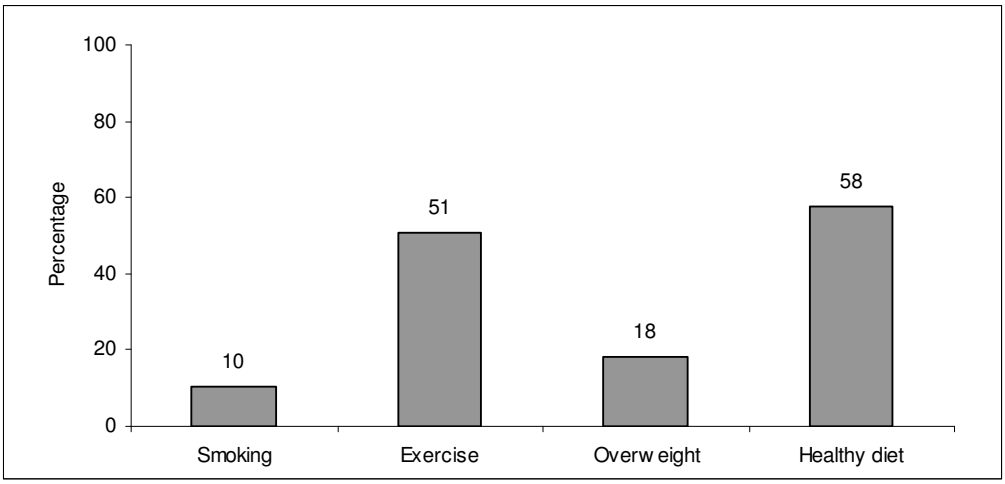

Figure 5.1: Self-reported student health

Main sources of information: Students (53% and 48%) identified the mass media as their main source of information on smoking and physical activity respectively, while 43% identified textbooks as the main source of information on diet. A large proportion (30% and 29%) of students also identified textbooks as their main source of information on smoking and physical activity respectively, while 40% identified mass media as a further source of information on diet.

Confidence in counselling skills: The majority of students indicated that they were quite confident or very confident in providing counselling on diet (52% and 10%), physical activity (62% and 17%) and smoking cessation (53% and 32%) respectively.

Perceived barriers that would prevent counselling: Patient non-adherence and language barriers were identified by the majority of students as factors they perceived that would prevent them from providing counselling on LM (Figure 5.2). Lack of time was seen as another expected barrier.

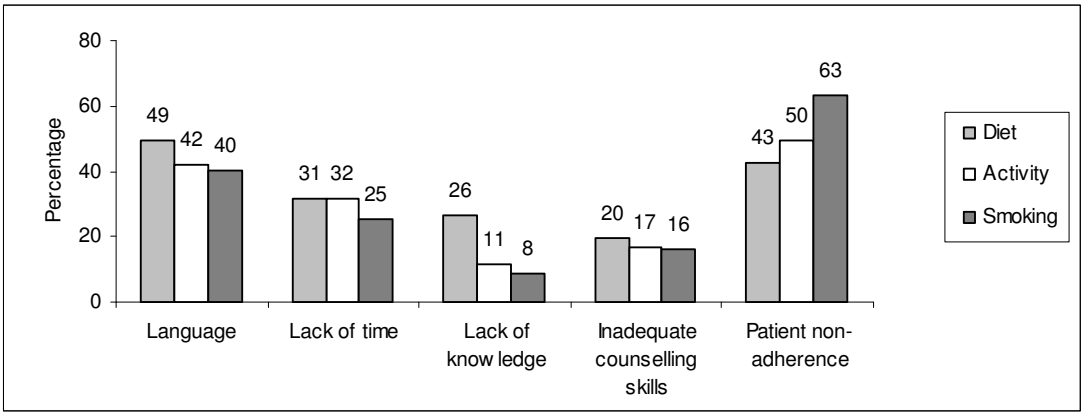

Figure 5.2: Perceived barriers that would prevent counselling

5.5.3. **Knowledge and practices regarding smoking cessation**

Figure 5.3 shows that the majority of students (92% – 97%) indicated that they would enquire about smoking habits in all the patients, these included adult males, adult females, adolescent males, adolescent females, CDL patients, coronary heart disease patients and pregnant women.

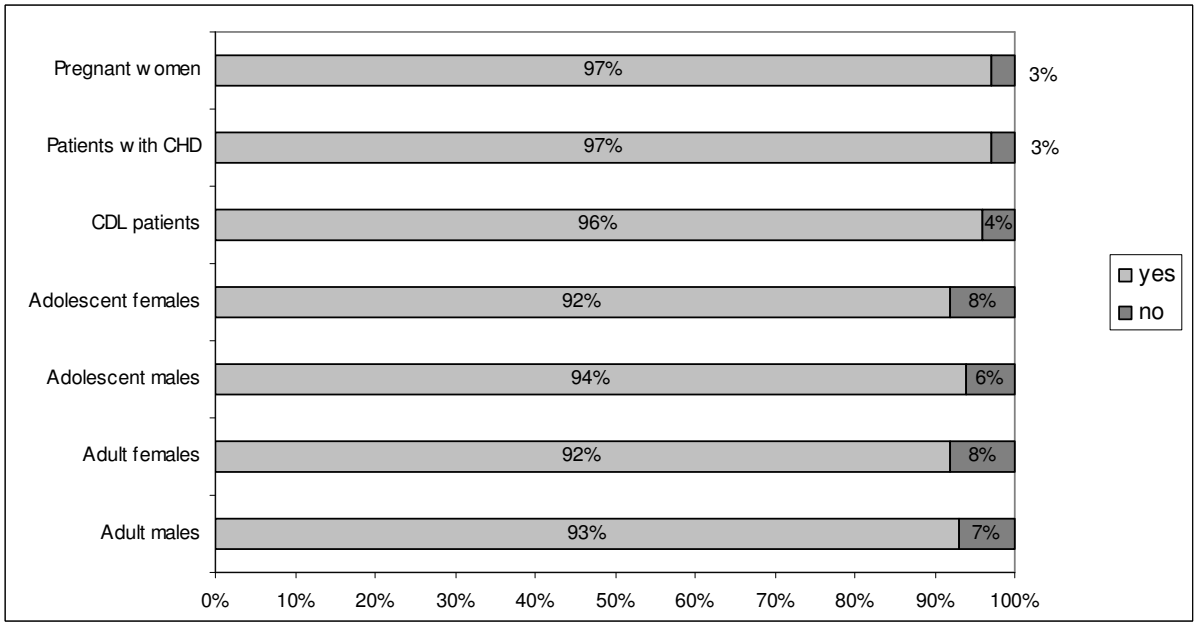

Figure 5.3: Frequency of enquiries about smoking habits

Seventy one percent of students indicated that they would routinely advise their patients to stop smoking, while 27% and 2% of students indicated that they would sometimes or that they wouldn't routinely advise their patients to stop smoking respectively.

Figure 5.4 illustrates that students indicated that the most common methods of smoking cessation that they would recommend were counselling by HPs (90%), followed by nicotine replacement therapy (88%), combination therapy (86%), tapering off (80%) and telephone help lines (62%).

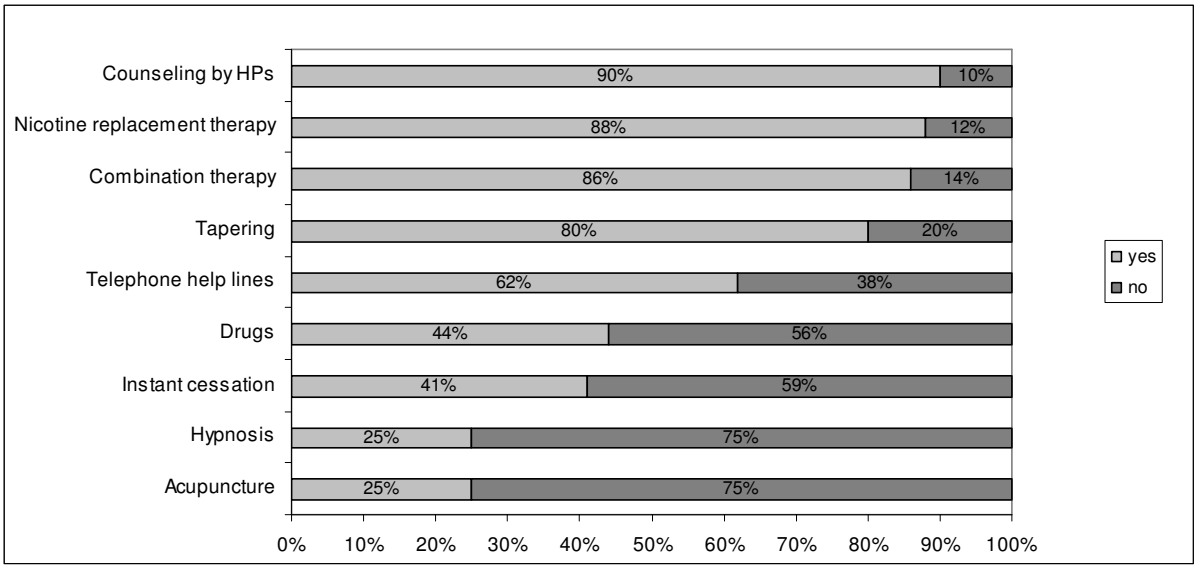

Figure 5.4: Students indication of the smoking cessation methods that they would recommend

Fifteen percent of students indicated that they were aware of other methods of smoking cessation. These methods included substitution, avoidance, faith, changing behaviour and mindsets, joining support groups or rehabilitation centres, psychotherapy, shock therapy, support structure within the family, providing patients with information regarding the health consequences of smoking, financial gain as well as ceasing the sale of tobacco products.

Students recommended various options for substitution such as sweets or bubblegum. They also recommended that people occupy themselves with alternative activities such as reading or participating in recreational sports and exercise as well as developing hobbies.

Avoidance referred to steering clear of bars, places as well as people that smoke. One respondent mentioned avoiding eating raw tomatoes citing the reason as tomatoes and tobacco are grown from similar trees.

When describing faith as a method of cessation, students described it as prayer and belief as well as meditation to seek spiritual guidance and support in resisting temptation.

Students also suggested changing behaviour or mindsets by having courage and self-discipline. They also mentioned that changing daily habits as well as social acquaintances would assist in smoking cessation. A suggestion was made not to stop smoking when one runs out of cigarettes but rather to stop while one still has them at hand.

Furthermore, students suggested belonging to a support group or attending a clinic for smoking cessation such as Narcotics Anonymous, citing that it is easier to quit when one has support and empathy from others.

Students also suggested using 'shock therapy' with patients by taking patients on vascular ward rounds as well as having patients exposed to the complications of smoking such as lung cancer.

Another method cited by students was that of a supportive family environment. A suggestion was made to quit smoking as a dedication to a loved one.

Other suggestions included educating patients or providing access to self-help books on smoking cessation as well as the prospect of financial gain. This referred to advising patents that they could do something better with their money such as saving it for their children's education. A suggestion was made to gradually decrease the number of cigarettes and count the amount of money that one saves.

Lastly, there was also the suggestion of ceasing the sale of tobacco products.

Thirteen percent of respondents indicated that they were aware of smoking cessation services in the community. These included rehabilitation or recreation centres, churches as well as organisations such as Smoke-Enders, SANCA and SANTA.

Other services included pharmacies, telephone help lines on cigarette packets, social workers, school health nurses, psychologists, and group sessions at private hospitals as well as Tygerberg hospital antismoking clinic.

When students were asked to indicate what percentage of patients that they advise about quitting smoking would achieve long term success, the majority of students (49%) indicated that less than 10% of patients would achieve long term success. Thirty six percent and 13% of students indicated that 10-20% and 20-50% of patients would achieve long term success respectively, while only 2% of students indicated that more than 50% of patients would achieve long term success.

5.6. DISCUSSION

This study evaluated the knowledge and practices of a representative sample of final year medical and nursing students that attended 4 tertiary institutions in the Western Cape regarding the role of LM in the prevention and management of CDL.

Since the students completed the same knowledge test that the HPs completed, the desired knowledge score of 80% remained. A large range in knowledge scores emerged among students. Fifty eight percent of students scored above 60% on the test while only 3% achieved the desired score of 80% or higher.

When comparing knowledge scores between medical and nursing students, the medical students appeared to be more knowledgeable about LM than nursing students since 80% of medical students achieved scores greater than 60% and only 37% of nursing students managed to achieve the same result.

Furthermore when the students' perceived knowledge rating was compared to their actual knowledge scores it was established that medical students generally had a fairly accurate perception of their knowledge, with 74% of medical students rating their knowledge as good and 80% achieving good scores (60-79%). A small percentage of medical students overestimated their knowledge with 17% estimating their knowledge as excellent and only 5% achieving excellent scores. Nursing students on the other hand grossly overestimated their knowledge. Less than 1% of the nursing students managed to achieve a score of 80% or higher and only 36% of nursing students achieved good scores on the test. Yet, when they rated their knowledge on LM, 24% and 58% rated their knowledge on this topic as excellent and good respectively.

As for perceived barriers, the majority of students indicated that they perceived that a lack of patient adherence would be the main barrier that would prevent them from providing LM counselling to patients. Between 40 and 50% of students indicated that they perceived language barriers would be another issue that would prevent counselling. Only a third of students indicated a lack of time as a perceived barrier. On average less than 20% of students perceived that a lack of knowledge or inadequate counselling skills would be barriers. Thus before these students follow in the footsteps of the current HPs, by providing incorrect information on LM to their patients, they should be provided with the necessary training and education in LM. This statement is endorsed by numerous studies that have suggested that the scope of nutrition education be expanded in both the medical and nursing students' curricula. [1, 8, 12-15]

The sections on diet and hypertension as well as physical activity appeared to be the sections in which students achieved the highest scores. Nursing students, however, scored poorly in the

section on weight loss. This therefore emphasizes the need to provide students with the necessary training and education in LM.

Further analysis of the content of the knowledge tests established that the majority of students were aware of the theoretical concepts of LM, such as limiting fat intake, decreasing the consumption of sugar and salt, increasing the consumption of foods high in fibre, increasing physical activity and promoting weight loss. However, they seem to experience difficulty when it comes to the practical implementation of these messages. These results support the findings of other studies. [13, 16-17]

In 2002 Vengetasami *et al*.[1] reported that doctors who had reportedly modified their own diets were more likely to apply clinical nutrition in their professional practices. The relationship between self-reported health and clinical practices was not measured in this study however, there was a positive association between following a healthy diet and achieving higher knowledge test scores.

Students indicated that the mass media was their main source of information on LM. Textbooks were cited as the second most popular source of information. An attempt should therefore be made to ensure that students are provided with reliable information on LM.

When asked about the frequency of their enquiries regarding smoking in various patient categories, students indicated that they would equally enquire about smoking habits from all patients, including pregnant women, CDL patients, patients with coronary heart disease and male patients. It appears as if the tendency of only engaging with patients who are in higher risk categories as indicated in other studies[12, 18-20] only occurs once HPs are practising and is thus not something that they carry with them from their tertiary education.

Most students indicated that they would recommend counselling by HPs, nicotine replacement therapy and combination therapy as smoking cessation methods. Other suggestions included substitution, avoidance, faith, changing behaviour and mindsets, joining support groups or rehabilitation centres, psychotherapy, shock therapy, support structure within the family, providing patients with information regarding the health consequences of smoking, financial gain as well as ceasing the sale of tobacco products. One suggestion included the avoidance of eating raw tomatoes, citing the reason as tomatoes and tobacco are grown from similar trees. Although this reason only appeared once, it highlights the misconceptions that surround smoking cessation. Similar misconceptions exist for changes in diet and physical activity as well. The only way in which these misconceptions can be addressed would be to provide adequate training and education to these students by including these topics in their curricula.

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CHAPTER 6

HEALTH FACILITY AUDIT

6.1. INTRODUCTION

The prevalence of chronic diseases of lifestyle (CDL) is increasing in South Africa. Cardiovascular diseases account for a much larger proportion of deaths in the Western Cape Province (58%) compared to the rest of the country (38%).[1] Approximately 23 395 hypertensive and 13 338 diabetic patients attend primary health care (PHC) facilities in the Western cape Metropol per month. These facilities should therefore be equipped to provide information, education and counselling on lifestyle modification (LM) to patients. PHC facilities should also have adequate access to equipment and health promotion materials needed for CDL patients.

In 2003, Reagon *et al.*[2] conducted a national survey of PHC facilities in South Africa. Part of this survey investigated the availability of equipment and health education materials which they referred to as Information, Education and Communication (IEC) materials. These authors listed 12 items as essential equipment. Table 6.1 illustrates the availability of some of these items at PHC facilities in South Africa. PHC facilities in the Western Cape appear to be in advantageous position since at least one of each of these items was reportedly available at 100% of facilities, while this is not the case in the rest of the country.

Table 6.1: Availability of equipment at PHC facilities in South Africa according to provinces[2]

		Province									
	Year	**EC**	**FS**	**GP**	**KZN**	**LP**	**MP**	**NC**	**NW**	**WC**	**RSA**
		% Facilities with at least one of each item of equipment in a working condition									
Adult scale	2003	94	93	99	98	96	100	94	94	100	96
	2000	90	96	86	93	90	89	100	97	100	92
Stethoscope	2003	97	100	88	100	100	97	96	97	100	96
	2000	93	96	100	100	90	96	100	97	100	96
Baumonometer	2003	98	100	100	98	100	97	96	97	100	98
	2000	91	96	100	95	87	100	92	97	100	94
Glucometer	2003	64	72	82	89	72	88	68	85	93	78

Furthermore, Reagon *et al.*[2] calculated the proportion of professional nurses with at least one of four essential items of equipment in a working condition as an indicator of the availability in facilities of equipment necessary for professional nurses to practice effectively. Table 6.2 illustrates their results, which indicates that there is a severe lack of equipment in sufficient numbers at the majority of PHC facilities in South Africa. Reagon *et al.*[2] concluded that there is generally good availability of equipment in most facilities, however, much still needs to be done in all provinces to ensure that all items of essential equipment are readily available to professional nursing staff.

Table 6.2: Availability of essential equipment to professional nursing staff members in consulting rooms at PHC facilities in South Africa according to provinces[2]

	Province									
	EC	**FS**	**GP**	**KZN**	**LP**	**MP**	**NC**	**NW**	**WC**	**RSA**
	% At least one of each item of equipment in a working condition									
Stethoscope	29	66	60	47	17	43	64	48	68	46
Baumonometer	23	65	51	41	17	28	63	47	62	40

EC – Eastern Cape; FS – Free State; GP – Gauteng; KZN – KwaZulu Natal; LM – Limpopo; MP – Mpumalanga; NC – Northern Cape; NW – North West; WC – Western Cape; RSA – Republic of South Africa

When these authors investigated the presence and availability of IEC materials (wall posters and / or booklets and pamphlets) in addition to their availability in local languages, they chose 7 common health topics, some of which is indicated in Table 6.3. Although they did not include IEC materials related to LM or CDL, generally these authors reported that wall posters were far more common in facilities than booklets or pamphlets. They also reported that material in local languages was generally unavailable. However, they once again illustrated that the Western Cape had the highest supply of IEC material.

Table 6.3: Availability of IEC materials by topic and by province PHC facilities in South Africa[2]

	Province									
	EC	**FS**	**GP**	**KZN**	**LP**	**MP**	**NC**	**NW**	**WC**	**RSA**
	% At least one of each item of equipment in a working condition									
Diarrhoea / ORS Preparation										
Wall posters	80	64	69	90	87	93	27	73	67	76
Local language material	42	45	42	89	37	55	9	54	72	51
Breastfeeding / Nutrition										
Wall posters	91	62	92	96	90	93	61	76	93	88
Local language material	43	35	35	79	29	36	21	17	71	45
Tuberculosis										
Wall posters	94	93	100	96	88	97	81	81	97	94
Local language material	47	77	64	84	36	27	23	66	90	59
HIV / AIDS testing										
Wall posters	55	80	55	83	77	88	60	65	93	70
Local language material	39	81	42	63	10	32	16	41	86	45
PMTCT										
Wall posters	19	5	17	25	34	4	3	14	37	20
Local language material	8	9	17	19	2	4	0	3	29	11

EC – Eastern Cape; FS – Free State; GP – Gauteng; KZN – KwaZulu Natal; LM – Limpopo; MP – Mpumalanga; NC – Northern Cape; NW – North West; WC – Western Cape; RSA – Republic of South Africa

ORS – Oral rehydration Solution; PMTCT – Prevention of Mother to Child Transmission

The aim of this phase of the study is therefore to conduct an audit of the availability and efficacy of equipment as well as health education methods and materials currently used by HPs for the management of CDL patients at PHC facilities within the Western Cape Metropol.

6.2. METHODS

6.2.1. Study Design

This phase of the study employed a comparative multi-centre descriptive exploratory quantitative study design.

6.2.2. Study Population

The study population consisted of health promoters, facility managers and nursing staff at the 30 PHC facilities previously identified in Chapter 4 (Figure 4.1) within the Western Cape Metropol.

6.2.3. Process of Consultation

As with phase one of this study, permission to conduct the health facility audit was granted by the health authorities in the region (PGWC). Facility managers were contacted telephonically in order to raise their awareness of this phase of the study. Since this audit focused on the availability and efficacy of equipment and health education materials, a HP that was directly involved with these issues was the ideal candidate to participate in this study. The facility manager was thus requested to identify a key informant to participate in this study.

6.2.4. Sampling

Key informants identified by the facility managers at each PHC facility were thus purposively selected to participate in the execution of the audit. Selected participants were contacted telephonically and appointments to conduct the audit with them were made.

6.2.5. Instruments

Information regarding the current health promotion materials available to PHC facilities was sourced from the health authorities (PGWC). Two resource centres were identified and requested to provide a summary of all their available health promotion materials. All health promotion materials related to LM and CDL were then extracted. A checklist of health promotion materials and methods as well as a list of equipment that should be available at each facility was then compiled. (Appendix D)

6.3. DATA COLLECTION

The researcher visited each PHC facility and conducted an audit with the assistance of the key informant, each of whom was requested to sign a consent form indicating their willingness to participate in the audit. The presence and availability of equipment and health promotion materials were measured via direct observation, while the effectiveness of the available health promotion methods and materials and the working condition of equipment were determined by interviews with key informants.

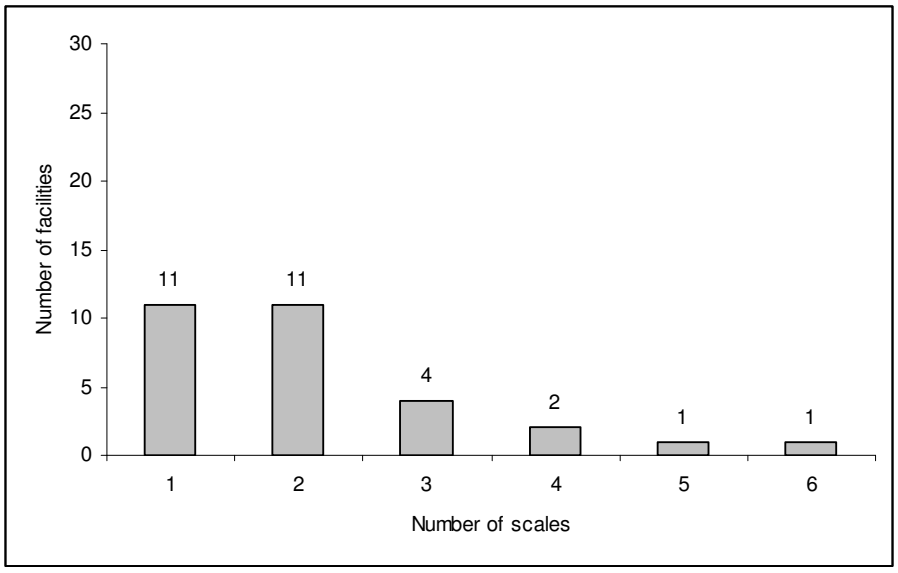
6.4. DATA ANALYSIS

Checklists were verified for completion at each clinic before the researcher departed. Completed questionnaires were then coded and computerised. Data was cleaned and analysed using Microsoft excel.

6.5. RESULTS

6.5.1. Availability and efficacy of equipment

Adult Scales: The availability of scales ranged from one to six scales per facilitiy. Figure 6.1 shows that the majority (22) of facilities reported having access to either one or two scales, while only one facility reported having five scales and another facility reported access to six scales. Due to the limited number of scales at facilities it was not possible to furnish each consulting room with its own scale. Usually, the scales would be located within the preparation (prep) room at the facility. Before consulting the doctor, patients are usually seen by nurses in this room, who conduct their assessments such as their weight, height and blood glucose measurements. Furthermore, it is important to note that six facilities reported that some of their scales were broken or in need of maintenance.



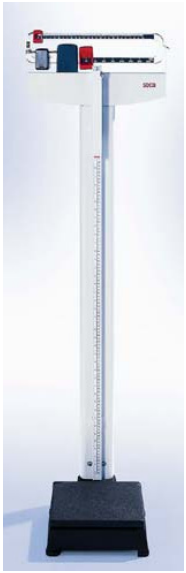


Figure 6.1: Availability of scales at PHC facilities (n=30)

Height measures: The absence of height measures were reported at 4 facilities. Where they were available, they were usually located in the prep room and as such were not available in all consulting rooms. Although 26 facilities reported their availability, some of these included self-made height measures that doctors had marked off on the doors of their consulting rooms. Furthermore, 2 facilities reported that their height measures were in need of maintenance.

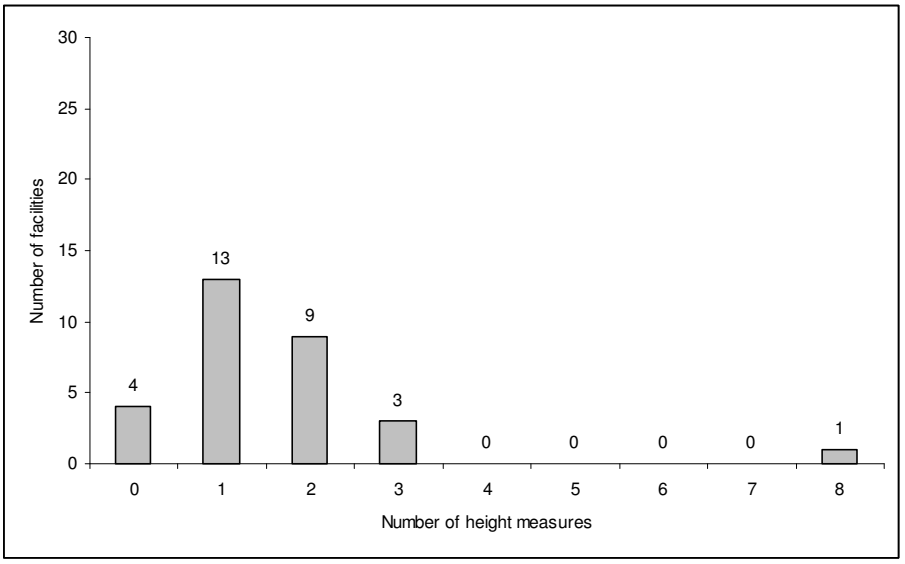
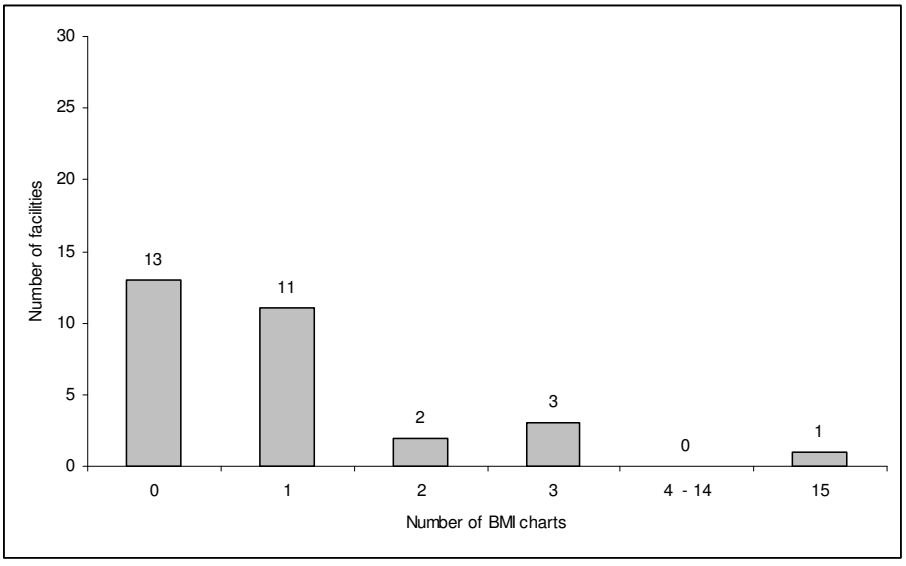


Figure 6.2: Availability of height measures at PHC facilities (n=30)

BMI charts: The absence of BMI charts and BMI wheels were reported at 13 facilities. Of the 17 facilities in which these were present, only 2 reported that they were available in all their consulting rooms. Furthermore, the facilities that reported the presence of these charts or wheels were more often those that had access to dietetic services.



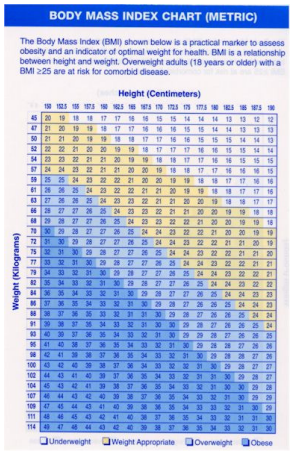


Figure 6.3: Availability of BMI charts at PHC facilities (n=30)

Tape measures: The absence of tape measures was reported at 16 facilities. At the facilities where they were available, they were reportedly in a good condition. However, they were seldom found in consulting rooms but were often available in the maternity section of the facility. Tape measures were reportedly lost due to theft at some facilities.

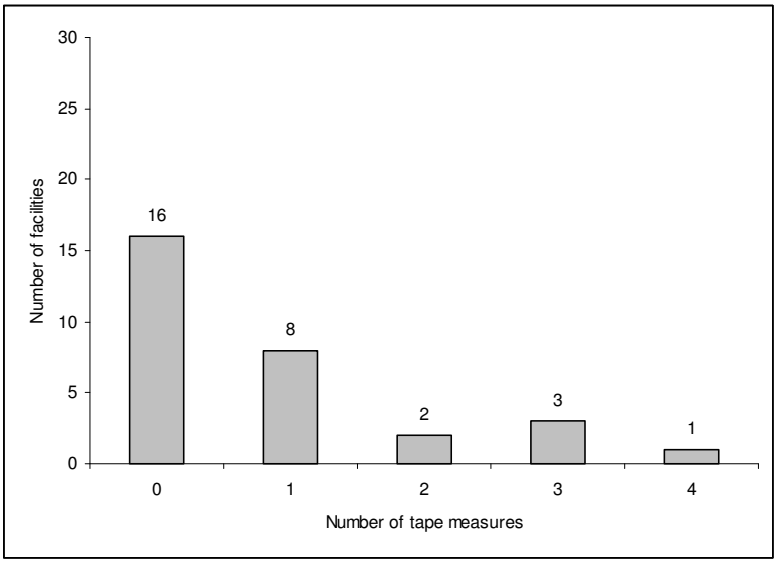


Figure 6.4: Availability of tape measures at PHC facilities (n=30)

Hb meters: All facilities had access to an Hb meter, all of which were reported to be in a good working condition. These were reported not to be available in all consulting rooms but were usually located in the prep prom.

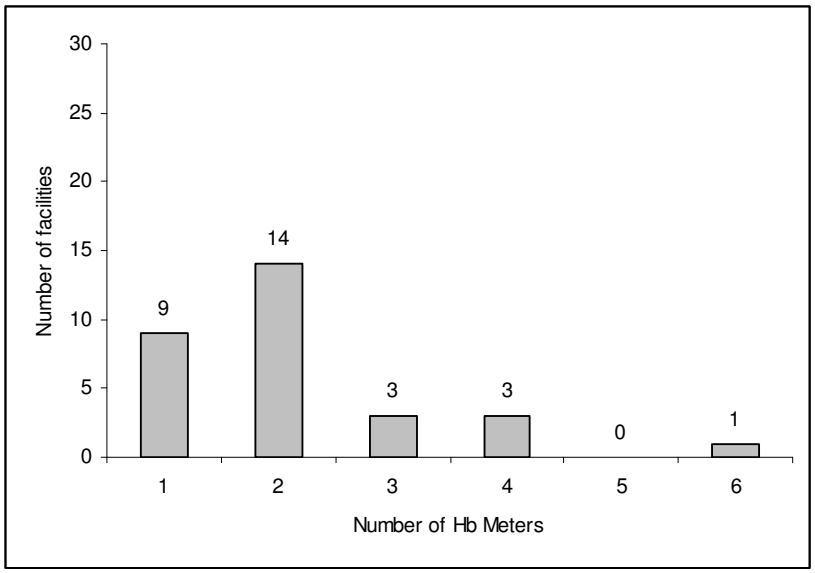
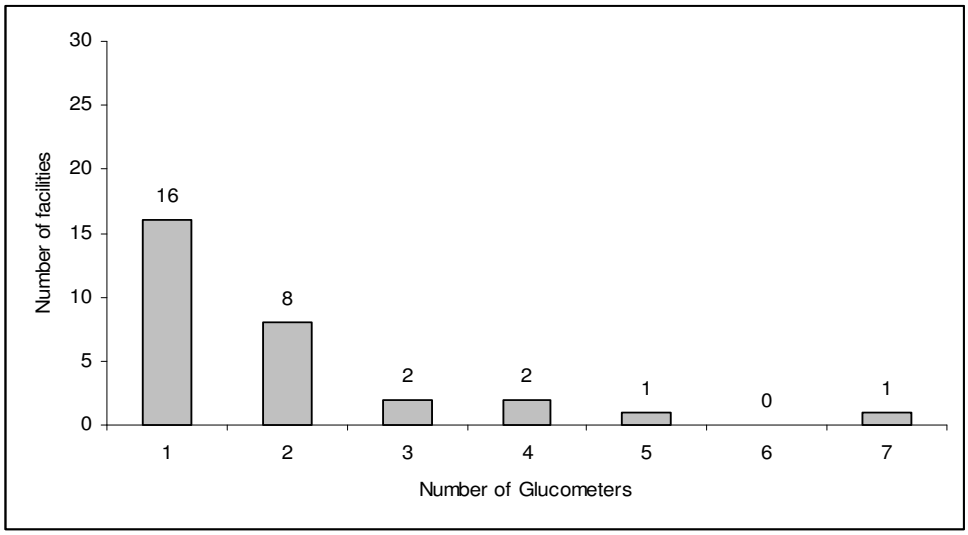


Figure 6.5: Availability of Hb meters at PHC facilities (n=30)

Glucometers: These were reportedly available at all PHC facilities, the majority of which were reported to be in a good working condition. As with other equipment, these were located in the prep room and therefore not available in all the consulting rooms. However, two facilities that reported operational problems with their machines, such as the absence of batteries and the absence of glucose strips. Thus, although these machines were present, they were rendered useless at that point in time.



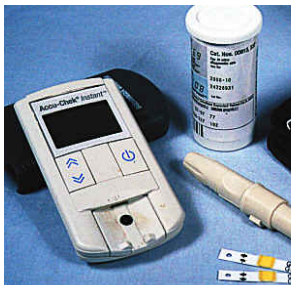


Figure 6.6: Availability of glucometers at PHC facilities (n=30)

Baumanometers and small blood pressure (BP) cuffs: Baumanometers and BP cuffs were available in all consulting rooms in 29 of the 30 facilities, all of whom reported that they were in good working condition. The availability ranged from a minimum of one to a maximum of 17 per facility. The remaining facility reported having 7 baumanometers, however, at the time the audit was conducted 6 were broken and had been sent in for repairs thus only one remained in the facility and had to be shared between all the departments including the trauma department.

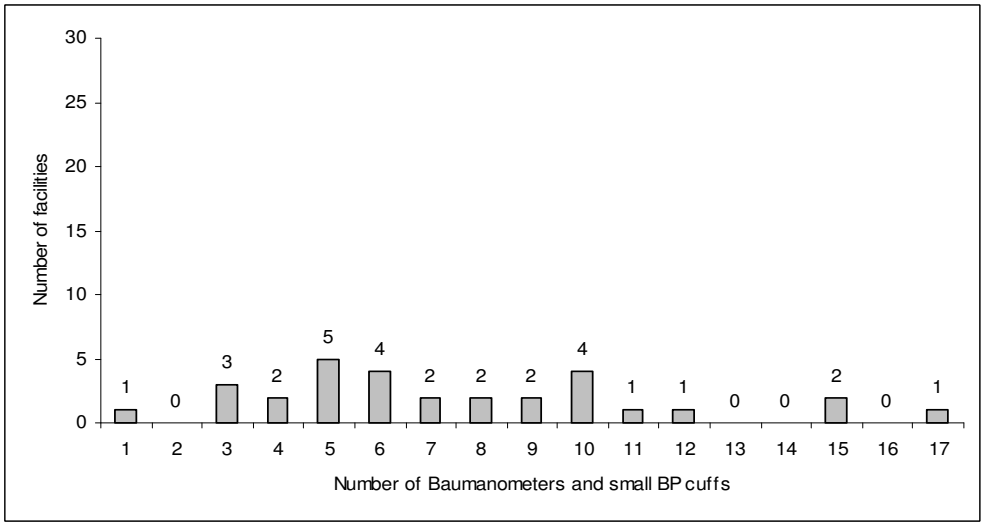


Figure 6.7: Availability of baumanometers & small blood pressure cuffs at PHC facilities (n=30)

Large BP cuffs: The absence of large BP cuffs was reported at 5 facilities. There were no more than four BP cuffs at those facilities where they were available and none of these reported their availability in all their consulting rooms. The majority of facilities requested access to more of these BP cuffs, while one facility requested replacements for their old cuffs.

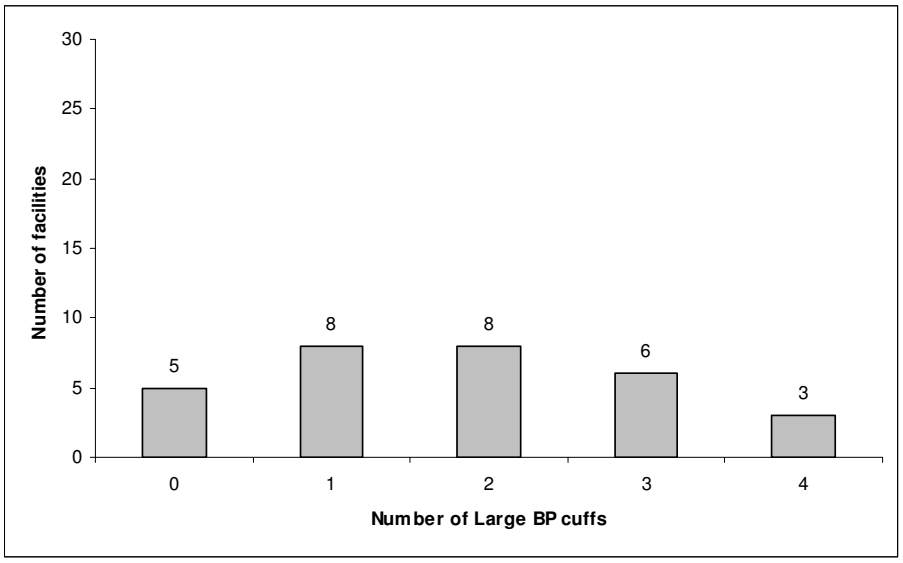


Figure 6.8: Availability of large blood pressure cuffs at PHC facilities (n=30)

Visual acuity charts: At least one visual acuity chart was present at each facility however, they were not available in each consulting room. Six facilities reported that their charts were in a fair or even poor condition since many of them were old and faded. Staff requested that they be supplied with charts that were in a better condition and as well as charts with symbols or pictures that could be used for illiterate patients.

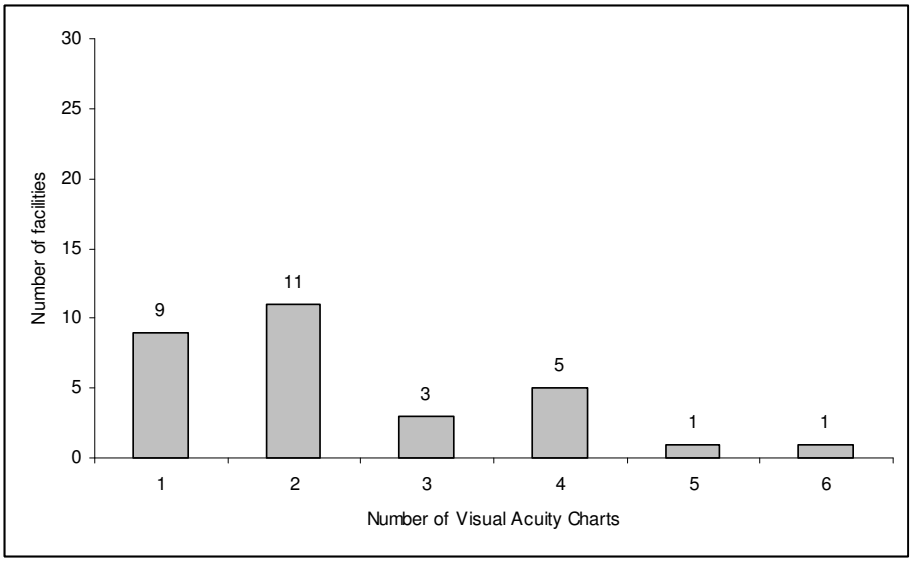
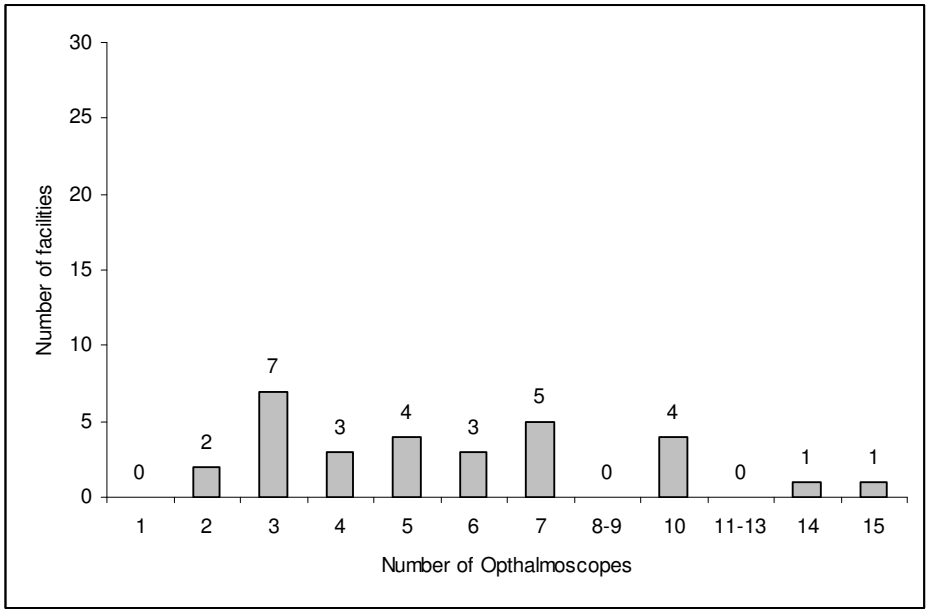


Figure 6.9: Availability of visual acuity charts at PHC facilities (n=30)

Ophthalmoscopes: All the consulting rooms at 27 of the 30 facilities were equipped with ophthalmoscopes. Although they were also present at the remaining 3 facilities, they were not available in all the consulting rooms at these facilities.



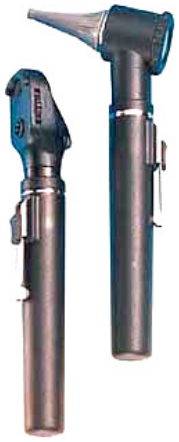


Figure 6.10: Availability of ophthalmoscopes at PHC facilities (n=30)

Televisions: These were reportedly available in a good condition at 27 of the 30 facilities and were usually located in their waiting rooms. However, one facility noted that although they had 3 televisions on their premises, they still had to be installed and secured.

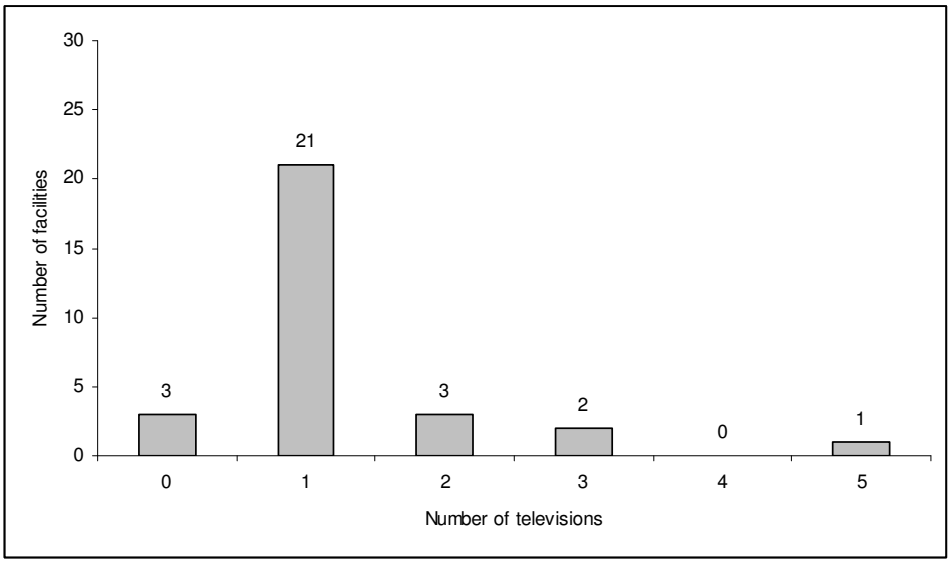


Figure 6.11: Availability of televisions at PHC facilities (n=30)

Video machines: Video machines were reportedly available in a good condition at 26 of the 30 facilities. Four facilities reported the absence of a video machine, one of which reported that television and video machine had been stolen from the facility earlier in the year.

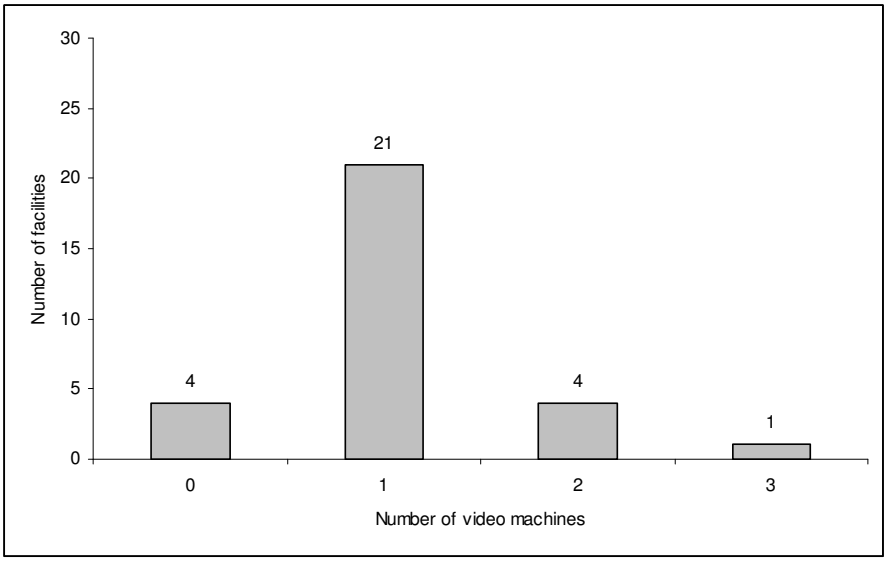


Figure 6.12: Availability of video machines at PHC facilities (n=30)

6.5.2. Health promotion methods

A list of 10 various health promotion methods were compiled as seen in Figure 6.13. All facilities reported that they used posters and pamphlets as a method of health promotion. The majority of facilities reported that they provided individual counselling to patients. Twenty three facilities reported the use of workshops as a method of health promotion, while 19 facilities indicated that they make use of guest speakers; usually pharmaceutical representatives that provide workshops to both patients and staff members. Nineteen facilities also reported that they make use of diabetic and hypertensive clubs for their patients, 17 facilities reported that they make use of health promotion booklets. Fifteen facilities reported the use of video tapes. Numerous facilities reported the use of support groups at their facilities; however, these support groups were mainly for HIV/AIDS patients. Only 9 facilities reported that they were aware of support groups for diabetic and hypertensive patients.

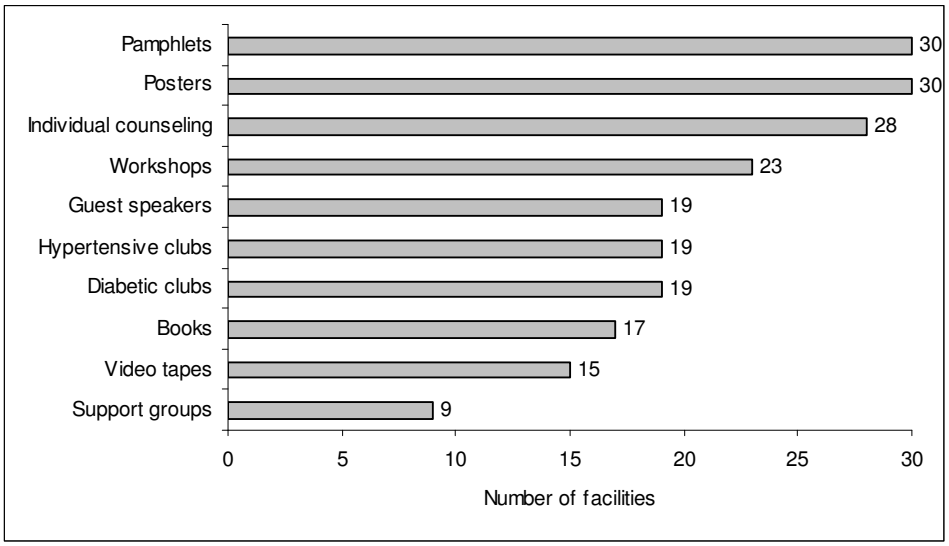


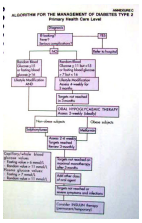
Figure 6.13: Health promotion methods available at PHC facilities (n=30)

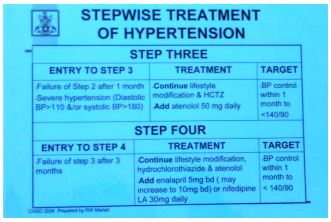
6.5.3. Health promotion materials

Wall charts: Standard guidelines for the treatment and management of diabetes and hypertension have been designed and are available to facilities as wall charts, desk tops or pocket books. Table 6.4 indicates that hypertension guidelines were present at 26 facilities, but awareness was only reported at 24 facilities. This implies that the key informants at 2 PHC facilities were unaware of these wall charts. Furthermore, awareness and presence of diabetes guidelines were only reported in 13 of the 30 facilities.

Table 6.4: Awareness and presence of wall charts at 30 PHC facilities in the WCM

Wall charts	Awareness	Presence
Hypertension	24	26
Diabetes	13	13

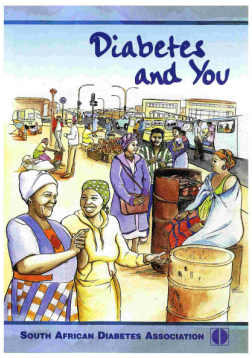


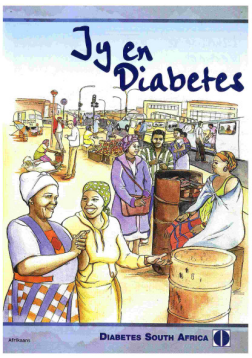


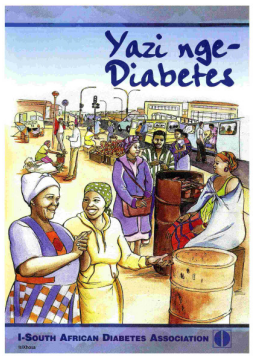
Patient booklets: Table 6.5 shows that twenty six facilities were aware of the '*Diabetes and You*' booklet developed by Diabetes South Africa; however, it was only present in 16 facilities. The booklet on '*High blood pressure: Healthy living is good for everyone*' developed by Soul City was not as well known as the '*Diabetes and You*'. Only 13 facilities reported awareness of this booklet and it was only present at 6 facilities.

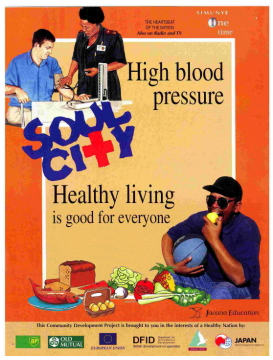
Table 6.5: Awareness and presence of patient booklets at 30 PHC facilities in the WCM

Publisher	Pamphlets	Awareness	Presence
Diabetes South Africa	Diabetes and You	26	16
Soul City	High blood pressure: Healthy living is good for everyone	13	6









South African National Guidelines: The National DOH requested the researcher to include the national guidelines that they developed as part of this audit. The DOH had developed 5 booklets on primary prevention and management of CDL, type 2 diabetes, stroke & TIA's, osteoporosis and overweight and obesity. In addition, the Nutrition directorate had also developed a booklet on healthy eating. These are illustrated in Figure 6.14 and were said to have been distributed to all PHC facilities. However, Table 6.6 indicates that the awareness of these booklets was minimal and the presence of these booklets at facilities was practically non-existent.

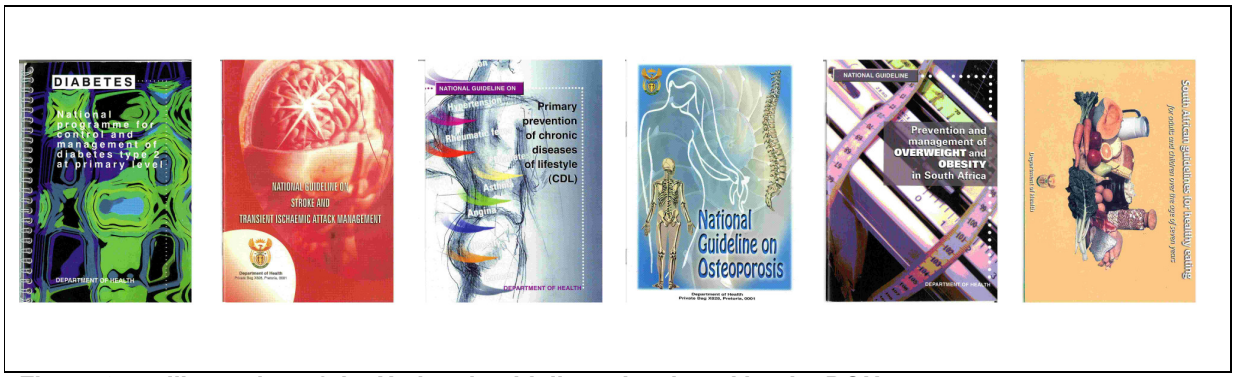


Figure 6.14: Illustration of the National guidelines developed by the DOH

Table 6.6: Awareness and presence of National Guidelines at 30 PHC facilities in the WCM

Publisher	Pamphlets	Awareness	Presence
National Department of Health	Control and management of diabetes type 2 at primary level	18	1
National Department of Health	Stroke and transient ischaemic attack management	4	1
National Department of Health	Primary prevention of chronic diseases of lifestyle	2	0
National Department of Health	Osteoporosis	1	0
National Department of Health	Prevention and management of overweight and obesity in SA	0	0
Nutrition Directorate	SA guidelines for healthy eating	7	1

Videotapes: Previously it was indicated that the majority of facilities have televisions and video machines but only 5 facilities reported using videotapes as a method of health promotion. Furthermore, awareness of videos on CDL and LM that available at the PGWC or Cape Town Resource centres was minimal at all facilities. With the exclusion of the video ''n Bord vol gesondheid', which was known at 13 facilities, most videos were only known by 1 – 6 facilities.

Table 6.7: Awareness of LM and CDL videotapes at 30 PHC facilities in the WCM

Publisher	Videotapes	Awareness
	Diseases	
SABC, n.d.	Medic Air: Diabetes (Diabetes Week 1992) and Rabies (3 X 15 mins + 5 mins)	1
Safritel, n.d.	Medic Air: Diabetes, episodes 1 – 5 (5 X 7 mins)	4
SABC, n.d	Medic Air: The silent killer – hypertension (14 mins)	6
SABC/Wits production, n.d.	Medic Air: Strokes – Causes and risks and The generic remedy (23 mins + 5 mins)	2
	Obesity and Physical activity	
Hospital Satellite Network, 1986.	Learning about weight management, 6 parts (16, 18, 14, 12, 12, 12mins)	0
Np., nd.	SASFA Senior Sangala (Exercise programme) (48 mins)	5
	Heart Disease and Stroke	
Python Entertainment, n.d.	Body story: Part 1 – Under pressure (30 mins)	0
Multivision, 1988.	Heart attack: Controlling your cholestrol (21mins)	2
Hospital Satellite Network, 1986.	Heart attacks: Causes and risk factors (16mins)	1
WHO, 1992.	Heartbeat: The rhythm of health (17mins)	0
Hospital Satellite Network, 1986.	Learning about heart attacks: Meeting the emergency (13mins)	0
WHO, 1992.	Heart diseases: The once and future killers (17mins)	0
SABC/Wits production, n.d.	Medic Air: Strokes – Causes and risks and The generic remedy (23 mins + 5 mins)	1
Hospital Satellite Network, 1985.	Stroke: Maximising recovery (29mins)	0
Video Lab, n.d.	Take your cholesterol to heart (11 mins)	1
American Journal of Nursing, 1996.	Understanding stroke (13mins)	4
	Diet / Nutrition	
Source Communications.	'n Bord vol gesondheid / A plate of good health (26 mins)	13
SABC, 2002	Food for thought (Special Assignment Programme) (30 mins)	3
Charles Cahill, 1977.	The junk food man (10mins)	2
Pacific Health Education Media.	Just a little nutrition (17mins)	3
	Smoking	
WHO, 1991	Breathe free, smoke-free (11 mins)	1
WHO, 1990	Hooked on tobacco (12mins)	1
Pacific Health Education Media	Just a little smoke (20mins)	1
Pyramid Films, 1985	Second-hand smoke and First cigarette (16 + 10 mins)	1
Institute of Urban PHC	Soul City 2 (smoking, TB, AIDS, land & housing) - PHC Edutainment (13 X 24 min)	2
WHO, 1989.	Smart women don't smoke (12mins)	2
WHO, 1992	Tobacco-free workplaces: Safer and healthier (10mins)	2

Pamphlets: Figure 6.15 illustrates some examples of pamphlets that are available at PHC facilities. These pamphlets are produce by various organisations including the South African Sugar Association, the Heart and Stroke Foundation of South Africa, Diabetes South Africa and the Cape Town Resource Centre.

Figure 6.15: Illustration of some of the pamphlets available at PHC facilities

Table 6.8 illustrates HPs awareness and the presence of pamphlets that should be available to PHC facilities. It is important to note that there was not one pamphlet that was that was known to all PHC facilities. The pamphlet with the greatest awareness was the hypertension pamphlet produced by the Sugar Association, which was identified by 20 of the 30 health facilities. This was followed by the diabetes pamphlets produced by the Sugar Association as well as the Heart and Stroke Foundation. Generally, for each topic, pamphlets produced by the Sugar Association were the most well known. On average, a third of facilities reported awareness of the majority of the pamphlets on the audit checklist.

Table 6.8: Awareness and presence of pamphlets at PHC facilities

Publisher	Pamphlets	Awareness	Presence
	Diabetes		
SA Sugar Association	Understanding Diabetes… … ...What is it all about?	19	17
SA Sugar Association	Do you have diabetes	18	17
Heart Foundation	Diabetes - Diabetes is not caused by eating too much sugar!	19	16
Diabetes South Africa	Healthy eating guide	10	7
Diabetes South Africa	Diabetes: what should I eat?	7	5
Diabetes South Africa	Understanding diabetes	7	5
CT Resource Centre	Diabetes (General information) – Eng, Afrik or Xhosa	4	2
CT Resource Centre	Diabetes (for newly diagnosed patients) – Eng, Afrik or Xhosa	0	0
CT Resource Centre	Foot care for elderly and diabetics	0	0
	Hypertension		
SA Sugar Association	A silent killer… … Understanding hypertension and stroke	20	16
Heart Foundation	High Blood Pressure - Hypertension … the silent killer	17	15
Heart Foundation	Stroke - The Brain Attack	13	11
CT Resource Centre	HYPERTENSION – Eng, Afrik or Xhosa	14	8
	Alcohol		
Heart Foundation	Alcohol - It's about balance and moderation	12	9
	Diet / Nutrition		
SA Sugar Association	Balanced eating for good health	14	11
Heart Foundation	Eat Well - A balanced meal is a healthy meal	11	8
Heart Foundation	Heart Mark - Heart Mark Diet Line 0860 223 222	11	8
	Cholesterol / Heart Disease		
Heart Foundation	Cholesterol… The Jekyll and Hyde	14	9
Heart Foundation	Live Life from the Heart	12	8
Heart Foundation	Heart attack - Blood supply to the heart is cut off	10	8
Heart Foundation	Women - One in four women is at risk before	10	8
	Smoking		
Heart Foundation	Smoking - causes a traffic jam to the Heart	14	10
CANSA	You wouldn't smoke mothballs, so why do you smoke cigarettes?	7	6
	Physical activity		
Heart Foundation	Exercise - Aim to be breathless but not speechless	10	5
	Obesity		
SA Sugar Association	Understanding Obesity… … The problem and prevention	17	16
Heart Foundation	Obesity - 45% of South Africa are clinically obese!	11	8

Although awareness and presence of pamphlets appear to be scarce at PHC facilities, this may not always be so, since PHC facilities receive pamphlets from other sources such as pharmaceutical companies as well. These pamphlets are not listed in Table 6.8.

Posters: Table 6.9 indicates the awareness and presence of posters at PHC facilities, while Figure 6.16 illustrates some examples of posters available at PHC facilities.

The majority of facilities (between 24 and 26 of 30) were aware of the diabetes posters developed by the Cape Town Resource Centre, while they were only present at two thirds of the facilities. More than half the facilities were aware of the diabetes posters produced by Diabetes South Africa, however, these posters were also not always present.

Awareness and presence of hypertension posters were much lower than that of diabetes posters. Less than 17 facilities reported awareness but they were present in less than 11 facilities.

The Cape Town Resource centre had developed a set of 3 posters on alcohol. Only 11 facilities reported awareness thereof, while their presence was only found in 3 – 5 facilities. Posters on diet or nutrition were available in less than a third of facilities, while posters on smoking were only found at one facility.

Table 6.9: Awareness and presence of posters at 30 at PHC facilities in the WCM

Publisher	Posters	Awareness	Present
	Diabetes		
CT Resource Centre	Diabetes: Complications	25	20
CT Resource Centre	Diabetes: Healthy eating with diabetes	26	18
CT Resource Centre	Diabetes: Healthy living with diabetes	24	18
CT Resource Centre	Diabetes: What is diabetes / Are you at risk?	25	19
Diabetes South Africa	Diabetes: How do you feel (Eng, Afr, Xho)	16	9
Diabetes South Africa	Diabetes: Are you at risk (Eng, Afr, Xho)	17	8
Diabetes South Africa	What is diabetes (Eng, Afr, Xho)	19	13
Diabetes South Africa	Insulin role in diabetes (Eng, Afr, Xho)	16	10
Diabetes South Africa	Do you have diabetes (DSA support group poster)	12	7
	Hypertension		
CT Resource Centre	Hypertension: Prevention and control	17	11
CT Resource Centre	Hypertension: Signs and symptoms	14	8
CT Resource Centre	Hypertension: What is hypertension?	14	8
	There is New Hope after Stroke	6	2
	Alcohol		
CT Resource Centre	Sensible drinking: Drinking too much can cause	11	4
CT Resource Centre	Sensible drinking: How to drink alcohol sensibly	11	5
CT Resource Centre	Sensible drinking: What is it?	11	3
	Diet / Nutrition		
Heart Foundation	Eat to your hearts content! Choose the heart mark	11	8
Soul City	Making Healthy food	13	10
Health Department	Wat behoort ek te eet	14	11
	Smoking		
Heart Foundation	The Smokers Body	1	1
WHO	They Smoke Opponents, Not Cigarettes	1	1

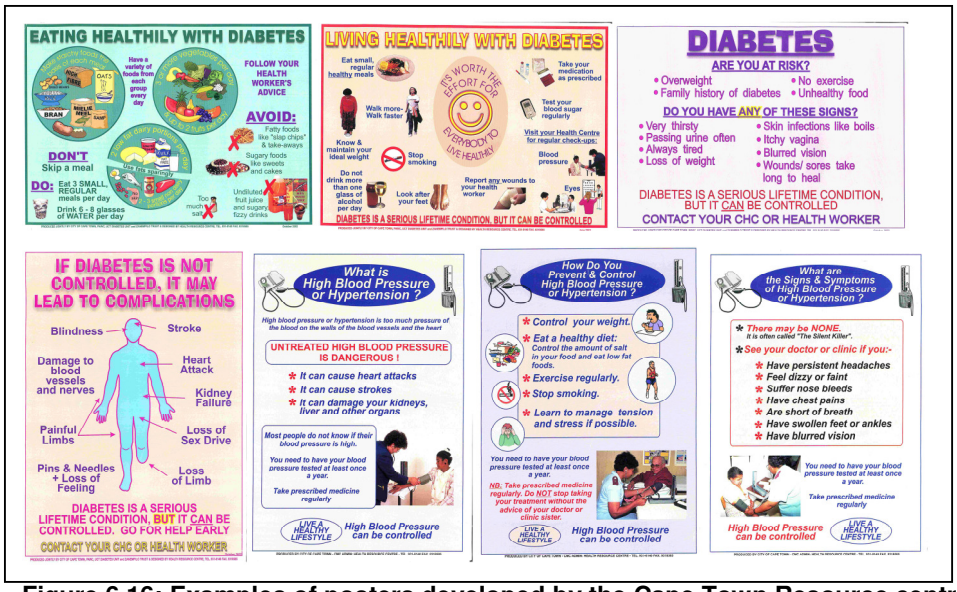


Figure 6.16: Examples of posters developed by the Cape Town Resource centre

As with pamphlets, PHC facilities also receive posters from other sources such as pharmaceutical companies. Table 6.10 comprises a list of some of the other posters available at facilities.

Table 6.10: Other posters available at PHC facilities.

Publisher	Posters
	Diabetes
Lilly Series	How to look after yourself, your skin, eyes, feet, teeth
Lilly	Diabetes flipchart
Roche	You could have diabetes
Novo Series	Injection sites and foot care
Clothing industry	Good food for the diabetic
DOH	Signs and symptoms of diabetes
SEMDSA	foot care
CT Resource centre	How to take care of your feet properly
SADA	Diabetic not drunk
SADA	Are you a diabetic - how would you feel
SADA	Five things everyone should know about diabetes
	Hypertension
Western Cape Regional Services	Hypertension
PGWC	heart attack and stroke - medication / diet / smoking / activity
	Alcohol
	Don't drink and drive when you're pregnant
	Nutrition
	Vrugte en Groente (Fruit and Vegetables)
Integrated Nutrition Programme	Food based Dietary Guidelines Flipchart
	Fruit and veg give you the edge
	Smoking
	NO smoking sign
	You wouldn't smoke mothballs…
TAG	- don't let tobacco advertising sentence you to a life of smoking

6.6. DISCUSSION

It is important to note that this study mainly focussed on the equipment and health promotion services related to lifestyle modification (diet, physical activity and smoking cessation) that are available to CDL patients at PHC facilities. As a result issues regarding access to and availability of medication, clinical treatment regimens as well as clinical decision making guidelines and standards were excluded from this study design.

The presence and availability of equipment and health promotion materials were measured via direct observation and therefore restricted any measurement error in this regard. However, the researcher relied solely on information obtained during interviews with the key informants regarding the working condition of equipment. No objective methods were applied to check the accuracy of this information. This may have introduced a degree of error and as such should be seen as a limitation of the study design.

With regard to equipment, the majority of facilities reported that they had access to at least one scale, glucometer, haemoglobin meter, baumonometer, visual acuity chart and ophthalmoscope in a good working condition. Equipment that was not available at all facilities included height measures, BMI charts, tape measures, large blood pressure cuffs, televisions and video machines. Furthermore, at facilities where equipment was available it was often reported to be in short supply. In addition some facilities reported inadequate access to consumables such as glucose strips and batteries for glucometers. As a result HPs need to share equipment amongst each other. Bearing in mind the large volume of patients attending these facilities on a daily basis, it is not surprising that HPs reported that their equipment constantly required maintenance and repair, especially baumanometers and glucometers. These findings support that of the national survey conducted in South Africa in 2003, where Reagon *et al.*[2] showed that although equipment was present at facilities, it was often not available in sufficient numbers. The sharing of equipment results in HPs prolonging the time that they need to conduct patient assessments and as a result patients often have to wait for assistance at health facilities for extended time periods.

In order to improve health service delivery at PHC facilities, these facilities should be provided with access to equipment that is proportional to the number of HPs employed at each facility. This would ensure that each HP would be able to deliver optimal health services. Maintenance and repair of equipment should also be conducted on a regular basis. Access to consumables should also be ensured, be it with respect to ordering or replacing these materials.

Some facilities reported loss of equipment such as televisions and video machines as a result of theft, thus strategies should be implemented to reduce these occurrences.

As far as health promotion materials are concerned, a variety of sources have produced materials for LM and CDL. These include the Department of Health (DOH), Non-governmental organisations, pharmaceutical companies, students and even staff members. Although the content and the acceptability of the information provided in these health education materials were not assessed in this study, they are generally of an acceptable quality. There is therefore no need to redevelop or produce new materials. The process of designing and compiling materials is time and labour intensive. The DOH developed the booklets on National Guidelines for various disease conditions with the intention of distributing these books to all PHC facilities. However, these materials never reached the facilities or even the people they were intended for and as a result there is limited knowledge and awareness of them. More time and energy should therefore be spent and focussed on the distribution of health promotion materials to PHC facilities and less time on developing new materials.

The awareness and presence of existing health education materials was found to be far less than desired. This also confirms the findings of the national survey conducted by Reagon *et al.*[2] Although their study focussed on IEC materials on topics other than LM and CDL, this study indicates that the situation for all kinds of material, irrespective of the topic, is the same. This audit increased HPs' awareness of materials that are available at the resource centres for their use. The process of increasing awareness needs to be continued. Although the results of this study indicate that there are very few posters present at PHC facilities, this may be misleading. There are in fact other posters on display at facilities. These are more often the posters that are produced by pharmaceutical companies and delivered directly to the facilities by pharmaceutical representatives from companies such as Lilly or Novo Nordisk.

HPs did however, cite advantages and disadvantages regarding the practicality of using pamphlets and posters as health education materials.

The advantages of using pamphlets included the fact that they contain more information than posters as well as the opportunity it provides for patients to take information away from the facility and read it in their own time. The disadvantage included the fact that the distribution of pamphlets is often problematic as the pamphlets don't always reach their intended audience since they are usually freely available at the facility. Although this may sound like an advantage, this is not always the case as children coming to the facility tend to play with the pamphlets and thus damage them. Furthermore patients may read pamphlets while they wait for assistance at the facility however, they usually discard them before the end of the day. Thus it may not necessarily be a cost-effective means health education material.

Some of the advantages for using posters included that they provide information that is available and accessible to patients at all times, provided that they are displayed within the facility. Furthermore, posters are usually colourful and therefore brighten the facility creating a richer and more pleasant environment.

The disadvantages associated with posters however, far outweighed the advantages that were mentioned. These include the fact that posters are often large and in order to prolong their lifespan they are often laminated. Although this is done with good intentions, it often results in the posters becoming too heavy to adhere to the walls. Posters thus keep falling off the walls, eventually become a nuisance and as a result they are simply removed from the display and as such they are unable to be viewed by patients.

The posters that are not laminated however, undergo more trauma than those that are. These posters are torn easily; they are damaged or broken by patients that stand against them while they lean against the walls. Staff have also reported that patients tend to use posters as scrap paper by tearing a piece off them to jot down telephone numbers on them. One facility reported that some patients actually tear the posters and use them to roll cigarettes. Another facility reported that their home based care workers went into an informal settlement and found that a patients' shack was wallpapered with posters from the PHC facility. As previously mentioned posters are colourful and tend to brighten up a space and if it is laminated it becomes waterproof which is an added bonus when used as wallpaper! School children also visit the health facility for information for their school projects and instead of transcribing information from the posters, they tend to steal the posters.

Staff also reported some logistical problems in the collection of posters. This was problematic since posters are available at the resource centres but health promotion staff are not always mobile and cannot always get to these resource centres. In addition it is time consuming for health promoters to go to the resource centres and they are not always guaranteed that there will be stock available when they arrive. Posters that are available may also not necessarily be in the appropriate language for the facility. Furthermore, staff reported that patients tend to remove the prestik and pins from the posters and in PHC facilities. These consumables are not always easily accessible since completing a request form for supplies may result in months of waiting and if the staff purchase it themselves, they have to wait for extended time periods before they are reimbursed. One staff member reported that their facility was repainted and the posters tended not to stick to the new paint and as a result the posters that were removed could not be replaced.

Bearing this in mind, the efficacy of materials should be given more attention in terms of ensuring that materials at facilities are available in the predominant languages of the patients attending the facilities as this would facilitate health education. Studies have shown that the lack of health

promotion materials in their required languages add to the barriers that prevent health education and counselling at PHC facilities.[3] In addition, the time and effort in developing materials should be valued by displaying them in the most advantageous way. This could be done by ensuring that facilities have easy access to consumables such as prestik and pins that they can use to display posters on the walls. This condition may be improved significantly if notice boards, where drawing pins or prestik tend to disappear, were to be replaced with lockable glass or plastic with display cabinets.

One facility has shown a great initiative in overcoming the problems associated with posters. They have had health education / promotion messages painted as murals on the walls of the facility (Figure 6.17). These cannot be torn, broken or removed and are thus durable, long lasting and thus successful in conveying health education messages. This provides another solution that can be adopted by other PHC facilities to add value to health promotion materials.

Figure 6.17: Paintings of health education messages on the walls of a PHC facility

6.7. REFERENCES

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CHAPTER 7

PATIENT PREFERENCES REGARDING HEALTH PROMOTION MATERIALS AND METHODS ON LIFESTYLE MODIFICATION AND CDL

7.1. INTRODUCTION

As previously indicated, numerous studies have reported that health professionals (HPs) cite patient non-adherence[1-8] as a barrier that prevents lifestyle modification (LM) education and counselling. Concurrently, the literature also provides indisputable evidence that patients view HPs as reliable and valuable sources of information[9-14] and that patients are more likely to attempt to change their lifestyles in response to advice they receive from HPs.[15-22] It is therefore necessary to determine the patients' perspective on receiving and implementing LM.

Numerous factors affect patients' perspectives on health education and counselling and have been discussed in detail in chapter 2 (literature review) of this thesis. These factors include continuity of care,[23-24] receiving conflicting health education messages,[13, 23] access to the facility in terms of transport,[48] accessibility of information in terms of language[23, 25] and communication with HPs as well as cultural beliefs.[23, 26-30]

The aim of this phase of the study was to describe patients' perspectives regarding the extent of LM education and counselling they receive at PHC facilities in the Western Cape Metropol. In doing so, the objectives of this study included;

1. Describing the profile of chronic diseases of lifestyle (CDL) patients, in terms of their demographic background, their disease profiles as well as their current lifestyle practices.
2. Identifying the services such as observations, tests or special examinations available to CDL patients.
3. Identifying patient preferences with regards to receiving LM education and counselling from HPs at PHC facilities
4. Identifying patient preferences regarding the health promotion methods and materials used for providing education on LM and CDL at PHC facilities in the Western Cape Metropol district.

7.2. METHODS

7.2.1. Study Design

This phase of the study employed a comparative, multi-centre, descriptive exploratory, quantitative study design.

7.2.2. Study population

The study population consisted of CDL patients attending PHC facilities in the Western Cape Metropol. At the inception of this phase of the study, information regarding patient statistics at PHC facilities in the Western Cape was sourced from the Provincial Government of the Western Cape. Monthly patient statistics for the year 2003 was provided and used to determine the average number of diabetic and hypertensive patients attending PHC facilities on a monthly basis. It was

estimated that approximately 23 395 hypertensive and 13 338 diabetic patients attend PHC facilities in the Western Cape Metropol per month.

7.2.3. Process of Consultation

Permission to conduct this study was obtained by the Provincial Government of the Western Cape. Facility managers at each PHC facility were contacted and permission was obtained to interview CDL patients there. Since this phase of the study targeted patients as the study sample, the predominant language(s) of the patients needed to be taken into account. Furthermore, the majority of PHC facilities in the Western Cape Metropol have specific days on which CDL patients attend, these are referred to as 'chronic days'. The facility manager was thus requested to identify the predominant language(s) of the patients attending their facilities as well as the days on which CDL patients attend the facilities. Appointment dates to conduct the patient interviews were then made with the facility manager.

7.2.4. Sampling

Based on the 2003 monthly statistics provided by the Provincial Government of the Western Cape, the 30 PHC facilities that had been randomly selected (See Chapter 4, Figure 4.1) to participate in the study serviced an estimated 16 224 and 9 817 hypertensive and diabetic patients respectively. This thus comprised the total pool of patients in the sample. The sample size for this phase was calculated based on a 95% confidence interval and a confidence limit of 0.04. This resulted in an overall sample size of 600 patients. In order to achieve a representative sample of patients attending PHC facilities in the Western Cape Metropol, this sample was equally distributed across the 30 facilities. These facilities had previously been selected using stratified random sampling based on geographical location. In order to achieve the calculated sample of 600 patients, the required sample size was 20 patients per facility.

In this phase of the study CDL patients are defined as those patients who have diabetes or hypertension or a combination of both of these chronic conditions. In order to include a representative sample of both diabetic and hypertensive patients in this study, the required sample size of 20 patients per facility was further divided into 10 diabetic and 10 hypertensive patients per facility.

Since the commencement of the study however, one of the facilities in the selected sample had ceased to provide services to CDL patients and had referred their CDL patients to another facility in the vicinity. Thus this phase of the study was only conducted in 29 of the 30 facilities, resulting in a final sample size of 580 patients.

7.2.5. Instruments

A questionnaire was developed for the purposes of achieving the aims and objectives of this phase of the study (Appendix E). The questionnaire was comprised of the following sections:

1. *Section A*: Basic and demographic information including disease profiles, the duration for which patients have been receiving treatment as well as whether or not they belong to a support group for their chronic conditions.
2. *Section B*: Services received at the facility including observations, tests and special examinations
3. *Section C*: Patient preferences regarding health promotion materials and methods with respect to LM and CDL. In order to facilitate the identification of these materials and methods, an addendum to the questionnaire was developed to form part of the questionnaire administration process (Appendix F). This section included a question on encountering any difficulties when trying to obtain information and a question on suggested changes to the health facility.
4. *Section D*: Current lifestyle practices regarding diet, physical activity and smoking.

The questionnaire was then piloted at a selected PHC facility. This facility did not form part of the study sample. Once the questionnaire was administered patients were asked to comment on the clarity and relevance of the questions. Relevant changes were then made and incorporated into the final questionnaire. The questionnaire was then translated into both Afrikaans and Xhosa (Appendix G and H). The translated questionnaires were back-translated in order to address the issue of translation accuracy.

7.3. DATA COLLECTION

Four fieldworkers were employed to assist with the questionnaire administration and data collection of this study. One of the criteria for selection of the fieldworkers was a proficiency in two languages, either English and Afrikaans or English and Xhosa.

The background, aim and objectives of the study were explained to the fieldworkers. They were then trained to administer the questionnaire and practiced the questionnaire administration by performing mock interviews on each other. Once they felt confident in administering the questionnaire, training on basic questionnaire coding was provided. As an additional training component, two PHC facilities were identified and asked to participate in the training programme for the fieldworkers. These PHC facilities were then visited and each fieldworker conducted 5 interviews with CDL patients. Although these facilities formed part of the study sample, the data would not be contaminated since the same patients present on the day of the training programme would not be present on the day of the actual questionnaire administration.

Once the fieldworkers completed their trial interviews they coded the questionnaires. The coding was then checked by a fellow fieldworker in order to determine any discrepancies and served to highlight any mistakes that could be made during coding. Once this was done the researcher provided a final training session in which the questionnaires were double checked and any discrepancies and queries were addressed.

In order to assign fieldworkers to an appropriate PHC facility, their language proficiencies were matched to the predominant language(s) at the facilities. Since the majority of CDL patients attend PHC facilities in the morning, access to patients were limited to approximately 5 hours a day (7am / 8am to 12pm or 1pm). Each fieldworker was required to administer 10 interviews a day. Either one or two fieldworkers were allocated to a facility. This was dependent on the 'chronic days' that were identified by the facility manager. Some facilities had separate 'chronic days' for diabetic and hypertensive patients, while others combined diabetic and hypertensive patients on the same 'chronic day'. If a facility had separate 'chronic days', one fieldworker was allocated to the facility and visited the facility over 2 days in order to obtain the required sample of 10 diabetic and 10 hypertensive patients. On the other hand, if a facility had combined 'chronic days', two fieldworkers were allocated to the facility and completed the required sample of 20 patients in one day. In this instance, each fieldworker was responsible for recruiting either diabetic or hypertensive patients. If a patient happened to have both conditions they were included in the sample, provided that at the end of the day, the final sample included at least 10 diabetic and 10 hypertensive patients, irrespective of whether or not these conditions co-existed in the same patient.

This phase of the study aimed to determine patient preferences regarding methods and materials used to receive health promotion on LM and CDL. Since LM is effective in both diabetic and hypertensive patients it was irrelevant as to whether patients had diabetes, hypertension or a combination of the conditions.

At the facility, fieldworkers randomly selected patients to participate in the study. Once the fieldworkers entered the facility they identified a primary patient who would serve as the first interviewee. Every 5th patient in the queue was then approached to participate in the study. The fieldworkers provided these patients with an information sheet which explained the aim and objectives of this study. The information sheet was provided in the patients' native language. Fieldworkers read the information sheets and explained the aims of this study to those patients who were unable to read. Patients who agreed to be interviewed were then requested to sign a consent form to indicate their willingness to participate in the interview. The consent forms were also made available to patients in their language of choice. Patients who declined to participate in the study were replaced by those who were willing to do so in order to complete the required sample size.

7.4. DATA ANALYSIS

Questionnaires were checked for completion at the clinic before the fieldworker departed. Completed questionnaires were then coded by fieldworkers and cross checked by another fieldworker. The questionnaire contained a few open ended questions that could not be coded in the initial coding session. A data capturing form was designed for these questions. The responses to these questions were then manually transferred to this form. The completed data capturing form was then computerised. This form served as a tool to generate coding lists for these questions. Once the coding lists were generated, the open ended questions were coded and the completed questionnaires were captured. Data was cleaned and analysed using the SAS programme.

7.5. RESULTS

7.5.1. Demographics

Gender: Of the 580 patients that participated in the study 171 were male and 409 were female.

Age: The patients' ages ranged from 21 to 84 years with a mean age of 55 ± 10 years.

Disease profile: Overall 55% of participants reported that they had diabetes and 81% reported that they had hypertension. More than a third of patients (36%), also reported receiving treatment for other health conditions at the facilities. These conditions were tabulated and grouped into 9 disease categories. Table 7.1 represents a summary of these disease categories and the way patients described their condition. In addition to receiving treatment for diabetes or hypertension, 26% of patients reported receiving treatment for musculoskeletal conditions such as gout and arthritis.

Table 7.1: Other health conditions for which patients receive treatment at the PHC facilities

Disease categories	Described as	% of patients (N= 580)
Musculoskeletal	Arthritis Gout Knee pain Back pain / Backache / Back problem Sore shoulder from an injury Sclerosis	25.7
Respiratory	Asthma Shortness of breath Emphysema Bronchitis	8.8
Neurological	Epilepsy Schizophrenia Nerves / stress Depression Headaches	3.8
Circulatory	Blood circulation Blood clots Thrombosis Low blood pressure Feet problem	1.4
Gastrointestinal	Gastro Ulcers	1.0
Renal	Kidney Kidney stones	0.5
Cancer	Cancer Breast cancer	0.5
HIV/TB	HIV / AIDS Tuberculosis	0.5
Other	Eczema Thyroid	0.3

Duration of receiving treatment for health problems: Table 7.2 represents a summary of the duration for which patients had been receiving treatment for their chronic conditions. Overall 49% of diabetic and 73% of hypertensive patients reported that they had received treatment at PHC facilities for their chronic conditions for more than a year.

Table 7.2: Duration for which CDL treatment had been received at PHC facilities

Duration	Percentage of patients		
	Diabetes (N = 321)	Hypertension (N = 470)	Heart disease (N = 131)
More than a year	88.2	90.2	89.3
Six months to a year	6.2	5.1	4.6
Less than 6 months	2.2	3.2	1.5
Less than 3 months	3.4	1.5	4.6

Attendance at support groups / chronic clubs: Of the 580 participants, 28% reported that they belong to a support group / chronic club for their chronic conditions.

Information on support groups / chronic clubs: Of the patients attending support groups / chronic clubs, 41% indicated that they belong to a diabetic club and 56% indicated that they belong to a hypertensive club at the PHC facility that they attended. These included Michael Mapongwana, Khayelitsha, Gugulethu, Bishop Lavis, Crossroads, Browns farm, Hanover Park, Kraaifontein, Vanguard, Delft, Mfuleni, Mitchells Plain, Robbie Nurock, Ruyterwacht and Woodstock PHC facilities. The remaining 3% reported that they attended support groups outside of the facility.

The frequency of support group / chronic club meetings varied from once a week to once every 6 months. The majority of patients (67%) reported attending support groups meetings once a month. Table 7.3 summarises the frequency of support group meetings reported by patients.

Table 7.3: Frequency of support group / chronic club meetings

Frequency of support group meetings	Percentage (N = 161)
Once a week	2.5
Twice a month	1.9
Once a month	66.5
Once in 2 months	11.2
Once in 3 months	16.8
Every 5 months	0.6
Every 6 months	0.6

Patients were asked to describe the activities that transpired at support group / chronic club meetings. They reported a variety of activities including receiving counselling on one or more topics such as diet, exercise, medication usage or a combination of these topics. They also reported that they had observations like blood pressure or blood sugar measurements done. Some patients indicated that they had a combination of counselling and observations done. Furthermore, some patients mentioned that they simply received their medication at these meetings. Table 7.4 provides further details on the reported activities at support groups / chronic clubs. The majority of patients (38.5%) reported that they receive a combination of counselling and observations, while a further 34.2% reported only receiving counselling and 16.1% reported only having observations done.

Table 7.4: Activities reported at support group meetings

Activities reported at support group meetings		Percentage (N = 161)	
Counselling	Diet	9.9	
	Treatment / Medication	0.6	
	Diet and exercise	3.1	
	Diet and meds	6.8	34.2
	Exercise and meds	0.6	
	Diet and exercise and meds	0.6	
	Provide general information, education, discussion and advice	12.4	
Observations	Blood Pressure	11.8	
	BP and/or Blood glucose and/or other	4.3	16.1
Combination of counselling and observations	Blood Pressure and Diet	18.0	
	Blood glucose and Diet	0.6	
	Weight and Diet	3.7	
	BP and/or Blood glucose and/or other & Diet	12.4	38.5
	Blood Pressure and Diet and exercise	0.6	
	BP and/or Blood glucose and/or other & Diet & exercise	1.2	
	Weight and Diet and Meds	1.9	
Other	Issuing medication / treatment	0.6	
	Observations and issuing medication and counselling	2.5	
	Do exercise and get counselling	2.5	
	Observations and exercise	0.6	11.2
	Do exercise and get counselling and observations	2.5	
	Go on outings	0.6	
	See the doctor	1.9	

7.5.2. **Services rendered at the facility**

In order to determine the services rendered at facilities patients were asked to indicate which observations, tests or special examinations had been done for them during the previous year. Blood pressure (97.6%) was the most common observation that was reportedly done, followed by weight (88.3%), urine (85.7%) and blood glucose (80.9%). Less than 50% of patients reported that their height had been measured, while 26.4% of patients reported having an ECG performed on them. Less than 20% of patients reported having had a foot examination (19.3%), cholesterol test (17.9%), eye examination (16.7%), reflex test (16.6%), chest x-ray (12.1%) and kidney function test (11.4%). Only 7.4% of patients reported that their waist circumference had been measured, while 15.9% of patients reported that they had been referred to a tertiary hospital. Table 7.5 tabulates these results.

Table 7.5: Services rendered at facilities (N = 580)

Observations / Tests / Examinations	Yes (%)	No (%)	Don't know (%)
Blood pressure	97.6	2.4	0.0
Weight	88.3	11.6	0.2
Urine	85.7	14.3	0.0
Blood glucose	80.9	18.6	0.5
Height	49.8	49.1	1.0
ECG	26.4	73.1	0.5
Foot examination	19.3	80.5	0.2
Cholesterol	17.9	77.1	5.0
Eye examination	16.7	83.1	0.2
Reflexes	16.6	83.3	0.2
Referral to a tertiary hospital	15.9	83.8	0.3
Chest x-ray	12.1	87.8	0.2
Kidney function	11.4	84.8	3.8
Waist circumference	7.4	92.4	0.2

7.5.3. Receiving lifestyle modification information / education and counselling

When asked whether or not they wanted to receive information on how to change their lifestyle in order to help manage their health conditions, 90% of patients (N = 521) reported that they wanted information, while 10% of patients reported that they did not want to receive any information.

7.5.3.1. Reasons given for not wanting to receive information

The reasons provided by the 10% of patients (N = 59) as to why they did not want to receive any information were tabulated and grouped into 9 categories. These categories are listed in Table 7.6 along with the proportion of patients that reported reasons within each category. The section that follows discusses each category and provides examples of some quotations in each category.

Table 7.6: Categories for not wanting to receive information

Categories for not wanting to receive information	Percentage (N = 58)
Don't need / want it / not interested	21
Already have information	17
Already have knowledge	14
Condition is well managed	12
Lack of time	10
Age	9
Questioning the usefulness of new information	5
Information overload	3
Other / specific	9

Don't need / want it / not interested: This was the most common category as it accounted for 21% of patients who stated that they simply didn't need or want information or they were not interested in receiving information on how to change their lifestyles.

Already have information: These quotations clearly indicate that some patients (17%) feel that they already have information, some in the form of pamphlets that they acquired previously.

- *"Have often taken pamphlets already"*
- *"I already have information"*

Already have knowledge: Some patients (14%) felt that they were adequately knowledgeable about their conditions as a result of having a family history of the disease or even as a result of previously being trained and employed as a HP.

- *"Because I'm a qualified male nurse, although I resigned"*
- *"I have a family history of all these illnesses. I know quite a bit already"*
- *"I know a lot about my health status"*

Condition is well managed: Patients (12%) also reported not wanting information because they felt that they managed their condition quite well already.

- *"I manage it well. I don't need any counselling*"
- *"I can manage myself"*

Lack of time: Another reason cited by patients (10%) was the fact that they felt they did not have time to receive information. More so that they didn't have time to read any health promotion materials or attend any groups or clubs that would infringe upon their family or work commitments.

- *"Don't have time, got a grandchild to look after"*
- *"I don't have the time to read stuff. Just coming here takes a lot of effort"*
- *"I really don't have time to do other things. My life is so busy, even on the weekends. I'm really tired after work, even to read a little"*

Age: Some patients (9%) also felt that they were too old to receive information regarding their condition. They felt that it would be more suitable for information to be provided to younger people.

- *"It is for the young people"*
- *"Its not for me, I'm too old"*

Questioning the usefulness of new information: Five percent of patients questioned the usefulness of receiving new information at this point in time, given that they had had their condition for quite some time already.

- *"Of what use will new information be to me?"*
- *"I wouldn't find it useful at this stage of my life. I've had the conditions for so long and I've managed fine*"

Information overload: Three percent of patients also alluded to the fact that there is so much information out there and everybody wants to educate them about something, be it diet or HIV.

They felt that it is too much for them to comprehend. This implies that patients should not be provided with lots of information at one time, but rather that health promotion / education should continually be provided in small doses or as simple messages that are easy for patients to comprehend.

- *"There's so much information about everything sometimes its too much for people to take in"*
- *"You get so tired of all the information. If it's not AIDS, then it's about eating properly.."*

Other / specific: A few patients (9%) also cited other reasons such as a lack transport that would be a barrier to attending counselling sessions, while another patient cited faith as a means to managing health problems.

- *"I trust my Lord for 16 years now having the heart problem"*
- *"Don't have transport so I can't go to the places where counselling happens*"

7.5.3.2. Preferred methods of receiving information / education and counselling

Patients who reported that they wanted to receive information were then given a list of 7 methods that could be used to provide information or education and counselling on how to change their lifestyles. They were then asked to choose the 4 methods that they preferred. Table 7.7 reflects the proportion of patients' selection of health promotion methods and materials. The majority of patients (71%) chose individual counselling as a preferred method, however, it is important to note that 29% of patients did not choose this method. The second most popular method, chosen by 69% of patients was watching a health education video. Chronic clubs / support groups were the third method which was chosen by 64% of patients. Booklets and pamphlets followed with 58% and 52% of patients respectively, choosing these methods. Posters and group counselling sessions were rated as the least popular methods with only 43% and 39% of patients choosing these methods, respectively.

Table 7.7: Preferred health promotion methods and materials

Methods and Materials	Percentage (N = 580)
Individual counselling	71
Watching a video	69
Club or support group	64
Booklets	58
Pamphlets	52
Posters	43
Workshop / group counselling	39

Once patients had chosen their 4 health promotion methods and materials, they were asked to rate them in order of preference. Table 7.8 clearly illustrates that individual counselling is the preferred method of choice for the majority of patients, with 56% of patients rating this method as their first

choice. Although watching a video was chosen by 69% of patients, only 22% rated this method as their first choice. This method was almost evenly spread across all four ratings. Of the 64% of patients that selected chronic clubs / support groups as their method of choice, only a third of patients rated this as their first choice. The majority of patients (40%) actually rated clubs / support groups as their second choice. Even though 58% of patients chose booklets as their preferred method of choice, almost half (42%) the patients rated this as their fourth (last) choice. Pamphlets, posters and workshops/group counselling sessions were the least preferred methods with only 9%, 13% and 11% of patients choosing these as their first choice respectively.

Table 7.8: Patients' rating of preferred health promotion methods and materials

Health promotion method / materials (N)	1st choice	2nd choice	3rd choice	4th choice
Individual counselling (414)	56	17	15	12
Watching a video (398)	22	26	23	30
Club or support group (371)	31	40	18	11
Booklets (336)	19	16	23	42
Pamphlets (303)	9	19	41	32
Posters (250)	13	34	25	28
Workshop / group counselling (227)	11	26	40	24

Patients were then asked to provide reasons as to why they preferred the health promotion methods and materials that they had selected. The reasons for each of these were tabulated and grouped into various categories. The following section tabulates a summary of these results along with the proportion of patients that reported these reasons within each category as well as patients' quotations supporting these reasons.

i. Individual Counselling

The reasons provided by patients for choosing individual counselling as their preferred method of choice was grouped into 14 categories. These categories are listed in Table 7.9 along with the proportion of patients that reported reasons within each category.

Table 7.9: Categories for selecting individual counselling

Category	Percentage (N= 414)
Opportunity to learn or obtain knowledge, information or advice	29.6
Opportunity to ask questions and talk about health problems	25.5
Opportunity to talk to one person and discuss private, personal or confidential matters	24.6
To receive Information that is specific to the consultation and examination of a patient	5.1
To receive reassurance from a health professional	2.7
To receive information / counselling without any disturbances	1.9
Opportunity to receive continuity of care	1.2
Easier to learn when only 2 people	1.2
Convenient if the session coincides with the consultation date	1.0
Inability to read	0.2
As an alternative to another method	0.5
Other issues raised	
Time constraints for patients	0.5
Time constraints for doctors	1.0
Not applicable	5.1

Opportunity to learn or obtain knowledge, information or advice: The following quotations reflect the positive light in which patients view HPs. Almost a third of patients (29.6%) in this study believed that HPs are well educated and are thus reliable sources of knowledge and information. Furthermore patients also imply that it is the HPs' responsibility to maintain their patient's health.

- *"You can't make a mistake to talk to a professional person. They study to be a doctor so they know what everything means"*
- *"The doctor can give you the proper advice and guide you in the right direction"*
- *"Talking to a professional will save you from getting second-hand tips and stories from other people who don't know anything"*
- *"A health professional can really help you because you don't know the details and they can let you know"*
- *"Speaking to a doctor is good for your health. These people know what to do. It's their job to help you and make you better*"

Opportunity to ask questions and talk about health problems: A further 25.5% of patients reported that individual counselling provided them with the ideal opportunity to pose questions and discuss their health problems with a HP.

- *"Can ask questions and get direct answers"*
- *"It helps sometimes when you talk to someone and express yourself "*
- *"Sometimes you want to discuss something, so the doctor is here to listen"*

Opportunity to talk to one person and discuss private, personal or confidential matters: Another reason cited by 24.6% of patients was the fact that individual counselling provided an avenue through which patients could feel comfortable enough to disclose personal or confidential information.

- *"Because I don't want to be with other people and ask personal questions"*
- *"I can ask freely without intimidation"*
- *"I can be able to explain confidential matters"*

To receive information that is specific to the consultation and examination of a patient: This reason is self-explanatory and was cited by 5.1% of patients.

- *"Because doctors can give patients information that is based on consultation and examination"*
- *"The doctor would examine me and then give me information depending on what he saw in me, so he would know"*
- *"You must speak to a health professional because they can look at your information and help you specifically"*

To receive reassurance from a HP: Some patients (2.7%) simply require reassurance from HPs. They state that communication between HPs and patients would be beneficial to patients and serve as a means to inform patients about issues pertaining to their conditions such as the medication that has been prescribed for them.

- *"I always want to speak to the doctor just to know that I'm ok. So getting information from him would be good*"
- *"The doctor makes me feel better so I'd rather talk to him"*
- *"The nurses are sometimes very compassionate and they try and understand your situation. They will help you if you tell them what's wrong or you ask for help*"
- *"To talk to a doctor or sister would really be good for so many of the patients because they just get put on medication without really knowing why*"

To receive information / counselling without any disturbances: This is yet another self-explanatory reason and was cited by 1.9% of patients.

- *"Because no one can disturb when I'm learning"*
- *"I can have enough time to ask without disturbance"*
- *"It is because I can listen well"*

Opportunity to receive continuity of care: The concept of familiarity between HPs and patients as well as the concept of continuity of care was reason provided by 1.2% of patients.

- *"It is because you stay with one person, you can get all the information you want"*
- *"I've always spoken to the doctor, so I would continue to use him to counsel me if I need it*"

Easier to learn when only 2 people: A few patients (1.2%) reported that individual counselling would enable them to learn easily since there would be no distractions.

- *"I think I can understand much more better when we are two"*
- *"It is because I can learn easily when we are two"*

Convenient if the session coincides with the consultation date: Although patients (1.0%) chose individual counselling as a method of health education, they maintained that it would only suit them if the counselling session took place on the same day as consultation with the doctor. Coming to the facility simply for the purpose of attending a counselling session did not bode well with the patients.

- *"This should happen when I see the doctor. I don't still want to come another day"*
- *"I might as well talk to the doctor because I'm here to see him anyway*"

Inability to read: The fact that there are some patients that are illiterate was also raised and cited by 0.2% of patients as a reason why they would prefer individual counselling or talking to someone rather than reading health education materials.

- *"I cannot read so its better for me to talk to someone"*

As an alternative to another method: Some patients (0.5%) also reported that they would only resort to individual counselling as a means of obtaining information once other methods had been exhausted.

- *"I'll talk to the doctor but only if there is no other way to get information. The nurses are better for me, but they are very busy*"
- *"If you don't know and the group can't help, see the doctor"*

Other issues raised by patients: these included *time constraints for both doctors* and *patients*. Although patients reported that they would like to receive individual counselling from doctors, they mentioned that they knew that doctors had a limited amount of time to spend with them and would not necessarily be able to provide them with individual counselling. Furthermore, they mentioned that by the time they get to see the doctor, they had already been waiting at the facility for an extended period of time and thus would not want to engage in a counselling session thereafter, since they would want to leave the facility then.

- *"It would be good to get advice from the doctor but they have so little time for you as the patient sometimes"*
- *"The doctor would know things that can help you but they hardly have the time to sit long with anyone. The nurses are just to busy"*
- *"I'll speak to a doctor if they have more time. They do things so fast when you in there with them*"
- *"Proper information can be gotten from the doctors, nurses or dietitians, but people don't ask them because they want to get out of here and go home"*

ii. Chronic Clubs Or Support Groups

The reasons provided by patients for choosing chronic clubs / support groups as their preferred method of choice was grouped into 8 categories. These categories are listed in Table 7.10 along with the proportion of patients that reported reasons within each category.

Table 7.10: Categories for selecting chronic clubs or support groups

Category	Percentage (N = 371)
Opportunity to talk to people and share ideas, experiences, views, problems, advice	43.4
A means to obtain and provide help, support and encouragement to and from fellow patients	22.7
Opportunity to share knowledge/ information	17.2
Opportunity to learn or obtain knowledge, information or advice	7.1
Opportunity to meet people with the same condition	5.2
It allows for a comfortable environment in which to address various issues	1.9
Convenient if the session coincides with the consultation date	0.8
Not applicable / unclear	1.6

Opportunity to talk to people and share ideas, experiences, views, problems and advice: The majority of patients (43.4%) reported that they felt that clubs or support groups provided them with an ideal opportunity to share ideas, experiences, views, problems and advice with fellow chronic patients. The concept of sharing is a recurrent theme throughout the following quotations.

- *"Because everybody who goes there have the same problems and you can share"*
- *"I can learn from you. You can learn from me. We can hear each others problems and help each other"*
- *"In the support group we can share ideas and experiences"*
- *"To find out how others improve on their health"*

A means to obtain and provide help, support and encouragement to and from fellow patients: A further reason cited by 22.7% of patients was the opportunity to obtain or provide support and encouragement from patients that have the same condition that they have. The ability to interact with other patients, the feeling of camaraderie and knowing that there are other people who understand what they experience or how they feel also contributed towards patients' selection of this method of health education. Patients also reported that the relationships formed within the club or group evolve into friendships and support systems outside of the club as well.

- *"A group can really help you feel good. Sometimes people just need to have someone listen to them*"
- *"A group will just help me to communicate with patients who are in need of support and encouragement"*
- *"Being together with people like me would motivate me because I'm not alone with my condition"*
- *"Discussion between patients is good to have because people can help encourage each other, especially older patients feel good if someone is concerned about them*"
- *"Groups are good for people to talk to each other about their problems. If you shy maybe you'll feel encouraged to talk there*"
- *"If you are in a group and something happens to you then you can phone the other people"*

- *"People can help each other. People who have had sugar for a long time can help others who have had it for a short time"*

Opportunity to share knowledge and information: Patients (17.2%) re-iterated the concept of sharing, this time referring to knowledge and information regarding their chronic condition.

- *"Because I will be listening to many people who already have information"*
- *"I think a club lets you say what on your mind and you can get proper information there because its only for people with diabetes and high blood"*
- *"To share information and learn from each other"*

Opportunity to learn or obtain knowledge, information or advice: As with individual counselling, 7.1% of patients selected this method of health promotion simply as an opportunity to obtain knowledge and information with regard to managing their chronic conditions.

- *"Know more about your sickness and how to eat"*
- *"To find out more about diabetes"*
- *"To learn how to control my high blood pressure"*

Opportunity to meet people with the same condition: Patients (5.2%) selected clubs or support groups because they provide opportunities for similar patients to be introduced to each other.

- *"It would be nice to speak to pregnant mothers who have diabetes like me. There's not a lot of info for us*"
- *"These groups would help introduce similar people to each other so they can talk"*
- *"You can make friends with people who also have diabetes. You don't only have to talk to them at the hospital"*

It allows for a comfortable environment in which to address various issues: A few patients (1.9%) indicated that clubs / support groups provide an environment in which patients can feel comfortable enough to discuss issues relating to their chronic condition. It also reveals that these patients feel that groups can cover more ground in terms of knowledge and information than individual counselling may be able to. Furthermore the fact that other people are present provides patients with an opportunity to discuss issues that they may have missed or may not have understood during the session with each other.

- *"You can talk openly and freely about diabetes to others. You don't have to be shy*"
- *"I like to talk my heart out. Groups of people talk better than just two people talking"*
- *"In a group, lots of issues come up than if people are talking one on one, so if you talk to a lot of people you can cover more issues*"
- *"It is because when I didn't listen well I can ask someone"*

Convenient if the session coincides with the consultation date: As with individual counselling a small proportion (0.8%) of patients also mentioned that these sessions would only be convenient if they were scheduled on the same day as their initial clinic consultation.

- *"This is a good idea, but to come in on another day for it would be a hassle. Maybe on the same day as your appointment"*

- *"This is ok as long as it is on the day that I have to be here and it doesn't take too long. I don't like being here all day"*

iii. Videotapes

The reasons provided by patients for choosing videotapes as their preferred method of choice was grouped into 16 categories. These categories are listed in Table 7.11 along with the proportion of patients that reported reasons within each category.

Table 7.11: Categories for selecting videotapes

Summary of patient's reasons	Percentage (N = 398)
Visually demonstrative	31.4
Opportunity to learn or obtain knowledge, information or advice	24.9
Convenient to watch while waiting for assistance at the facility	19.8
Opportunity to educate large numbers of patients simultaneously	2.8
Opportunity to learn passively	2.8
Recreational	2.5
Negates the necessity to read	1.8
Alleviates the burden on staff	1.0
Improve communication between health professionals and patients	1.0
Convenient if the session coincides with the consultation date	0.8
No interpersonal communication required	0.5
To receive information / counselling without any disturbances	0.3
Inability to read	0.3
Not applicable	2.5
Other issues raised	
Should be able to watch it at your convenience	5.3
Should be interesting and patient specific	1.5
Should involve family members / caregivers	1.0

Visually demonstrative: Videotapes were selected as a method of health education predominantly because it provided a means of visual communication to patients. Almost a third of patients (31.4%) pointed out that they chose videotapes because it would enable them to see things that they had previously been told about and thus it would enable them to learn and understand information easily.

- *"A video can help you because you can see what to do"*
- *"Because you see it and you can catch easily"*
- *"It is because you watch it and you can understand better"*
- *"Something that you can see that you haven't seen before"*
- *"You can see what's happening inside of you and you can also learn"*

Opportunity to learn or obtain knowledge, information or advice: A quarter of patients (24.9%) once again reported that videotapes provided a means of obtaining reliable knowledge and information. One of the patients mentioned that watching a video would almost feel like receiving information directly from a doctor. Furthermore another comment was made regarding the novelty of using videos, stating that it would be a new means of health education and thus patients may be more receptive to it.

- *"A video makes people really sit and watch and teaches them to take things seriously"*
- *"A video would give patients the right information from the start. Then you have no excuse for being irresponsible for your health*"
- *"I think its good because you are being told information as if you were talking to the doctor"*
- *"Why not? It's something new and I think it will help get information to people in a new way*"

Convenient to watch while waiting for assistance at the facility: Patients (19.8%) mentioned that they spend a lot of time waiting for assistance at the facility and thus it would be convenient for them to watch a video in that time. In addition to being convenient, it would also assist in relieving the patients' frustrations regarding the amount of time spent waiting for assistance as it would occupy the time that they would normally spend idly at the facility.

- *"A video would be nice because people wait here very long and a TV would relieve the boredom and make them less frustrated"*
- *"It's a good idea to show people information while they sit here. They have nothing to do anyway and they sit here whole day"*
- *"You can watch a video here. You can do it while you wait. It would be convenient because you very busy sometimes"*

Opportunity to educate large numbers of patients simultaneously: The fact that videotapes would enable large numbers of patients to be educated simultaneously was cited by 2.8% of patients as another reason for choosing this method of health promotion. Point out

- *"A video is a good idea to teach a lot of people at the same time, so they can be educated all at once*"
- *"That's a very clever way of talking to many people at the same time*"

Opportunity to learn passively: Patients (2.8%) indicated that videotapes would provide a passive medium through which patients can be educated. Even if patients are not interested in receiving education, they would still watch the video simply because it was on the television.

- *"This would be a very easy way to get information because you just need to watch and listen to the TV"*
- *"People like watching things. If you want people to learn to look after themselves then put it on TV"*
- *"I like the video idea because people will always watch TV even if they don't like what's on*"

Recreational: Some patients (2.5%) chose this method of health education simply because they enjoyed watching videos as a recreational activity.

- *"It is because I like to watch a video"*

Negates the necessity to read: A few patients (1.8%) pointed out that they preferred watching a video because it negated the necessity to read. Patients also mentioned that they were more willing to watch a video than they were to read health education materials or listen to talks by HPs.

- *"This can help a lot of people because they get the information directly. They don't have to read something*"
- *"I think it would work to watch an information video because a lot of people don't have a lot of time to read a lot of things"*
- *"Watching a video is better that reading lots of books and listening to someone preach about being healthy and eating right*"

Alleviates the burden on staff: A few patients (1.0%) indicated that the amount of time that HPs are required to allocate to health education could be reduced significantly by providing health education in the form of videos at the facility.

- *"A video would be a good idea for a place that has too little doctors so that instead of a one-on-one, everyone can watch while they wait"*
- *"A video would help the staff here because then not so many people would then need to see a doctor"*
- *"I would like to see this in the waiting rooms then you don't have to make an appointment with the dietitian or anyone else*"

Improve communication between HPs and patients: Some patients (1.0%) also indicated that the information learnt while watching a video would improve the communication between themselves and the HPs, since they would be able to explain things easier. It would also serve as a means of creating awareness about certain issues that can then be discussed with a HP in more detail.

- *"A video would help then you can explain properly to the doctor"*
- *"When you watch a video you get information and if you don't know then you can ask and get better knowledge"*

Convenient if the session coincides with the consultation date: As with previous methods, this method would only be convenient if it coincided with the patients' appointment date.

- *"A video would help me a lot but it must be while I'm here. I can't come here just to watch a video*"
- *"I prefer to watch TV when I'm here and I don't have to come and meet with the group on another day"*

No interpersonal communication required: A few patients (0.3%) mentioned that this method of health promotion would provide patients that are shy with a means through which information could be obtained since it does not require any interpersonal communication.

- *"I think it's good because there are usually people who want to know about conditions but they are too embarrassed to talk to another person about it*"
- *"Then I don't have to talk I can just watch"*

To receive information / counselling without any disturbances: Videotapes also provide a way in which information can be received without any disturbances.

- *"Priority to concentrate better, no disturbance*"

Inability to read: Since there are a number of patients who are unable to read, patients (0.3%) mentioned that videotapes would provide them with an ideal method of obtaining information.

- *"This would be the best because people can see on the TV. Sometimes people who come here can't read*"

Other issues raised by patients: Although 19.8% of patients chose videotapes because it was a convenient method of receiving education while waiting for assistance at the facility, a further 5.3% of patients suggested that they *should be able to watch it at their convenience*. They mentioned that they would prefer to watch the video at home where they would be able to watch the video again in case there was something that they did not understand. Also, watching it at home would enable them to concentrate since there would be no distractions. Furthermore, a small proportion (1.0%) of patients mentioned that the videotapes *should be made available to their family members and caregivers* in order to raise awareness about their conditions and encourage support from them. In addition, 1.5% of patients pointed out that when videos are shown, they *should be interesting* in order to retain the patients' attention and they should be *specific to the intended audience* in terms of the language in which it is delivered.

- *"It is because I can watch it even at home when I have time"*
- *"If I can take it home it will help. Then I can play it again if I don't understand"*
- *"I would actually want to take a video and watch it at home and not in a group so you can concentrate*"
- *"A video about sugar or high blood would be good. I come here with my husband. He can watch too*"
- *"They should let people take videos home so that you can teach your family so that they can help and support you".*
- *"It is better, but end up sleeping if it is not in your language"*
- *"The videos should be put on for specific patients when they here"*

iv. Booklets

The reasons provided by patients for choosing booklets as their preferred method of choice was grouped into 13 categories. These categories are listed in Table 7.12 along with the proportion of patients that reported reasons within each category.

Table 7.12: Categories for selecting booklets

Summary of patient's reasons	Percentage (N = 336)
Opportunity to learn or obtain knowledge, information or advice	29.4
Opportunity to read it at your convenience	21.3
Recreational	15.9
Opportunity to share information with other people	8.1
Means of taking information away from the facility	6.9
Opportunity for a third party to convey the information to the patient	5.4
Opportunity to retain information for future reference	4.5
Provides essential information	3.0
Easily accessible	2.1
As an alternative to another method	1.5
Small and convenient	0.6
Illustrative	0.6
Contains more information than pamphlets	0.3
Not applicable	0.3

Opportunity to learn or obtain knowledge, information or advice: Yet again 29.4% of patients viewed this method of information as a means to obtain knowledge and information. The following quotations reflect the usefulness of booklets reported by patients that have used them previously.

- *"I've read the Soul City booklets already and they're good. They really help you if you don't know something*"
- *"Booklets can teach you a lot of useful information if you read it properly"*
- *"Love to have full information, there's always new discoverings"*

Opportunity to read it at your convenience: Since patients have other obligation and responsibilities, the time they spend at the facility may be limited. The concept of convenience is echoed for this method of health promotion as 21.5% of patients reported that booklets provided them with the opportunity to obtain information at their convenience.

- *"Can read them during lunch and at home because I am working"*
- *"The books you can leave by your bedside and read it so now and then"*
- *"It is better because I can read anytime I got a chance"*

Recreational: Similarly to watching videos, some patients (15.9%) chose this method simply because they enjoy reading.

- *"Because I love reading"*

Opportunity to share information with other people*:* Since booklets provide patients with the opportunity to take information away from the facility, 8.1% of patients reported that it also facilitates sharing information with people outside of the facility, including family members and other chronic patients.

- *"I can take it home with me. Other members of my family can also read about my high blood"*
- *"I'll take them for my family so that they can also understand my situation and help me if I need them*"
- *"To take home and read, share with someone else with a health problem"*
- *"You can take the things that they have here and keep it to read or you can give it to someone that needs it"*

Means of taking information away from the facility: As previously indicated, 6.9% of patients reported that booklets provided them with the opportunity to take information away from the facility.

- *"You can read it here and take it away with you if you can't finish reading. It's free*"
- *"Transport is a problem and I don't have time to come to a group. This would help because I could take it home"*

Opportunity for a third party to convey the information to the patient: These quotations relate to the previous categories. Some patients (5.4%) reported that since patients can take the information away from the facility, a third party, such as a family member or caregiver can be requested to read the information and explain it to the patient.

- *"My children can read it to me so that I can understand better"*
- *"That my wife can read it to me and explain it"*

Opportunity to retain information for future reference: This category is self-explanatory and was cited by 4.5% of patients.

- *"Take it home with you and if you forget something you can read it in there"*
- *"You can keep it at home as a reference if you need anything"*

Provides essential information: A small proportion of patients (3.0%), reported that booklets provided them with enough information to improve their knowledge and awareness of their conditions without providing too much detail.

- *"I think the booklet gives you just enough information; not too much details"*
- *"Its best to read a booklet because then you have the most important information"*
- *"The books are just as good. I've seen a Soul City one. It's not a lot to read and there are even pictures*"

Easily accessible: The fact that booklets are easily available and accessible to patients at the facilities was also cited as a reason for patients (2.1%) selecting this method.

- *"They easy to get hold of"*
- *"There is a table that's always full of booklets so people can take them"*

As an alternative to another method: Some patients (1.5%) indicated that they actually prefer other methods of health promotion such as individual counselling or attending a chronic club. However, if they are unable to attend a club / counselling session they would read booklets as an alternative means of obtaining information.

- *"If you can't make it to go to a club, then you can read the booklets"*
- *"I'll take one if I think I need more information, but I think a doctor can help me the best"*
- *"I would take the booklet, but it's not my favourite. I'm lazy to read"*

Small and convenient: Once again the opportunity to take the information away from the facility and use it at the patients' convenience was cited as a reason why booklets were chosen. Furthermore, the size of the booklets was cited to improve its convenience.

- *"Just like with the pamphlets you can take it home and it isn't a thick thing. Its small and you can still fold it*"
- *"I can take it home and it can fit in my bag so I can read it anytime"*

Illustrative: The following quotations were interpreted to suggest that patients (0.6%) chose booklets as a method of obtaining information because it would illustrate information in the form of pictures and thus make it easier for patients to understand.

- *"Can get information and see the symptoms"*
- *"Can see the symptoms"*

Contains more information than pamphlets: Some patients (0.3%) also opted to use booklets in conjunction with pamphlets since booklets provided more detailed information than pamphlets.

- *"They probably good to have with the pamphlets maybe they can elaborate on things a little more"*

v. Posters

The reasons provided by patients for choosing posters as their preferred method was grouped into 7 categories, which are listed in Table 7.13 along with the proportion of patients that reported reasons within each category.

Table 7.13: Categories for selecting posters

Summary of patient's reasons	Percentage (N = 250)
Convenient to read while waiting for assistance at the facility	24.9
Easily accessible	24.1
Opportunity to learn or obtain knowledge, information or advice	22.5
Provides concise information	12.4
Illustrative	7.2
Recreational	3.2
As an alternative to another method	0.4
Not applicable	5.2

Convenient to read while waiting for assistance at the facility: As with videotapes, 24.9% of patients mentioned posters were a convenient method in which to obtain information while they waited for assistance at the facility.

- *"Can read them anytime while waiting to be helped"*
- *"They are very convenient because you can read them when you wait for the doctor and your medication"*

Easily accessible: Posters are usually displayed on the walls at facilities and as such are easily accessible to patients, thus 24.1% of patients cited this as a reason for selecting this method.

- *"I like the posters because they here on the walls all the time so whenever I came here I would see them"*
- *"People have easy access to posters. You sit here and there they are*"
- *"You see them in the hospital all over anyway so they will be a good way to get information to people"*

Opportunity to learn or obtain knowledge, information or advice: This was yet again cited by 22.5% of patients. Patients also mentioned that posters served as reminders due to their high visibility within the health facility.

- *"To read and learn more for everyone"*
- *"They are fine because they always remind us and give warnings"*

Provides concise information: A further 12.4% of patients selected this method stating that posters provide simple, concise messages that can be remembered easily.

- *"I think they are the best because you just have to read a little bit then you know something"*
- *"Posters are effective, people would remember a short message rather than a long story"*
- *"The posters are short and to the point, that's why I like them the most"*

Illustrative: The pictures illustrated in posters were cited as a reason for selecting this method. A few patients (7.2%) stated that they could obtain knowledge simply by looking at the pictures illustrated in the posters in addition to reading them.

- *"It's colourful and helps you with pictures"*
- *"They very easy to read even if you just look at the pictures and don't read the words. You can understand what's going on just by looking at it"*
- *"You can see the pictures and read it as well"*

Recreational: As with booklets, some patients (3.2%) simply enjoy reading posters.

- *"I just like to read what's around me anyway. It's a bonus if I can learn from what I read*"
- *"Also like to read, they can tell me what to do*

As an alternative to another method: Some patients (0.4%) mentioned that they would read posters if they were unable to attend counselling sessions.

- *"Better to read, sometimes can't afford to go to the counselling"*

vi. Pamphlets

The reasons provided by patients for choosing pamphlets as their preferred method of choice was grouped into 13 categories, which are listed in Table 7.14 along with the proportion of patients that reported reasons within each category.

Table 7.14: Categories for selecting pamphlets

Summary of patient's reasons	Percentage (N = 303)
Opportunity to read it at your convenience	20.7
Opportunity to learn or obtain knowledge, information or advice	19.0
Means of taking information away from the facility	16.3
Opportunity to share information with other people	9.7
Recreational	9.0
Easily accessible	5.7
Small and convenient	4.7
Opportunity to retain information for future reference	4.7
Convenient to read while waiting for assistance at the facility	2.3
Provides essential information	2.3
Opportunity for a third party to convey the information to the patient	2.3
Illustrative	1.3
As an alternative to another method	1.0
Not applicable	1.0

From Table 7.14 it is clear that the categories for selecting pamphlets were very similar to the categories for selecting booklets and posters. These have been defined previously and as such their definitions and quotations will not be duplicated in this section.

vii. Workshops Or Group Counselling Sessions

The reasons provided by patients for choosing workshops / group counselling sessions as their preferred method of choice was grouped into 8 categories, which are listed in Table 7.15 along with the proportion of patients that reported reasons within each category.

Table 7.15: Categories for selecting workshops / group counselling

Summary of patient's reasons	Percentage (N = 227)
Opportunity to learn or obtain knowledge, information or advice	31.7
Opportunity to talk to people and share ideas, experiences, views, problems, advice	28.3
Opportunity to share knowledge/ information	16.1
Opportunity to ask questions and talk about health problems	6.5
A means to obtain and provide help, support and encouragement to and from fellow patients	4.4
Opportunity to receive guidance from a health professional	3.9
Opportunity to meet people with the same condition	2.2
It allows for a comfortable environment in which to address various issues	0.9
Provides practical information	0.4
Provides standardised information	0.4
Negates the necessity to read	0.4
Not applicable	3.5
Other issues raised	
Should involve family members / caregivers	1.3

The categories for selecting workshops or group counselling were very similar to the categories for selecting chronic clubs or support groups as well as individual counselling. These included:

- The opportunity to obtain knowledge, information and advice (31.7%).
- The opportunity to talk to people and share ideas, experiences, views, problems and advice (28.3%).
- The opportunity to share knowledge and information (16.1%).
- The opportunity to ask questions and talk about health problems (6.5%).
- A means to obtain and provide help, support and encouragement from fellow patients (4.4%).
- The opportunity to meet people with the same condition (2.2%).
- It allows for a comfortable environment in which to address various issues (0.9%).

These categories have been defined previously and as such only the reasons and quotations specific to this method will be defined in this section.

Two categories that had emerged in the section on videotapes namely; *negates the necessity to read* and *should involve family members* were cited once again by 0.4% and 1.3% of patients respectively.

Opportunity to receive guidance from a HP: These quotations reflect that fact that 3.9% of patients feel that talking to fellow patients is important; however, there should be a HP to guide the discussion in order to cover all the relevant information.

- *"A person who knows what's going on like a nurse must be there too so that you know you doing the right thing"*
- *"It's important to talk to people in the same position like you, but a professional can also guide the discussion"*
- *"You can be sure that you talking about the right things because a nurse or doctor will be there to help you*"

Provides practical information: Patients (0.4%) stated that workshops provided practical information compared the theoretical or factual information they provided in booklets or pamphlets.

- *"Workshops give people practical information, not just things they read in books"*

Provides standardised information: A further 0.4% of patients acknowledged that they received conflicting advice from HPs and thus they see workshops as a means to receive standardised information.

- *"Workshops are necessary because people get different advice all the time"*

7.5.3.3. Other methods of health promotion

Patients were asked to list other methods of health promotion that they would like to use to obtain information on LM and CDL. The majority of patients (99%), did not indicate any other methods, however, 4 patients suggested methods such as food labelling as well as the media. These suggestions are supported by the following quotations:

- *"Maybe clearly marked foods that are good for diabetics. I find it difficult to find good food in the shops"*
- *"Media - like TV programmes and papers like community newspapers"*
- *"More exposure from media/ magazine about health problems"*
- *"Radio programmes"*

7.5.3.4. Patients preference of which health professional should provide information

Patients were given 3 settings namely individual counselling, chronic clubs / support groups as well as workshops or group counselling sessions. They were then requested to select the HP they would prefer to receive information from.\in each setting. The list of HPs included the doctor, nurse, health promoter, nutrition advisor and an option of any of the aforementioned HPs. Table 7.16 displays the patients' preferences.

Table 7.16: Patients preference of which health professional should provide information

Preferred health professional	Percentage of patients (N = 580)		
	Individual counselling	Chronic Club or Support group	Workshops
Doctor	44.7	24.3	24.5
Nurse	16.9	26.7	21.2
Health promoter	8.8	11.2	14.7
Nutrition Advisor	4.8	6.9	5.7
Anyone of the above	24.8	30.9	34.0

These results indicate that approximately 30% of patients had no preference for a specific HP in any of the three settings. However, in an individual counselling setting 44.7% of patients reported that they would prefer to be counselled by a doctor, this was followed by a nurse (16.9%), the health promoter (8.8%) and least likely the nutrition advisor (4.8%).

In a chronic club or support group setting, doctors and nurses were the preferred choices with 24.3% and 26.7% of patients choosing these HPs. Health promoters and nutrition advisors were the least likely choices with only 11.2% and 6.9% of patients choosing these respectively. Patient choices at workshops / group sessions closely resembled those in a club or support group setting with 24.5%, 21.2%, 14.7% and 5.7% of patients choosing doctors, nurses, health promoters and nutrition advisors respectively.

7.5.3.5. Previous attempts to obtain information regarding LM

When patients were asked if they had previously attempted to obtain information regarding LM from the PHC facilities, 114 patients (20%) reported that they had. They were then asked if they had ever experienced any difficulties when trying to obtain information. Of these 114 patients only 5 patients (1%) reported experiencing any difficulties. As illustrated by the following quotations, these can be summarised as difficulty in implementing the advice received from HPs, shortage of staff and thus the inability of staff to provide adequate attention to patients as well as an 'unfriendly' staff attitude.

- *"Dietitian told him to eat every time, he was eating once a day, very difficult for him to change"*
- *"It is lack of patience"*
- *"Lack of doctors to patients"*
- *"They didn't listen to me, they just ignore me"*
- *"They didn't take any steps"*

7.5.3.6. Suggested changes to the PHC facilities

Patients were asked to list any changes that they would like to make at the health facility. Sixteen percent of patients indicated that they were satisfied with the service and a further 29% of patients reported that there were no changes they wanted to make an as a result 45% of patients reported that they did not have any suggestions for changes. Table 7.17 lists the remaining 55% of patients' suggestions for changes as well as the percentage of patients that suggested the changes in each instance. Thirty four percent of patients suggested changes regarding waiting times, while 10% and 23% of patients mentioned that they wanted to make changes to the facility and the staff respectively. Twelve percent of patients stated that they wanted changes made to the administration within the facility, while 2.6% of patients raised other issues.

The following section defines these changes and provides examples of patients' quotations to support these suggestions.

Table 7.17: Changes patients would like to make at facilities

	Changes patients would like to make	Percentage (N = 580)
No issues	Satisfied with the service	45.0
	No problems/ changes/ none / nothing form now	
Issues regarding waiting times	Waiting long / sit all day/ leave late / long queues	33.9
	Waiting long for the doctor / for service	
	Waiting long at the pharmacy	
	Come early	
Facility based issues	Facility should open earlier	10.4
	24 hour access	
	Provide shelter outside	
	Bigger facilities	
	Each condition should have its own dedicated space within the facility	
	Special area for the diabetic patients at pharmacy	
	Provide comfortable seating	
	Provide clean bathrooms/ toilets	
	Provide access to toilets outside the facility	
	Availability of ambulance services	
	Availability of x-ray facilities	
	Noise at the pharmacy area	
	Access to food at the facility	
	Provide TV in the facility	
Staff related issues	Improve the interaction of staff with patients	23.0
	Shortage of staff	
	Provide permanent doctors at facilities	
	Provide staff for education purposes / access to information	
	Doctors are not thorough	
	Access to dietitian	
	Staff punctuality	
	Communication / language barriers	
	Provide feedback to patients	
	Large patient numbers - overworked staff	
	Continuity of care	
	Preferential treatment for the elderly	
Administrative / systematic issues	Administrative / systematic problems	11.6
	Shortage of medication	
Other issues	Provision of grants	2.6
	Delivery service for medication	
	To give your appointment at the pharmacy so you don't have to go back to reception	
	Patients must come anytime to take medication	
	The staff do their best but the service we get as a community is not good at all	
	Accessibility of facility	
	Inability to change things	
	Don't know	

i. Issues Regarding Waiting Times

Various issues regarding waiting times were raised. Table 7.17 lists these issues, which can be summarised to include having to arrive at PHC facilities very early and still spend an extended amount of time waiting in long queues at the pharmacy as well as for a consultation with the doctor. The following quotations support these issues.

- *"Sit the whole day*
- *"Long waiting at the pharmacy"*
- *"To make fire under the pharmacist"*
- *"Waiting too long for the doctor"*
- *"Come in early and walk to the taxi rank to get things done early"*
- *"To wait outside from early in the morning for 04h00 and still wait inside"*

ii. Facility-Based Issues

Patients suggested 14 changes that could be applied to the facility. These are listed in Table 7.17 and are described below.

24 hour access: Patients also felt that they should have 24-hour access to the facility.

- *"Hospital must open 24 hours, seven days a week"*
- *"It must operate whole night*"
- *"To be open 24 hrs a day because the private doctors can't came out at night"*

Facility should open earlier: Patients felt that the facility should open earlier in the mornings so that they don't have to spend that much time waiting outside the facility.

- *"They must open in the early hours"*
- *"Not to wait long outside"*

Provide shelter outside: Patients also suggested that the facility should provide shelter for patients who wait outside the facility since they arrive early in the morning, irrespective of weather conditions and thus they sit outside in the rain during winter while they wait for the facility to open.

- *"There's no shelter for rainy days when you have to queue outside"*

Provision of toilets outside the facility: Since patients spend a long time waiting outside the facility as well, they suggested that toilets should be made available outside the facility as well.

- *"Outside toilets need to be made available"*

Bigger facilities: Another suggestion was to increase the size of the facility in order to provide efficient services to patients.

- *"The day hospital to be bigger everyone coming to the same place"*
- *"They must build club rooms for patients"*

Each condition should have its own dedicated space within the facility: Also attributable to the size of the facility was the suggestion that each condition should have its own dedicated space within the facility.

- *"To have a baby clinic separately"*
- *"Every group to be on its own"*
- *"They must separate patients, like diabetic patients must have their place and get treatment easily"*

Special areas at the pharmacy: Since patients spend extended periods of time waiting for medication at the pharmacy, after already having spent a large amount of time waiting to see the doctor, they suggested that there should be a dedicated area at the pharmacy that distributed medication to chronic patients.

- *"Special area for the diabetic patients at pharmacy"*

Noise reduction at the pharmacy area: Patients also mentioned that there was a lot of noise surrounding the area at the pharmacy and as such it was difficult for patients to hear the pharmacist calling their names when they needed to collect their medication. They thus suggested that there should be a way to reduce the amount of noise in this area or to improve the clarity of the announcements when patients are called.

- *"There's big noise at the pharmacy so you can't hear your name"*
- *"Too much noise you can't hear when they call your name"*
- *"You must just sit here all the time so that you here when the call your name"*

Provide comfortable seating: Patients have resigned themselves to spending a long time waiting for assistance and thus suggested that the facility provide comfortable seating for them.

- *"More comfortable benches for sitting on. They know you going to wait long. Maybe they can install cushions or something just to make it more comfortable"*

***Provide TV in the facility*:** Patients also requested that the facility provides televisions in the waiting rooms.

- *"Put the monitors, there's no TV"*
- *"To have a TV in the clinic so that people can watch videos"*

Access to food at the facility: A further request, also stemming from the long waiting times at the facility was the request to provide access to food at the facility.

- *"They must open a canteen"*
- *"To get coffee or snacks we are still sitting because we are hungry"*

Provide clean bathrooms/ toilets: There was also a request for the facility to ensure that patients have access to clean bathrooms and toilets at the facility.

- *"Toilets are not clean they smell so bad"*

Availability of ambulance services: There were also requests for the availability of ambulance services, during the day as well as at night.

- *"They must provide ambulance"*
- *"Organise ambulances day and night"*

Availability of x-ray facilities: Adequate access to services such as x-rays was also suggested.

- *"They must provide x-rays"*
- *"To put more working material like x-ray which is not available"*

iii. Staff-Related Issues

Patients suggested 12 changes that could be applied to the staff at the facility. These are listed in Table 7.17 and are described below.

Improve the interaction between staff and patients: Quite a number of patients remarked on the interaction between staff and patients at the PHC facilities. These included medical, nursing, pharmacy as well as administrative staff. Patients stated that staff members should be more friendly and compassionate toward patients, they should listen to patients and they should also treat patients with respect. Some patients even went to the extent of stating that staff members should be sent on a 'human relations course'.

- *"Admin staff must be trained to work with people – human relations course"*
- *"At the reception they don't have respect for the old people"*
- *"Bad manners by doctors. Way you treated. Just because you get it free doesn't mean you're nothing"*
- *"The doctors and nurses must learn to listen to the patients problems"*
- *"The staff must be more friendly and compassionate"*
- *"The staff need to learn how to speak to people. They don't look at you if you speak to them"*
- *"They must have more patience"*
- *"The pharmacist must have respect to others. Learn how to respect the elderly"*
- *"You must be careful to ask questions - the staff are very rude"*

Shortage of staff: Most patients realise that there is a shortage of staff at facilities and thus suggest that more staff such as doctors and nurses should be recruited.

- *"Employ more doctors/ nurses"*
- *"If there were more doctors more times a week then things would really improve"*

Provide permanent doctors at facilities: At a few facilities patients requested that a permanent doctor be assigned to the facility since they only have access to a doctor once a week if at all.

- *"Sometimes the doctor doesn't even make it here because he is held up in Atlantis. Then you sat here all day already"*
- *"Sometimes you sit here all day and then the doctor doesn't come. He only comes once a week. That's not fair to us"*

Continuity of care: The concept of continuity of care was also raised when patients requested that they only wanted to see one particular doctor every time they visited the facility.

- *"Patient must have one doctor every time visiting the clinic"*
- *"To have regular doctors, not to see this one and tomorrow see that one because then they didn't follow our health problems"*

Provide staff for education purposes / access to information: Another suggestion made by patients was that of providing specific staff to educate patients. In addition patients requested that facilities provide information sessions for patients and also that the duration of time spent on counselling patients at chronic clubs is extended.

- *"They must have more health professionals for education purposes"*
- *"Increase time for club counselling"*
- *"Information sessions for patients"*

Access to dietitian: Dietetic services are spread rather thinly across PHC facilities since one dietitian would usually service up to 5 or more facilities. A suggestion from a patient was that the waiting time to see a dietitian should be reduced.

- *"Wait long for the dietitian"*

Staff punctuality: Patients reported that although they arrive at the facility quite early, there are some facilities at which doctors arrive late and patients thus have to wait even longer for service.

- *"Doctors must come in time, sometimes they don't come"*
- *"Doctors don't care about patients, they come late although patients come early in the morning"*
- *"Sometimes staff are late and you have to wait*"

Large patient numbers - overworked staff: Patients indicated that they were aware that the staff were overworked and alluded to reducing the patient load on staff to overcome this.

- *"If you see the doctor you wait till 4 or 5 in the afternoon sometimes because there are so many people in there"*
- *"Sit long because the staff are over worked"*
- *"The doctors see you very quickly because they must see so many other patients"*

Doctors are not thorough: Some patients raised the issue that as a result of the workload on doctors, the doctors no longer had the time to examine patients thoroughly.

- *"They don't examine you thoroughly anymore. You must tell the doctors what they must do because they don't have time to do it themselves"*
- *"Doctors must check every health problem that I have not one thing"*

Provide feedback to patients: Another change requested by patients was that HPs provide them with feedback regarding any tests or examinations that have been performed on them as well as

discussing the side-effects when prescribing medication to patients. Patients also requested to be informed of any changes at the facility that would directly affect them.

- *"I am disappointed because doctor didn't tell me that the medicine will affect my kidneys"*
- *"I did a test for my chest but didn't get feedback"*
- *"They do not notice when they are changing the service, so the patients become very confused"*

Communication / language barriers: Patients also suggested that efforts should be made to address the language or communication barriers between staff and patients.

- *"Black staff nurse must be recruited because white people don't know how to call our names as black"*
- *"I don't understand the doctor"*
- *"The doctor doesn't understand what you say"*
- *"There must be a translator because when the whites are speak they use English or Afrikaans so the Xhosas are suffering"*
- *"To get English speaking doctors , don't understand some doctors language – Xhosa"*

Preferential treatment for the elderly: A further request was that elderly patients should receive preferential treatment.

- *"I just want the older people to be helped first"*
- *"To give sick and older people the privilege and respect"*

iv. Administrative / Systematic Issues

Patients suggested 2 changes that could be applied to the administration or systems employed at the facility. These are listed in Table 7.17 and are described below.

Administrative / systematic problems: A few issues regarding administration at PHC facilities were raised. Patients mentioned that there were always problems with folders getting lost or mixed up and as such there was no order in the flow of patients. They also mentioned that at some facilities all staff members take tea breaks simultaneously, whereas they should do so in shifts.

- *"Loss of folders"*
- *"Reception takes long"*
- *"Staff is very slow"*
- *"The folders get mixed up"*
- *"There's no order, nurse doesn't care whether you came early, they start with the last person"*
- *"The staff take tea - all of them while the patients are here. They must make shifts for them"*
- *"The system must change you wait all day long"*

Shortage of medication: There were also issues regarding a shortage of medication at some of the facilities.

- *"Sometimes the medication runs out"*
- *"They don't give enough medication"*

v. Other Issues

Patients suggested 8 changes which are listed in Table 7.17 and are described below.

Provision of grants: Some patients also requested that grants be made available at the facilities.

- *"They must provide grants for patients"*
- *"To help the patients to get disability grant"*

Delivery service for medication: There was also a request for a medication delivery service to those patients that were unable to attend the facility.

- *"I would like them to deliver your medicine if you can't walk - old people"*

Making appointments: As for making appointments for the patients' subsequent visit to the facility, there was a suggestion that there should be a way to make their appointment at the pharmacy so that they did not have to queue again at the reception desk.

- *"To give your appointment at the pharmacy so you don't have to go back to reception"*

Patients must come anytime to take medication: Patients also suggested that they should be able to attend the facility at any time if they were ill and not necessarily have to wait for their appointment date.

- *"Patients must come anytime to take medication if they are sick, not to wait for day of appointment"*

The staff do their best but the service we get as a community is not good at all: Some patients recognised the fact that staff members provide the best service that they can, however, they still felt that they deserved better service overall. Thus changes regarding services at the facility should be implemented at a higher level.

- *"The staff do their best but the service we get as a community is not good at all"*
- *"Things can't go on the way they do here. Just because it's free doesn't mean we don't deserve better"*

Accessibility of facility: There was also a remark regarding the accessibility of the facility.

- *"The day hospital is too far to drive to"*

Inability to change things: Although patients were asked what changes they would like to make to the facility, there were some patients that had resigned themselves to being unable to ever implement change at the facilities.

- *"No its okay. You can't change things if they've been like this for years"*
- *"No problems. It doesn't help to complain"*

Don't know: There was one patient that mentioned that the changes required at PHC facilities were extensive and he simply did not know where to start.

- *"Don't know because there's a lot to be changed in the clinic"*

7.5.4. Current lifestyle practices

In order to determine the patient profiles with regard to their current lifestyle practices, patients were asked the following questions relating to their dietary, smoking and alcohol consumption as well as physical activity habits

Dietary habits: In order to determine current meal patterns, patients were questioned regarding the regularity of their meals. Overall 78% reported regularly eating 3 meals a day, while 56% reported regularly eating 3 meals a day as well as snacking between meals. Eighty eight percent of patients indicated that they regularly ate breakfast as well as lunch, while 98% of patients indicated that they regularly ate supper.

Patients were also questioned regarding meal triggers. The questions posed to patients are listed in Table 7.18. These results indicate that between 41% and 52% of the patients that were interviewed reported that they never ate as a result of boredom, loneliness or being in the company of other people that were eating. However, 28% and 29% of patients indicated that they often or sometimes ate more than they think they needed to eat.

Table 7.18: Meal triggers for patients

Meal Triggers	Never	Sometimes	Often
How often do you eat when you are bored	52	38	10
How often do you eat when you are lonely	45	42	13
How often do you eat just because others are eating	41	28	31
How often do you eat more than you think you need	43	29	28

Smoking habits: While 23% of patients indicated that they smoke, 71% indicated that they did not smoke and 6% indicated that they used to smoke but had already quit smoking.
Of the 23% (n=133) that indicated they smoked, 69% reported smoking 1 - 9 cigarettes per day, while 25% reported smoking 10 - 19 per day and only 5% reported smoking 20 or more per day.

Alcohol consumption habits: Fourteen percent of patients reported that they consumed alcohol, 78% reported that they do not consume alcohol while 8% reported that they quit drinking alcohol.

Of the 14% (n=81) of patients that reported they drink alcohol, 87.5% reported that they do not drink during the week, 7.5% reported having 2 – 3 drinks per week while 5% reported having 1 – 2 drinks per day.

Twelve percent of these patients reported that they do not consume alcohol on the weekends, while 21%, 35% and 32% reported that they have 1 - 2 drinks per day, 2-3 drinks per day and 3 or more drinks per day respectively.

Daily physical activity habits: The majority of patients (65%) reported that they were moderately active (less sitting, more walking and standing) when they were at work (during the day), while 29% reported that they were inactive (sitting most of the time) and 6% reported that they were more active (very little sitting mostly walking).

Conversely, the majority of patients (81%) reported that they were inactive when they were not at work (weekends and evenings), while 18% reported being moderately active and 2% reported being more active.

In summary, CDL patients attending PHC facilities in the Western Cape Metropol appear to have regular meal patterns, the majority of whom include snacking as part of their daily meal patterns. The majority of patients reported hardly succumbing to meal triggers such as loneliness or boredom, however, a large proportion indicated that they perceived that they do eat more than they required.

Furthermore, less than a quarter of patients that were interviewed reported that they currently smoked and only 14% of patients reported that they consumed alcohol. In addition the majority of patients also indicated that they were moderately active

7.6. DISCUSSION

In terms of identifying the profile of CDL patients attending PHC facilities in the Western Cape Metropol, the results of this study indicate that almost two thirds of these patients are female. This could be an accurate reflection however, although patients were randomly selected to participate in the study, female patients may have been more willing to participate than male patients and thus this should be interpreted with caution. The average age of CDL patients attending these facilities was reported to be in the region of 55 years.

Even though the interviews were conducted on the basis of selecting 10 hypertensive and 10 diabetic patients at each PHC facility, 55% of patients reported that they had diabetes and 81% reported that they had hypertension. These results corroborate the fact that more often than not, these two chronic conditions co-existed within the same patient. In addition more than a third of these patients concurrently receive treatment at these facilities for other conditions as well.

The majority (more than 88%) of CDL patients have reportedly had their chronic conditions for more than a year. However, within 3 months prior to the survey a further 1.9% and 1.2% of diabetic and hypertensive patients reported having treatment initiated at these facilities thus indicating that new CDL patients are identified constantly. It is therefore easy to assume that the vast majority, if not all the patients in this study were receiving treatment for their chronic conditions at these primary health care facilities, however, there is no objective method to confirm their adherence to their treatment.

The reasons for these patients first presenting at the PHC facility did not form part of the study objectives and was thus not explored. However, these reasons could have a significant effect on the patients' readiness to change as well as their stage of change and in turn this would affect what patients are willing to do to manage their conditions. For example, those who first presented in a coma or in a hypertensive crisis or with a myocardial infarction or stroke would have a different set of motivations to actr on risks than those whose conditions came to light through routine screening.

There are many behaviour change theories such as the stages of change theory, the precede-proceed model and the method of motivational interviewing that can be applied effectively in the health care setting. A description of the most common models and theories are summarised in Chapter 2 of this thesis.

Less than a third of the patients interviewed reported that they attended support groups or chronic clubs for their health conditions. They reported a variety of activities including receiving counselling on one or more topics such as diet, exercise, medication usage or a combination of these topics. They also reported that they had observations like blood pressure or blood sugar measurements done. Some patients indicated that they had a combination of counselling and observations done. Furthermore some patients mentioned that they simply received their medication at these meetings.

Concerning their current lifestyle, CDL patients attending PHC facilities in the Western Cape Metropol appear to have regular meal patterns, the majority of whom include snacking as part of their daily meal patterns. However, of those patients that reported not having regular meals, it is important to note that breakfast or lunch would be the meals that patients are more likely to skip. Furthermore this study did not investigate the dietary content of these meals or snacks and as such no conclusions can be drawn in this regard. Although the majority of patients reported hardly succumbing to meal triggers such as loneliness or boredom, a large proportion indicated that they perceived that they do eat more than they required.

Less than a quarter of patients that were interviewed reported that they currently smoked and only 14% of patients reported that they consumed alcohol. In addition the majority of patients also indicated that they were moderately active. Employment status was not assessed in this study and as a result the patients reported physical activity levels cannot be used as an indicator for the physical demands of their occupations. When this question was posed to patients it was meant to reflect their overall physical activity levels irrespective of their employment status.

Regarding services at the facility, it appears as if blood pressure, weight, urine and blood glucose observations are provided to patients on a regular basis. Only half the patients reported that their height was measured. This indicates that HPs at these PHC facilities do not often calculate or use a patients' BMI when they provide education and counselling to patients. Furthermore, although 55% of patients reported that they had diabetes, the majority of who had their conditions for more than a year, at the time this survey was conducted retinal screening as well as diabetic foot screening at these facilities was reported by less than 20% of patients.

Through their preferences, 90% of patients reported that they wanted to receive education and counselling from HPs at PHC facilities. However, patients indicated that they were only willing to receive health education and counselling if it coincided with their clinic appointment dates. Coming to the facility purely for the purpose of attending an education or counselling session did not bode well with these patients.

Other than simply not being interested in receiving information, the patients provided reasons such as being able to manage their condition well, a lack of time to obtain information as well as information overload for not wanting to receive any information. These results are similar to the barriers reported by Van Dillen *et al.*[10] In their study, information overload referred to the repetition of the same health education message, however In this study, it refers to the patients' perception that everybody wants to educate them about something, be it diet, diabetes or HIV. Patients reported that they felt it is too much for them to comprehend. This implies that patients should not be provided with large amounts of information at one time, but rather that health education should continually be provided in small doses or as simple messages that are easy for patients to comprehend.

Although there is evidence that CDL no longer only affects the elderly,[31] a few patients mentioned that they were too old to receive information regarding their conditions thereby implying that patients felt information is more beneficial to newly diagnosed (younger) people. This provides further evidence to support not only the provision of health education to CDL patients but the importance of health promotion for all individuals in order to prevent them from developing CDL.

When patient preferences regarding the health education methods and materials were identified, individual counselling emerged as the method most patients preferred. This was followed closely by watching a video and attending chronic clubs or support groups. However, no method of health promotion could be disregarded as all the methods were selected by participants, albeit to varying degrees. It is therefore evident that there is not one specific method that can act as the gold standard to providing education and counselling to CDL patients.

In this study though, patients tended to prefer methods that did not involve reading, such as individual counselling, attending support groups as well as watching a video. Although it was only mentioned by a few patients, these methods were selected because it did not require reading as some patients reported that they either disliked reading or that they could not read. This supports the findings of Schillinger *et al.*,[32] when they reported that poor health literacy is common among elderly persons and patients with chronic conditions, especially in the public health sector. This could possibly also explain why such a low proportion of patients that selected reading booklets, pamphlets and posters rated these methods as their first or even second choice. Furthermore patients that selected booklets or pamphlets often reported that they selected these methods because they could take these materials away from the facility and have a third party such as a spouse or family member, read and explain the information to them.

A large proportion of patients selected individual counselling because it provided them with an opportunity to discuss private or personal information. Patients also cited that they selected this method because it would enable them to receive information that is specific to their individual consultation and examination. Furthermore patients selected individual counselling because it provided an opportunity to receive continuity of care. Continuity of care has been cited to assist in developing the relationship between HPs and patients and as such it favorably influences patients' health behaviors.[23-24] When patients were requested to suggest changes to the facility, one of the suggestions was their request that they only wanted to see one particular doctor every time they visited the facility. Chabikuli *et al.*[33] and Subedar[34] have alluded to the fact that continuity of care is not always guaranteed in PHC facilities in South Africa as a result of HPs migration away from the PHC facilities.

Videos were mainly selected because they were visually demonstrative and they provided a convenient way of obtaining education while waiting for assistance at PHC facilities. Some patients reported that it provided an ideal means of educating large numbers of patients simultaneously and as such it could reduce the amount of time HPs are required to allocate to health education. Lukoschek *et al.*[25] suggested that patients may not always comprehend and recall the information that they receive from HPs, resulting in miscommunication and perceived patient non-adherence. The information that patients could learn while watching videos would therefore lay the foundation

of their education and thereby facilitate communication between HPs and patients regarding their chronic conditions. Patients also reported that videos provided an opportunity to obtain information passively, stating that patients would watch anything as long as it was shown on a television screen. Another reason cited by patients was that videotapes did not require any interpersonal communication. Schillinger *et al*.[35] reported that patients with less than high school education rated visits with HPs as less participatory as they seldom ask HPs questions pertaining to their conditions. This could possibly explain why these patients selected videotapes as their preferred method of health education.

The concept of sharing was a recurrent theme for patients who selected support groups or chronic clubs. These patients mentioned that this method of health promotion provided them with the opportunity to ask questions, talk about health problems and to share knowledge, information, ideas, experiences, views problems and advice. Furthermore it provided an opportunity for patients to meet people with the same chronic conditions as well as a means to obtain and provide help, support and encouragement to and from fellow patients. It is important to note that these patients mainly made reference to sharing issues amongst each other since some patients mentioned that support groups offered a medium through which they could discuss issues that they did not want to share with a doctor or HP. Thus patients regard the HPs' role and involvement in support groups as minimal. Contrary to this, some of patients that selected workshops did so because they felt that the presence of a HP would direct and guide the topics of discussion comprehensively. Furthermore, patients that selected workshops reported doing so because it was a means of receiving standardised information since patients often receive conflicting advice regarding their conditions. This supports the findings presented by Tripp-Reimer[23] when he reported that receiving consistent messages regarding diabetes management also increased patients' satisfaction with care.

A large proportion of patients that selected posters reported doing so because they were easily accessible and convenient to read at the health facility while waiting for assistance. Furthermore patients also reported that posters provided simple, clear and concise messages that were easy to remember. The illustrations on posters also served as a reason why patients selected this method.

Some patients mentioned that they had other responsibilities and thus they had time constraints when visiting the heath facility. Thus the most common reason reported by patients for selecting booklets or pamphlets was the opportunity to take information away from the facility and read it at their convenience. Furthermore this enabled them to share the information with people outside the facility. Other reasons cited for selecting these methods included the fact that they were easily accessible at the facility, they were small and convenient to obtain and they were able to keep them for future reference.

A small percentage of patients suggested methods such as food labelling and the using the media, including television, radio and magazines to promote health education.

Although health promoters and nutrition advisors are trained to provide LM education to patients, very few patients reported that they would prefer to receive information from these HPs. The majority of patients reported that they would prefer receiving information from a doctor or a nurse albeit in an individual counselling session, chronic club or a workshop. The role of the health promoter and the nutrition advisor should therefore be promoted amongst patients at facilities where these services are available. Furthermore, the roles of health promoters and nutrition advisors should also be promoted and advocated among doctors and nurses in order for these HPs to refer patients to them and endorse the services that they provide.

Very few patients reported experiencing difficulties when trying to obtain information at PHC facilities. The difficulties that were reported was summarised as difficulties in implementing the advice received from HPs, shortage of staff resulting in the inability of staff to provide adequate attention to patients as well as an 'unfriendly' staff attitude.

In order to address and understand any concerns that patients had regarding health service delivery at PHC facilities, patients were asked to formulate suggestions for changes at these facilities. It is important to note that 16% of patients indicated that they were satisfied with the service and a further 29% reported that there were no changes they wanted to make. Thus a large proportion (45%) of patients reported that they did not have any suggestions for changes.

The changes that patients suggested were categorised into issues regarding waiting times, staff, administration as well as facility-based issues.

Similar issues were raised in another developing country, namely Oman, where patients identified weaknesses regarding the patient-provider communication, long waiting times, the lack of continuity of care and insufficient access to health education as issues that required attention at PHC facilities in this country.[36]

The issue of waiting times emerged in another study conducted in PHC facilities in Gauteng, Free State and Limpopo provinces of South Africa. These authors reported that over 50% of patients waited more than 2 hours to be treated, while 16% of patients waited more than 5 hours to be seen by a health worker. [37]

A third of patients in this study raised the issue of extended waiting times at PHC facilities and suggested that measures be put in place to reduce this. One of these measures included a

suggestion that a specific section of the pharmacy should be dedicated to distributing medication only to chronic patients. Another suggested measure was to receive follow up appointment dates at the pharmacy when patients collected their medication rather than standing in yet another queue at reception to receive an appointment date.

However, while these measures are being resolved, patients have resigned themselves to spending a long time waiting for assistance at facilities and have offered suggestions to make their stay more comfortable. These included the provision of comfortable seating as well as televisions in the waiting rooms. Patients have suggested that watching television while they wait would help reduce frustrations and improve their tolerance. Furthermore it would simply occupy time, that patients would otherwise spend idly and in doing so reduce their perceived waiting times.

Currently patients do ot have access to food at PHC facilities. There may be some vendors who most sell luxuries, but do not really afford patients the opportunity to purchase healthy meals. Patients thus suggested that they be provided with access to food while waiting at the facility, since they arrive early in the morning and usually spend the entire day at the facility. Considering that a large proportion of these patients have diabetes, this suggestion has good merit since the concept of small frequent meals is promoted in order to maintain blood glucose levels and prevent hypoglycaemia. Furthermore, providing access to healthy and hygienic food at PHC facilities could present an important opportunity for job creation at these facilities.

Tripp-Reimer *et al*.[23] reported that patients could experience barriers in the form of issues of accessibility and defines these as issues that relate to geographic and linguistic accessibility. These issues have previously been defined in chapter 2 (literature review) of this thesis. The patients in this study raised issues of accessibility in terms transport to facilities as well as the location of facilities. These patients also suggested improving accessibility in terms of 24-hour access to facilities, while others suggested that the opening hours of facilities should be amended in such a way that it would reduce the amount of time patients spend waiting outside facilities in the morning. This sparked further suggestions including providing shelter under which patients could wait, especially during the winter season as well as access to toilets outside the facility. There were also requests for access to clean bathroom facilities inside the PHC facility.

Furthermore patients suggested structural changes such as increasing the size of the facilities as well as dedicating areas within the facility for specific patient use. These patients stated that "*they must separate the patients, like diabetic patients must have their own place and get treatment easily*" In addition patients suggested improving access to services such as x-ray facilities and ambulance services at all facilities, especially where these were not available.

Patients raised numerous issues relating to staff at the facilities. Patients suggested improving the interaction between staff and patients. This included HPs as well as administrative staff at the facility. Patients suggested that staff members should adopt a friendlier, compassionate, patient and respectful attitude toward patients, while others suggested that administrative staff should be trained to work with people and should therefore undertake "*a human relations course*". They also mentioned that doctors do not provide comprehensive care to their patients. However, they indicated that they were aware that staff members were overworked as a result of the large numbers of patients attending these facilities as well as the shortage of staff. Some patients reported that although they would prefer to receive individual counselling from HPs, they were aware that HPs had a limited amount of time to spend with them and would not necessarily be able to provide them with such counselling. Patients suggested that additional staff such as nurses, doctors and health promoters be recruited at facilities. Patients also requested that permanent doctors be employed at facilities where there were no doctors. These requests usually originated from patients in the smaller PHC facilities. Improved access to dietetic services was also requested. Furthermore, patients suggested that communication between HPs and patients be improved in terms of providing feedback to patients and addressing language barriers between HPs and patients. Tripp-Reimer *et al*.[23] reported that inadequate presence of bilingual staff or professional interpreters as well as bilingual health education materials also acted as barriers that prevented patients from wanting to receive health education and counselling.

Patients further suggested that the efficiency of the administrative system at PHC facilities improve since there were constantly problems with patient folders being misplaced. This often resulted in a chaotic system and a disordered and unfair flow of patients through the facility. Aside from a flawed administrative system, this probably stems from the lack of sufficient staff at most PHC facilities and thus adds to the duration of time patients spend waiting at the facilities. Similar findings were reported in a study conducted in PHC facilities in Gauteng, Free State and Limpopo provinces of South Africa, when patients in this study also reported that their folders had gone missing.[37]

Other suggestions included access to the provision of grants for patients, as well as providing a medication delivery service for patients that were unable to attend the facility. Patients also recognised the fact that staff members provide the best service that they can however, they still felt that they deserved better service overall. Thus, changes regarding services at the facility should be implemented at a higher level.

In conclusion, the majority of patients attending PHC facilities want to receive LM education and counselling. There is not however, one specific method that can act as the gold standard for providing education and counselling to CDL patients. Patients' preferences regarding health promotion methods differ however, they are more likely to be susceptible to methods that do not

involve reading. Health education materials such as posters, pamphlets and booklets should be used to supplement information received during a counselling or support group session. Patients have identified issues that they would like to change at facilities, some of which affect the administration of the facility, while others have a direct effect on education and counselling services. Overcoming these barriers and implementing the suggested changes will therefore improve education and counselling services provided at PHC facilities and thus result in increased patient adherence as well.

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CHAPTER 8

HEALTH PROFESSIONAL INTERVIEWS

8.1. INTRODUCTION

As previously indicated, numerous studies have reported that health professionals (HPs) at primary health care (PHC) facilities are perfectly positioned to provide lifestyle modification (LM) education and counselling to CDL patients.[1-4] These studies have been described previously in chapter 2 (literature review) of this thesis. However, there is also indisputable evidence that HPs experience barriers which prevent them from providing effective education and counselling to CDL patients at these facilities. These barriers have been identified and include inadequate training in LM,[4-23] inadequate counselling skills,[2, 4-5, 7, 10, 12, 14, 19, 24-25] self-efficacy,[2, 4-5, 9, 11, 18, 23-30] lack of time,[2, 7, 9-10, 13, 15, 18, 22-23, 26, 28, 30-32] lack of patient adherence,[2, 4, 19, 23, 26, 32-34] lack of space,[30, 35-36] lack of equipment,[34-38] lack of health education materials[4, 23, 26, 30, 36-38] as well as staff[22, 28, 36-40] and language barriers.[32, 41] Concurrently, although literature investigating factors that motivate HPs to provide education and counselling is sparse, there are a few studies that have identified some of these factors.[5, 11, 26, 42]

The overall aim of this study is to provide the health authorities of the Provincial Government of the Western Cape with appropriate and relevant recommendations to develop a health promotion intervention that utilises available resources at PHC facilities in the Western Cape Metropol. In order to formulate these recommendations an exploratory research approach was required to obtain in depth information on the current situation in PHC facilities in the Western Cape Metropol.

According to Pope and Mays,[43] the goal of qualitative research is the development of concepts which aid the understanding of social phenomena in natural, rather than experimental settings, giving due emphasis to the meanings, experiences and views of all participants. Thus these authors state that qualitative studies are concerned with answering questions such as "*What is X and how does X vary in different circumstances and why?*" rather than "*How many Xs are there?*"

Pope and Mays[44] also describe three ways in which qualitative research can be used. Qualitative research can be used to complement quantitative research, firstly by using qualitative research as the preliminary to quantitative research such that it could add value to the development of survey questionnaires and secondly to validate quantitative research or provide a different perspective on the same social phenomena. Thirdly, qualitative research may be used independently to uncover social processes or access areas of social life that are not open or amenable to quantitative research. This type of qualitative research has been used to considerable effect in evaluating organisational reforms as well as changes to health service provision from the viewpoint of patients, HPs and managers.

The aim of this phase of the study was thus to gain a better understanding of HPs' capacity and the conditions within PHC facilities in the Western Cape Metropol that facilitate or impede the

provision of LM education and counselling to CDL patients. In doing so, this study aimed to conduct a formative evaluation based on the following objectives:

1. Doctors, nurses and health promoters' perceptions of their individual roles in providing education and counselling to CDL patients.
2. The services available to CDL patients at these facilities.
3. HPs' perceptions of the access to as well as the efficacy and practicality of health education materials and methods at their disposal.
4. Factors that motivate HPs to provide lifestyle counselling to CDL patients.
5. Barriers that impede the provision of counselling.
6. HPs perceptions of the role of LM in the management of CDL patients.
7. The way in which HPs prioritise education and counselling for different health conditions and their reasons for doing so.
8. Further support services required for CDL patients at these health facilities.
9. Recommendations for changes to the facility that would make health education and LM counselling more effective.

A qualitative research approach thus presented the ideal method required to achieve the objectives proposed for this phase of the research project.

Numerous misunderstandings about qualitative research exist. Pope and Mays[44] explain that these misunderstandings may be compounded by the fact that the terms "qualitative research" and "qualitative methods" are often used interchangeably. Qualitative research refers to the theoretical approach, while qualitative methods refer to specific research techniques used to gather data. Thus, although this phase of the research project employed qualitative methods, from a theoretical stance it would not be classified as qualitative research.

Babbie and Mouton[45] state that qualitative methods focus on subjective experiences and are congruent with reliance on local knowledge. Dahlgren *et al.*[46] further explains that the most common methods used in qualitative research include observations, interviews and focus group discussions, while additional methods include rapid assessment procedures, free listing as well as pile sort and ranking.

Qualitative data analysis has been described as the process of bringing order, structure and meaning to the mass of collected data. De Vos[47] describes it as a messy, ambiguous, time consuming, creative and fascinating process that does not proceed in a linear fashion. Fielding (cited in Pope, Ziebland & Mays[48]) states that good qualitative analysis will be able to reflect some of the "truth of a phenomenon" by reference to systematically gathered data whereas poor

qualitative analysis is anecdotal, unreflective and descriptive without being focussed on a coherent line of enquiry.

There are numerous approaches to qualitative data analysis. The data analysis approach is dependent on the research interest. Tesch[49] described research interests along 4 basic orientations including the *characteristics of language*, the *discovery of regularities*, and the *comprehension of meaning of text or action* as well as *reflection*. Table 8.1 was adapted from Tesch[49] and presents the correlation between various research interests and their respective data analysis approaches.

Table 8.1: Research interests and their respective data analysis approaches

Research interest	Data analysis approach
1. The characteristics of language	
a) as communication	
i. with regard to its content	Content analysis
ii. with regard to its process	Discourse analysis
b) as it mirrors culture	
i. in terms of cognitive structure	Ethnoscience
ii. in terms of the interactive process	Ethnomethodology
2. The discovery of regularities	
a) as the identification of categories of elements and the establishment of their connections	Ethnographic content analysis; grounded theory
b) as the identification of patterns	Action research; educational ethnography
3. The comprehension of meaning of text or action	
a) through the discovery of themes	Phenomenology
b) through interpretation	Case study, life history, hermeneutics
4. Reflection	Reflective phenomenology

Tesch[49] relays the sequence of the items outlined in Table 8.1 in a logical order in that the data analysis approaches become less structured, less formal and more “humanistic” from the top to the bottom of the table.

Since this study aimed to identify categories of elements and to establish the connections between them, an *ethnographic content analysis approach* was applied. Altheide[50] contextualises ethnography as it generally refers to people and their culture. In this sense the subject matter – human beings engaged in meaningful behaviour – guides the mode of inquiry and orientation of the investigator. However, if the meaning of an activity remains paramount, ethnography can also be considered a methodological orientation independently of a specific subject matter.

Altheide[50] states that quantitative content analysis (QCA) provides a way of obtaining data to measure the frequency and variety of messages. QCA is used to verify or confirm hypothesized relationships. This mode of document analysis was influenced by electronic data processing formats and thus the researcher's role was reduced to setting up the protocol and then analyzing and interpreting the data.

Furthermore, Altheide[50]states that ethnographic content analysis (ECA) is used to document and understand the communication of meaning and to verify theoretical relationships. Its distinctive characteristic is the reflexive and highly interactive nature of the investigator, concepts, data collection and analysis. Unlike QCA in which the protocol is the instrument, in ECA the investigator becomes the instrument. ECA consists of reflexive movement between concept development, sampling, data collection, data coding, data analysis and interpretation. The aim is to be systematic and analytic but not rigid. Although categories and variables initially guide the study, others are allowed and expected to emerge throughout the study. Thus ECA is embedded in constant discovery and constant comparison of relevant situations and settings. ECA therefore draws on and collects numerical and narrative data, rather than forcing the latter into predefined categories of the former, as is done in QCA. ECA is oriented to check, supplement and supplant prior theoretical claims by simultaneously obtaining categorical and unique data for every case studied in order to develop analytical constructs appropriate for several investigations. Further data is often coded conceptually so that one item may be relevant for several purposes. In short, while items and topics can still be counted and put in emergent categories, ECA also provides good descriptive information. Table 8.2 provides a comparison between an ECA and QCA approach.

Table 8.2: Comparison between an ECA and QCA approach[50]

Dimension	Quantitative Content Analysis	Ethnographic Content Analysis
Research goal	Verification	Discovery; Verification
Reflexive research design	Seldom	Always
Emphasis	Reliability	Validity
Progression from data collection, analysis and interpretation	Serial	Reflexive; Circular
Primary researcher involvement	Data analysis and interpretation	All phases
Sample	Random or stratified	Purposive and theoretical
Pre-structured categories	All	Some
Training required to collect data	Little	Substantial
Type of data	Numbers	Numbers; Narrative
Data entry points	Once	Multiple
Narrative description and comments	Seldom	Always
Concepts emerge during research	Seldom	Always
Data analysis	Statistical	Textual; Statistical
Data presentation	Tables	Tables and Text

8.2. METHODS

8.2.1. Study Design

A qualitative research approach was used to conduct this phase of the study.

8.2.2. Study Population

The study population consisted of HPs that render services to CDL patients at PHC facilities within the Western Cape Metropol.

8.2.3. Process of Consultation

Permission to conduct this phase of the study was granted by the health authorities in the region at the inception of the research project. In addition facility managers of the selected health facilities were contacted individually for permission to conduct this phase of the study.

8.2.4. Sampling

Sampling for qualitative research differs from quantitative research in that random selection and generalizability are not of primary consideration in qualitative research. Qualitative research focuses primarily on the depth or richness of the data and therefore qualitative researchers generally select samples purposefully rather than randomly. It is sometimes believed that while qualitative researchers do not select samples as stringently as quantitative researchers, small samples may be selected in a haphazard manner. This is not so. Sample selection must still be a carefully considered process.

Struwig and Stead[51] state that purposive sampling is not so much concerned with random sampling as it is with finding information-rich participants. In other the words the participants are selected based on certain characteristics that the researcher is interested in. According to Lincoln and Guba[52] the characteristics of purposive sampling are as follows:

- The characteristics of what may comprise the final sample are considered but the sample size is not finalised before the study commences and may change as the study progresses.
- Each sampling unit is selected only after the previous unit has been analysed. An additional sampling unit is required if the previous unit provides insufficient information or if contrasting information is needed. As additional information is required more specific sampling units are sought. This could be based on new insights or hypotheses being developed as the study progresses.
- The sampling of new units continues until new information becomes redundant, that is when no new information is obtained or the point of data saturation is reached.

Numerous types of purposive sampling strategies are described by Struwig and Stead.[49] These include extreme case sampling, intensity sampling, maximum variation sampling, homogenous sampling, typical case sampling, critical case sampling, stratified purposive sampling, snowball or chain sampling, criterion sampling, theory based sampling, confirming and disconfirming cases, opportunistic sampling, purposeful random sampling as well as convenience sampling. For the purposes of this study, stratified purposive sampling was selected as the strategy of choice as it allowed the researcher to obtain major variations in responses from a sample. For example selecting people from lower-, middle- and upper-class socio economic strata would reflect stratification, with each of the three subgroups constituting a homogenous group. This is different from quantitative stratified sampling in that the sample sizes will be too small to permit generalizations.

According to Greeff[53] there are two criteria that govern the sample size of qualitative studies. The first is sufficiency. This refers to whether or not there are sufficient numbers to reflect the range of participants and sites that make up the study population. The second criterion is reaching the point of data saturation where no new information emerges. Although these are the ideal criteria that determine the sample size, Struwig and Stead[51] indicate that resources available to the researcher also play a role in sampling decisions. These may include the availability of fellow researchers and financial as well as time constraints for when the information is required.

Of the 30 health facilities that originally participated in the study (Chapter 4, Figure 4.1), a sub-sample of five facilities were purposively selected to participate in this study based on their location, size, ethnic profile of the patients in attendance and the predominant languages spoken at the facility. Figure 8.1 illustrates the 30 PHC facilities that constituted the study sample and highlights the 5 facilities that were selected to participate in this phase of the study. Furthermore, it illustrates the predominant languages as well as the size of these facilities. At each facility where possible, the researcher elected to interview one HP from three disciplines, including doctors, nurses and health promoters that rendered services to CDL patients. The facility manager at each of the five selected PHC facilities was approached and requested to identify the HPs most suited to participate in these interviews. These HPs were then contacted individually and appointments to conduct the interviews were made at their convenience.

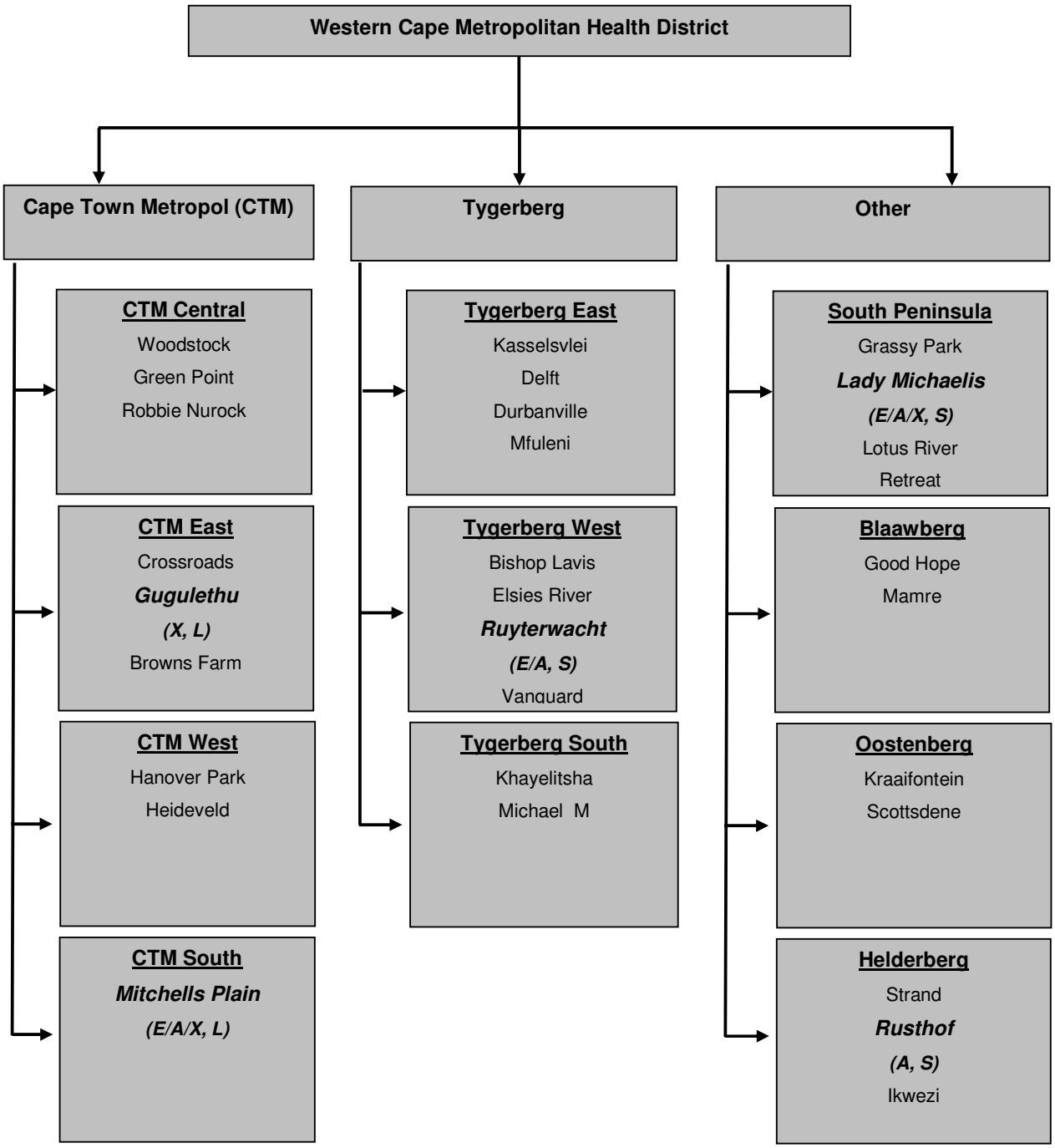

Figure 8.1: Sampling frame showing the selection of the sub-sample from the study sample

(E/A/X, …) - describes the predominant languages used at the facility (E = English, A = Afrikaans, X = Xhosa)

(…, S/ L) - describes the size of the facility (S = Small, L = Large)

Example:

(X, L) - Predominantly Xhosa speaking patients attending a large facility

(E/A/X, S) - English, Afrikaans and Xhosa speaking patients attending a small facility

8.2.5. Instruments

The most frequently used method of gathering information for qualitative studies is by directly asking respondents to express their views. Bless and Higson-Smith[54] describes interviews as a method that involves direct personal contact with the participant who is asked to answer questions relating to the research problem.

In order to compare qualitative interviews with quantitative interviews, qualitative interviews are often described as being unstructured. However, Britten[55] states that the term unstructured is misleading as no interview is completely devoid of structure. If there were no structure, there would be no guarantee that the data gathered would be appropriate to the research question.

There are three main types of interviews used for qualitative research. These include the non-scheduled interview, the non-scheduled structured interview and the scheduled structured interview.

Bless and Higson-Smith[54] states that the non-scheduled interview consists of asking respondents to comment on broadly defined issues. Interviewees are free to expand on the topic and to relate their own experiences, while the interviewer is present mainly to record the interview and will only intervene to gain clarity but not to direct the interview. This type of interview is useful in exploratory research where the research questions cannot be narrowly defined or when no comparison is sought between responses of different participants. This corresponds to what Babbie and Mouton[45] refer to as basic individual interviewing. They also further distinguish between basic individual interviews and depth individual interviews, where the latter may only cover one or two issues but in more detail. Britten[55] suggests that such an interview may begin with a specific question and further questions would be based on the response from the interviewee and would consist of clarification and probing for details. Babbie and Mouton[45] further clarifies that depth interviews are usually centred on the process by which the content of the conversation came into being rather than the actual content of the interview.

Bless and Higson-Smith[54] defines the non-scheduled structured interview as one that is usually conducted when there is a need for specific and detailed information that can facilitate the comparison of reactions from different participants. It is structured in that a list of significant issues is compiled prior to the interview but it is non-scheduled in that the interviewer is free to formulate other questions appropriate to the situation. It is important to note that this type of interview presupposes some prior information, an understanding of the problem under investigation and a need for more specific information. This corresponds to what Britten[55] refers to as semi-structured interviews, which are conducted on the basis of a loose structure consisting of open-ended

questions that initially define the area of research to be explored, from which the interviewer or interviewee may diverge in order to pursue an idea or response in more detail.

Bless and Higson-Smith[54] describes the scheduled structured interview as one that is based on an established set of questions, in which the wording and sequence of the questions are fixed and the questionnaire is presented to the participants in a standardised manner in order to minimise the role and influence of the researcher.

Since the objectives of this study were predetermined, a non-scheduled structured interview was applied. Kvale[56] states that the interview schedule can contain rough topics to be covered or it can be a detailed sequence of carefully worded questions. Each interview question can be evaluated in terms of a thematic and dynamic dimension; thematically with regard to its relevance to the topic of the interview and dynamically with regard to the flow of the conversation. The questions should be easy to understand, short and devoid of academic language. Table 8.3 displays Kvale's[56] outline of the various types of questions that can be included in a qualitative interview.

Table 8.3: Types of questions outlined by Kvale[56]

Type of question	Definition or Examples
Introducing questions	"can you tell me about…" or "do you remember when…"
Follow up questions	Includes direct questioning of what has been said, repeating significant words of an answer or simply nodding or pausing to indicate that the respondent continue with a description
Probing questions	"Could you say something more about that?" or "Do you have further examples of this?"
Specific questions	"When you mention competition, do you then think of a sportsmanlike or a destructive competition?"
Structuring questions	Used to introduce a new topic or theme such as "I would now like to introduce a new topic"
Silence	Allows respondents to associate and reflect on the conversation and provide further significant information
Interpreting questions	"You mean that…" or "Is it correct to assume that…"

Barbour *et al.*[57] conducted a workshop on semi-structured interviewing in which HPs were requested to formulate an interview schedule based on providing services for drug users within primary care facilities. The questions included in their consensus schedule was applied and adapted with the aim of exploring the objectives listed previously for this study (Appendix I).

8.3. DATA COLLECTION

In this study, the researcher contacted the interviewees and confirmed appointments with them. The researcher then visited the PHC facility and conducted the interviews using the interview schedule as a guide. In order to facilitate documentation and later analysis all interviews were audio tape recorded, thus allowing the researcher to concentrate on the topic and the dynamics of

the interview. (Q 15) Before commencing the interview, the interviewee was issued with an information sheet and briefed with regard to the purpose of the interview and the use of a tape recorder. In addition the interviewee was asked if he or she had any questions relating to the interview and requested to sign a consent form to indicate their willingness to participate in the interview. More often than not interviews were conducted in the doctors consulting rooms or offices. However, due to lack of space at some of the facilities, where necessary, interviews were conducted in the researcher's car. Interviews were transcribed as soon as possible after completion of the interview.

8.4. DATA ANALYSIS

Pope, Ziebland and Mays[48] describe the framework approach to qualitative analysis. Although the framework approach is heavily based on the original accounts of the interviewees and is thus grounded and inductive, it starts deductively from the aims and objectives already set for the study. Thus, this approach is used when the objectives of the investigation are set in advance rather than emerging from a reflexive research process. It is systematic and designed so that the analytic process and interpretations can be viewed and assessed by people other than the primary analyst. Table 8.4 summarises the five stages of data analysis using this approach. The approach applied to this study, namely the thematic analysis framework, illustrated in Figure 8.2, was provided by Wildschut.[58]

Table 8.4: Five stages of data analysis using the framework approach[48]

Step	Description
Familiarisation	Immersion in the raw data by listening to audio tapes and reading transcripts and field notes in order to identify key ideas and recurrent themes.
Identifying a thematic framework	Identifying all the key issues, concepts and themes by which the data can be examined and referenced. This is accomplished by drawing on issues and questions derived from the aims and objectives of the study as well as issues raised by the respondents themselves and views or experiences that recur in the data. The end product of this stage is a detailed index of the data which labels the data into manageable chunks for subsequent retrieval and exploration.
Indexing	Applying the thematic framework of index systematically to all the data in textual form by annotating the transcripts. Single passages of text can often encompass a large number of different themes each of which had to be recorded.
Charting	Rearranging the data according to the appropriate part of the thematic framework to which it relates and forming charts. Unlike simple cut and paste methods that group verbatim text, charts contain distilled summaries of views and experiences.
Mapping and interpretation	Charts are used to define concepts and map the range and nature of phenomena, create typologies and find associations between themes with a view to providing explanations for the findings. The process of mapping is influenced by the original research objectives as well as the themes that emerge from the data.

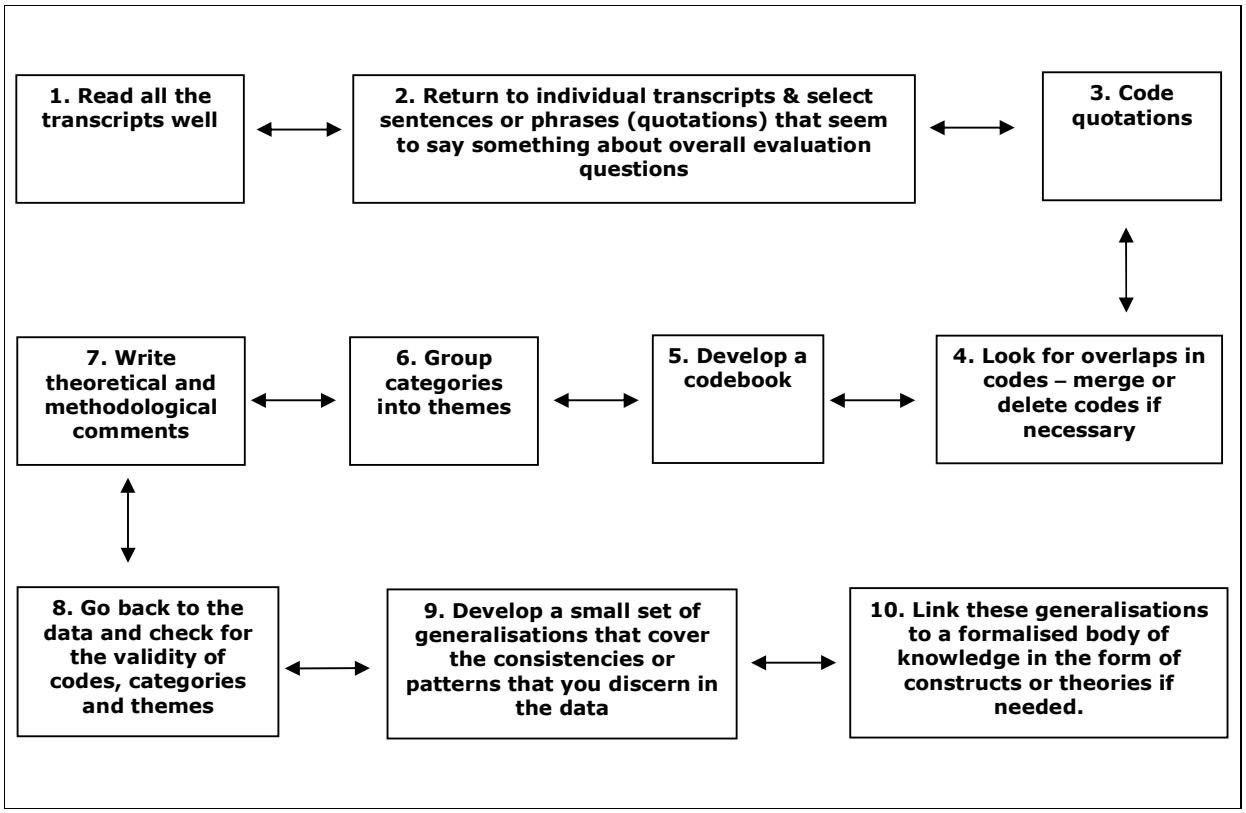

Figure 8.2: Thematic analysis framework for qualitative research[58]

Applying qualitative methodology in research renders a lot of written information. Many computer aided qualitative data analysis software (CAQDAS) programmes have been developed to assist in the process of organising and preparing the data for analysis. Dahlgren[46] states that it is important to note that these programmes are not designed for actual analysis, but rather to assist in the systematic organisation of data according to themes, codes, categories or concepts. Babbie and Mouton[45] described ATLAS.ti, which was used for the analysis of the data in this phase of the study as one of the best known and most commonly used packages in South Africa.

According to Muhr[59] ATLAS.ti is a powerful workbench for the qualitative analysis of large bodies of textual, graphical and audio data. It offers a wide variety of tools for accomplishing the tasks associated with any systematic approach to soft data or data that cannot be analysed meaningfully by formal statistical approaches. Fig 8.3 presents an overview of the general working procedure of ATLAS.ti, while Table 8.5 displays Babbie & Mouton's[45] explanation of the components of the process outlined in Figure 8.3. This process is easily applied to the ethnographic content analysis approach used for this study.

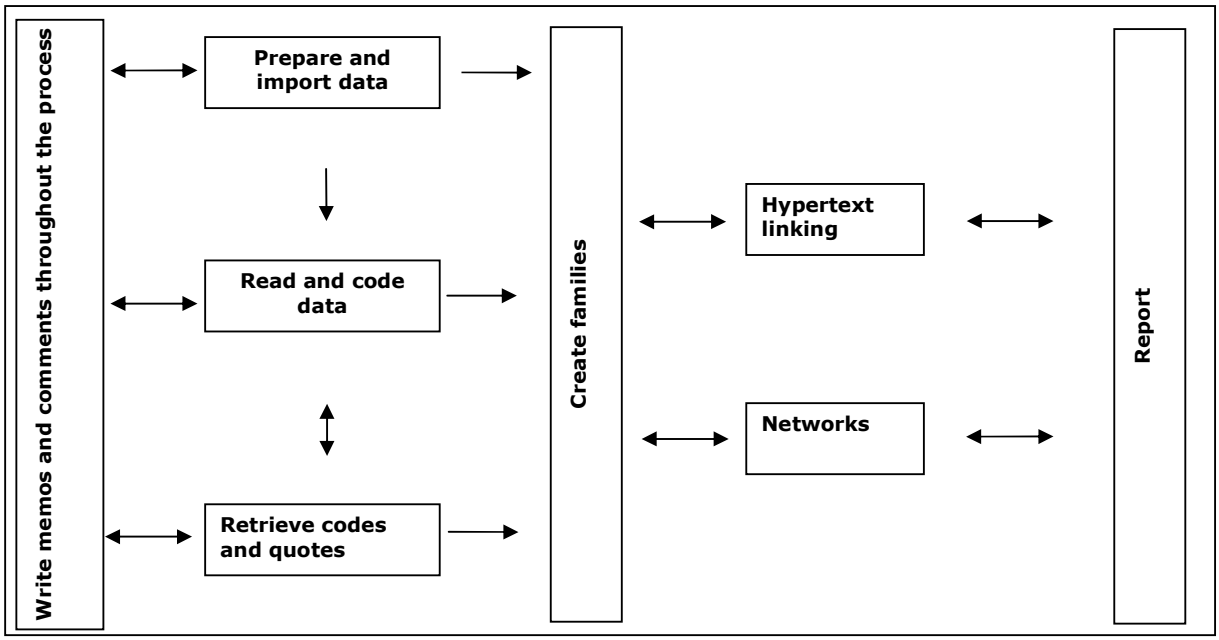

Figure 8.3: General working procedure of ATLAS.ti[59]

Table 8.5: Explanation of the components of the general working procedure of Atlas.ti[45]

Step	Description
Preparing & importing the data	The primary documents are imported into a hermeneutic unit, which is the term used to refer to a specific project
Coding the data	Coding is the classification of segments of textual data by means of a label or summary term that expresses some essential quality of the phenomenon as reflected in the data. Muhr[59] states that ATLAS.ti allows for the following six coding techniques: Open coding - Quotations are selected and given concise names. Free coding - Code is free of association with text (a predetermined code) Quick coding - Assigns the code that is currently selected In-vivo coding - The code uses the respondents actual words as the code name Code-by-list - Assigns a previously used code from a list of codes Auto-coding - Primitive coding – searches for particular words
Retrieving codes & quotes	Codes, their attached quotations and all the primary documents from which they were derived are simultaneously visible on the screen and facilitates data analysis
Creating families	Muhr[59] refers to families as "containers for objects of type" for primary documents, codes and memos. Families serve a variety of purposes by classifying objects into sub-sets.
Networks	ATLAS.ti allows the data analyst to create visual images of the data in relation to other data, so that it can be presented in the context of its inter-relationships

8.5. RESULTS

The results are presented in 9 sections (8.5.1 – 8.5.9).

Each section provides the HPs' responses to a specific question that had been posed to them. Each question is based on a specific objective as outlined in the introduction of this chapter.

During this study, 14 HPs were interviewed at 5 PHC facilities. They comprised 5 doctors, 5 nurses and 4 health promoters. Each interview transcript was assigned as a primary document (PD) in a hermeneutic unit. The 14 interviews transcripts are thus listed as PD 1 – PD 14.

A summary of the results are then displayed in a *codes-primary-document table (PD table)*. These PD tables convey information regarding the *codes* that emerged as well as the *code families* that were created within each section (category). They display the frequencies (also referred to as groundedness) with which codes emerged during an individual interview and their distribution across the PDs. However, it is important to note that the groundedness within each PD may be underestimated. This was a conscious decision made during the coding process in which the researcher mainly aimed to identify codes that emerged during an interview and not necessarily how many times the same code emerged within an interview. In situations where a code is reported to have emerged more than once in an individual PD, it usually identified situations in which codes were associated with more than one issue. For example the code referring to *lack of space* as a barrier emerges 3 times within PD 13. In this interview the respondent mentioned that lack of space was a barrier preventing health education and then further specifies areas where space was a problematic such as in the pharmacy and reception areas of the facility.

These tables therefore enable the reader to identify the PDs from which the codes emerged. In doing so it further enables the reader to identify the professional discipline, be it a doctor, nurse or health promoter, associated with each code as well as the location of the facility in which the codes are relevant. Pope, Ziebland and Mays[48] state that these frequency tables may "on occasion be illuminating to the researcher", however, they should be interpreted with caution. Quantitative interpretation of these tables should be done carefully as this was not the aim of the study. The main purpose for including these tables is to show the trend in the HPs' responses. Figure 8.4 explains the format of the PD table.

Column 1 contains the *code families*: these group the codes that are related to each other together.

Each primary document (PD) refers to an individual interview transcript.
PD 1 – 5 are doctors
PD 6 – 9 are health promoters
PD 10 – 14 are nurses
PD 1, 6 & 10 are HPs at Gugulethu
PD 2, 7 & 11 are HPs at Lady Michaelis
PD 3, 8 & 12 are HPs at Mitchells Plain
PD 4, 9 & 13 are HPs at Rusthof
PD 5 & 14 are HPs at Ruyterwacht

		Primary Documents														
		Doctor					Health promoter					Nurse				
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Health professionals	S HP dietitian	0	1	1	1	0	0	0	1	0	1	0	1	2	0	8
	S HP health promoter	1	0	1	1	0	0	0	1	0	0	1	1	1	0	7
	S HP home based carer	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3
	S HP nutrition advisor	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	S HP physiotherapist	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
	S HP chronic care team	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	S HP occupational therapist	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	S HP social worker	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Health education methods	S HEM clubs	0	0	1	1	1	0	0	0	1	1	0	0	0	1	6
	S HEM individual counselling	0	2	0	1	1	0	0	0	0	0	0	1	0	0	5
	S HEM support groups	1	0	1	0	0	1	0	1	0	1	0	0	0	0	5
	S HEM groups counselling	0	0	1	0	0	0	0	1	0	0	0	1	1	0	4
	S HEM guest speakers	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2
Screening	SS feet	1	1	0	1	1	1	0	1	1	0	1	1	1	1	11
	S S eyes	1	1	0	1	1	1	0	1	0	0	1	1	1	1	10
	S S other	0	1	0	0	0	0	0	1	1	0	0	0	1	0	4
Other	S O referral to NGOs or SG*	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
		6	7	8	8	4	3	0	8	4	4	4	6	8	3	73

Column 2 contains the *individual codes:*
For ease of identification of codes in each category and its associated code families, codes are presented as labels with prefixes.
The *initial prefix* (*S* in this example) refers to the *category, theme or the question* that the code refers to. S refers to the services available at the facility.
The *secondary prefix* (*HP, HEM* or *S* in this example) refers to the *code family* that the code is associated with. HP refers to the health professionals available at the facility, HEM refers to the health education methods used at the facility, while S refers to the screening services available at the facility.

The last column reflects the *groundedness* of each code across all 14 interviews. This refers to the frequency with which the code emerged during the interviews.

Figure 8.4: Explanation of a codes-primary-document table

Each PD table is usually followed by paragraphs, similar to the one displayed in Figure 8.5. Each paragraph commences with a specific code name eg. ***S S feet***, this is followed an explanation of the code name as well as a summary of the groundedness of the code. Related quotations are usually provided to support the code. Quotations are presented in bold and italics followed by a quotation reference which is explained in Figure 8.6. Furthermore there may be graphs interspersed between these paragraphs. These graphs usually depict the groundedness of codes associated to a specific code family within each category (section) as illustrated by Figure 8.7.

> ***SS feet:*** At least 2 HPs from each facility identified foot screening as a service that was available to CDL patients. The quotations indicate that there is a wide variety of HPs that administer the screening; these include doctors, nurses, health promoters as well as home-based carers.
>
> - ***"…doctors are doing the foot care"*** *- P 6: HPO - Gugulethu - 6:7 (180:180)*

Figure 8.5: Example of a paragraph, which describes and summarises codes

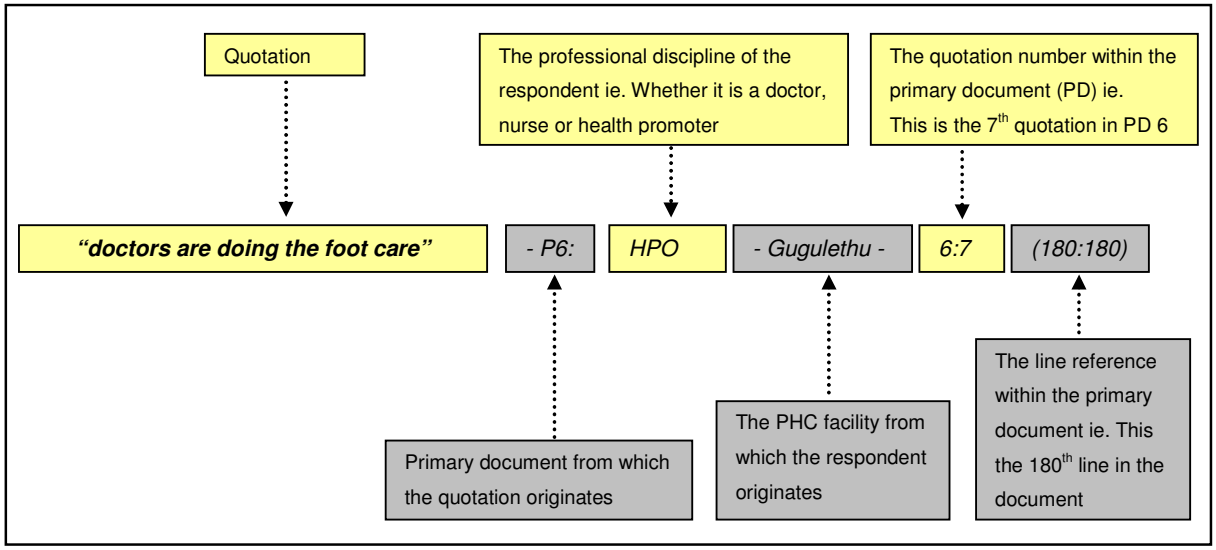

Figure 8.6: Explanation of a quotation reference

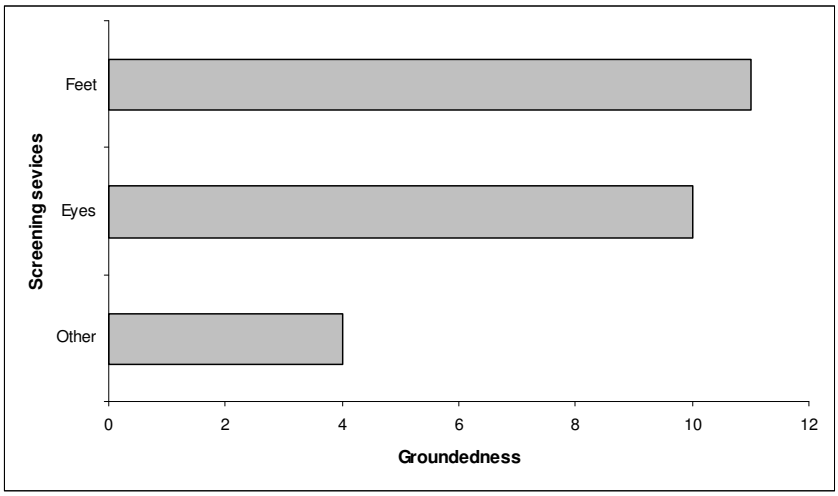

Figure 8.7: Example of a graph depicting codes associated with specific code families

8.5.1. Individual roles identified by health professionals

In order to determine what individual HPs perceive their roles to be at the PHC facilities, they were requested to respond to the following '*Tell me about your role in providing health education, health promotion or counselling to chronic patients, such as your diabetic and hypertensive patients'*.

HPs identified a total of 16 different roles, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the prefix *'YR'* (your role). No code families were created for this category. Table 8.6 provides the PD table associated with the roles that HPs identified.

Table 8.6: PD table associated with the roles that HPs at PHC facilities identified

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
YR patient education - individuals	1	1	1	1	1	1	1	1	1	1	1	1	0	0	12
YR patient education - groups	0	0	0	0	0	1	1	0	0	1	0	0	1	0	4
YR observations	0	0	0	0	0	0	1	0	1	1	0	0	0	2	5
YR patient empowerment	2	0	0	1	0	0	0	0	0	0	0	0	0	0	3
YR additional services	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
YR CC implementation*	0	0	1	0	0	0	0	0	0	0	1	0	0	0	2
YR programme development	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
YR referrals	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2
YR appointments	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
YR CC running*	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
YR patient adherence	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
YR prescribe medication	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
YR SG running**	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
YR staff encouragement	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
YR staff training	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
YR try LM before initiation of drugs	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	3	3	2	2	3	3	3	5	2	6	2	1	2	3	40

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht
*CC - chronic club
**SG - support group

The codes in the PD table are listed in order of their groundedness (frequency) however, they will be discussed in order of their relation to each other.

YR patient education - individuals: Table 8.6 illustrates that the first and most frequent role identified by HPs was their role in educating patients. This role was common to all professional disciplines. Of these, 12 HPs indicated that they provide individual counselling to patients. The following quotations are examples indicating the provision of individual counselling.

- ***"…first of all I counsel them individually"*** *- P 2: Doctor - Lady Michaelis - 2:59 (82:82)*
- ***"…my role okay… as a registered nurse I'm here to educate the patients on their conditions"*** *- P11: Nurse - Lady Michaelis - 11:1 (43:44)*

The patient cues that emerged for providing individual counselling included patients that had been newly diagnosed as well as patients whose conditions were poorly controlled. These cues are supported by the following quotation.

- ***"…I'm also doing individual counselling to the newly notified people and those that are... keep on their glucose is up their sugar or the hypertension, you know the BP when the BP is always up …poorly controlled. I do individual counselling to them. The doctors are referring them to me"*** *- P 6: HPO - Gugulethu - 6:4 (139:146)*

YR patient education - groups: Four HPs indicated that they provide group counselling sessions to patients. Table 8.6 appears to indicate that group counselling is mainly associated with nursing and health promotion staff. The following quotation reflects a reported group counselling session.

- ***"…firstly I do group talks where I stand up in front in the waiting rooms and I do like a group presentation where I just give information with regards to what chronic diseases are and the different aspects of it for example with diabetics then I target say foot care... then I don't do anything else besides foot care because speaking too long to a group of people you lose their concentration"*** *- P 7: HPO - Lady Michaelis - 7:1 (38:42)*

HPs were asked to describe the content of their health education or counselling sessions with patients. Since this was not a code that initially formed part of this category, it was labelled with the prefix *'O'* (other). This was identified using the code: ***O content of counselling session***. The topics that emerged most frequently included information regarding disease conditions, medication as well as LM associated with the disease. Figure 8.8 graphically represents the groundedness of the topics that emerged during the HPs descriptions of their counselling sessions.

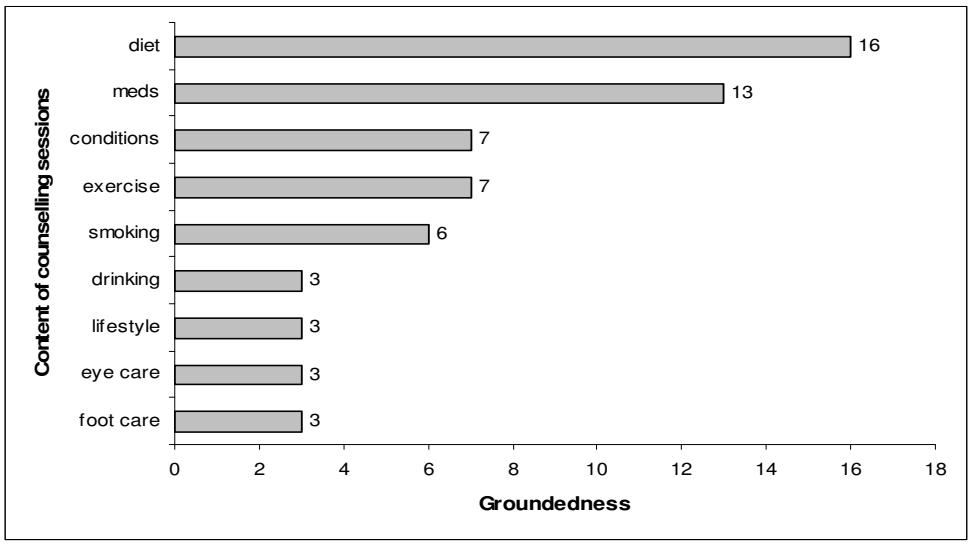

Figure 8.8: HPs description of the content of education and counselling sessions

The following quotations describe the content of the sessions reported by HPs and provide evidence for Figure 8.8

- ***"…I believe a patient has a right to know the type of disease they have. And if they on medication, the type of medication they have, the side effects of those medications and what is expected that the medication will do for them and the role it will play to make sure that their disease is controlled or cured****" - P 1: Doctor - Gugulethu - 1:58 (41:47)*
- ***"…I mean with chronic patients particularly diabetics and hypertensives then we'll talk about the diet and we'd talk about exercise if they're able to do it, we talk about smoking we talk about drinking and of course medication. So it's on an individual basis - it's patient to patient****" - P 4: Doctor - Rusthof - 4:44 (72:75)*
- ***"…overall health with regards to the diabetic, there's the eyes... how can I say the eye care, nutrition, exercise, skin care****" - P 7: HPO - Lady Michaelis - 7:6 (76:77)*

YR observations: Nurses and health promoters acknowledged that conducting patient observations was their responsibility. This emerged 5 times and included observations such as monitoring patients' vital signs, calculating BMI, and recording blood pressure and blood glucose measurements.

- ***"…I'm monitoring the vital signs of the patients and send them to doctor"*** *- P10: Nurse - Gugulethu - 10:1 (49:49)*
- ***"…I do all the observations"*** *- P14: Nurse - Ruyterwacht - 14:9 (193:193)*

YR patient empowerment: Two doctors indicated that they assumed the role of patient empowerment. These quotations reflect that doctors strive to empower patients to take control of their health, not to rely solely on HPs but to become an active part of managing their chronic conditions.

- ***"…we are trying to build what we call support groups as a part of that spirit of making people understand their disease and take control of that disease… I mean you know take it as a challenge to do what they supposed to do to be healthy"*** *- P 1: Doctor - Gugulethu - 1:13 (109:112)*
- ***"…it teaches the patients to take responsibility for their own health"*** *- P 4: Doctor - Rusthof - 4:12 (112:117)*

YR CC *(chronic club)* ***implementation and YR CC running:*** A variety of chronic clubs are in existence at some PHC facilities, while others are commencing the implementation thereof. Two HPs identified the implementation of chronic clubs as a role, while a health promoter acknowledged managing chronic clubs as her responsibility. A doctor reported that he was tasked with reinstating chronic clubs since they had existed previously but had disintegrated, while a nurse at another facility mentioned that she had been selected to lead the process of implementing a chronic club.

- ***"…my role was mainly in trying to establish those clubs because they did exist previously but then they sort of then fell by the way side"*** *- P 3: Doctor - Mitchells Plain - 3:2 (32:33)*

- ***"…like now we want... also wanted to start like a club for these chronic patients and we have... still have to ... we and the rest... they choose me as a how can I say not like a ... like a leader"*** *- P11: Nurse - Lady Michaelis - 11:4 (46:48)*
- ***"…so on a Monday, every Monday it's about diabetes and hypertension that I'm doing at the club room... in the mornings… Talking about all the healthy eating habits... for the diabetics and the hypertensive people. And I'm also doing the exercises"*** *- P 6: HPO - Gugulethu - 6:1 (80:86)*

YR patient adherence: A nurse mentioned that assessing patients' adherence to their medication was a role that she fulfilled.

- ***"…I also check their adherence, if they regular or what"*** *- P10: Nurse - Gugulethu - 10:3 (50:51)*

YR programme development: Two HPs reported that they develop education programmes for patients. These programmes included educating patients on their disease conditions, the medication associated with their disease as well as the role of LM in managing their condition.

- ***"…from then we start... we try and work a programme out for them where we try and to teach them... take them through the stages what diabetes is, what's the role of insulin, what medication you are using now, how to use it, why the diet is important, why exercise is important, but all in the stages you know when they come on a weekly basis for them"*** *- P 8: HPO - Mitchells Plain - 8:7 (101:105)*
- ***"…I've got a whole programme. A little booklet that we actually... if the patient comes here what we do"*** *- P14: Nurse - Ruyterwacht - 14:2 (78:79)*

YR referrals and YR appointments: Two nurses identified referring patients, while another nurse identified making follow up appointments as roles they fulfilled. The referrals included in-house referrals to the doctor at the facility and tertiary institutions for more complicated patient cases.

- ***"…if I find out there are some problems I refer those to doctors"*** *- P10: Nurse - Gugulethu - 10:4 (51:51)*
- ***"…I do the referrals"*** *- P13: Nurse - Rusthof - 13:14 (123:123)*
- ***"…I also give them some appointments to come back"*** *- P10: Nurse - Gugulethu - 10:2 (49:50)*

YR SG *(support group)* ***running:*** The health promoter at Mitchells Plain mentioned that she coordinated the chronic support group for diabetic patients.

- ***"…I am coordinating the chronic support group here from the PHC facilities side"*** *- P 8: HPO - Mitchells Plain - 8:9 (105:106)*

YR prescribe medication and YR try lifestyle modification before changing medication: Prescribing medication was another role that a doctor acknowledged. In addition, this doctor mentioned that before prescribing or changing any prescriptions, she first implemented LM. This doctor stated that nursing staff provided most of the health education and patient care and the majority of her work was simply to examine patients and prescribe or change their medication.

- ***"…literally they come with me to the file just for medication prescriptions"*** *- P 5: Doctor - Ruyterwacht . - 5:16 (76:77)*
- ***"…before we change medication we always make sure that we can try LM before we add on a new tablet or before we put on to insulin"*** *- P 5: Doctor - Ruyterwacht . - 5:6 (51:52)*

YR staff encouragement* and *YR staff training: This was cited by a doctor. She mentioned that she often provides health education and counselling to chronic patients and since the senior doctor at the facility she sees motivating and encouraging other staff members to do the same as part of her role at the facility. Furthermore, she mentioned that she had also trained some of the nursing staff to conduct foot examinations as well.

- ***"…because I'm the senior doctor here then I also play a part in encouraging other people to do the same"*** *- P 2: Doctor - Lady Michaelis - 2:2 (83:84)*
- ***"…I've trained some of them how to examine the feet and so on"*** *- P 2: Doctor - Lady Michaelis - 2:10 (122:123)*

YR additional services: The health promoter at Mitchells Plain mentioned that she applied to a pharmaceutical company to provide glucometers to the PHC facility for patient use. She then distributed these to the patients. Furthermore she mentioned that once diabetic patients have their eyes screened, numerous patients that are in need of spectacles are identified. Since transport is a huge problem for patients in the area, she tasked herself with the collect and distribution of spectacles to the patients when they attend their chronic clubs.

- ***"…I have applied to Roche for machines for those people that's on insulin, they getting their machines here"*** *- P 8: HPO - Mitchells Plain - 8:5 (98:99)*
- ***"…we doing the eye screening here you know and as we pick up from the people that need eye screening - spectacles this is what is happening now. You find this whole overload of patients coming here because they all need to require spectacles"*** *- P 8: HPO - Mitchells Plain - 8:12 (108:110)*

8.5.2. Health education and counselling services available to CDL patients at PHC facilities

In order to determine the current services available to chronic patients attending PHC facilities, HPs were requested to respond to the following: *'Tell me about the current health promotion, health education and counselling services provided to chronic patients at this facility'.*

HPs identified 17 services, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'S'* (services). Four code families emerged and were therefore labelled with secondary prefixes *'HP'* (health professionals), *'HEM'* (health education methods), *'S'* (screening) and *'O'* (other) services currently available at the facility. Table 8.7 provides the PD table associated with the services that HPs identified.

Table 8.7: PD table associated with the services currently available to CDL patients at PHC facilities

		Primary Documents													
		Doctor					Health promoter					Nurse				
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Health professionals	S HP dietitian	0	1	1	1	0	0	0	1	0	1	0	1	2	0	8
	S HP health promoter	1	0	1	1	0	0	0	1	0	0	1	1	1	0	7
	S HP home based carer	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3
	S HP nutrition advisor	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	S HP physiotherapist	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2
	S HP chronic care team	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	S HP occupational therapist	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	S HP social worker	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Health education methods	S HEM clubs	0	0	1	1	1	0	0	0	1	1	0	0	0	1	6
	S HEM support groups	1	0	1	0	0	1	0	1	0	1	0	0	0	0	5
	S HEM individual counselling	0	2	0	1	1	0	0	0	0	0	0	1	0	0	5
	S HEM groups counselling	0	0	1	0	0	0	0	1	0	0	0	1	1	0	4
	S HEM guest speakers	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2
Screening	S S feet	1	1	0	1	1	1	0	1	1	0	1	1	1	1	11
	S S eyes	1	1	0	1	1	1	0	1	0	0	1	1	1	1	10
	S S other	0	1	0	0	0	0	0	1	1	0	0	0	1	0	4
Other	S O referral to NGOs or SG*	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
		6	7	8	8	4	3	0	8	4	4	4	6	8	3	73

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht
S O referral to NGOs or SG* - referral to non governmental organisations or support groups

8.5.2.1. Code family 1: Health professionals

Figure 8.9 depicts the groundedness and the range of HPs available at PHC facilities. Apart from doctors, nurses and pharmacists, the professional disciplines that emerged included dietitians, health promoters, home-based carers, physiotherapists, nutrition advisors, social workers, occupational therapists and chronic care teams.

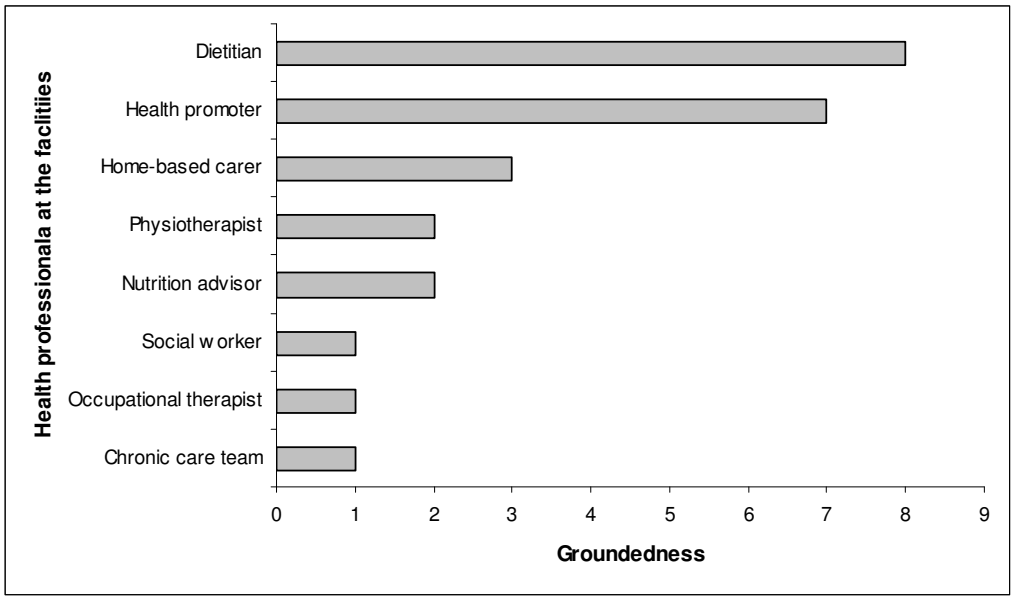

Figure 8.9: Professional disciplines available at PHC facilities

S HP dietitian: Dietetic services emerged in 8 of the interviews and seem to be available at 4 of the 5 health facilities. Ruyterwacht did not report access to dietetic services and on further inquiry it was reported that the dietitian allocated to this facility was on maternity leave and her position remained vacant until she returned. Furthermore, although the nurse at Gugulethu mentioned that they do have a dietitian, further enquiry establish that she was referring to the health promoter, not a dietitian.

- ***"…we've got a dietitian so we refer quite a lot of them there"*** *- P 2: Doctor - Lady Michaelis - 2:3 (99:99)*
- ***"…we do have a dietitian on site who talks to the patients about their diets and work through their diets with them"*** *- P 4: Doctor - Rusthof - 4:4 (46:47)*

S HP health promoter: The availability of health promoters emerged 7 times across four facilities.

- ***"…we have some people that specifically their job is to educate patients on their chronic disease"*** *- P 1: Doctor - Gugulethu - 1:6 (49:50)*
- ***"…we've got 4 health promoters. So they are actually monitored under Maureen McCrea under the health promotion banner and they focus more on the health calendar on you know on talks and things like that surrounding that"*** *- P 8: HPO - Mitchells Plain - 8:3 (74:77)*

S HP home-based carers: Three HPs reported access to home-based carers at their facility however, these HPs all originated from the same health facility. Thus it seems as if this service is not available at the other health facilities.

- ***"…and then we've got the home based carers who's doing the feet very nicely every Wednesday , there's a home based carer here with us while we are busy with the club patients we send them to her and she's checking their feets and everything"*** *- P 9: HPO - Rusthof - 9:5 (103:105)*

S HP physiotherapist: Access to physiotherapists was reported to be available at 2 PHC facilities.

- ***"…physiotherapy, occupational therapy, obviously there is a dietitian as well the dietitian is in the club"*** *- P 3: Doctor - Mitchells Plain - 3:10 (120:123)*
- ***"…they are also seen by the dietitian and physiotherapist"*** *- P10: Nurse - Gugulethu - 10:7 (79:81)*

S HP nutrition advisor: Mitchells Plain was the only facility that reported the services of a nutrition advisor. One of the health promoters that were interviewed was actually a nutrition advisor however, she was selected to participate in the interview as a result of her involvement with health education and counselling services that she provided to chronic patients.

- ***"…nutrition advisor, she's there every day so she's the one there in the club"*** *- P 3: Doctor - Mitchells Plain - 3:11 (129:130)*

S HP social worker: Access to the services of a social worker only emerged at one facility.

- ***"…the health system is organised a social worker and some of these things is divided to take some of this job off of the doctor"*** *- P 1: Doctor - Gugulethu - 1:5 (47:48)*

S HP occupational therapist: Occupational therapy services also only emerged at one facility.

- ***"…physiotherapy, occupational therapy, obviously there is a dietitian as well the dietitian is in the club"*** *- P 3: Doctor - Mitchells Plain - 3:10 (120:123)*

S HP chronic care team: One HP mentioned that they have a chronic team that provides services to chronic patients.

- ***"…we already have a chronic team that works with the chronic patients"*** *- P 4: Doctor - Rusthof - 4:39 (342:343)*

8.5.2.2. Code family 2: Health education methods available at facilities

Figure 8.10 depicts the groundedness and the range of health education methods available at PHC facilities. These include chronic clubs, chronic support groups, individual counselling sessions, group counselling sessions and guest speakers.

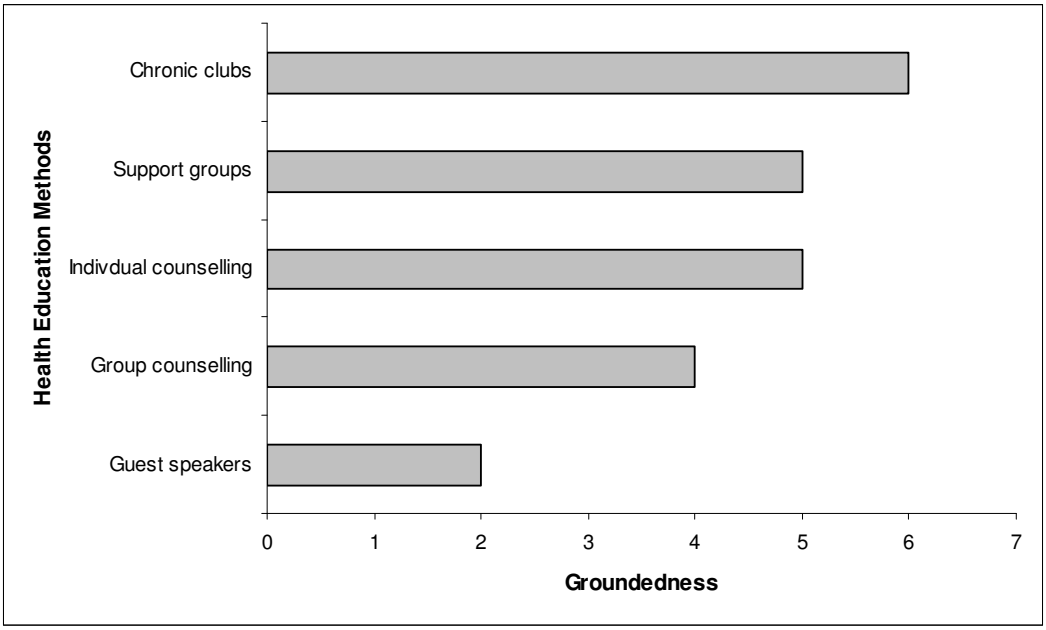

Figure 8.10: Health education methods available at facilities

S HEM clubs: The availability of chronic clubs was reported by HPs in 4 of the 5 PHC facilities. Some were reported to have been running successfully, while others were still in their initial stages.

- ***"…the club is just a ... our system of seeing the chronic patients. There are different days for different categories of patient"*** *- P 3: Doctor - Mitchells Plain - 3:57 (30:32)*
- ***"…we are busy starting the club for the diabetics and the hypertensions"*** *- P 9: HPO - Rusthof - 9:3 (70:70)*
- ***"…we have hypertensive clubs and diabetic clubs"*** *- P 5: Doctor - Ruyterwacht - 5:12 (71:72)*

Some of the HPs were asked to provide a summary of the management and operation of the chronic club in their facilities. The following quotation describes the club system in Mitchells Plain.

- ***"…the club system is 3 rooms. Room 10, 11 and 12. So on Mondays and Wednesdays diabetic patients are booked. The other 2 days Tuesdays and Thursdays it will be hypertensive patients. Obviously diabetics can be with hypertensives as well but if its diabetes that would be the criteria to be there on a Monday and a Wednesday. And then on a Friday it is epilepsy and asthma and COPD. So those patients are booked and we try and have a fast track for them. So in other words the folders are taken out the day before the time so those patients come directly to the club without having to stand in the queue at reception. The sister then would do what is necessary. So we've got an annual review chart which includes health promotion. In other words they must check the blood pressure, they must see that the feet gets examined annually for the diabetics for instance, eye exam, bloods, cholesterol, creatinine and then smoking and other health promotion. Actually the thing just says health promotion talk so that it can obviously be different and then from there the patient will see the doctor to either respond to anything that's wrong or any complaints or problems with the medication. And then from there they will get another appointment. Depending on how well they controlled it may be anything from 3 months to 6 months. Obviously the better controlled will only come in 6 months. So what we've done is we've tried to separate those chronic patients from the normal flow to have a more specialised approach to them. To see the doctor we book 90 patients. So it's 45 patients for each doctor. But at the moment there's a bit more so there's almost a third doctor having to see patients"*** *- P 3: Doctor - Mitchells Plain - 3:9 (64:108)*

S HEM support groups: HPs' in 2 of the 5 facilities reported that they have access to chronic support groups to which they can refer their diabetic and hypertensive patients. The support group at Mitchells Plain served to provide an environment in which patients could learn from each other.

- ***"…the nutritionist started maybe 2 years ago… she selects like a specialised club that they have in the resource centre which is just next to our facility. So she's got a group of maybe 30 people and those are maybe people that's either keen to learn more about their disease or they actually problem patients where they poorly controlled diabetes / hypertension and then they go to this, this special I don't know what they call them now but the group that meets every Monday. But in this group they also get... it's a support group but it's also for the problem ones to see and then they learn from the other people there"*** *- P 3: Doctor - Mitchells Plain - 3:12 (137:149)*

S HEM individual counselling: As previously mentioned, individual counselling was reported to occur in all facilities.

- ***"…we do individual counselling of patients. The clinicians we see the patients, do counselling. The staff at the prep room do a brief session if the person is not going to go through to a counsellor for instance"*** *- P 4: Doctor - Rusthof - 4:3 (43:45)*
- ***"…we talk individually also with them as they come by"*** *- P12: Nurse - Mitchells Plain -12:46 (63:63)*

S HEM groups counselling: The availability of group counselling sessions was mentioned by 4 HPs but only emerged in two of the facilities.

- ***"…the health promoters at the... they also helping us giving education. Sometimes they do it in the group sessions like in the morning most of them talk because in the morning most of the nurses we are busy"*** *- P12: Nurse - Mitchells Plain - 12:45 (46:48)*
- ***"…basically what we do is mornings we screen the patients, then we have this LM sort of talk that we give to them"*** *- P13: Nurse - Rusthof - 13:1 (39:40)*

S HEM guest* speakers*: HPs at Lady Michaelis mentioned that they have a pharmaceutical representative that provides information sessions to patients on how to use their insulin pen sets.

- ***"…we've got one of the reps from the insulin company coming in and she speaks to patients that we putting on insulin to see that they know how to take the injections properly and so on. She does that once a month. So we book patients for her"*** *- P 2: Doctor - Lady Michaelis - 2:12 (123:126)*

8.5.2.3. Code family 3: Screening

Figure 8.11 depicts the groundedness as well as the range of screening services available at PHC facilities. These include foot screening, retinal screening and any other screening services.

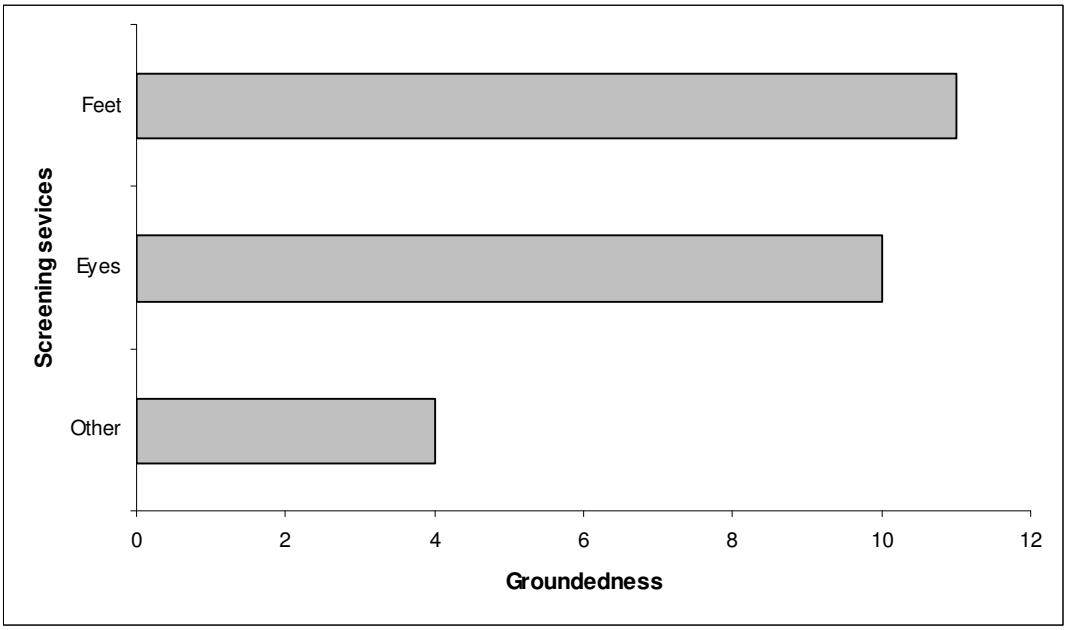

Figure 8.11: Screening facilities available at PHC facilities

S S feet: At least 2 HPs from each facility identified foot screening as a service that was available to CDL patients. The quotations indicate that there is a wide variety of HPs that administer the screening; these include doctors, nurses, health promoters as well as home-based carers.

- ***"…doctors are doing the foot care"*** *- P 6: HPO - Gugulethu - 6:7 (180:180)*
- ***"…they also have the foot clinic for people with diabetes. One of the health promoters, she's also giving foot care to people"*** *- P12: Nurse - Mitchells Plain - 12:4 (77:78)*
- ***"…we have the home based care who come to do things like foot care for instance for our chronic patients"*** *- P 4: Doctor - Rusthof - 4:40 (349:350)*
- ***"…I do the foot care for patients on my own"*** *- P14: Nurse - Ruyterwacht - 14:12 (229:229)*

S S eyes: Similarly, at least 2 HPs from each facility reported that retinal screening was available to CDL patients. In some instances, this service was provided by HPs at the PHC facility, while others had people from outside the facility providing the service.

- ***"…we do the foot exams and then we do the retinal screening"*** *- P2:Doctor-Lady Michaelis-2:5 (106:107)*

- ***"…there are people from Groote Schuur that are doing the examinations to the eyes of the people"*** *- P 6: HPO - Gugulethu - 6:8 (186:187)*

S S other: HPs mentioned that they have a checklist that they follow to keep a record of all the observations conducted for each patient. These included HBA1c, creatinine, cholesterol, BMI, blood pressure and blood glucose. Some of the observations were reported to be performed monthly while others were performed quarterly or annually.

- ***"…we've also started screening you know where we do the HBA1c and the creatinine and cholesterol"*** *- P 2: Doctor - Lady Michaelis - 2:4 (105:106)*
- ***"…so we do the BMI, height, weight and then calculate is the patients overweight or underweight when they diabetic and then there's also blood pressure, blood glucose, HbA1c, cholesterol, ECGs… we try to have done one ECG for the year and we keep the ECG in the file so the doctor can see that the patient had done a ECG and so it's not necessary for another one"*** *- P 9: HPO - Rusthof - 9:4 (83:91)*

8.5.2.4. Code family 4: Other

S O referral to NGOs or SG: The doctor at Gugulethu mentioned that they refer patients that are well controlled to support groups or non-governmental organisations (NGOs) in the community as a means of lightening the patient load and thus the burden on the staff at the PHC facility.

- ***"…the provincial department of health they are interested in home-based care and the NGOs, so we are trying to send our patients to NGOs. Because you find out that a lot of patients... we have a lot of patients but the staff are very short so you find out that we don't see the patients properly because we don't have the time as well as when we feel that when the patient is controlled ... maybe the patient have diabetes you know and is controlled we better refer this patient to the nearest NGO or nearest support group"*** *- P 1: Doctor - Gugulethu - 1:73 (113:118)*

8.5.3. Factors that motivate health professionals to provide health education and counselling

In order to enhance the facilitation of health education, health promotion and LM counselling to patients, the researcher aimed to determine the factors that motivate HPs to provide this service. Interviewees were thus asked "*What motivates you to provide health promotion, health education and lifestyle modification counselling to your chronic patients?*"

HPs identified 13 motivating factors, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'M'* (motivating factors). Two code families emerged and were therefore labelled with secondary prefixes *'I'* and *'E'* based on whether they had an intrinsic (*I*) or extrinsic (*E*) origin. Table 8.8 provides the PD table associated with the motivating factors that HPs identified.

Table 8.8: PD table associated with the motivating factors that HPs identified

		Primary Documents														
		Doctors					Health promoters				Nurses					
CODE FAMILY	CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
Intrinsic factors	M I care about patients	0	1	0	0	0	0	0	1	1	0	0	0	0	1	4
	M I professional responsibility	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
	M I have CDL myself	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Extrinsic factors	M E patient adherence	0	1	0	0	1	0	0	1	1	0	0	0	0	1	5
	M E need for information and education	1	0	0	0	1	0	0	0	0	0	1	1	0	0	4
	M E prevention is better than cure	0	0	0	0	0	0	0	1	0	0	0	1	2	0	4
	M E reduce the workload	1	0	0	1	0	0	0	0	0	0	0	0	0	1	3
	M E can't treat with drugs alone	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	M E holistic patient care	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
	M E support from management	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
	M E health education works	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	M E reduce dependence on medication	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	M E support from colleagues	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
		3	3	2	4	2	3	1	3	2	1	1	2	2	3	32

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.3.1. Code family 1: Intrinsic motivating factors

Figure 8.12 depicts the groundedness and the range of intrinsic motivating factors identified by HPs.

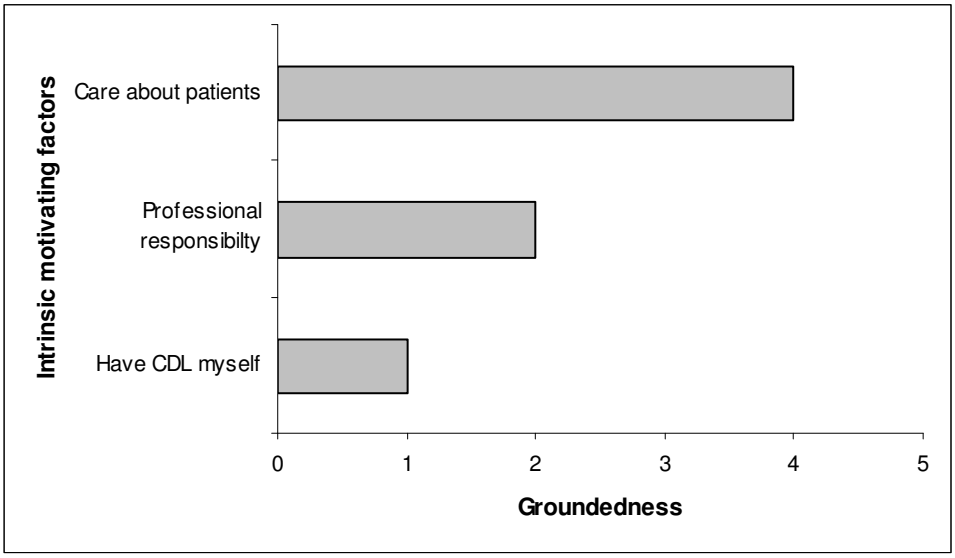

Figure 8.12: Intrinsic motivating factors identified by HPs

M I care about patients: The first intrinsic factor that emerged clearly illustrated the caring nature with which these HPs approach their profession as well as the pleasure and commitment they receive from it. The four HPs that provided these quotations stemmed from all three professional

disciplines and were employed at 4 different health facilities. Thus indicating that this factor is truly intrinsic as it has no bearing on the professional discipline nor the location of the health facility.

- ***"…you care about people so you want them to sort of make changes to their lifestyle…"*** *- P 2: Doctor - Lady Michaelis - 2:15 (158:159)*
- ***"…I just got a passion for the patients here"*** *- P 8: HPO - Mitchells Plain - 8:14 (141:141)*
- ***"…I think I'm a carer. I care about patients you know and I love them and that's why if I see you are doing wrong and I ... I will not go 'you must do that' (shouting) I will go gently... 'mamma what have you take, how many sugar, no mamma you mustn't do that... you must do that' I think I... just the love of it. I love people.."*** *- P 9: HPO - Rusthof - 9:9 (187:196)*
- ***"…because you see I love it to work with the patients"*** *- P14: Nurse - Ruyterwacht - 14:19 (346:346)*

M I professional responsibility: The two doctors that made these statements seem to relate that health education and counselling fall within their scope of practice and thus they feel they are duty bound to provide education and counselling to their patients.

- ***"…it's part of my professional responsibility... generally doctors are clinicians they diagnose disease, tell the person then manage it so its part of the management of the patient.."*** *- P 1: Doctor - Gugulethu 1:19 (131:133)*
- ***"…I mean it's my work…"*** *- P 2: Doctor - Lady Michaelis - 2:14 (158:158)*

M I have CDL myself: One of the nurses mentioned having first hand experience of living with CDL and raised the issue of understanding and compassion with fellow CDL patients. She therefore empathises with patients and educates them from a first hand point of view.

- ***"…mostly what motivates me is also that I'm also diabetic, hypertensive and asthmatic. So I know about the diseases because I'm also affected by them. That's the motivation I get"*** *- P10: Nurse - Gugulethu - 10:10 (109:110)*

8.5.3.2. Code family 2: Extrinsic motivating factors

Figure 8.13 depicts the groundedness and the range of extrinsic factors identified by HPs.

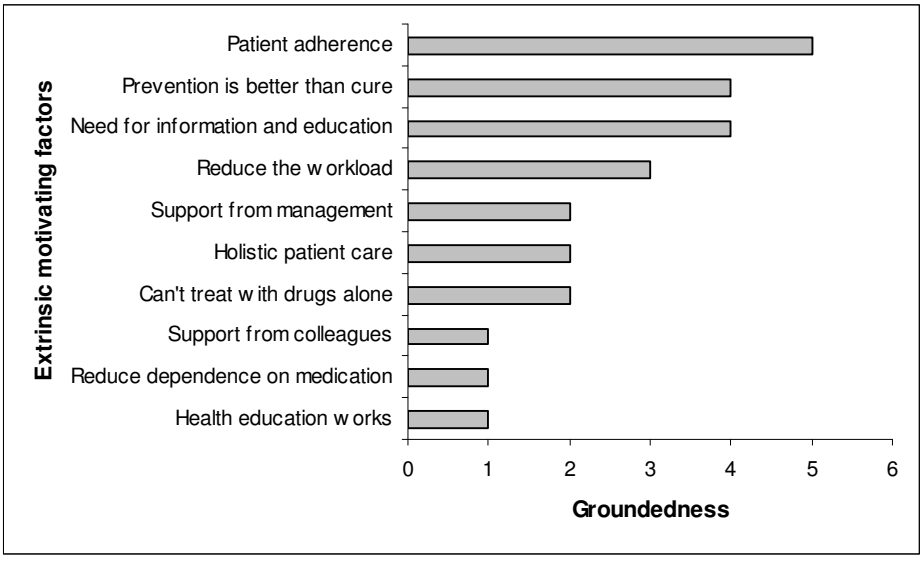

Figure 8.13: Extrinsic motivating factors identified by HPs

M E patient adherence: The extrinsic factor relating to patients adherence emerged 5 times. The following quotations illustrate that HPs are motivated and encouraged to provide health education to patients when they implement the advice provided and return to the facility with positive results. A sense of achievement is also relayed through these quotations when patients return to the PHC facility and thank the HPs for the advice that they received.

- ***"…it's encouraging I think when they actually do make the changes. If somebody comes and says 'no I've stopped smoking' or they… you see their sugar coming under control or their diet is improving it is encouraging"*** *- P 2: Doctor - Lady Michaelis - 2:16 (159:162)*
- ***"…I've got a lot of positive results from people you see that with all... when they see me they say 'it's through you that my sugar is well controlled, it's through you' and it makes me feel good. So that's what keeps you motivated to continue doing it"*** *- P 8: HPO - Mitchells Plain - 8:16 (148:151)*
- ***"…we get results. This is where the clubs come in and the chronic care and you know you can... you... I mean you excited to see... your help... that the effort that you put in is helping the patient"*** *- P14: Nurse - Ruyterwacht - 14:20 (355:357)*

M E need for information and education: The need for information and education on CDL in the community emerged 4 times. HPs have identified that there are many patients that lack the necessary knowledge and understanding of CDL and state that there are numerous patients living with CDL for years without knowing about their condition. They feel that empowering patients with knowledge, places them in a better position to manage their conditions. One of the nurses stated that she achieved a sense of fulfilment when she is able to guide and teach patients.

- ***"…what motivates me... man, if I see especially with the elderly patients here most of them, they need that guidance and there's not always someone you know that can show them how… especially when it comes to family members, some people don't have the patience to teach them, so I feel good at the end of the day if I can teach that person... just to guide and teach that person"*** *- P11: Nurse - Lady Michaelis - 11:8 (126:130)*
- ***"…because these people are hungry for... they are really in need for information really. They... they need it. These people really need information. Because I don't know, you get diabetics that have been diabetes for 14 - 20 years and if you ask them what is it about or what do they think their sickness is all about they can't really tell you what it is about. The only thing that they want to tell you is I did take my tablets"*** *- P12: Nurse - Mitchells Plain - 12:43 (118:122)*

M E prevention is better than cure: CDL conditions, if not managed correctly, are associated with numerous complications. Three HPs identified the need to reduce the morbidity associated with CDL as a factor that motivated them to provide health education and counselling to patients. One of the nurses mentioned that he enjoyed working at a PHC level because his position afforded him the opportunity to treat chronic patients before they developed complications. In addition he stated that the morbidity associated with CDL places an increased burden on the countries sparse health services and thus he sees providing education and counselling to patients as a means to reduce the burden placed on the health services.

- ***"…the reason for that is I've been to many hospitals already and I saw amputations and I saw the people going blind and our hospitals is not equipped for stroke patients. You know when I look at the limited space here and that is why the thing is I just thought to myself I know its not possible but I can also you know think on the positive side where I feel that from my point of view... why can't we just support the patients, give them the ...all the educations because prevention is better than cure"*** *- P 8: HPO - Mitchells Plain - 8:15 (141:147)*
- ***"…what motivates me is that I've worked at a tertiary institute, Tygerberg hospital. What I saw there was that the patients usually arrive there when they need to be operated on or there's nothing they can do*** *- P13: Nurse - Rusthof - 13:15 (140:142)*
- ***"…its nice to work at this level because you can how can I say you can get the patients early as possible*** *- P13: Nurse - Rusthof - 13:16 (148:149)*

M E reduce the workload: If patients are not empowered to understand and manage their conditions, they continually return to the health facility with numerous complications, thereby increasing the burden on the staff. Two doctors mentioned that providing education and counselling to patients would empower them with knowledge and enable them to manage their conditions better and thus experience fewer complications associated with their condition, thereby reducing the doctors' workload. Furthermore, a nurse mentioned that if patients are well controlled, they can be supervised by nursing staff and in this way reduce the workload placed on the doctors.

- ***"…so I made up my mind okay I'm going to take it as a challenge to see what I can do to make these people understand that not only will it help the patients also it will help my workload it will make us happy that this patients their diseases is controlled"*** *- P 1: Doctor - Gugulethu - 1:20 (138:141)*
- ***"…I mean it makes my work better and I see results"*** *- P 4: Doctor - Rusthof - 4:54 (115:116)*
- ***"…where the load can be lifted from a doctor... a lot of them are stable where we can give... where we can help them here"*** *- P14: Nurse - Ruyterwacht - 14:17 (305:306)*

M E can't treat with drugs alone: The following quotations illustrate that doctors feel that CDL cannot be treated effectively or sufficiently by simply prescribing and using medication. Providing education and counselling on LM therefore increases the effectiveness of managing CDL patients.

- ***"…so it's not gonna help if you just gonna give them tablets"*** *- P 3: Doctor - Mitchells Plain 3:15 (178:178)*
- ***"…I do believe its not enough to just give them pills and let them take the pills and then they continue eating the same things and they don't exercise*** *- P 4: Doctor - Rusthof - 4:51 (114:115)*

M E holistic patient care: As per the previous quotations, the following reinforces the fact that professionals feel that health education forms part of holistic patient care.

- ***"…personally what I know is that it has a big impact on the treatment of the patient"*** *- P 3: Doctor - Mitchells Plain - 3:14 (177:177)*
- ***"…without health promotion then you don't really provide holistic management"*** *- P 4: Doctor - Rusthof - 4:53 (112:113)*

M E support from management: This was reported by a health promoter when she stated that the support she received from the management of the PHC facility served as motivation for her to continue to provide health education to patients.

- ***"…the motivation that I've got is from my managers"*** *- P 6: HPO - Gugulethu - 6:11 (273:273)*
- ***"…if I want to do something or like now I went to fetch this cottage cheese for them at Sonnendal when I asked their permission, there's no doubt, you just go. Yes and even if I've got something like a project… like a fun walk, they do help me a lot they are giving me support about that. Yes I do get the support from them"*** *- P 6: HPO - Gugulethu - 6:12 (285:288)*

M E support from colleagues: The support that this HP receives from her fellow colleagues also facilitates her continued efforts to provide education and counselling to CDL patients.

- ***"…from the support that I get from my colleagues as well"*** *- P 6: HPO - Gugulethu 6:13 (294:294)*

M E health education works: The effectiveness of health education in the management of CDL emerged as an extrinsic factor. A doctor simply stated that health education works and in itself is the motivation that drives her to continue to provide education and counselling to patients.

- ***"…because I know it works"*** *- P 4: Doctor - Rusthof - 4:52 (112:112)*

M E reduce dependence on medication: This quotation reflects the health promoter's personal dislike for medication and as such it serves as a factor that motivates her to provide LM education and counselling to patients with the aim of reducing their dependence on medication.

- ***"…I think seeing how people suffer... and the fact that I'm not very much... personally, I'm not very much a pill and injection or wanting to go on... using tablets forever and a day. To try and get people not to take tablets at all... to try and prevent them from getting those diseases... I think that is what motivates me also. To carry on and say look those people you please improve your lifestyles so that at least you might not have to stop taking the medication but at least take less of the medication. And I think I have this ...not a phobia but to me it's the less tablets you take into your body the better for you"*** *- P 7: HPO - Lady Michaelis - 7:13 (157:169)*

8.5.4. Barriers that impede provision of health education and counselling to CDL patients

To further enhance the facilitation of health education and counselling to CDL patients, the researcher aimed to establish barriers that impede their provision. The following question, based on the findings of phase 1 of this study, was thus posed to HPs: *'Previously we did a survey at the PHC facilities in the Western Cape Metropol and we identified a lack of time to be a common barrier to providing lifestyle modification education. Does the same apply to you and what other difficulties do you experience when delivering lifestyle modification education or counselling to chronic patients?'*

HPs identified 23 barriers, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'B'* (barriers). Seven code families emerged and where necessary, labelled with secondary prefixes, and based on whether they were related to staff *'S'*, patients *'P'*, services *'SV'* and other *'O'* factors. Code families for whom secondary prefixes were not assigned included those relating to time, space and equipment. Table 8.9 provides the PD table associated with these barriers.

Table 8.9: PD table associated with the barriers that HPs identified

		Primary Documents														
		Doctors					Health promoters					Nurses				
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Time	B lack of time	3	2	1	1	1	1	1	0	1	0	0	1	2	1	15
Space	B lack of space	0	0	2	2	0	0	0	0	1	0	0	1	3	2	11
Equipment	B lack of equipment	0	0	0	0	2	0	0	2	1	0	0	1	0	1	7
Staff	B S shortage	1	2	0	1	0	0	1	0	1	0	1	1	0	1	9
	B S other responsibilities	0	1	0	0	0	1	1	0	1	0	0	0	1	1	6
	B S attitude	0	1	1	0	1	0	0	0	0	0	0	0	0	0	3
	B S lack of knowledge	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	B S fatigue (repetition)	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	B S lack of referral to HPO	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
	B S rotations	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	B S turnover	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Patients	B P load	1	0	1	0	0	0	0	0	0	0	1	1	2	0	6
	B P non-adherence	1	0	0	1	0	0	0	0	0	3	0	0	0	0	5
	B P attitude	1	0	1	0	0	0	1	0	0	0	0	0	0	0	3
	B P other health problems	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
Services	B SV referral system	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2
	B SV ambulance services	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	B SV limited medication	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
	B SV x-rays	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Other	B O language	2	0	0	1	0	0	0	0	0	0	0	0	0	0	3
	B O crime	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
	B O implementation of chronic clubs	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
	B O none	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
		12	8	8	8	8	2	6	3	5	4	2	6	9	6	87

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Table 8.10: A comparison of reported barriers across professional disciplines

CODE FAMILIES	CODES	Doctors	Health promoters	Nurses
Time	B lack of time	8	3	4
Space	B lack of space	4	1	6
Equipment	B lack of equipment	2	3	2
Staff	B S shortage	4	2	3
	B S other responsibilities	1	3	2
	B S attitude	3	0	0
	B S lack of knowledge	1	0	0
	B S fatigue (repetition)	1	0	0
	B S lack of referral to HPO	0	1	0
	B S rotations	1	0	0
	B S turnover	1	0	0
Patients	B P load	2	0	4
	B P non-adherence	2	0	3
	B P attitude	2	1	0
	B P other health problems	3	0	0
Services	B SV referral system	1	0	1
	B SV ambulance services	1	0	0
	B SV limited medication	1	0	0
	B SV x-rays	1	0	0
Other barriers	B O language	3	0	0
	B O crime	0	1	1
	B O implementation of chronic clubs	1	1	0
	B O none	0	0	1
		44	16	27

Table 8.10 compares the identified barriers across the three health disciplines. This table clearly illustrates that doctors reported experiencing far more barriers than both the nurses and the health promoters. The doctors identified close to 50% of the barriers that emerged, while health promoters experienced the least amount of barriers. Furthermore, issues regarding staff, services and language were more often raised by doctors than by other HPs.

8.5.4.1. Code families 1, 2, 3: Barriers specific to a lack of time, space and equipment

Figure 8.14 depicts the groundedness of the barriers relating to time, space and equipment, that impede the provision of LM education and counselling at PHC facilities.

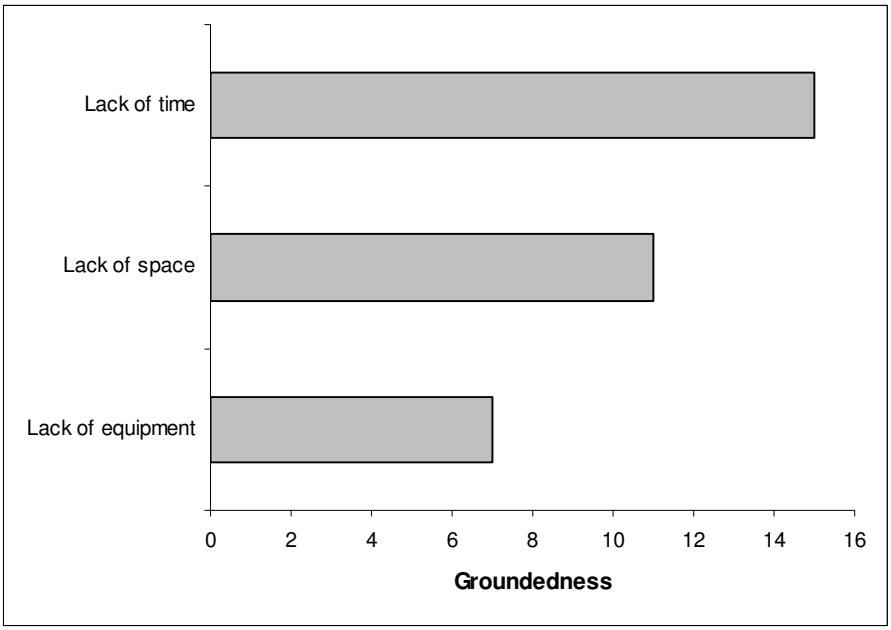

Figure 8.14: Groundedness of barriers specific to time, space and equipment

B lack of time: A lack of time was the barrier that was most grounded in the data, emerging in 11 interviews. The following quotations support this.

- ***"…time of course is a big factor…"*** *- P 4: Doctor - Rusthof - 4:16 (147:147)*
- ***"…I must say we limited for time. Time is a big issue ... you don't have all the time in the world to do as you please…"*** *- P 5: Doctor - Ruyterwacht - 5:10 (60:61)*
- ***"…definitely time…"*** *- P 2: Doctor - Lady Michaelis - 2:17 (188:188)*

Although the lack of time was reported as the main barrier experienced by most HPs, more often than not, the lack of time occurred as a result of other issues. These were reported to include the large numbers of patients attending PHC facilities (also referred to as the patient load), the shortage of staff and the fact that HPs have other responsibilities such as conducting observations or examining patients. These issues are supported by the following quotations.

- ***"…the problem we have at the moment is because there's a lot of patients up to 400 - 500 a day you see here. You don't… you just do their stuff and then they go through to the doctor and then go home. And you don't have time to .... how can I say if their blood pressure was high or something like that… try to bring it down before they go home…"*** *- P13: Nurse - Rusthof - 13:37 (634:638)*
- ***"…very often they so short staffed… they busy having to do other things they don't have time to do that…"*** *- P 2: Doctor - Lady Michaelis - 2:54 (472:473)*

Since these issues result in a lack of time, patient care is often compromised when HPs are forced to limit the time they spend providing health education and counselling to patients.

- ***"…you find out that at the end of you spending only 5 minutes or even less than 5 minutes with each patient which is not enough actually to educate this patient on what he needs to do you know"*** *- P 1: Doctor - Gugulethu - 1:64 (164:166)*
- ***"…there's no time really because sometimes you've got only two nurses in club, especially sometimes when the health promotionals they are not there, then there is two nurses in the club. You have to weigh, you have to BMI them, you have to take the observations… so it is quite a lot of things to do for two nurses. So sometimes you have to cut the conversation very short and we just ask the basic things that you need to ask. What did you eat, what are you eating, are you sticking to your diet…"*** *- P12: Nurse - Mitchells Plain - 12:41 (171:176)*

Another time-related issue was that of language barriers. If available, interpreters are utilised to bridge the language barriers between staff and patients. However, one of the doctors pointed out this often wastes time because the interpreter may not always convey the exact message that the doctor or the patient is trying to convey.

- ***"…if you find someone that interprets for you is another problem when they come it's a waste of time. You don't have that time you see"*** *- P 1: Doctor - Gugulethu - 1:26 (185:186)*

While most HPs identified time as a barrier, it was interesting to note that some HPs had overcome this barrier. This emerged during 3 of the interviews and as this was not a code that formed part of this category it was labelled with the prefix *'O'* (other) and was identified using the code: ***O time is not a barrier***. One of these HPs stated that the implementation of the chronic club system alleviated the time barrier that they had experienced previously, while the others mentioned that health promotion and education should take place at any time during a consultation with a patient.

- ***"…so there's no such thing as the time before, when we never had the club, then it was a problem, getting the patients through"*** *- P 8: HPO - Mitchells Plain - 8:22 (224:225)*
- ***"…there's no lack of time because every moment as you take the patients folder you've got plenty of time to talk to him"*** *- P10: Nurse - Gugulethu - 10:11 (132:133)*

B lack of space: Although this barrier was raised during 6 of the interviews it was grounded in the data 11 times. Three of the 5 health facilities raised the issue of space constraints, while the other 2 facilities appear not to experience it. As illustrated by the following quotations, the lack of space was mainly associated with the difficulty in executing group counselling sessions.

- ***"…at the moment it's difficult for health promoters to give the talks because again they also have problems with space so they just doing it where patients are... so if they see the pharmacy has got lots of people they go and speak at the pharmacy if there's many patients at the triage area they would do it there"*** *- P 3: Doctor - Mitchells Plain - 3:48 (505:508)*
- ***"…we don't have enough space so we can't really do group counselling at the moment"*** *- P 4: Doctor - Rusthof - 4:2 (41:42)*

In addition the lack of space also compromises individual counselling sessions by not affording patients any privacy during a counselling session.

- ***"…and space... you know like our prep room its not very patient friendly because there's four patients and so now you have to talk to one and then if you can take one out of there there's not enough other rooms so you can go and talk one-to-one to the patients…"*** *- P 9: HPO - Rusthof - 9:11 (221:223)*
- ***"…there is no privacy as well. Because in the prep room there is four patients at one...one time so that patient won't feel free to talk to you about any problem social problem whatever, so that's also a constraint in the system…"*** *- P13: Nurse - Rusthof - 13:44 (185:187)*

Furthermore, the lack of space compromises the efficacy of the chronic club system as it reduces the number of patients that can attend the clubs.

- ***"…the club system it's not working perfectly at the moment because there's limited space, there's no room to see those say for instance those 20 or 30 diabetics coming on a Wednesday for their medication. We can't do all of them at once…"*** *- P13: Nurse - Rusthof - 13:6 (72:74)*

The lack of space also impinges on additional services that the facility tries to provide. One of the nurses stated that although the facility had access to specialists services like an orthopaedic sister or an occupational therapist that visited the facility, due to lack of space when they arrive, one of the other staff members would have to vacate their room in order to accommodate her. Furthermore, when staff want to provide foot clinics, the space to do so is often not available and thus the service is compromised. The following quotations support this issue.

- ***"…the place is so small there's no room... here's no room for nothing. I mean if they... if the orthopaedic sister or the OT comes here, I mean then someone have to give his place off. You have to move... one have to... so it's very awkward. We would love to have space"*** *- P14: Nurse - Ruyterwacht - 14:14 (279:288)*
- ***"…sometimes to do the foot clinics, she have to go to the back which is no warm water, there's no heaters at the back, there's nothing there for her. She have to carry a bucket of water in and out all the time… and sometimes there is no room available because it's sometimes occupied by the counsellors at the back and then she can't do it. Then she only have to talk to people because she can't really take a patient and give them also some satisfaction. I mean to do their feet… so space is ... there's no space here in this place"*** *- P12: Nurse - Mitchells Plain - 12:10 (203:208)*

B lack of equipment: The lack of equipment emerged during 5 interviews and was cited as a contributory factor impeding the provision of optimal patient care and as a result doctors have no choice but to blindly refer their patients to tertiary hospitals.

- ***"…you need certain equipment to function properly and if you don't have those things I find that most of my patients I have to refer blindly to Tygerberg hospital…"*** *- P 5: Doctor - Ruyterwacht -5:22 (152:153)*

Some of the HPs mentioned that they were unable to make use of materials such as audiovisual aids because they did not have equipment such as televisions or video machines at their disposal.

- ***"…we haven't got a TV"*** *- P14: Nurse - Ruyterwacht - 14:7 (189:189)*

- ***"…we've got a DVD but we don't have a TV for educational purposes here"*** *- P 8: HPO - Mitchells Plain - 8:24 (273:273)*

Equipment like baumanometers, glucometers, cholesterol machines and tape measures, which are required for conducting patient assessments, were reported to be in short supply. It was reported that the equipment at facilities often broke as a result of the strain it endured from the large number of patients attending the facility. It was also reported that some staff members have purchased their own equipment in order to facilitate patient care.

- ***"…blood pressure machines, blood sugar machines, they are not accurately all the time. They are not in a working condition all the time… there's only one who is really... the other one you plug in you do two and you have to wait another half an hour to let it work again. And then there's only one in operation. And some of the health promotionals they bring their own because I've seen Alvina also even bought her own wrist one and she bought her own blood sugar machine so we using her stuff also. And if she's not here like on a Monday she's at the clinic then her stuff is locked away then we just have to continue with one, one.."*** *- P12: Nurse - Mitchells Plain - 12:11 (220:239)*
- ***"…the only barriers that we're experiencing here now... is lack of equipment. Our equipment, because of the vast number of people that we doing here on a daily basis our equipment are breaking… like the baumanometers,.. we always running out of and things like that but where machines and things is concerned the blood sugars, we got enough of those type of things.*** *- P 8: HPO - Mitchells Plain - 8:23 (251:259)*

8.5.4.2. Code family 4: Barriers specific to staff

Figure 8.15 depicts the groundedness as well as the range of barriers relating to staff at PHC facilities.

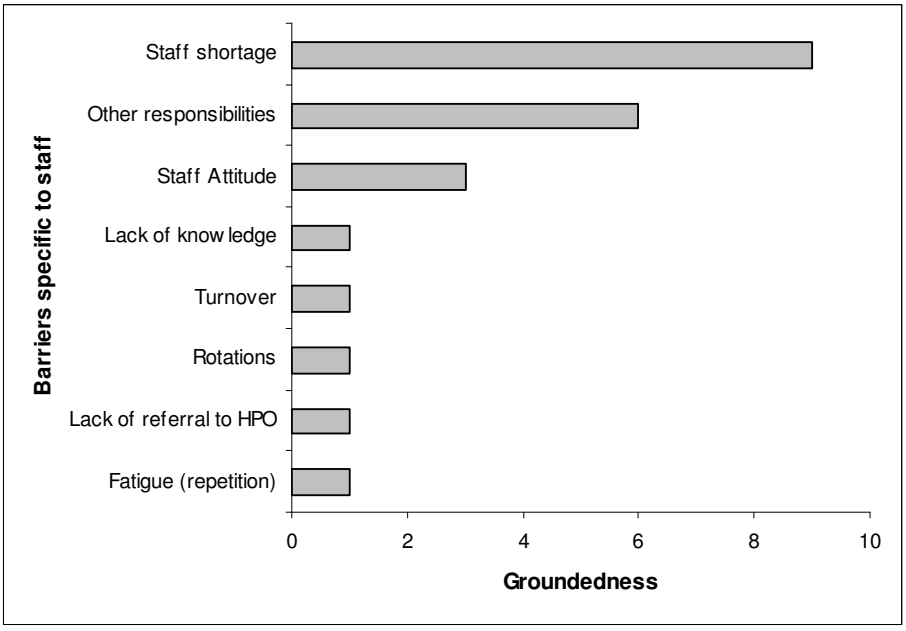

Figure 8.15: Barriers specific to staff

B S shortage: Shortage of staff was identified as the most prominent barrier related to staff issues, as it was grounded in the data 9 times. At least one HP at each facility raised this issue. HPs stated that although they aspire to provide good service to patients, they are not always able to do as well as they could due to the limited staff complement.

- ***"…you know there's not always enough manpower to do what you have to do but I'm really trying my best"*** *- P 9: HPO - Rusthof - 9:6 (133:134)*
- ***"…I would like to reach everybody but it's also sometimes a bit impossible to do because I'm a one person department"*** *- P 7: HPO - Lady Michaelis - 7:15 (192:194)*
- ***"…we have a lot of patients but the staff are very short so you find out that we don't see the patients properly because we don't have the time…"*** *- P 1: Doctor - Gugulethu - 1:67 (115:116)*

B S other responsibilities: This issue mainly emerged during the nursing and health promotion staff interviews when they stated that aside from health promotion in the hospitals, their job description included working in the community, for example at schools.

- ***"…my workload it covers besides the one to one talks here in the day hospital, the group talks, the support groups, uhmm part of my job is also to work out in the communities"*** *- P 7: HPO - Lady Michaelis - 7:14 (183:185)*
- ***"…and then I've got another thing also to do. I'm going to schools also to go and talk about teenage pregnancies and all… so as a health promoter actually you know my field is very broad… it just don't stop here I must go out also to crèches, weighing and plotting the children"*** *- P 9: HPO - Rusthof - 9:7 (139:147)*

Furthermore, a health promoter mentioned that while she plans health promotion events, unscheduled workshops requiring her attendance may arise, thereby disturbing her scheduled health promotion programme.

- ***"…the difficulties that I do get is when you know that I'm planning to do this and then there is a thing that crop up that I have to attend"*** *- P 6: HPO - Gugulethu - 6:14 (309:310)*

Nursing staff mentioned that as a result of staff shortages, their services are often stretched over various areas at the same time and they have to perform other duties, thereby compromising the extent to which they can provide education and counselling to patients.

- ***"…its limited time because some of us we do three areas at once because I do the triage area, I do the emergency and trauma area and I do the paeds"*** *- P13: Nurse - Rusthof - 13:18 (177:178)*
- ***"…with a club you would love to put every effort in for this to be success to go out but now because of the staff shortages now you, they put pressure…. You in that… and in that and in that… and you have to run around… so you can't do some of the work you have to"*** *- P14: Nurse - Ruyterwacht - 14:44 (470:472)*

B S attitude: This barrier only emerged in the doctors' interviews when doctors mentioned that some members of staff may not see health promotion as part of their duties, especially since there is often health promotion staff available at the facilities. Furthermore, some doctors manage their patients differently and may not provide as much information as they possibly could.

- ***"…it could be anything from just they not interested in doing it so they or they feel that it must be done by somebody else and that might be especially in the club because they feel there are counsellors and health promoters so they will do that. So they might not see it as their job really. I always tell them that they could still play a role in and do an assessment and all that because the health promoter just give general talks they don't really do or not normally one on one counselling. So they still have a role to play in changing behaviour. So the doctors' attitudes will definitely be one reason because they don't see it as important in the care of the patients"*** *- P 3: Doctor - Mitchells Plain - 3:56 (218:225)*

B S lack of knowledge: One of the doctors mentioned that some staff require further training in order to provide efficient education and counselling to CDL patients. This doctor referred to the staff employed at the pharmacy, stating that pharmacists should actively participate in educating CDL patients on their prescribed medication. However, as a result of staff shortages, pharmacists may not be able to provide this service adequately and often delegate other staff members to issue the medication to patients. These staff members may not have sufficient training and therefore are not able to educate patients on their medication usage.

- ***"…well sometimes the staff they are not trained enough to give this information. Like of you go to the pharmacy... the pharmacists let me say it that way when he gives out medication to the patient he is supposed to educate that patient, he's supposed to tell the patient the side effects of this medication then he supposed to tell the patient the name of the medication…So what it will do if you miss the dose you know all those things ...they don't do that. Every time they do it they just ...they just give maybe delegate to someone who doesn't know anything about the medication. So the person cannot really say it even if he wants to say it because he doesn't know about the medication. All he knows is that you must take this one 2 times a day take this once a day. He doesn't know anything so he cannot educate the patient properly. So sometimes it's just one example... sometimes the people doing this are not educated enough you know. The people doing this counselling you know talking to the patient are not educated enough to actually counsel the patient…"*** *- P 1: Doctor - Gugulethu - 1:66 (209:221)*

B S fatigue (repetition): This barrier also emerged during an interview with one of the doctors. The following quotation is self-explanatory in that the doctor states that she tires of repeating the same messages to patients all day long.

- ***"…as a caregiver you do get tired sometimes of saying the same thing over and over and over again so maybe the first ten patients would get you know a lot of education and the ones that you see in the afternoon when you tired then not as much"*** *- P 4: Doctor - Rusthof - 4:15 (136:139)*

B S lack of referral to HPO: One of the health promoters mentioned that she experiences problems with the lack of referrals from other staff members.

- ***"…I've asked the doctors to refer people also to me and not just the doctors but the nursing staff and sometimes they perhaps don't do that. Because they tend to forget that they can refer people to me as well so that to me is a slight barrier so I have to remind them constantly look I am here as well…"*** *- P 7: HPO - Lady Michaelis - 7:19 (211:220)*

B S rotations: One of the doctors raised the issue of staff rotations when he mentioned that continuous staff rotations hampered the progress of health education and as a result patient care was compromised. These rotations continually result in the initiation of different ideas, methods and approaches; however they are never accomplished since the staff member responsible rotates to a new post. The next staff member then implements their own style thereby impeding the progress.

- ***"…the fact that because it is a problem we have getting done what we want to do because there is always change of staff. They always change staff rotations…,"*** *- P 1: Doctor - Gugulethu - 1:56 (487:494)*

B S turnover: This issue was also raised by a doctor. Staff turnover results in similar problems to those caused by staff rotations. In addition it results in the need to provide training to new staff members which is extremely time consuming in a situation where time is a very precious commodity, only to result in the cycle being repeated when the staff member once again moves on.

- ***"…if there is a change over of staff you've just got somebody interested and motivated and they decide to leave or move or something and then you've got to find somebody else to identify to train up again. So that's a problem. The change over of staff and shortage of staff is definitely a problem…"*** *- P 2: Doctor - Lady Michaelis - 2:19 (189:193)*

8.5.4.3. Code family 5: Barriers specific to patients

Figure 8.16 depicts the groundedness of issues related to patients that act as barriers that prevent HPs from providing health education and counselling to CDL patients.

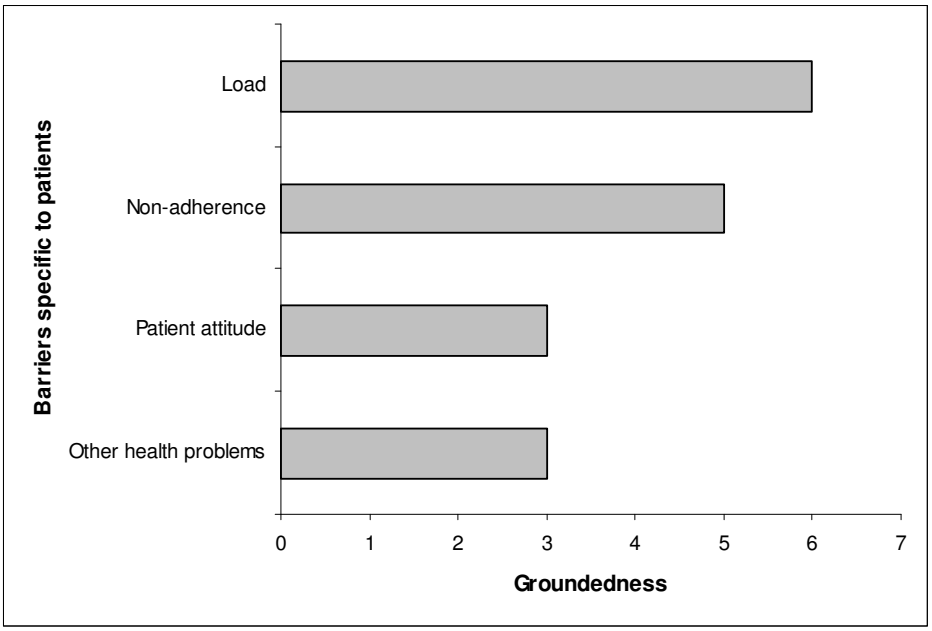

Figure 8.16: Barriers specific to patients

B P load: This issue emerged during 5 of the interviews and was only cited by doctors and nurses, not by health promoters. The number of patients that doctors interacted with on a daily basis varied significantly from the number of patients that nursing staff interacted with on the same day. At some of the facilities a doctor would see at least 30 patients per day, while doctors at other facilities reported seeing between 60 – 80 chronic patients a day. Nurses on the other hand mentioned that they see between 125 and 150 patients on a daily basis in the chronic clubs. Furthermore one of the nurses mentioned that the overall patient load at their facility ranges between 400 – 500 patients daily. The high patient load being a contributory factor to the lack of time is clearly evident in these quotations.

- ***"…time is a constraint because of the patient load"*** *- P 3: Doctor - Mitchells Plain - 3:53 (225:225)*
- ***"…no, the only thing is only maybe for instance there's maybe a day or two that we very busy... and you know you want to get there but you can't. Just due to the load of patients that you are seeing...or busy dealing with"*** *- P11: Nurse - Lady Michaelis - 11:11 (161:163)*
- ***"…the reason why we are talking about sending controlled patients to the NGOs and support groups you know so that the load... the load to the doctors and the nurses is small"*** *- P 1: Doctor - Gugulethu - 1:23 (153:155)*

B P non-adherence: This emerged during 3 interviews at two different facilities. These HPs mentioned that a lack of patient adherence presents a large barrier to education and counselling. They state that it is very frustrating to spend time counselling patients in vain. One of the HPs mentioned that although the patients listen to the advice provided while they are at the facility, when they go home they return to their routine lifestyles. She added that a contributory factor to patient non-adherence is the fact that unhealthy foods are easily accessible in the community.

- ***"…another barrier I would think is... its terribly frustrating sometimes when you have talked to this patient to do what he's supposed to do and he just refuse to do it"*** *- P 1: Doctor - Gugulethu - 1:27 (198:200)*
- ***"…because you advise then this now but they will come back with very high blood sugars and hypertension. They don't listen because you can tell them the same thing everyday but they say… if you say the BP is high they say ooh I don't know what makes this to be high, no I really don't know. When she's out she forgot that the BP is high, when she's out of the gate she will go and eat what she wants to eat. Then she'll be sent down there to trauma to take the isordil or to rest. Only for that time. After that out she'll come back to the normal style of things…"*** *- P10: Nurse - Gugulethu - 10:39 (168:189)*
- ***"…the lifestyle oh... it's very difficult because these people are here in the Western Cape and here things are cheap that's why they… some cannot control their diseases. Because the meat is available… everything that they not supposed to eat is cheaper here"*** *- P10: Nurse - Gugulethu - 10:40 (159:161)*

In order to overcome patient non-adherence as well as the lack of time as barriers, one of the doctors mentioned that he used the motivational interview technique for health education and counselling. Since this did not form part of the previously identified themes or categories, it was

labelled with the prefix *O* (Other) and identified using the code: ***O motivational interview***. The following quotation reflects this doctor's summary of using this approach.

- ***"…I would do some motivational type of interview or assessment of where the patient is. Because what I find is that it's difficult if you just tell patients 'you must exercise', 'you must lose weight', 'and you must do this and that'. They don't tend to follow advice because they hear it over and over. So we are trying to teach the doctors also to use the motivational interview approach whereby we would assess where the patient is in the cycle of change… obviously if they haven't considered changing then it wouldn't really help you trying to tell them to change. Doctors often say they don't have time to change behaviour so the motivational interview is a... it can take 5 minutes because if they in that category you'd only give them literature to make them aware as to why they must change but then if they in the middle group - the ambivalent group then its other strategies that you can use... a simple one would be if you tell them okay here's a page so when you go home now go and sit and you think what are the reasons that you are still smoking for instance and what are the reasons why you think its not so good to smoke because obviously they have thought about it. So then they would write that. So it's their ideas and it's their reasons and not what I'm saying because change must obviously come from the person not from the doctor or counsellor. Obviously if they in the ready to change group then your strategy would be different then you'd assist them with what other people did, how they changed. You give them options and then they decide which one is more suitable for them or appropriate for them. So the doctors often complain that there's not enough time but with this approach instead of just giving them... giving the patient a standard recitation you find out from them and then it's a more ongoing thing not in one visit that you trying to change their behaviour. And since the club is there and it is a continuation of consultation so you can actually do it little by little"*** *- P 3: Doctor - Mitchells Plain - 3:41 (179:206)*

B P attitude: HPs mentioned that they can only provide education and counselling to patients if the patients have a receptive attitude. However, patients may tire of hearing the same messages, especially if they found them to be ineffective or they may have other responsibilities or constraints that may prevent them from spending more time at the facility and they may therefore decline an education or counselling session.

- ***"…if the patients they not interested or that they've tried everything, so as soon as the doctor starts talking about weight loss and everything then they already would maybe respond with 'no but I've tried this already' or they would give some other reason 'no its genetic why I can't lose weight' or so the doctor maybe isn't… will then stop. So the patient also can sometimes contribute to why the health professional didn't really go on…"*** *- P 3: Doctor - Mitchells Plain - 3:24 (244:249)*
- ***"…maybe at times the patients themselves if they say 'no I don't have tome to sit with you now', 'I'm rushing, my lift is coming to fetch me now, or my lift is here or I need to be at another place or I want to see the doctor now' and they... especially with them that might be a barrier"*** *- P 7: HPO - Lady Michaelis - 7:16 (201:209)*

B P other health problems: This issue was associated with the operation of the chronic club system. These quotations emphasize the fact that patients attend facilities for overall health care treatment and not just for their chronic conditions, thus when they experience any other ailments the chronic club doctors have to provide sufficient care for these ailments as well. Although this cannot be avoided it does place an added burden to the load already carried by these HPs as well as hampering the flow of the club system by requiring a larger proportion of the doctors' time.

- ***"…they often come for things that is not related to the club but also with good reason because just say the patient comes in with a cold for instance then they gonna complain about the cold then you have to spend time to make sure that its just a cold and its not a pneumonia and you have to deal with it"*** *- P 3: Doctor - Mitchells Plain - 3:21 (226:230)*
- ***"…if there are like 10 people who are here for 6 monthly appointments and you've got 25 who are just here that I saw last month but because they are chronic patients and they present with the flu or whatever then I have to see them so they might not necessarily go to somebody else because they are chronic patients I might end up seeing them but then that takes time away from people who actually need it"*** *- P 4: Doctor - Rusthof .txt - 4:64 (371:375)*

8.5.4.4. Code family 6: Barriers specific to services at the facility

Figure 8.17 depicts the groundedness of issues related to services at PHC facilities.

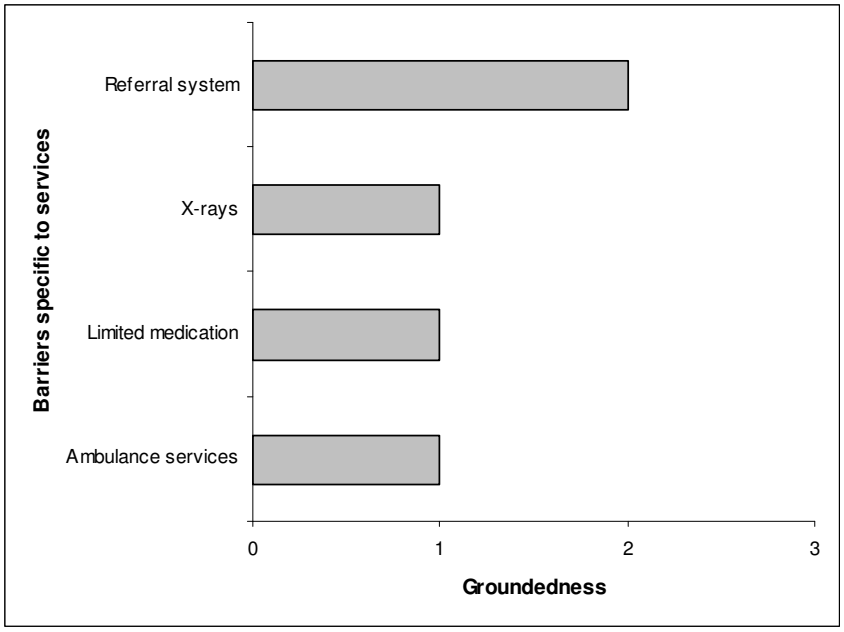

Figure 8.17: Barriers specific to services at the facility

B SV referral system: The referral system between PHC facilities and tertiary institutions was cited a barrier that compromised patient care. These quotations reflect the HPs' ambition to provide optimal care to their patients. However, because of a poor referral system or the long waiting periods between identifying and referring a patient for tertiary care, and the actual appointment at a tertiary institution, this is not always attainable. HPs stated that treatment requiring prompt initiation is delayed and as a result patients experience complications related to

their chronic conditions that would have been prevented if the patients had been able to attend the tertiary institutions at an earlier date.

- ***"…bookings for this clients is very difficult like for instance now when was it June month the bookings for eyes the MOPD that's the medical outpatients, Tygerberg and Groote Schuur and HHH were fully booked so we have to do appointments in November for next year, which means those clients get lost around the way you see… so the time they come back to us that's why they end up at the tertiary hospitals"*** *- P13: Nurse - Rusthof - 13:17 (143:148)*

B SV x-rays: The lack of x-ray facilities was also cited as a barrier that compromised patient care. This doctor mentions that the lack of x-ray facilities is not an inconvenience for her, but for the patients. Because this service is not available at their facility, patients have to attend other facilities for the x-rays and then return to the original facility for treatment. This is not usually an easy task since patients have problems with transport or are in poor health when they need to go for these x-rays.

- ***"…we don't have x-ray facilities here so all our x-rays have to be referred out. These are old people, they don't have transport, they are limping, they are on crutches and they need to go now to Goodwood or to Elsies to get an x-ray and come all the way back. And now it's winter as well. So there're lots of things that not are hard... they not hard for me but for my patients I see it as being very difficult… so the x-rays and the sats monitor***" *- P 5: Doctor - Ruyterwacht - 5:23 (153:158)*

B SV limited medication prescriptions: The rules for initiation of medication at PHC level were also cited as a barrier that compromised patient care. Although these rules were implemented with good reason, the following quotation reflects the adverse effect these rules have on patients care. As with the previous issue, this doctor once again states that it is not an inconvenience for her but it does affect the level of care she can provide to her patients.

- ***"…medication-wise a lot of patients we not allowed to start certain medications here. You know working in a bigger hospital it's basically the rules, you can prescribe it quite freely at a secondary or tertiary level hospital. The rules at PHC level is that it needs to be initiated elsewhere and the patient needs to come back to you. And that's very difficult for them because they need to wait months to go somewhere for an appointment and come back and you need to initiate it. So it's just little technicalities that make it very difficult for them yah***" *- P 5: Doctor - Ruyterwacht - 5:25 (165:170)*

B SV ambulance services: The lack of facilities such as ambulance services were also cited as a barrier that impinged upon optimal patient care and was identified using the code. This barrier was also cited as an inconvenience to patients rather than to the HPs.

- ***"…we don't have facilities for patients here. And it makes it very difficult. Things like ambulance services, these are just functioning problems, you know. Ambulance they don't come in quick enough when we need to refer a patient… patients sit here quite along time"*** *- P 5: Doctor - Ruyterwacht - 5:24 (161:164)*

8.5.4.5. Code family 7: Other barriers

Figure 8.18 depicts the groundedness of issues such as language barriers, crime and problems associated with the implementation of chronic clubs.

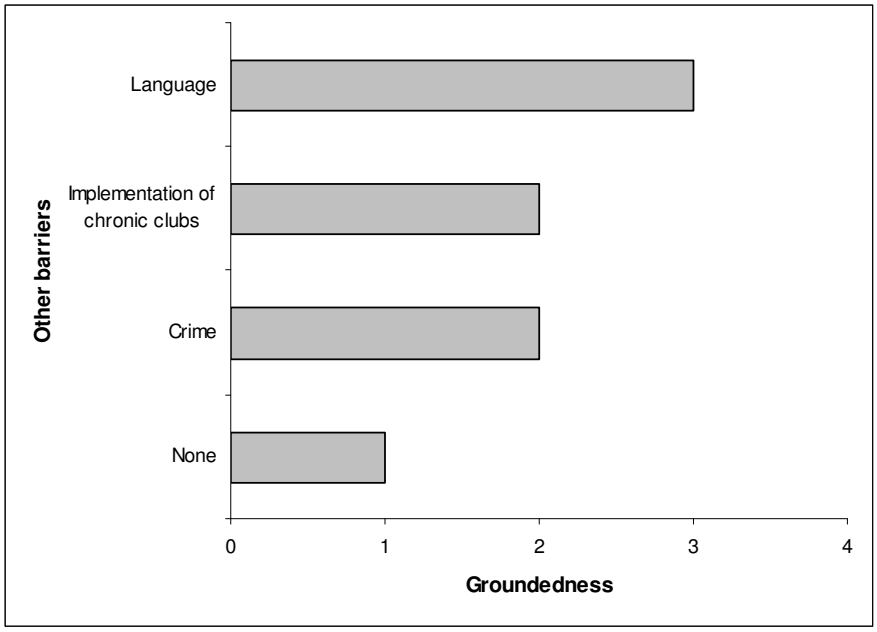

Figure 8.18: Other barriers

B language: Two doctors cited language as a barrier to providing education and counselling to patients. The following quotations reflect the difficulties that many doctors experience when trying to communicate with patients when they do not speak the same language. In addition the problem is compounded when the doctor is from a foreign country and dialects is different. They have tried to resolve this barrier by utilising an interpreter but have experienced problems with this as well since the interpreter does not necessarily convey the message exactly as the doctor or the patient does.

- ***"…the problem is language barrier sometimes you don't speak the language they speak. And I find it very difficult to… they find it difficult to understand what you're saying"*** *- P 1: Doctor - Gugulethu - 1:25 (173:174)*
- ***"…I rely on an interpreter and sometimes an interpreter don't say what you say, you know. He may say when you say okay this pen you should put it in your mouth put it down down in your mouth they will say okay put it n your mouth... you understand they wouldn't say put it down down in your mouth. You understand. Like these things are two different things"*** *- P 1: Doctor - Gugulethu - 1:61 (174:178)*
- ***"…mainly the patients that we have are Afrikaans speaking, they speak Afrikaans, their main language. I mean however some do speak English as well and I'm… I speak English and Xhosa so there is a language barrier there"*** *- P 4: Doctor - Rusthof - 4:13 (131:133)*

B crime: This emerged during two interviews but was only cited at one facility. These HPs mentioned that the crime rate in their area affected their ability to utilise audiovisual equipment as a method of health promotion, thereby limiting the methods of education and counselling that they could utilise.

- ***"…we don't have a secure place to put a TV because you know you can have something it will disappear so with the result is we still working on it to equip this educational section here for the patients"*** *- P 8: HPO - Mitchells Plain - 8:25 (274:276)*
- ***"…but unfortunately the crime is so high here that I don't think they will even think of buying a video machine or a TV and just put it away after the club is finished."*** *- P12: Nurse - Mitchells Plain - 12:18 (357:358)*

B implementation of chronic club: Both the doctor and the nurse at one facility mentioned that they experienced difficulties when they tried to implement and maintain a chronic club system. The reasons provided included the high patient load, staff turnover and resistance from patients.

- ***"…we don't have clubs… we've tried to start them once or twice in the past. We have a huge number of chronic patients so we can't have specific days for example diabetics... there are too many of them. And each time we've tried to start there's been... you know staff have left or whatever and we haven't been able to carry on"*** *- P 2: Doctor - Lady Michaelis - 2:7 (117:120)*
- ***"…we want to start like a ... like a club as well which we've never ever had here at the day hospital. We've tried to have it once... not just once but on a few occasions, but the response of the patients wasn't that good so maybe we need to try a different tactic of getting it… I think it's the kind of patients that we get here… because each facility has a different kind of patient so what works at the one does not necessarily work at the other facility. I think lots of the people that attend here, because we have a much older group of people, they are much more set in their ways and once they say 'no but I must come on that specific day' they don't want to be shifted to another date. So it's difficult to get them to have that shift in their mindset to say they must come on a different day to join up with that group of people that have the same chronic illness that they have. They feel more that if I come on a different date then I'm gonna miss my group of friends that I've made… You see so we've had that problem in the past so that's one of the major setbacks as to starting a group. So maybe with the bus coming in on a Tuesday and a Thursday… we might not have the same people coming in but there will be a definite group of people that will be here"*** *- P 7: HPO - Lady Michaelis - 7:12 (114:143)*

No barriers: One of the nurses mentioned that there is nothing that prevents her from providing health education to patients. This was identified sing the code: *B none*.

- ***"…that stops me from telling them… no nothing"*** *P10: Nurse - Gugulethu - 10:12 (140:140)*

8.5.5. The role of lifestyle modification in the prevention and management of CDL

LM has been shown to be an effective method of preventing and managing CDL. However, there may still be some HPs that are not in agreement with this statement. One of the aims of this study is to gain a better understanding of HPs' capacity to provide LM education and counselling to CDL patients. In order to do so, we need to determine whether or not HPs perceive LM counselling to be an effective method to manage CDL patients. The following question was thus posed to HPs: *'What role do you think lifestyle counselling has in helping patients to manage their chronic health conditions?'*

These quotations were simply grouped into two categories namely, LM has a positive role in the prevention and management of CDL (*LM role in CDL +)* or LM may not be effective in the prevention and management of CDL (*LM role in CDL* -). Table 8.11 provides the PD table associated with these categories.

Table 8.11: PD table associated with the role of lifestyle modification in the management of CDL.

Primary Documents															
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
LM role in CDL +	1	1	1	1	1	1	1	0	1	0	1	1	1	1	12
LM role in CDL -	0	1	0	0	0	0	0	0	0	1	1	1	0	0	4
	1	2	1	1	1	1	1	0	1	1	2	2	1	1	16

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.5.1. Lifestyle modification has a positive role in preventing and managing CDL

LM role in CDL +: Table 8.11 clearly illustrates that the majority of HPs reported that they perceived LM to have a positive role in the management of CDL patients. This code emerged in 12 interviews. The following quotations cite HPs' perceptions that LM is the cornerstone of managing CDL. One of the doctors stated that LM counselling constitutes more that 50% of the treatment that should be provided to CDL patients. He also stated that most patients are able to manage their chronic conditions without medication by simply modifying their lifestyles.

- ***"…in fact it's very important… they cannot treat a patient with drug alone without LM. It is very, very extremely important so I think it's very, very important. I don't know, I just… it's important, more than even 50% of what you supposed to do. Most of the patients do well with lifestyle without medication"*** *- P 1: Doctor - Gugulethu - 1:30 (250:253)*
- ***"…I will still say that's the corner stone of trying to manage any chronic disease is the other factors… LM whether it's diet, exercise, not smoking, not drinking and that sort of thing. And that is vital"*** *- P 3: Doctor - Mitchells Plain - 3:25 (259:261)*

In addition a doctor also stated that there is a good evidence base supporting the efficacy of LM in the management of CDL. Furthermore it facilitates the prevention of CDL related complications. She also stated that optimal management of a CDL patient can only be achieved by adhering to LM and supporting patients with medication if so required.

- ***"…I think because it's evidence based that LM helps with control and disease management and it reduces the persons cardiovascular risk so I think it plays a big role because without LM really you can't manage the patient, you can't even with the drugs you can't give optimal management or optimal treatment of the condition and in preventing complications and other things. Also LM is very big because if they continue to… its counter productive for you to just keep giving them drugs and they keep doing the wrong thing or they keep eating the sugar the high fat and all of that so I think it works together… it works together for them to adhere to LM and you on the other side supporting them with medication I think it works hand in hand"*** *- P 4: Doctor - Rusthof - 4:17 (157:166)*

A doctor also provided an anecdote about a patient that she had recently seen. The patient was to be initiated on insulin treatment but before doing so, the doctor had provided LM counselling to him. When he returned to the facility for initiation of the insulin treatment, his blood sugar was found to be controlled. In this way a patient was able to control his chronic disease simply by adhering to LM and was thus spared the need to commence chronic insulin use. Furthermore, she stated that the time spent providing LM counselling to the patient did not only prevent the patient from chronic insulin use and its associated complications, it also saved the DOH money needed to provide patients with insulin.

- ***"…I think it's a big role as I said. I had a patient that came to me yesterday he was meant to be started on insulin because his sugar was uncontrolled. And a simple thing as my colleague talking to him about diet ... a simple thing as that… brought him back in a month and his sugar is now controlled. So we've actually prevented a man from going onto insulin chronically, just by controlling his diet, just by sitting and talking to someone and taking a few minutes out of your time and telling him listen I think you need to modify your diet. We've saved the government money for insulin, we've saved him complications of being on insulin, monitoring it ... you know there's a whole lot of things that we've prevented him from going down an avenue just by spending a little time on education. And I like that, I like that it works, you know you see the results and it does work"*** *- P 5: Doctor - Ruyterwacht - 5:26 (187:197)*

The following quotations are examples of HPs' views that although LM is effective in managing chronic diseases, patients need proper counselling to be able to implement LM. There are numerous misconceptions about LM, not the least of which is the patients' perception that it is expensive to change their lifestyle since healthier food alternatives are thought to be more expensive. One of the HPs stated that it doesn't cost money to change a lifestyle and that this message needs to be conveyed to patients during a LM counselling session.

- ***"…a very big role. You know it's preventing or help the person a lot in a later stadium. If you give talks and talks and talks and you see they really start changing there lifestyles and it doesn't cost money to change lifestyle"*** *- P14: Nurse - Ruyterwacht - 14:21 (422:430)*

- ***"…they do try to be strict on their diets because they thought that when you are telling them that you must try instead of full cream milk buy low fat. They will think that low fat is more expensive than full cream which is that is not it's just the same. So by telling them those things like instead of these spicy things you can not use this spice you can use something like a green pepper, onion, garlic or ginger you know to so that you can make a taste to your food instead of using the spices because the spices have got a strong salt content, because they are using spice and salt and beef stock and all those things together in one time"*** *- P 6: HPO - Gugulethu - 6:15 (403:427)*

HPs also stated that LM can only be effective in managing CDL if patients are adherent and implement the education and counselling that is provided to them. In this way they can manage their conditions effectively.

- ***"…okay, they must also learn to take charge, discipline themselves because it can't just come from my side it must come from them also. So they need to give their... not their support but how can I say... their co-operation. That is what they must give and together we can make it a success"*** *- P11: Nurse - Lady Michaelis - 11:13 (196:204)*
- ***"…there is some patients that I really can see they are really trying because you ... I mean when they coming to the club you looking like through the old stuff and you can see what it was like for previous patients coming in with high blood sugars or high blood pressures. They do listen and they do follow the diet and their observations getting better"*** *- P12: Nurse - Mitchells Plain - 12:12 (278:282)*

8.5.5.2. Lifestyle modification may not be effective in preventing and managing CDL

LM role in CDL -: Four HPs reported that they felt that LM may not be an effective method of managing CDL. These following quotations reflect HPs' experiences with providing LM to patients. They mention that it may be an effective in some people but due to the lack of patient adherence, it is ineffective in the majority of people. One of the nurses actually stated that she didn't know whether health education in itself is ineffective or whether the fault lies with patients who are reluctant to take responsibility for managing their own health.

- ***"…I think it does make a difference in some people in some people it's never going to make a difference"*** *- P 2: Doctor - Lady Michaelis - 2:24 (236:237)*
- ***"…but there are, which is like 99% of them… man to me it is like if you talk to them… it goes in here and it goes out the other side, because they like laughing at you man if you talk to them. It's like a smile on their face you know. But there is some people who you really get improvement… but 99% they don't. You don't really get improvement so I don't know if the health education is helping them or is the people just reluctant about their own health"*** *- P12: Nurse - Mitchells Plain - 12:13 (282:293)*

Overall, most HPs believe that LM has been shown to be an effective method of managing and reducing the complications associated with CDL however, they are aware that in order to achieve optimal patient care, the patients themselves need to play an active role by demonstrating adherence to the education and counselling provided to them.

8.5.6. Effectiveness and practicality of available health education materials and methods

In order for HPs to provide effective health promotion and health education and counselling services to CDL patients they need to have adequate access to effective health education materials and methods required for providing these services. The following question was thus posed to HPs: *'How do you feel about the effectiveness and practicality of the health promotion materials and methods that are available to you?'*

With regard to health education materials, a total of 12 codes emerged. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'HEMA'* (health education material). These were grouped into 6 code families, based on whether they were related to access, pamphlets, posters, booklets, diet sheets or paintings. These codes were labelled slightly differently to the codes in the previous PD tables in that no secondary prefixes were assigned to them. Instead, the code family name followed the initial prefix (for example *HEMA posters*). The codes within each code family were further subdivided based on whether HPs provided positive (*HEMA posters* +), negative (*HEMA posters* -) or mixed (*HEMA posters* +/-) impressions of these materials. Table 8.12 provides the PD table associated with the HPs impressions of access to and effectiveness of health promotion materials.

Table 8.12: PD table associated with the access to and effectiveness of health education materials

		Primary Documents														
		Doctors					Health promoters				Nurses					
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Access	HEMA access +	0	0	0	0	0	0	3	0	0	1	0	0	0	0	4
	HEMA access -	0	1	1	0	1	3	1	0	3	0	0	1	1	2	14
Pamphlets	HEMA pamphlets +	0	1	0	1	0	2	0	0	1	0	0	1	0	1	7
	HEMA pamphlets +/-	1	1	0	0	0	0	0	0	0	1	0	0	1	0	4
	HEMA pamphlets -	0	0	0	0	0	0	0	0	2	0	1	0	0	0	3
Posters	HEMA posters +	0	0	1	1	0	1	1	0	1	0	0	1	0	0	6
	HEMA posters +/-	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
	HEMA posters -	0	0	1	0	0	0	0	2	2	0	0	0	1	1	7
Booklets	HEMA booklets +	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2
Diet Sheets	HEMA diet sheets +/-	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Paintings	HEMA paintings +	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	HEMA paintings -	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
		2	4	4	2	1	7	7	3	9	2	1	3	4	4	53

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.6.1. Code family 1: Health education materials

Figure 8.19 depicts the groundedness HPs impressions regarding access to and effectiveness of health education materials.

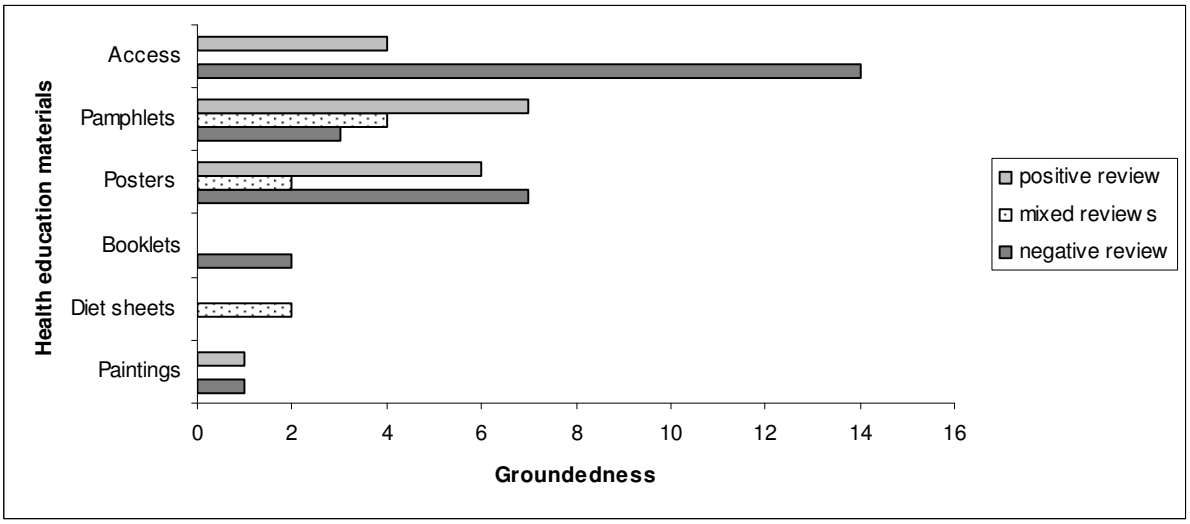

Figure 8.19: Groundedness of codes associated with HPs impressions regarding access to, effectiveness of health education materials

The following tables summarise HPs' impressions regarding access to and effectiveness of health education materials at their disposal.

***HEMA access*: Access to health education materials**	
Positive (+) impressions	**Negative (-) impressions**
Emerged in 2 interviews Materials are available via dietitians, pharmaceutical reps, organisations such as Diabetes South Africa, • ***"…there are materials available so that's definitely not a barrier***" - P *7: HPO - Lady Michaelis - 7:18 (210:211)* • ***"…there's the diabetes association. We have a vehicle that we can go there and collect the stuff. We also have the reps of the various departments… Novo Nordisk… they come into the day hospitals as well and they also bring posters and pamphlets to the day hospital"*** *- P 7: HPO - Lady Michaelis - 7:25 (344:358)* • ***"…for most of the posters etc, I try to go to the different organisations that deal with that specific illness…"*** *- P 7: HPO - Lady Michaelis - 7:27 (371:372)* • ***"…we get it free from our dietitians. We get every pamphlet here. They are packed in shelves..***" - P*10: Nurse - Gugulethu - 10:17 (253:254)* Most of the doctors were unaware of where materials could be sourced from and suggested that health promoters or nurses would be more familiar with this. • ***"…I think there is a shortage of material. So I'm not sure, you'll probably have to speak to the health promoter see if they feel they've got adequate equipment but I don't think there's really updated frequently and they probably using the same material over and over"*** *- P 3: Doctor - Mitchells Plain - 3:29 (290:293)* • ***"…I don't really have anything in my office… but I'm not sure what the sisters have and they give out to the patients. I would actually just ask them. A lot of patients get seen by***	Emerged in 9 interviews. Difficulty in obtaining materials in the appropriate language. • ***"…I don't get them in Xhosa because I'm dealing with Xhosa speaking people, so I'm getting this in English, sometimes the others they will tell you that 'I can't understand this language' or 'I can't read this it's even difficult for me to read Xhosa'… you know"*** *- P 6: HPO - Gugulethu - 6:26 (588:591)* Difficulty in obtaining materials from the PGWC resource centre, stating that there is always a scarcity of materials at the centre, yet it is the only source of materials provided by PGWC. • ***"…yes I've got a problem because Wynberg is always short of… they haven't got this pamphlets and this books. Whenever I have to go there I don't get anything. If I want something for diabetes I don't get and the resource centre in Wynberg is the only one"*** *- P 6: HPO - Gugulethu - 6:29 (634:648)* • ***"…the resource centre in Wynberg... I've been there on a few occasions but very little information at times so sometimes I don't even go there"*** *- P 7: HPO - Lady Michaelis -7:26 (364:371)* Difficulties when procuring materials through a third party eg. dietitian. • ***"…we don't have always enough posters and stuff because what we must do is I must ... I'm a nutrition advisor and I have to go through my dietitian to go and fetch me stuff I can't go there myself and just go and ask can I have this and that"*** *- P 9: HPO - Rusthof - 9:14 (277:279)* • ***"…but we are getting the stuff from them you see. So you have to write up first what you want like we need a lot of this BMI wheels and measuring heights and stuff and I did write down and ask but it don't come here***" *- P 9: HPO - Rusthof - 9:15 (304:306)* Difficulty accessing materials from organisations because they are far from the facility. This may occur as a result of a lack of transport to go to these organisations. • ***"…say there's an association like for hypertension you can get information but it's always far away***" - P*14: Nurse - Ruyterwacht - 14:23 (448:448)* The scarcity of materials compels selective distribution of materials to patients. HPs have resorted to photocopying old materials often resulting in illegible materials. HPs tend to scout for materials from alternate sources such as private

them and they get the pamphlets whereas they just come to the doctor for medication…" *- P 5: Doctor - Ruyterwacht - 5:58 (224:233)* • ***"…I don't know. Sister normally bring it to us or the health promoter normally brings it because she goes around a lot so I don't know where does she really get it from"*** *- P12: Nurse - Mitchells Plain - 12:19 (367:368)*	health facilities and replicate the materials found at these institutions. • ***"…most of the time since these are really scarce (the pamphlets)… I only use them when I'm doing one to one counselling…"*** *- P 6: HPO - Gugulethu - 6:27 (608:609)* • ***"…the materials we've got here its all from the originals that we made print outs, so sometimes its unlegible for the patients you see and its not always on the three languages or more languages"*** *- P13: Nurse - Rusthof - 13:20 (254:256)* • ***"…I go to Panorama and I take their book and then I also read and see what is there that I can use so sometimes then you've got a hypertensive and I take it there and we copy it***" - P14*: Nurse - Ruyterwacht - 14:42 (820:822)*

HEMA pamphlets: impressions regarding the use of pamphlets as health education material		
Positive (+) impressions	**Mixed impressions (+/-)**	**Negative (-) impressions**
Emerged during 6 interviews. Pamphlets are easy for patients to read and understand. Some patients approach HPs with questions pertaining to the information on pamphlets. Effective if they are used in combination with individual or group counselling sessions. • ***"…I'm happy because our pamphlets it's very... plain for a lot of people***" - P*14: Nurse - Ruyterwacht - 14:27 (536:536)* • ***"…some do ask questions about the things they see on the pamphlets"*** *- P 4: Doctor - Rusthof - 4:62 (186:186)* • ***"…they do work, they do. Because you know I will tell you before these people if you are giving them the pamphlets you'll see the pamphlets lying on the floor or in the dirt bins but not now, they know the value of this pamphlets… yes they do… they know***" - P *6: HPO - Gugulethu - 6:25 (580:582)* • ***"…yes, if you talk to them about it first then they understand the posters and what the pamphlets are saying. It works yes"*** *- P 9: HPO - Rusthof - 9:19 (316:317)* • ***"…I think the people they do read it. Some come and do ask for pamphlets to read if they can't really make to get hold of the dietitian because she's only here on a Monday. So some of them do come and ask and I think... I'm sure some of them do read ...do read the pamphlets that's issued by them***" - P*12: Nurse - Mitchells Plain - 12:14 (323:326)*	Emerged during 4 interviews. Although patients are taking pamphlets from the facility, there is no means of confirming whether the patients are reading these pamphlets, whether they are acquiring any knowledge from them or implementing any LM messages provided in the pamphlets. • ***"…we have some pamphlets out and we notice that they disappear quite quickly when they put out so obviously they being taken and read. I don't know if they actually making any difference to the lifestyle but I think again it's informing patients you know… so I think the more informed they are the more choices they have because they can make informed choices. So I suppose if they taken and read that's one thing. Whether it makes a huge difference I don't know…"*** *- P 2: Doctor - Lady Michaelis - 2:29 (289:293)* • ***"…the pamphlets they do work, we give them the pamphlets to read but we don't know what is happening when they are home***" - P*10: Nurse - Gugulethu - 10:16 (232:233)* • ***"…pamphlets for some it works because they carry it out of here and at home it's lost. So I would say maybe a booklet or something... because a pamphlet is just a piece of paper. It gets lost just like their cards, there hospital cards***" - P*13: Nurse - Rusthof - 13:22 (310:313)*	Emerged during 2 interviews. Literacy and poor eyesight • ***"…and you know the other thing all of the patients can't read"*** *- P 9: HPO - Rusthof - 9:17 (309:309)* • ***"…man I can't say how many patients is reading these pamphlets... they see it there but if there can just be someone who always... it's not everybody that can see properly"*** *- P11: Nurse - Lady Michaelis -11:29 (251:252)*

HEMA posters: impressions regarding the use of posters as health education material		
Positive (+) impressions	**Mixed impressions (+/-)**	**Negative (-) impressions**
Emerged during 6 interviews. Practical and easily accessible due to their highly visibility in the facility. Patients can read them while they wait for assistance. Usually illustrated, making it easier for patients to remember the information. Effective if used in combination with a counselling session. • ***"…I think we do manage to have posters in most consulting rooms and I think patients might look at them in between sessions and while you are busy writing your notes and things like that"*** *- P 4: Doctor - Rusthof - 4:18 (184:185)* • ***"…to make posters. I think that ...that would help them more. Because as they sitting there and they sit for quite some time sometimes waiting to be seen***" - P*12: Nurse - Mitchells Plain - 12:16 (351:352)* • ***"…as health promoters we were given a set of posters which deals with foot care... and we were told that must not go on the wall that must go with us wherever we do foot care with a diabetic group or old age group... that to me is quite effective because when people see something they can relate to it instead of not seeing anything***" *- P 7: HPO - Lady Michaelis - 7:21 (276:290)* • ***"…yes, if you talk .... To them about it first then they understand the posters and what the pamphlets are saying. It works yes"*** *- P 9: HPO - Rusthof - 9:19 (316:317)*	Emerged during 2 interviews. May not be effective because not all the patients read them, however, those that do read them often approach the staff with questions pertaining to the information on the posters. • ***"…sometimes people come and they've seen the posters and they come and ask maybe not just me but they ask the other staff as well with regards to what...what is happening, why this why that. So even though everybody doesn't read the posters, we have a fair amount of response to it where people will come and ask questions with regard to what is on the posters"*** *- P 7: HPO - Lady Michaelis - 7:24 (334:337)*	Emerged during 6 interviews. Can be damaged or stolen easily. • ***"…the people tear the posters off or the students steal the posters"*** *- P 8: HPO - Mitchells Plain - 8:33 (337:337)* A large proportion of patients are unable to read. • ***"…and you know the other thing all of the patents can't read"*** *- P 9: HPO - Rusthof - 9:17 (309:309)* HPs' perception that patients do not read posters. They claim that posters tend to blend into the background of the facility and patients actually don't notice that they are there. • ***"…because you can have a lot of posters you can have a lot of information but the patient doesn't read… you can put the whole hospital with too many posters they not going to see… they thought Ag it is just there***" *- P14: Nurse - Ruyterwacht - 14:35 (679:692)* HPs also report most patients simply attend the facility with the aim of receiving their treatment and leaving the PHC facility as soon as possible. • ***"…I'm sure if you've walked around you would have seen just posters. I think those are the least useful. Because I think people don't even... when they come to the hospital they don't really necessarily look at the walls. So they... or at least what I found is they just interested in getting done with whatever they getting there. So whether they seeing the sister or the doctor or the pharmacy. So there might be some that would maybe look at the wall and see okay and then they read it but I wouldn't say that's very effective"*** *- P 3: Doctor - Mitchells Plain - 3:27 (271:282)*

HEMA booklets: impressions regarding the use of booklets as health education material	
Positive (+) impressions	
Emerged in 2 interviews. They are available in the languages required and also they are more substantial and than pamphlets and therefore more likely to be valued. • ***"…I'm taking this pamphlets or any of those books, the diabetes and you books… I've got them in Xhosa"*** *- P 6: HPO - Gugulethu - 6:30 (612:621)* • ***"…I would say maybe a booklet or something... because a pamphlet is just a piece of paper. It gets lost just like their cards, there hospital cards. So if it's a booklet or something that they can put somewhere like for instance you see that glass thing with the calendar. Some of the motor companies does that or something like that. It can stand like this and the patient can see and put it up there and just go through it everyday. Something they can see is much better"*** *- P13: Nurse - Rusthof - 13:23 (311:322)*	
HEMA diet sheets: impressions regarding the use of diet sheets as health education material	
Mixed impressions (+/-)	
Emerged during 2 interviews. Patients may tend to follow them but lose interest after while. If their observations have improved when they return, there is no means of confirming whether it was the diet sheet that was effective or whether the patient was using another form of treatment. • ***"…quite often you know you say well have we given you a diet sheet, have we explained it to you. 'Yes you did'… When did you last look at it and it's in a drawer somewhere. So you have to tell them to take it out and start again. So I think it's effective for some people but I think for a lot of people they read it they follow it for a while and then they slip off the .... But I think that's human nature I think that's why you have to keep motivating them"*** *- P 2: Doctor - Lady Michaelis - 2:27 (254:259)* • ***"…the diet sheets that we give people ... if they use it at home we don't know. We can only know if... when they do come back to the day hospital when we do monitor them... their weight most probably on a 3 monthly or 6 monthly basis to see if there is a loss in weight, whether they are following some form of diet. If it's the diet sheet that we give them or if it's something else they using we not sure***" - P *7: HPO - Lady Michaelis - 7:22 (290:299)*	
HEMA paintings: impressions regarding the use of paintings as health education material	
Positive (+) impressions	**Negative (-) impressions**
Emerged during 1 interview. In order to overcome the issue of posters being stolen pr damaged, health education messages were painted on the walls within the facility, thereby providing a form of health education that could not be damaged or stolen from the facility and as a result it would serve as a long lasting means of providing education to patients. • ***"…that works because people look at it. How the paintings came about is… the walls were so dull and lifeless and we were trying to actually boost it maybe you know for the people to be more aware when we say something… like you can see on healthy eating… the vegetables and things that we painted on there not to beautify the place but to make the people aware… that can be one of your first priorities because it contains everything, it contains all the vitamins, the minerals, everything that your body needs. That is what we need for protection. The reason why we did it is because the people tear the posters off or the students steal the posters and we decided to put something on that will stay there for a lifetime and so when you see it, it's the stages of how to use the pump correctly, the positioning you know and so forth, how to breathe. It's all written and now it's like long lasting***" - P *8: HPO - Mitchells Plain - 8:32 (311:340)*	Emerged during 1interview. Not effective • ***"…I think it's...it's better than nothing, so it has a role to play but I don't really think there's... I don't think the patients are ... you probably have to interview the patients rather, but in my opinion I don't think it is effective***" - P *3: Doctor - Mitchells Plain - 3:30 (296:307)*

8.5.6.2. Code family 2: Health education methods

With regard to health education methods, a total of 10 codes emerged. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'HEME'* (health education methods). These were grouped into 5 code families, based on whether they were related to individual counselling, group counselling, chronic clubs, support groups or alternative methods. These codes were labelled in the same way that the health education materials were labelled; positive (*HEME chronic clubs +*), negative (*HEME chronic clubs -*) and mixed ((*HEME chronic clubs +/-*) impressions of these methods. Table 8.13 provides the PD table associated with the HPs impressions of the effectiveness of health promotion methods.

Table 8.13: PD table associated with the effectiveness of health education methods

		Primary Documents														
		Doctors					Health promoters				Nurses					
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Individual counselling	HEME individual counselling +	1	1	0	1	0	1	2	0	1	0	1	0	0	0	8
	HEME individual counselling +/-	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	HEME individual counselling -	0	0	0	0	0	0	0	1	0	1	0	0	0	0	2
Group counselling	HEME group counselling +	0	0	0	1	0	0	0	0	0	0	0	1	1	0	3
	HEME group counselling +/-	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	HEME group counselling -	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
Chronic clubs	HEME chronic clubs +	0	0	1	0	0	0	0	1	0	0	0	0	0	0	2
	HEME chronic clubs -	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Support groups	HEME support group +	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
Alternative methods	HEME alternative methods	1	0	0	0	0	0	0	1	0	0	0	0	0	0	2
		5	2	2	2	0	1	2	3	1	2	1	2	1	0	24

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Figure 8.20 depicts the groundedness of HPs' impressions regarding the effectiveness of health education methods.

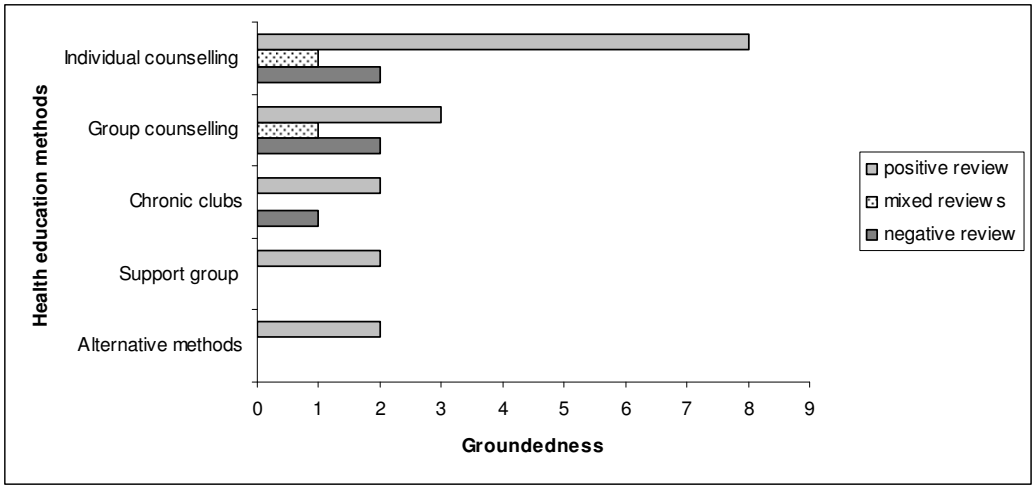

Figure 8.20: Groundedness of codes associated with HPs impressions regarding the effectiveness of health education methods.

The following tables summarise HPs' impressions of health education methods at their disposal

HEME individual counselling: impressions regarding the use of individual counselling as a method of health education		
Positive (+) impressions	**Mixed impressions (+/-)**	**Negative (-) impressions**
Emerged during 7 interviews May be the largest contributory factor to patient adherence. • ***"…I think one on one contact and perhaps even contact between patients is the thing that's going to make the biggest difference you know support groups I think will be a very good idea***" *- P 2: Doctor - Lady Michaelis - 2:30 (299:300)* HPs' recommendation provided individual counselling to patients before distributing pamphlets to in order to sensitise them to the information that is provided in the pamphlets. • ***"…before I'm giving them this (the pamphlets) I will explain what is in here, briefly explain about all this and then give them to read at home so that when they are at home they've got a knowledge at least a little knowledge about okay I've heard about this oh I've heard about this as well and then that gives them more interest to read"*** *- P 6: HPO - Gugulethu - 6:28 (598:601)* • ***"…man I can't say how many patients is reading these pamphlets... they see it there but if there can just be someone who always… it's not everybody that can see properly. So they also need someone to talk about these things. The picture is there… I mean everybody's looking at the picture but what does the picture say to the person***" - P *11: Nurse - Lady Michaelis - 11:15 (251:259)*	Emerged during 1 interview May be effective for some patients, but not for others. • ***"…but some of them... others are trying... some you can see that his having the same problem every month but the others if you talk to him this month next month he comes with a better thing"*** *- P10: Nurse - Gugulethu - 10:15 (239:240)*	Emerged during 2 interviews. Patients they may be attentive during counselling sessions but once they leave the facility they fail to implement any of the advice they received. • ***"…you can tell them ... it's in here and out***" *- P 8: HPO - Mitchells Plain - 8:44 (316:316)* • ***"…but they see everything that they have got to exercise so as to ... it doesn't work to educate them, because they listen while they are here at the clinic when they are home they don't do the exercises"*** *- P10: Nurse - Gugulethu - 10:14 (219:226)*

HEME group counselling: impressions regarding the use of group counselling as a method of health education		
Positive (+) impressions	**Mixed impressions (+/-)**	**Negative (-) impressions**
Emerged during 3 interviews. health talks or group counselling sessions were well received by patients. • ***"…health talks… it also works. Because the other health promoter from Amasser was working I think 3 or 4 months here and she used to present health talks here in front while the patients were waiting in the waiting area and that went well as well"*** - *P13: Nurse - Rusthof - 13:25 (346:348)*	Emerged during 1 interviews Although group counselling is effective it does not afford patients any privacy thus they may not always feel comfortable enough to pose questions to the HPs. • ***"…because sometimes people don't say really... like if you have group sessions they won't shout out of the crowd and said 'but I don't have enough food to ... enough money to buy…' because they think if they have diabetes they only have to eat like expensive stuff. That is what they think. So they always said we don't have money to buy this and then you have to explain it to them but it's not a matter of going out of your way and buying expensive stuff. It's to see to their nutritional needs. So we do talk individually also with them as they come by***" - P*12: Nurse - Mitchells Plain - 12:47 (52:63)*	Emerged during 2 interviews. During group counselling sessions, staff are usually outnumbered by patients and thus patients may not always be attentive during the session. • ***"…The ratio of the staff to the patient if it is reduced the patient will tend to listen and look at the nurses better, they will be more serious than if they are talking to somebody in a group where some people will be making noise and not listen ..***" - P *1: Doctor - Gugulethu - 1:50 (458:461)*

HEME chronic clubs: impressions regarding the use of chronic clubs as a method of health education	
Positive (+) impressions	**Negative (-) impressions**
Emerged during 2 interviews. The chronic club system has improved the treatment that CDL patients receive. It has incorporated health promotion as a core unit of the functioning of the club system and has also eased the flow of patients through the facility to the extent that these HPs found that time was no longer a barrier that they experienced. • ***"…so in implementing the club system we got the nurses to do some prep work before the patients saw the doctors and we got the health promoters to also be part of the club system - they are the ones that have more direct involvement with the health promotion***" - P *3: Doctor - Mitchells Plain - 3:5 (33:36)* • ***"…now we've got a club system, so time is not a factor anymore because the thing is this, what has happened is when you go you make an appointment for doctor you go to window 5 right... you hand it in there and then you come and sit at room 10***" - P *8: HPO - Mitchells Plain - 8:21 (219:222)*	Emerged during 1 interview A doctor stated that the chronic club at his facility is not operating optimally. He mentioned that he was unsure whether or not it occurred as a result of patients simply not listening to the health promoter or if the club was conducting ineffectively. • ***"…where they do the counselling in this facility is in the club room and it's done by the health promoter you understand. And for the little survey I did you know it seems to me that those patients don't even understand what is happening you know… It looks to me that they don't understand what the health promoter is saying or they are not listening to the lady when they talk to them you know, because almost all of the patients I ask certain question... I find that they don't know half of it. So I don't really know whether what is doing there is because the patient is not listening or because they not doing it properly"*** - *P 1: Doctor - Gugulethu - 1:32 (279:291)*

HEMA support groups: impressions regarding the use of support groups as a method of health education
Positive impressions (+)
Emerged during two interviews They provide an ideal environment for interaction between patients that have the same condition and tend to provide encouragement and understanding amongst each other, thereby empowering patients to take control of their conditions and educate other patients within their communities about their conditions. • ***"…the patient have diabetes you know and is controlled we better refer this patient to the nearest NGO or nearest support group so that not only that they will be seeing one on one with whoever has conducted that support group or NGO and they also see their fellow persons… human beings that have the same disease and interact with them you know and often they tend to understand a problem more you know than coming to the clinic"*** *- P 1: Doctor - Gugulethu - 1:17 (117:122)* • ***"…but the purpose of the support is also to educate them on their illness so they can then take it into the community. So these 30 people they almost become like lay counsellors for the community so they start their own little support groups in the community. That has worked quite well and each 3 months then they would get certificates in if they've achieved their targets… blood pressure came down, sugar came down. But they not discharged from the club they welcome to stay on. So those ones normally become the lay counsellors where they would be interested in to teach other people***" *- P 3: Doctor - Mitchells Plain - 3:13 (155:161)*

HEMA Alternative methods: impressions regarding the use of alternative methods of health education
Positive impressions (+)
One of the doctors suggested that HPs evaluate their patients understanding and knowledge of their conditions once they have received counselling. They should be provided with an incentive in order to encourage them to listen and adhere to recommendations provided by the HPs. A health promoter suggested taking patients to a tertiary institution to show them the extent of the complications that can arise from their conditions if they do not adhere to the counselling provided to them. • ***"…but my main vision was I want to take patients... the uncontrolled ones to Jooste and say did you see what happen if you don't comply to certain things"*** *- P 8: HPO - Mitchells Plain - 8:27 (302:304)* • ***"…try to evaluate what they ... whether the patients understand what we are talking about and people that understand will be given some incentive to encourage others to listen and do what they asked to do"*** *- P 1: Doctor - Gugulethu - 1:55 (513:516)*

8.5.7. Prioritizing health conditions in terms of providing health promotion / health education

A large number of health conditions compete for attention in the health sector. In order to determine how these health conditions were prioritised at PHC facilities, a list of 9 conditions was presented to HPs and the following question was posed to them: *'In terms of providing health education, health promotion and counselling to patients, how would you prioritise the following conditions?'* HPs were ask to rate the conditions from 1 to 9 in order of priority with one being the highest or first priority and nine being the lowest priority.

Once all the ratings were received, conditions were weighted with inverse scores that were allocated to each rating. For example if a condition was rated number 1, a score of 9 was allocated to that condition. It is important to note that not all HPs were able to rate the scores strictly from 1 to 9 and opted to group similar conditions together and rate them with the same priority. For example, HPs may have combined conditions like HIV, Tb and STIs together and gave them the same rating. Figure 8.21 graphically displays the weighted scores for each of the conditions.

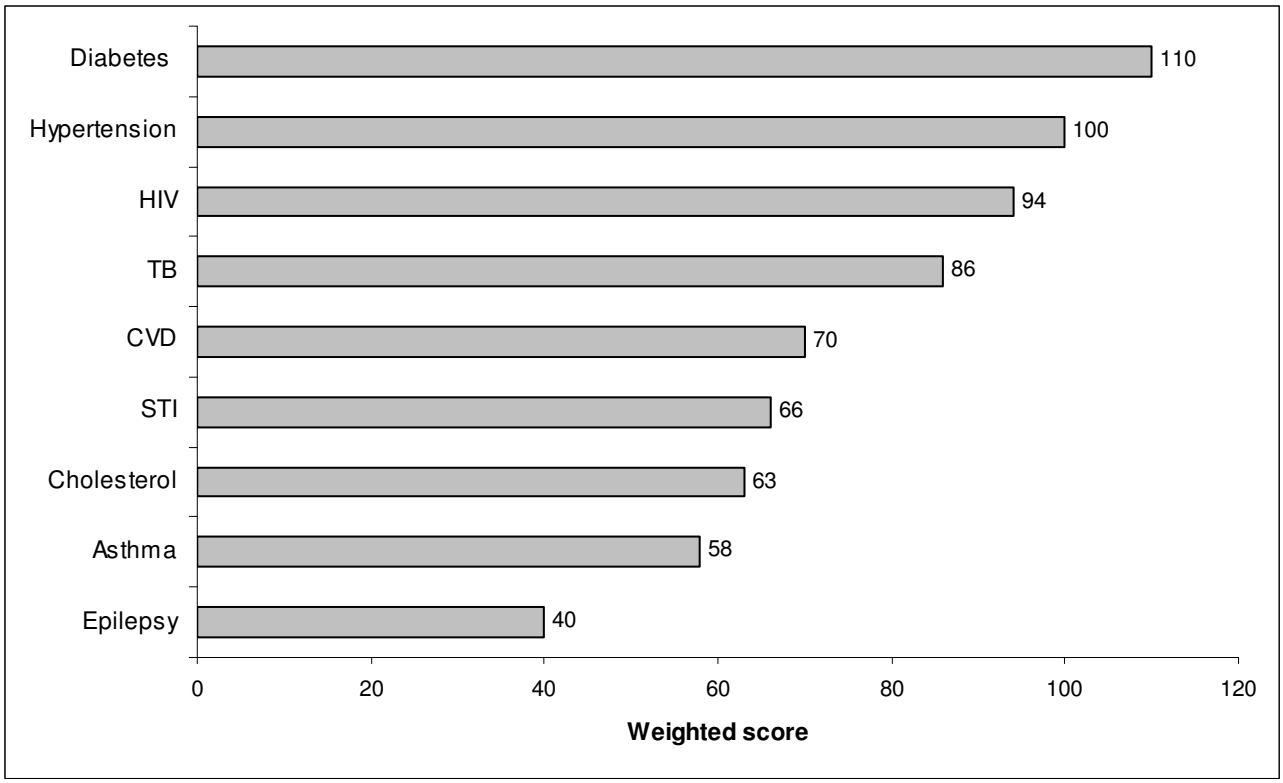

Figure 8.21: Weighted scores for ranking health conditions in terms of their priority associated with providing health education and counselling to patients.

TB – tuberculosis, CVD – cardiovascular disease, STI – sexually transmitted infections

Figure 8.21 clearly illustrates that diabetes was ranked as the highest priority followed by hypertension as these conditions received scores of 110 and 100 respectively. HIV and Tb were ranked in third and

fourth position with scores of 94 and 86 respectively. Cardiovascular disease, sexually transmitted diseases, cholesterol, asthma and epilepsy followed in fifth, sixth, seventh, eighth and ninth positions with scores of 70, 66, 63, 58 and 40 respectively. It is important to note that the HPs that were interviewed may have been biased toward prioritising CDL since they were selected to participate in the interviews based on the role that they provide to CDL patients.

Once HPs had prioritised the conditions they were asked to provide reasons as to why they prioritised the conditions in the way that they had. Various reasons emerged for each of the conditions. The following sections offer quotations for each of the reasons that HPs provided in order to substantiate the way in which they had ranked the disease conditions. Each condition is discussed separately in the following sections.

8.5.7.1. Diabetes

HPs identified 7 reasons for the way in which they had prioritised diabetes in order for it to be ranked as number one. For ease of identification of the codes associated to these reasons, each code was labelled with the initial prefix *'PR'* (priority reason), followed by the name of the disease condition ie (*PR diabetes*) Table 8.14 provides the PD table associated with these reasons.

Table 8.14: Codes associated with the reasons for ranking diabetes as the first priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
PR diabetes high patient profile	0	1	1	0	1	0	1	1	0	0	0	1	0	0	6
PR diabetes LM and counselling very effective	1	0	0	1	2	0	0	0	0	0	0	0	0	0	4
PR diabetes divisional priorities	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
PR diabetes high morbidity and mortality	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
PR diabetes increased susceptibility to other CDL	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
PR diabetes requires patient adherence	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
PR diabetes signs and symptoms	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	3	1	1	2	3	0	1	1	1	1	1	1	1	0	17

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

PR diabetes high patient profile: This emerged during six interviews. HPs mentioned that they rated the conditions according to the burden of disease that they were experiencing as well as the number of diabetic patients attending the facility. One of the health promoters actually stated that the facility was *'like a madhouse'* on the days that diabetic patients attended the facility. They also mentioned that new diabetic patients were constantly being diagnosed.

- ***"...basically the reason I chose those ones was based on the burden of disease that we are experiencing at our facility or in the community"*** *- P 3: Doctor - Mitchells Plain - 3:44 (354:356)*
- ***"...because I notice it's a lot of these people (diabetics) coming in... like if its diabetic day this hospital is mad. If the club is for diabetics it's a mad house here. Even if for the screening of the eyes it's a mad house here and when the screening was the last time here they found a lot of people being diagnosed with diabetes with glaucoma of the eyes or having cataracts... they find a lot of them here*** *" - P12: Nurse - Mitchells Plain - 12:24 (455:470)*
- ***"...there are a lot of diabetics as well and there are new diabetics all the time. We deal mainly with the elderly population so, so that's also important in our population that we see here"*** *- P 2: Doctor - Lady Michaelis - 2:45 (378:379)*

PR diabetes LM and counselling very effective: This emerged during 3 of the interviews in which HPs stated that diabetes is a lifestyle related disease and can therefore be controlled or managed easily by following LM advice. LM education and counselling is therefore an important part of the management of diabetic patients. Furthermore it serves to eliminate the misconceptions surrounding the difficulty associated with LM.

- ***"...if their lifestyle is modified they tend to do very well some of them reduced by 50% you understand. That's what I think if a diabetic patient adhere to the lifestyle issues most of the problem will be solved*** *" - P 1: Doctor - Gugulethu -1:71 (355:357)*
- ***"...it requires a lot of LM. People have a lot of also misconceptions about it that you know you need to buy expensive food you won't be able to afford it and things like that. So you need a lot of education"*** *- P 4: Doctor - Rusthof - 4:63 (285:290)*
- ***"...so I think there's one right way and a wrong way of your diet and it's simple. That's why I think it's the easiest thing number one to control*** *" - P 5: Doctor - Ruyterwacht - 5:34 (318:319)*

PR diabetes divisional priorities: This emerged in two interviews in which HPs cited the fact that provincial government has selected diabetes as a priority to contend with at PHC level as a reason for prioritising this condition.

- ***"...for example if you look at diabetes because that is where the provincial government is looking at now, you know"*** *- P 1: Doctor - Gugulethu - 1:72 (74:75)*

PR diabetes high morbidity and mortality: The high incidence of morbidity and mortality associated with diabetes emerged during two interviews and was cited as a further reason.

- ***"…diabetes you know comes with a lot of complications. Diabetes can lead to ... can lead to heart attack, hypertension, it can lead to blindness, it can lead to amputation of the leg and it can lead to a lot of things, just it can reduce immune system also sometimes you are too sick…"*** *- P 1: Doctor - Gugulethu - 1:39 (349:352)*
- ***"…I think among the chronic diseases, diabetes I think is the one that causes most morbidity in the patients, morbidity and mortality because of complications"*** *- P 4: Doctor - Rusthof - 4:31 (284:285)*

PR diabetes increased susceptibility to other CDL: Furthermore, one of the health promoters mentioned that diabetes was an important priority for her because being diagnosed with diabetes often increases a patients susceptibility to develop other chronic diseases, for example hypertension. Health promotion and health education therefore plays an important role in managing diabetes in order to reduce the patients chances of developing additional CDL.

- ***"…because diabetes and hypertension go hand in hand. If you've got diabetes, at the end of the day you will have hypertension and hypertension versa vice and this patients you have to talk to them regularly to control their blood levels to control their high blood pressure so you see that is why that is a priority for me to regularly talks to them. You see. Some of them are naughty yes I know"*** *- P 9: HPO - Rusthof - 9:22 (368:372)*

PR diabetes requires patient adherence: This reason tended to lower diabetes on the priority scale. One of the nurses mentioned that patients could receive as much health education as possible, but if they are not adherent to their treatment, the health education would have been provided in vain.

- ***"…you can give the LM and all that but if they don't stay on the medication it won't help anything"*** *- P13: Nurse - Rusthof - 13:30 (548:549)*

PR diabetes signs and symptoms: The HP that relayed this quotation was comparing diabetes to hypertension. She reported that she felt that hypertension outranked diabetes because the signs and symptoms associated with diabetes would alert patients to the fact that they needed medical care and they could thus seek treatment. Hypertension on the other hand, is not associated with any signs or symptoms thus placing these patients in a more vulnerable position and thus in need of more health education and counselling than the diabetic patients.

- ***"…diabetes is number two because ... there are signs for diabetes and symptoms… One can see that he is not normal with diabetes, you feel that you drink a lot of water per day so you not used to... then you come to the clinic and check***" *- P10: Nurse - Gugulethu - 10:27 (411:421)*

8.5.7.2. Hypertension

HPs identified 6 reasons for the way in which they had prioritised hypertension in order for it to be ranked as number two. These codes were labelled in the same way as the previous section, with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR hypertension*) Table 8.15 provides the PD table associated with these reasons.

Table 8.15: Codes associated with the reasons for ranking hypertension as the second priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
PR hypertension high patient profile	0	1	0	0	0	1	1	1	0	0	1	0	0	0	5
PR hypertension LM counselling very effective	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
PR hypertension silent disease	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
PR hypertension increased susceptibility to other CDL	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
PR hypertension most patients are well controlled	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR hypertension requires patient adherence	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	1	1	0	1	2	1	1	1	1	1	1	1	1	0	13

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 6 codes that emerged for hypertension, 4 of them were the same as those provided for ranking diabetes. These included:

- ***PR hypertension high patient profile***
- ***PR hypertension LM counselling very effective***
- ***PR hypertension increased susceptibility to other CDL***
- ***PR hypertension requires patient adherence***.

Since these codes have already been described in the previous section they will not be repeated in this section. Furthermore, the quotations associated to these codes are also similar to those that were provided previously and as such will not be presented again. Instead only the codes that emerged specifically for hypertension will be discussed in this section.

PR hypertension silent disease: The fact that hypertension is a 'silent disease' since there are no signs or symptoms associated with it, emerged during two interviews and as a reason why hypertension was ranked highly on HPs' list of priorities. HPs mentioned that a simple blood pressure measurement could help to diagnose hypertensive patients and thus enable HPs to treat patients early on, thereby preventing them form experiencing any of the complications associated with hypertension.

- ***"…because you don't feel pains when you are hypertensive… Some of the patients are detected very late… because it's not painful"*** *- P10: Nurse - Gugulethu - 10:20 (327:333)*
- ***"…if we can encourage people to just check their blood pressure you know… it's one of the biggest silent diseases, people don't know it and when you know it, it's too late. So it's a simple thing to do like having***

your blood pressure checked it takes a few seconds and you can change someone's life with that" *- P 5: Doctor - Ruyterwacht - 5:36 (331:335)*

PR hypertension most patients are well controlled: A nurse mentioned that hypertension was of a lesser priority to her since she has experienced quite a number of hypertensive patients that are well educated regarding their condition and generally tend to manage their hypertension well.

- ***"…they all, well some of them also know a lot what to do when they… and they know when their blood pressure is high they say my headaches is sore or you know they've got some complaints. Some of them knows how to take care of their condition. The hypertension patients"*** *- P12: Nurse - Mitchells Plain - 12:56 (524:527)*

8.5.7.3. HIV

HPs identified 10 reasons for the way in which they had prioritised HIV in order for it to be ranked as number three. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR hiv*). Table 8.16 provides the PD table associated with these reasons.

Table 8.16: Codes associated with the reasons for ranking HIV as the third priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
PR hiv high mortality	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
PR hiv high patient profile	0	0	1	0	0	0	1	0	0	0	0	0	0	0	2
PR hiv low patient profile	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2
PR hiv personal compassion	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
PR hiv can spread to other people	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PR hiv divisional priorities	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
PR hiv LM important for patients on ARVs	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PR hiv other issues surrounding HIV	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PR hiv patients treated elsewhere	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
PR hiv topic covered by other staff	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	1	1	2	1	2	0	1	1	1	1	0	1	1	1	14

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 10 codes that emerged for HIV, 3 of them were the same as those provided for ranking conditions in the preceding sections. These included:

- ***PR hiv high mortality***
- ***PR hiv high patient profile***
- ***PR hiv divisional priorities***

Since these codes have already been described in previous sections they will not be repeated. Furthermore, the quotations associated to these codes are also similar to those that were provided

previously and as such will not be presented again. Instead only the codes that emerged specifically for HIV will be discussed in this section.

PR hiv low patient profile: Conversely to HPs reporting a high patient profile, some HPs reported that the amount of HIV patients attending their facilities is negligible in comparison to the number of diabetic and hypertensive patients. As a result, these HPs have limited contact with HIV patients and feel that their role in HIV is therefore minimal. Thus they associated a lower rank to HIV.

- ***"…we are getting more HIV but I would say in a week as opposed to several hundred hypertensives we will perhaps see 5 or 6 HIV patients"*** *- P 2: Doctor - Lady Michaelis - 2:61 (384:385)*
- ***"…firstly I don't see a lot of HIV patients here. We do have our HIV population, working in a clinic like this 90% of my patients are diabetics and hypertensives. I see very few HIV, so it makes me feel that my role in actually doing something is very minimal because my contact with these people are so minimal, so that's why I put it so low down because I don't feel I can do enough because I'm not seeing enough of the patients"*** *- P* 5: Doctor - Ruyterwacht - 5:40 (364:370)

PR hiv personal compassion: Another reason associated with HIV was compassion. HPs empathised with HIV patients and therefore ranked HIV highly on their list of disease priorities.

- ***"…like with HIV I'm always involved with them and you know I laugh a lot so when I have to go and prick someone in there I just feel gosh this lady is going through a tough time with this thingy so I will make a joke to calm her at the end of the day. And the counsellor will always tell me it's so nice of me doing that because she's already stressed out, so HIV TB will always be there for me. Because of what they are going through at the end of the day you see"*** *- P 9: HPO - Rusthof - 9:24 (379:384)*
- ***"…the HIV patients coming here also being very sick sometimes. Sometimes I feel sorry for these patients because they've got the ARV clinic and sometimes they are pushing around in this day hospital a lot. Because sometimes the doctor said there (ARV clinic) they must be seen in trauma and then the doctor... Trauma doctor feels sometimes but why can't the ARV clinic doctors not seeing them. So they are like going up and down, being very sick, sometimes coming in here all by themselves and they are being shoved around"*** *- P12: Nurse - Mitchells Plain - 12:27 (489:501)*

PR hiv can spread to other people**:** The fact that HIV is an infectious disease and the possibility that an HIV patient can spread the disease was another reason that was cited as a high priority associated with HIV. Health promotion and health education regarding HIV can therefore assist in reducing the incidence of HIV.

- ***"…HIV is now I mean is now really a crisis and health promotion plays a big role in reducing the incidence and all of that. Because at the moment we don't have a cure so I think health promotion as much as I think there is a lot of health promotion already going on so we probably need different strategies of that but because if ... I mean the more health promotion we give perhaps the less people will engage in risky sexual practices and they lower the incidence and reducing the burden of disease so that's why I said HIV first. And also because it can spread, you can spread it to other people, it's not just you involved but the rate of spread as well because other people are affected"*** *- P 4: Doctor - Rusthof - 4:28 (261:269)*

***PR hiv LM important for patients on ARVs*:** Health education regarding LM was also cited as an important component in the management of HIV patients, especially those patients that receive antiretroviral therapy.

- ***"…if somebody's on ARVs you know, lifestyle becomes very, very important. Not only when the patient is on ARV. If somebody is already positive and he also has to adhere to lifestyle issues like eating good food you understands he tends to live longer"*** *- P 1: Doctor - Gugulethu - 1:42 (383:385)*

PR hiv other issues surrounding hiv: Health education and health promotion was seen to be one of many issues that HIV patients contend with. Since management of HIV reaches far beyond the scope of health education and counselling, HPs associated a lower rank to HIV.

- ***"…because you can tell a lot of people about HIV but then people will bring into account whether you want to be abstinent whether they should use condoms it becomes a more emotional issue and there are other issues that people are different"*** *- P 5: Doctor - Ruyterwacht - 5:35 (314:317)*

PR hiv patients treated elsewhere: At some facilities, HPs reported that HIV patients receive treatment at another facility in the area and as a result they do not see many HIV patients, thus lowering HIV on their list of disease priorities.

- ***"…HIV is done in Hanaan clinic. We've got a ... we do rapid tests here and there is another clinic in room 28. It's not done this side, it's done on the other side"*** *- P10: Nurse - Gugulethu - 10:22 (343:344)*

PR hiv topic covered by other staff: One HP also reported that HIV had a low rank on her list of priorities because there were other staff members that were responsible for providing education and counselling to HIV patients.

- ***"…the HPOS and things like that, they will be doing a lot of these… on between pap smears, TOPs, everything pertaining to the health calendar…"*** *- P 8: HPO - Mitchells Plain - 8:38 (437:438)*

8.5.7.4. TB

HPs identified 10 reasons for the way in which they had prioritised TB in order for it to be ranked as number four. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR tb*). Table 8.17 provides the PD table associated with these reasons.

Table 8.17: Codes associated with the reasons for ranking TB as the fourth priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
PR tb high patient profile	0	1	1	0	0	0	0	0	0	0	0	1	0	0	3
PR tb increased susceptibility to HIV	0	0	0	0	0	0	1	0	0	0	1	0	0	1	3
PR tb most issues around medication adherence	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
PR tb patients treated elsewhere	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
PR tb as a complication of other CDL	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
PR tb can spread to other people	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR tb divisional priorities	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
PR tb health promotion is effective	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PR tb low patient profile	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PR tb topic covered by other staff	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	1	1	2	1	1	1	1	1	1	1	1	2	0	2	16

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 10 codes that emerged for TB, 6 of them were the same as those provided for ranking conditions in the preceding sections. These included:

- ***PR tb high patient profile***
- ***PR tb patients treated elsewhere.***
- ***PR tb can spread to other people***
- ***PR tb divisional priorities***
- ***PR tb low patient profile***
- ***PR tb topic covered by other staff***

Since these codes have already been described in previous sections they will not be repeated. Furthermore, the majority of the quotations associated to these codes are also similar to those that were provided previously and as such will not be presented again. Instead only the codes that emerged specifically for TB will be discussed in this section.

However, the quote associated with ***PR tb can spread to other people*** raises important concerns in that the HP that provided this quotation mentioned that when TB patients attend PHC facilities, they are interspersed amongst numerous other patients, placing those patients at risk for developing TB.

- ***"… these people they cough and they are like really having TB… brought in here by the ambulance or just coming in here all by himself not wearing a mask, the hospital is crowded and they are all around all these people sitting in the same benches with all the other people so there's no control over this here…"*** *- P12: Nurse - Mitchells Plain - 12:57 (478:487)*

PR tb increased susceptibility to HIV: TB was ranked highly on the list of disease priorities because of its association with HIV.

- *"**…and HIV, TB, STDs that goes together**" - P11: Nurse - Lady Michaelis - 11:23 (368:370)*
- *"**…HIV goes together with TB**" - P14: Nurse - Ruyterwacht - 14:55 (613:613)*

PR tb most issues around medication adherence: Some HPs allocated a low ranking to TB, stating that the management of TB centres on adherence to treatment and not necessarily health education or health promotion.

- *"**… in Tb it's just counselling because of adherence to medication and this is to reduce spread of this disease**" - P 1: Doctor - Gugulethu - 1:43 (394:395)*
- *"**…the TB also they know what they must do. when I talk to them about nutrition I will always tell them the... why they must take the tablets up to the end and don't stop at a time when they feel no, I'm alright I will stop it. I will emphasize that to them**" - P 9: HPO - Rusthof - 9:23 (374:376)*

PR tb as a complication of other CDL: One of the HPs mentioned that there was an increase in the number of patients that developed TB as a result of other chronic diseases.

- *"**…with TB you can see a lot of patients with asthmatic, hypertensive also getting now lately. I mean we too I mean I'm actually asking in the morning come forward so they come forward and a lot of that other chronic diseases also have got TB. We've actually got a couple of diabetics and they've got a problem you'll see especially they there sugar levels stay a bit high with TB when they on treatment**" - P14: Nurse - Ruyterwacht - 14:31 (613:629)*

PR tb health promotion is effective: Health education and health promotion in terms of early detection was stated as having an important role in the early detection of TB patients.

- *"**…TB I think also will be the same because also you can treat TB so its important to give promotion for early detection, early case detection and also reducing the incidence because you can treat it and people can get better and they can continue to live normal lives**" - P 4: Doctor - Rusthof - 4:29 (271:273)*

8.5.7.5. Cardiovascular disease

HPs identified 5 reasons for the way in which they had prioritised cardiovascular disease (CVD) in order for it to be ranked as number five. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR cvd*). Table 8.18 provides the associated PD table.

Table 8.18: Code associated with the reasons for ranking cardiovascular disease as the fifth priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
PR cvd controlled if DM and HPT are managed	0	1	0	1	1	0	0	0	0	1	0	0	0	0	4
PR cvd high patient profile	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2
PR cvd not as important as the other CDL	1	0	0	0	0	0	1	0	0	0	0	0	0	0	2
PR cvd low patient profile	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR cvd requires patient adherence	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	1	1	1	1	1	0	1	0	1	1	0	1	1	0	10

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 5 codes that emerged for CVD, 3 of them were the same as those provided for ranking conditions in the preceding sections. These included:

- ***PR cvd high patient profile***
- ***PR cvd low patient profile***
- ***PR cvd requires patient adherence***

Since these codes have already been described in previous sections they will not be repeated. Furthermore, the quotations associated to these codes are also similar to those that were provided previously and as such will not be presented again. Instead only the codes that emerged specifically for CVD will be discussed in this section.

PR cvd controlled if DM and HPT are managed: Because CVD often occurs as a result of poor management of diabetes or hypertension, HPs are of the opinion that CVD will automatically be controlled if diabetes and hypertension are well controlled.

- ***"…people who develop cardiovascular disease you'll find that they have other diseases like hypertension for instance diabetes, high cholesterol... so I believe then that people should control their blood pressures and control their blood glucose and they reduce their cardiovascular disease risk****" - P 4: Doctor - Rusthof - 4:34 (307:314)*
- ***"…diabetes and hypertension are risk factors for heart disease, so you obviously will ... if you can control those two you gonna control cardiovascular disease"*** *- P 5: Doctor - Ruyterwacht - 5:67 (336:338)*

PR cvd not as important as the other CDL: Some HPs said that CVD was a lesser priority when compared to the number of patients experiencing other chronic diseases.

- ***"…CVD is also something because the lifestyle issues there are also not to smoke and not to drink and do some exercise. I don't think that it carries too much weight compared with the other ones so that's why I do that****" - P 1: Doctor - Gugulethu - 1:46 (415:419)*

8.5.7.6. STI

HPs identified 6 reasons for the way in which they had prioritised STIs in order for it to be ranked as number six. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR sti*). Table 8.19 provides the PD table associated with these reasons.

Table 8.19: Code associated with the reasons for ranking STI as the sixth priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
PR sti group susceptible to HIV	0	0	0	1	0	0	1	0	1	0	1	0	0	0	4
PR sti health promotion has a smaller role	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PR sti high patient profile	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PR sti low patient profile	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PR sti need for education	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR sti topic covered by other staff	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	1	1	0	1	1	0	1	1	1	0	1	1	0	0	9

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 6 codes that emerged for STI, 4 of them were the same as those provided for ranking conditions in the preceding sections. These included:

- ***PR sti group susceptible to hiv***
- ***PR sti high patient profile***
- ***PR sti low patient profile***
- ***PR sti topic covered by other staff***

Since these codes have already been described in previous sections they will not be repeated. Furthermore, the majority of the quotations associated to these codes are also similar to those that were provided previously and as such will not be presented again. Instead only the codes that emerged specifically for STI will be discussed in this section.

PR sti health promotion has a smaller role: Health promotion associated with STI does not include LM as it is defined within the context of CDL, thus its role is minimal in managing STI.

- ***"...then the STI issue is because counselling... tell them to behave properly I mean to use protection so they don't get STIs and that it doesn't have to do with them smoking or whatever. That's why I put it down the line"*** *- P 1: Doctor - Gugulethu - 1:44 (400:402)*

PR sti need for education: A health promoter stated that she feels there is still a need to provide education on STI to patients since they are still ignorant about the diseases and only start seeking treatment days after acquiring the STI.

- ***"…I think people also need to be educated about STDs more... because people are still shy and don't want to ... and they coming here after 10 days, 5 days and so I think they also need more"*** *- P12: Nurse - Mitchells Plain - 12:32 (565:567)*

8.5.7.7. Cholesterol

HPs identified 9 reasons for the way in which they had prioritised cholesterol in order for it to be ranked as number seven. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR cholesterol*). Table 8.20 provides the PD table associated with these reasons.

Table 8.20: Codes associated with the reasons for ranking cholesterol as the seventh priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
PR cholesterol can be controlled by LM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
PR cholesterol low patient profile	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2
PR cholesterol risk factor for HPT	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2
PR cholesterol can affect anyone	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PR cholesterol controlled if HPT and DM are managed	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
PR cholesterol increased risk of cvd	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
PR cholesterol not as important as other CDL	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
PR cholesterol patients treated elsewhere	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR cholesterol requires patient adherence	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	2	1	0	1	1	0	1	0	1	1	1	2	1	0	12

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Of the 9 codes that emerged for cholesterol, 6 of them were the same as those provided for ranking conditions in the preceding sections. These included:

- ***PR cholesterol can be controlled by LM***
- ***PR cholesterol low patient profile***
- ***PR cholesterol controlled if HPT and DM are managed***
- ***PR cholesterol not as important as the other CDL***
- ***PR cholesterol patients treated elsewhere***
- ***PR cholesterol requires patient adherence***

Since these codes have already been described in previous sections they will not be repeated. Furthermore, the majority of the quotations associated to these codes are also similar to those that were provided previously and as such will not be presented again. Instead only the codes that emerged specifically for cholesterol will be discussed in this section.

PR cholesterol risk factor for HPT: Cholesterol was cited as a risk factor for developing hypertension and was thus assigned a high priority.

- ***"…there is cholesterol that is built in the arteries which is very dangerous because it narrows the blood vessels. So it's also a complication for hypertension"*** *- P10: Nurse - Gugulethu - 10:29 (440:442)*
- ***"…and together for me... the cholesterol goes with the hypertension and diabetes one yah"*** *- P11: Nurse - Lady Michaelis - 11:20 (351:351)*

PR cholesterol can affect anyone: One of the reasons cited for assigning a priority to cholesterol was the fact that cholesterol can affect anyone. A patient does not have to be diabetic, hypertensive or even overweight to be diagnosed with cholesterol. LM education and counselling can therefore play an important role in the management of a cholesterol patient.

- ***"…people think that people that are fat, that are obese should have more cholesterol than people that are thin it's not like that. Patients who are not fat, their BMI is even less than 25 also have cholesterol that is high. So life issues is just dieting"*** *- P 1: Doctor - Gugulethu - 1:70 (409:411)*

PR cholesterol increased risk of cvd: Cholesterol was cited as a high priority on the basis that it was a risk factor for developing cardiovascular disease.

- ***"…cholesterol is a difficult thing because it means that somebody has a high cholesterol putting the person at risk of cardiovascular disease"*** *- P 1: Doctor - Gugulethu - 1:45 (405:406)*

8.5.7.8. Asthma and Epilepsy

HPs identified 5 reasons for asthma and four reasons for epilepsy in order for these conditions to be ranked number eight and nine respectively. These codes were labelled with an initial prefix *'PR'* followed by the name of the disease condition ie (*PR asthma or PR epilepsy*). Tables 8.21 and 8.22 provide the PD tables associated with these reasons. All the codes that emerged for ranking these conditions were described in the preceding sections. Since these codes have already been described, they will not be repeated.

Table 8.21: Code associated with the reasons for ranking asthma as the eighth priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
PR asthma health promotion has a smaller role	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3
PR asthma high patient profile	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
PR asthma low patient profile	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
PR asthma most patients are well controlled	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PR asthma topic covered by other staff	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	1	1	0	1	2	0	1	1	0	0	1	1	0	0	9

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

Table 8.22: Codes associated with the reasons for ranking epilepsy as the ninth priority.

	Primary Documents														
	Doctors					Health promoters				Nurses					
CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
PR epilepsy low patient profile	0	1	0	0	0	0	1	0	0	0	1	0	0	0	3
PR epilepsy issues around medication adherence	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
PR epilepsy most patients well controlled	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
PR epilepsy topic covered by other Staff	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
	0	1	0	1	1	0	1	1	0	0	1	1	0	0	7

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.8. Further support services required for CDL patients

Since HPs had identified the barriers that impede health education and counselling, as a means to resolve these barriers, the following question was posed to HPs: *'What do you feel is required as further support services for chronic patients at this facility?'*

HPs identified 14 support services, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'FSS'* (further support services). Five code families emerged and where necessary, labelled with secondary prefixes based on whether they were related to staff (*staff*), health education materials (*HEMA*), health education methods (*HEME*), equipment (equipment) and other (*O*) factors. Table 8.23 provides the PD table associated with these barriers.

Table 8.23: PD table associated with the further support services that HPs identified

		Primary Documents														
		Doctors					Health promoters				Nurses					
CODE FAMILIES	CODES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Totals
Staff	FSS staff numbers	2	2	0	0	1	1	1	0	1	0	0	2	1	1	12
	FSS staff continuous education & support	1	2	3	0	0	0	0	0	0	0	0	1	0	2	9
	FSS staff specialists	0	3	0	0	0	0	0	0	2	0	0	1	0	2	8
Materials	FSS HEMA	0	0	0	0	2	1	0	1	0	0	0	0	2	4	10
Methods	FSS HEME chronic clubs	0	1	0	2	0	0	1	0	0	1	2	0	1	0	8
	FSS HEME audiovisual equipment & aids	0	1	0	0	0	0	1	3	0	0	0	1	1	1	8
	FSS HEME guest speakers	1	1	0	0	0	0	0	0	0	0	1	0	0	1	4
	FSS HEME support groups	0	1	0	1	0	0	1	0	0	0	0	0	0	0	3
	FSS HEME group counselling	0	0	0	1	2	0	0	0	0	0	0	0	0	0	3
Equipment	FSS equipment at facility	0	0	0	0	1	1	0	1	1	1	0	1	0	0	6
	FSS equipment for patient use	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Other	FSS sponsors	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
	FSS patient survey	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
		4	11	3	4	6	3	5	6	5	3	3	6	5	11	75

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.8.1. Code family 1: Support services related to staff

Figure 8.22 depicts the groundedness of the support services relating to staff at PHC facilities.

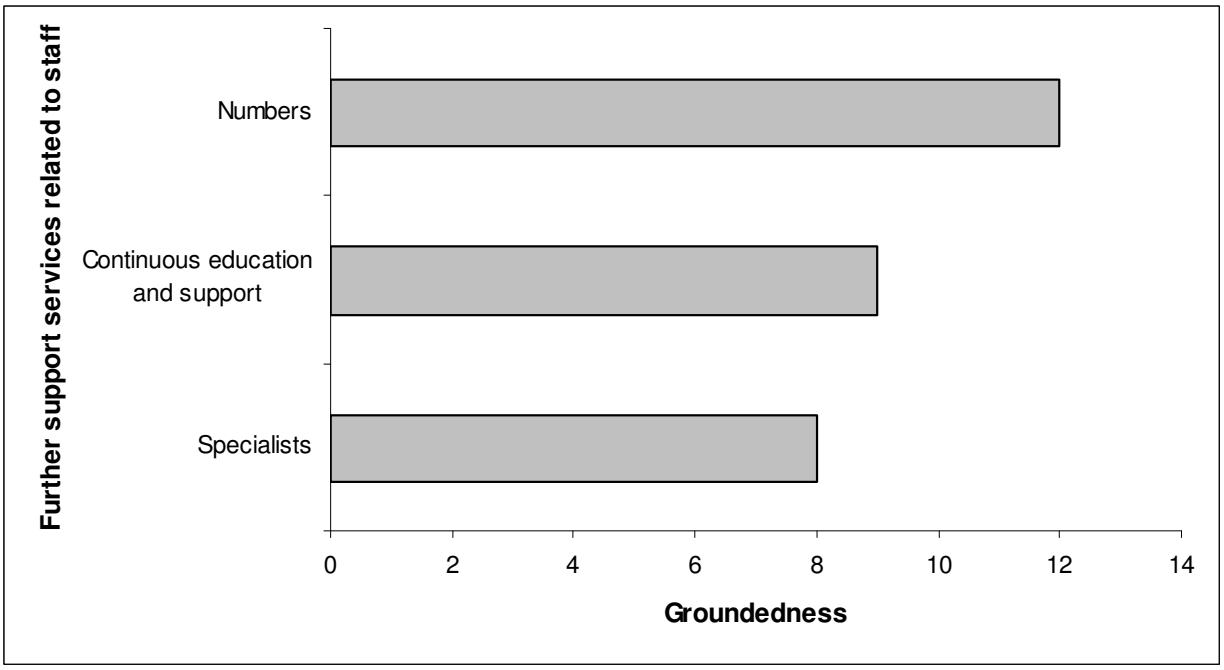

Figure 8.22: Groundedness of further support services related to staff issues

FSS staff numbers: At least one HP at each health facility reported that an increase in the staff complement is required as further support service at the facility. This was grounded in the data 12 times and emerged during nine of the interviews. One of the HPs mentioned that further support for patients would involve spending more time with the patient and this can only be achieved by increasing the staff complement.

- ***"…maybe more time with them as individuals and that means that if they need more time we need more staff to be able to do that. So that is how I see it, if we want to reach everybody at a certain time then yes, more definitely more staff so that people are not rushed and say we can only spend so much time with you before we need to call the next person"*** *- P 7: HPO - Lady Michaelis - 7:39 (533:537)*

HPs were prompted to suggest the disciplines of the additional staff members that they require. Surprisingly, there were no requests for more doctors at the facility. HPs mainly tended to request additional nursing and health promotion staff. Requests for a health promotion team, additional pharmacy staff as well as volunteers also emerged.

- ***"…people don't realise you know how much of the weight of PHC is carried by sisters and I think they need to actually be given more credit they need to be given more support …Maybe just even in numbers because not having enough sisters it means there's more work for each one of them and that's very difficult. So having actually more sisters to share the workload makes it a little bit easier"*** *- P 5: Doctor - Ruyterwacht - 5:45 (429:431)*
- ***"…if I can have a second health promoter to help me"*** *- P 6: HPO - Gugulethu - 6:23 (546:546)*

- ***"…more staff to so that one can get a team going that's actually involved in sort of providing health promotion"*** *- P 2: Doctor - Lady Michaelis - 2:65 (468:469)*
- ***"…if you can get more volunteers who can help out it will be good"*** *- P 9: HPO - Rusthof - 9:31 (489:491)*

FSS staff continuous education and support: A large proportion of HPs reported that staff need support in terms of continuous education and access to information. This was grounded in the data 9 times and emerged during 5 of the interviews.

Previously, one of the doctors mentioned that pharmacy staff should provide education to patients regarding their medication. This doctor reported that this was often not done as a result of the pharmacist needing to delegate the issuing of medication to other staff members who may not have sufficient training to educate patients on their medication. The following quotation reflects his recommendation that pharmacy staff should be equipped to provide education to patients

- ***"…so the pharmacists you know must be equipped in terms of staff also to do that education"*** *- P 1: Doctor - Gugulethu - 1:60 (468:469)*

HPs mentioned that they would like to attend workshops in order to maintain their professional education and development. One of the doctors stated that people often tend to forget things and thus she recommended that workshops starting with basic chronic care and evolving into new developments should be provided.

- ***"…I mean all of that kind of workshops and also to educate the nurses more so that they can bring the information back to the patients"*** *- P12: Nurse - Mitchells Plain - 12:35 (636:637)*
- ***"…just something to keep updating people because I think also you tend to forget sometimes so to go to workshops where they work from the basics and then go up to the new things I think is still worthwhile"*** *- P 2: Doctor - Lady Michaelis - 2:66 (557:559)*

A nurse mentioned that while attending the workshops, there is adequate access to information. However, there is a lack of support after completing the workshop. Furthermore she reported that there is a lack of resources that nurses can use in order to obtain information and education.

- ***"…we would love to have more information about a lot. Although we go to courses and they give you the course there, but when you need more information you don't get it"*** *- P14: Nurse - Ruyterwacht - 14:22 (432:434)*
- ***"…I would love to get more information you know go out and see. But there's not services nearby for all the chronics that you can get... if you really need information where must you go? We've got a struggle and.."*** *- P14: Nurse - Ruyterwacht - 14:16 (332:334)*

The doctor at Mitchells Plain mentioned that their facility had been provided with chronic care diabetic workshops aimed at educating HPs and determining the best way to contend with chronic patients

attending their facility. The following quotations reflect his description of these workshops and his view that they are invaluable in providing assistance with establishing and maintaining the chronic club system. He also suggested that these workshops should be continued as it enlightened the staff with respect to the role that they played in the overall care of a diabetic patient and as a result it motivated HPs to improve the service that they provided to their chronic patients.

- ***"…and support also for the staff because I know Dinky Levitt and Bob Mash started with Unita van Vuuren, the workshops, so that has been a big benefit… the chronic care diabetic workshops. They've had maybe 4 or 5 since last year. So that's educating the staff and that actually helped us a lot in the setting up of our club. I mean the purpose of that workshop is to see what's the best way to deal with chronic patients and the people felt that the club system is the best in our situation"*** *- P 3: Doctor - Mitchells Plain - 3:32 (389:410)*
- ***"…but the workshop gives a lot of support to the staff who are actually working there so its the doctors the nurses the health promoters in terms of what they need and they were also even looking there at an educational tool in terms of what do you call it now...a book"*** *- P 3: Doctor - Mitchells Plain - 3:34 (440:443)*
- ***"…so that I think must continue because the staff before that especially the nursing staff they didn't see their role in the management of the patient because they were just doing one aspect. So they often just did it, didn't do it because they didn't see the overall. But once they went to the workshop and they were...they saw the problems of diabetes and the complications and why it's necessary to do the feet and the things, then they got the overall picture and then they became more motivated to do what they were supposed to do"*** *- P 3: Doctor - Mitchells Plain - 3:35 (455:460)*

FSS staff specialists: Some HPs also requested improved access to specialist care at their facilities. Although most HPs had previously mentioned that they do have access to dietetic services, it appears to be very limited. Dietitians working at PHC facilities usually work at a district level and one dietitian is therefore responsible for all the PHC facilities in a specific district. The time that a dietitian spends at each PHC facility is thus limited. HPs therefore requested increased access to dietetic services.

- ***"…it would be nice to have the dietitian more"*** *- P 2: Doctor - Lady Michaelis - 2:50 (416:417)*
- ***"…she's based the whole of south peninsula… so she comes twice a month to us and she's booked up till January now. She's only here in the morning so I would say they book about 20 for her"*** *- P 2: Doctor - Lady Michaelis - 2:52 (422:438)*

One of the nurses mentioned that the dietitian allocated to their district was on maternity leave and that her position had not been filled, thus depriving the facility from access to dietetic services. She also stated that in order to provide efficient patient care, all the required services should be available at all times.

- ***"…we haven't got a dietitian. She's off till next year"*** *- P14: Nurse - Ruyterwacht - 14:5 (147:147)*
- ***"…if you need a dietitian the dietitian must be there"*** *- P14: Nurse - Ruyterwacht - 14:13 (249:249)*

Access to physiotherapy, home-based care as well as podiatry services were also requested.

- ***"…like with the diabetes we need a physiotherapist also and I think it's me and I think it's... the home based carers is luckily there but its more role payers that needs to be involved you see"*** *- P 9: HPO - Rusthof - 9:12 (235:237)*
- ***"…if other role players can also come in like what do they call that specialist that is doing the feet… Podiatrist… If we can have someone like that in our midst it will help a lot"*** *- P 9: HPO - Rusthof - 9:29 (446:458)*

8.5.8.2. Code family 2: Health education materials and methods

Figure 8.23 depicts the groundedness of the support services relating to health education materials and methods requested by HPs at PHC facilities.

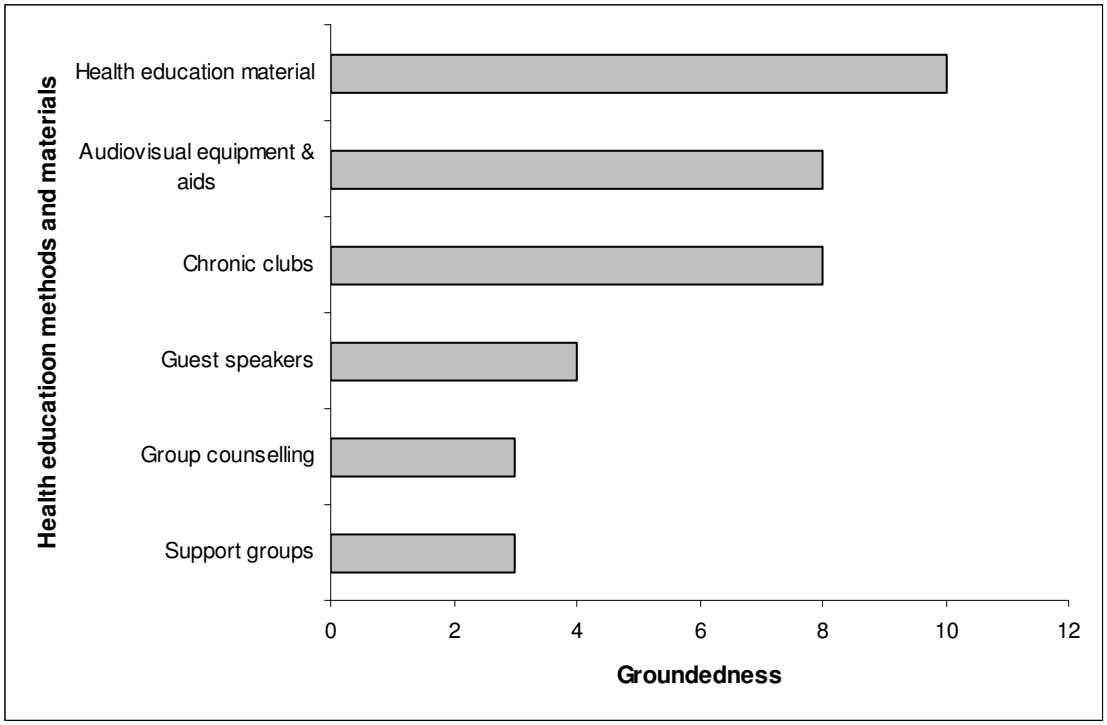

Figure 8.23: Groundedness of further support services related to staff issues

FSS HEMA: The request for improved access to health education materials emerged during 5 interviews. HPs also mentioned that they should be supplied with new health education materials to replace outdated materials.

- ***"…the only thing that we need is the educational material"*** *- P 8: HPO - Mitchells Plain - 8:26 (282:282)*
- ***"…I think if I can have enough stationary like these things, I haven't got the pamphlets you know; I do need pamphlets and posters for health promotion"*** *- P 6: HPO - Gugulethu - 6:24 (558:559)*
- ***"…I think new material should because some of the stuff are also outdated and we just go continue making copies of the same thing same thing you see"*** *- P13: Nurse - Rusthof - 13:41 (264:266)*

In addition HPs requested that they have access to materials in the appropriate languages for patients attending their facilities.

- ***"…I think if we can do something about that the material because we only have Afrikaans and English that's all"*** *- P13: Nurse - Rusthof - 13:40 (257:258)*

One of the nurses suggested that chronic care associations like Diabetes SA should provide health education materials to the PHC facilities.

- ***"…if there's something new, why not they from the association whatever, why not can't they send some of the pamphlets or information through to hospitals"*** *- P14: Nurse - Ruyterwacht - 14:46 (440:455)*

She further mentioned that irrespective of whether or not patients attend private or PHC facilities, they should be equally entitled to the same information and education regarding their conditions at no cost to them.

- ***"…I think it should be all over the same if you private, if you government hospital everything should at the end the same. If you go from here and you go to Panorama you will get the same information and it shouldn't cost money"*** *- P14: Nurse - Ruyterwacht - 14:43 (823:826)*

FSS HEME audiovisual equipment and aids: HPs reported that this method of health education was very effective because it provided a medium through which patients could access information visually. This request was made in varying degrees. Some facilities require a television and a video machine or DVD player, some had a television and needed the video or DVD players, while others reported that they had both but they were in need of the actual videotapes or DVD discs. Some mentioned that they have material but it is outdated. One of the nurses also mentioned that playing videos in the waiting room would also occupy patients while they waited for assistance at the facility.

- ***"…maybe more visual aids as in electronics, videos, video machines, maybe that. And updated ones, because the ones that I have is a bit old already and I don't think people want to see things of about 10-15 years ago. So maybe a bit updated information that we can keep here and we can say we've got this to play now and not wait or have to go and hunt to see where we can find the information"*** *- P 7: HPO - Lady Michaelis - 7:40 (565:574)*
- ***"…we've got a DVD but we don't have a TV for educational purposes here"*** *- P 8: HPO - Mitchells Plain - 8:24 (273:273)*
- ***"…if we can have videos you know, and show the people if you don't do this then this is what can happen will see, they want to see things man. You know the posters, people don't look at posters but I mean a video or you know anything even slide shows, you know that things will also work but as long as people can see"*** *- P 8: HPO - Mitchells Plain - 8:28 (304:308)*
- ***"…I was thinking about a nice video… because sometimes people do concentrate on videos and they do listen to that and they do look at that I mean to put it also to make time going fast by. To play videos about diabetes and kind of chronic illnesses to show them videos about that is also a good thing"*** *- P12: Nurse - Mitchells Plain - 12:17 (353:357)*

- ***"…then maybe videos. We've got a TV here that's standing in the staff room… staff is watching TV, because we've got outdated video footages"*** *- P13: Nurse - Rusthof - 13:24 (328:329)*

FSS HEME chronic clubs: Some facilities do not have chronic clubs, while others had clubs that were not operating effectively as a result of barriers such as a lack of space. Thus support for the implementation and maintenance of chronic clubs was also requested. As was reported at Mitchells Plain, other health facilities should also be provided with assistance to implement and maintain their chronic club systems.

- ***"…I think it would be nice to have some sort of club system going and at the moment we haven't got that.*** *P 2: Doctor - Lady Michaelis - 2:21 (212:213)*
- ***"…have the club system going effectively then they should be coming every month just to have health promotion and they will have their blood pressures checked and they will have their sugars done but not necessarily have to be seen by a doctor but have the health promotion so that its continuous health promotion which is better than seeing a patient perhaps every six months and trying to address everything"*** *- P 4: Doctor - Rusthof - 4:25 (203:208)*
- ***"…the club system it's not working perfectly at the moment because there's limited space, there's no room to see those say for instance those 20 or 30 diabetics coming on a Wednesday for their medication. We can't do all of them at once, so we try to put them into slots. So for instance those 10 that saw doctor those go for their feet care where they get the health promotion talk. The other 10 maybe for an ECG and the other 10 for the eye care"*** *- P13: Nurse - Rusthof - 13:43 (72:76)*

FSS HEME guest speakers: HPs mentioned having guest speakers such as pharmaceutical representatives, diabetes association and researchers addressing the patients.

- ***"…I think that it would be nice to have people coming in to talk to them…where they can come in and listen to a talk by a pharmacist on drugs"*** *- P 2: Doctor - Lady Michaelis - 2:48 (407:410)*
- ***"…to get in more speakers from the outside… like for instance the diabetes association"*** *- P11: Nurse - Lady Michaelis - 11:25 (390:397)*
- ***"…we would love to have people more from researchers and whatever to come and talk"*** *- P14: Nurse - Ruyterwacht - 14:36 (707:708)*

FSS HEME group counselling: One of the doctors mentioned that arranging a formal group session would be difficult and that ad hoc sessions provided to patients while they wait for assistance would be sufficient. Furthermore one of the doctors also mentioned that using group counselling as a method of health promotion would reduce the amount of time that HPs would need to spend on providing individual counselling to patients.

- ***"…I think it might be difficult to have formal sessions here that's why I'm actually saying while they waiting to see the doctor"*** *- P 5: Doctor - Ruyterwacht - 5:55 (470:471)*
- ***"…I think if we have like group counselling then we don't have to spend so much time as health care workers actually explaining to the patients what's going on. I think if they have more group counselling it means we spend less time"*** *- P 4: Doctor - Rusthof - 4:23 (200:203)*

FSS HEME support groups.: As with chronic clubs, HPs require assistance with the implementation and maintenance of chronic support groups.:

- ***"… perhaps even contact between patients is the thing that's going to make the biggest difference you know support groups I think will be a very good idea"*** *- P 2: Doctor - Lady Michaelis - 2:30 (299:300)*
- ***"…I'm also planning on starting because we don't have support groups here at Lady Michaelis, I am going to be starting support groups with the old age homes that comes in to the day hospitals"*** *- P 7: HPO - Lady Michaelis - 7:4 (48:50)*

8.5.8.3. Code family 3: Equipment

Two issues regarding equipment as further support emerged. The first refected the lack of equipment for use at the facility while the other reflected the need for patients to be provided with equipment in order to monitor their conditions at home.

FSS equipment at facility: At least one HP at each facility requested improved access to adequate equipment. The equipment that was identified included baumanometers, glucometers as well as measuring tapes.

- ***"…if we can have a lot of equipment to work with because we are using one dynamap which is not here now it's borrowed by trauma"*** *- P10: Nurse - Gugulethu - 10:35 (591:592)*
- ***"…because of the vast number of people that we doing here on a daily basis our equipment are breaking"*** *- P 8: HPO - Mitchells Plain - 8:56 (252:253)*
- ***"…the sisters is complaining that we don't have always the measuring tape in the prep room so then where must they go so they have to come back again to the other sister or what so everyone will be pleased if they can have one in their own room you see to do it"*** *- P 9: HPO - Rusthof - 9:16 (306:309)*

FSS equipment for patient use: This mainly referred to baumanometers that could be issued to patients to monitor their blood glucose levels at home.

- ***"…we need some machines... It will help if they can be given.... Each and every one must have a dex machine. Maybe they can control.... They can see that this is dangerous... if someone checked herself at home and find that the dex is very high that can help if they can be provided with the machines"*** *- P10: Nurse - Gugulethu - 10:31 (482:485)*

8.5.8.4. Code family 4: Other support services

FSS sponsors: Two health promoters requested support in the form of sponsorship. One of them wanted sponsors to provide cholesterol machines for random cholesterol testing that the facility, while the other requested sponsorship in terms of providing a demonstration on healthy food.

- ***"…what we are actually needing is if somebody could maybe sponsor us with a cholesterol machine because most of the time you now we need things now"*** *- P 8: HPO - Mitchells Plain - 8:57 (260:262)*

- ***"…sponsors so that you can show them like this is this you must buy and that is that"*** *- P 9: HPO - Rusthof - 9:28 (426:427)*

FSS patient survey: One of the nurses mentioned that she wanted to conduct a survey for the patients in order to identify what they would suggest they need as further support services.

- ***"…I'm going to have is I'm going to draw up a little survey for them and find out what they need and what they would like"*** *- P 7: HPO - Lady Michaelis - 7:37 (497:498)*

8.5.9. Changes within the facility to improve the effectiveness of health promotion / education

In addition to asking HPs about further support services, the following question was also posed to them: *'If you could change anything in the facility to make health promotion, health education and counselling more effective, what would you change?'*

HPs identified 14 changes, each of which was assigned a code. For ease of identification of the codes in this category, each code was labelled with the initial prefix *'CF'* (changes to facility). Four code families emerged and where necessary, labelled with secondary prefixes. The code families were related to structural issues *(space)*, staff *(staff)*, administration *(admin)* or other services. Table 8.24 provides the PD table associated with these barriers.

Table 8.24: PD table associated with the HPs' suggested changes to PHC facilities

		Primary Documents														
		Doctors					Health promoters				Nurses					
CODE FAMILIES	**CODES**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Totals**
Space	CF space at the facility	0	0	0	1	0	0	0	2	1	0	0	2	1	2	9
	CF space at pharmacy	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
	CF space at reception	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Staff	CF staff attitudes	1	1	0	0	2	0	0	0	0	1	0	0	0	0	5
	CF staff dedicated admin staff for club patients	0	0	2	0	0	0	0	0	0	2	0	0	0	0	4
	CF staff rotation / placements	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3
	CF staff dedicated pharmacy staff for club patients	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
Administration	CF admin patient flow	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
	CF admin appointment system	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
	CF admin registry	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
	CF admin waiting times	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2
	CF admin patient load	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	CF admin referral system	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Other	CF delivery of medication	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
		2	1	6	3	2	0	0	2	1	5	2	4	6	2	36

PDs 1, 6 & 10 are HPs at Gugulethu; PDs 2, 7 & 11 are HPs at Lady Michaelis ; PDs 3, 8 & 12 are HPs at Mitchells Plain
PDs 4, 9 & 13 are HPs at Rusthof ; PDs 5 & 14 are HPs at Ruyterwacht

8.5.9.1. Code family 1: Structural changes

CF space at the facility: Six HPs at 3 of the facilities said they require more space. One HP mentioned more space would allow them to provide better health education to patients, since they have to conduct health education talks in the passages or corridors while patients wait for assistance. She mentioned that this was not necessarily effective as patients are easily distracted and would therefore not pay attention to the health education talk. More space would also facilitate the flow of patients through the facility.

- ***"…space. Give us a hospital... You see if you really want health promotion to work 120% give us space. Especially a separate room, you understand. Because when you do talks you must stand in the passage here. So if you've got a separate room to do it I'm telling you, you will get better response from the patient. Because the thing is they listening when are they calling my name, so they not listening to you actually"*** *- P 8: HPO - Mitchells Plain - 8:39 (452:464)*
- ***"…I would say more space, then we can handle the patients much better"*** *- P13: Nurse - Rusthof - 13:31 (585:586)*

CF space at pharmacy.: The doctor at Mitchells Plain suggested that the space allocated to the pharmacy should be increased in order for them to provide an additional queue for chronic patients which would result in facilitating the flow of patients through the facility.

- ***"…I think we need some infrastructural changes. Where the pharmacy could be extended where they could have more windows and they could open a window for the chronic patients"*** *- P 3: Doctor - Mitchells Plain - 3:52 (381:383)*

CF space at reception: The nurse at Gugulethu suggested that their reception area be increased in order to provide adequate space for filing purposes. Currently their filing area is overcrowded and as a result patients' folders are misplaced thereby hampering the treatment that patients receive at the facility.

- ***"…folders are not seen, because the space for filing is very small. So some of the folders is getting inside of the other folders. If there can be a very spacious space for filing"*** *- P10: Nurse - Gugulethu - 10:38 (507:509)*

8.5.9.2. Code family 2: Staff related changes

CF staff attitudes: HPs mentioned that irrespective of their discipline, all the staff should accept the responsibility of providing health promotion and education to patients

- ***"…different doctors manage their patients differently and don't give information as much as they should. So I think it's really up to the doctors as well to tell your patient if you diagnosing them with hypertension tell them"*** *- P 5: Doctor - Ruyterwacht - 5:50 (492:494)*
- ***"…so you really need to take the time to explain to them what's wrong and I feel that's not done"*** *- P 5: Doctor - Ruyterwacht - 5:56 (499:500)*
- ***"…the pharmacists to explain to them maybe some other patients they don't comply because they don't know the importance of this medicines they are given"*** *- P10: Nurse - Gugulethu - 10:33 (517:518)*

***CF staff dedicated admin staff for chronic club patients*:** HPs mentioned that the provision of dedicated administrative staff to assist chronic club patients would improve the flow of the patients through the facility. One of the doctors mentioned that a clerk should be placed in the chronic club room in order to issue appointments to patients, reducing the time that a patient would spend queuing for an appointment date at reception. He also mentions that this would not require an additional staff member as it there is currently someone at reception doing this, thus it would only entail this person moving from the reception area to the club room.

- ***"…I think changes that can be done are here in the reception ... if there can be somebody specifically taking out the folders for the chronic patients so that they cannot delay"*** *- P10: Nurse - Gugulethu - 10:32 (504:506)*
- ***"…if they can get a computer in the club room with receptionist in the club so they would make the appointment there. Because at the moment the reception is... the patient after seeing the doctor they must stand in another queue to get an appointment"*** *- P 3: Doctor - Mitchells Plain - 3:50 (373:376)*
- ***"…it wouldn't require more staff because somebody is making the appointments at reception so it just means that they have to do it at a different place"*** *- P 3: Doctor - Mitchells Plain - 3:51 (475:476)*

CF staff rotation / placement: Staff rotation or placements were requested to be extended. One of the doctors felt that staff rotations hampered the implementation and maintenance of chronic clubs. Furthermore one of the nurses mentioned that patients often make requests to consult the same doctor or nurse and this is not possible due to staff rotations.

- ***"…what I would like to do is to place a person in chronic care if a person is there the person should have to be allowed to stay there for at least one year because the change of rotation... rotating staff in club you know because it makes things chaotic you know people keep on changing ideas and changing things and you never get them done because it will never be the first priority"*** *- P 1: Doctor - Gugulethu - 1:53 (500:504)*
- ***"…the health promotionals they are staying in the club but we as nursing we rotating in this hospital and every time people, especially these people, they want to see one doctor, they want to see the same nurses…so if there can be nurses sticking like sticking to the club, working in the club maybe offered"*** *- P12: Nurse - Mitchells Plain - 12:36 (633:634)*

CF staff dedicated pharmacy staff for chronic club patients: Supporting the request to increase the space allocated to the pharmacy, a request for staff to be dedicated to assisting chronic club patients was also made.

- ***"…even in the pharmacy there must be one for the club to take out the tabs for them only the one in one window for the chronics only…"*** *- P10: Nurse - Gugulethu - 10:34 (569:571)*

8.5.9.3. Code family 3: Administrative changes

CF admin patient flow: The doctor at Mitchells Plain mentioned that their chronic club system improved the flow of patients through the facility and as a result he would like to implement a similar system for all the other patients attending the facility.

- ***"…I would change the flow of the patients"*** *- P 3: Doctor - Mitchells Plain - 3:40 (504:504)*
- ***"…so if we can have a similar system to the club but for the other patients as well then it would be easier for the health promoters to give their talks"*** *- P 3: Doctor - Mitchells Plain - 3:49 (511:513)*

CF admin appointment system: The doctor at Rusthof mentioned that she would like to implement an appointment system for chronic patients in order to deter patients from attending the facility when they do not have an appointment. She stated that emergency cases would not be affected by the appointment system; however, it may afford HPs the ability to spend more time with the patients that were scheduled for a specific day.

- ***"…I think an appointment system would make sure that people know if you have an appointment for that day, you'll be seen maybe between 9 and 10. And if you don't have an appointment that day you might end up waiting here the whole day"*** *- P 4: Doctor - Rusthof - 4:45 (375:378)*
- ***"…it doesn't mean that you not going to see emergencies and you can't help people but it discourages that a bit and you have more time to see the chronic patients and give attention to them"*** *- P 4: Doctor - Rusthof - 4:46 (379:382)*

CF admin registry: The nurse at Rusthof suggested implementing a registry in order to track patient attendance at the facility in order to provide more comprehensive patient care.

- ***"…a registry.....Something that we can track patients"*** *- P13: Nurse - Rusthof - 13:32 (586:586)*
- ***"…for us just to know that this patient wasn't here this month and then we can contact them"*** *- P13: Nurse - Rusthof - 13:42 (592:592)*

CF admin waiting times: Nurses at 2 of the facilities mentioned that they would like to reduce the time that patients spend waiting for assistance at the facility. One of them mentioned that this could be achieved by restricting the number of patients that attend the facility on a daily basis.

- ***"…what would I change... I think most probably just the waiting period... that's all That is the most important for me at the moment ... just to see this old people sitting here whole day waiting for things"*** *- P11: Nurse - Lady Michaelis - 11:26 (421:428)*
- ***"…then waiting times ... that comes in with the limited amount of patients"*** *- P13: Nurse - Rusthof - 13:39 (664:665)*

CF admin patient load: As previously alluded to, one of the nurses suggested that the patient load be restricted in order to provide effective patient care.

- ***"…I would say I would... the first thing I would do is to limit the amount of patients per day. That's the first… like for instance 300 patients at least for the day that must be seen"*** *- P13: Nurse - Rusthof - 13:33 (613:619)*

CF admin referral system: There was also a request to improve the referral system between PHC facilities and tertiary institutions.

- ***"…and then somehow get the earlier referrals for these client… referrals to the tertiary hospitals"*** *- P13: Nurse - Rusthof - 13:34 (651:654)*

8.5.9.4. Code family 4: Other changes

CF delivery of medication: The majority of the patients attending Lady Michaelis come from old age homes, thus it was suggested that the facility provide a medication delivery service for patients who were unable to collect their medication at the facility.

- ***"…most of the patients as I said they elderly but they struggle to get here. Like a service for instance they can't come and fetch their medication ...make something like a vehicle or something available just to come and collect the patient's medications and drop it off"*** *- P11: Nurse - Lady Michaelis - 11:27 (436:439)*

8.6. DISCUSSION

8.6.1. Individual roles identified by HPs

This study clearly illustrated that all HPs, irrespective of their professional discipline acknowledged that they have a role in providing health education to patients, be it by means of individual or group counselling sessions, chronic clubs or support groups. This supports the study by Cornuz *et al.*[10] when he reported that physicians in Switzerland acknowledged that disease prevention was one of their responsibilities. However, HPs were more likely to engage in a counselling session with newly diagnosed patients or patients whose conditions are poorly controlled. This implies that HPs view education and counselling as a method of disease management and not necessarily as a method of disease prevention. This supports the evidence that HPs are more likely to provide education to patients who are in a higher risk category than those who are at a lower risk.[2, 6, 60-62]

The fact that HPs in this study endeavour to persuade their patients to modify their lifestyles before resorting to medical therapy should be commended. It is important to note that these HPs acknowledge the need to empower patients to play an active role in the management of their conditions.

The calibre of some of the HPs employed at PHC facilities in the Western Cape Metropol emerged during this study when HPs reported taking on additional responsibilities such as purchasing their own

equipment, offering their services to patients who are unable to collect their spectacles as well as sourcing sponsorships for glucometers that could be distributed for patient use. Although these issues may not directly affect the provision of LM education and counselling, it does affect the level of care that patients receive at these facilities. Furthermore, it facilitates the relationship between these HPs and their patients and in doing so, it could facilitate patient adherence to the advice they receive from these HPs. This supports the findings of Berry *et al*.[63] in which he stated that the patient-physician relationship is the cornerstone of health service delivery and that this relationship favourably influences patients' health behaviours.

8.6.2. Services available to CDL patients at PHC facilities

When identifying services available to CDL patients at PHC facilities, it is evident that HPs at the larger facilities reported a wider variety of services than those HPs at smaller facilities. However, it is prudent to note that not all the HPs within the same facility reported the same services, these either referred to the professional disciplines or the health education methods available. There could be numerous reasons for this. The first of which may be that HPs may not have thought it necessary to mention these during the interview or they may not associate these professional disciplines with management of CDL patients. For example, at Gugulethu only one of the three HPs mentioned the services of a physiotherapist at the facility, while the remaining HPs did not. It may well be that HPs may not aware of the presence of specific services at their facilities. Another example presents itself in the interviews conducted at Ruyterwacht. The nurse reported that she provided health education talks to patients in the mornings however, when the doctor at the same facility offered suggestions for further support services, she suggested initiating these talks. It is therefore evident that not all HPs in a facility are aware of the services provided by other HPs in the same facility or even the scope of HPs available at the facility. The size of the facility may also contribute to this, since HPs at smaller facilities may have been more consistent in reporting similar services than those HPs employed at larger facilities. However, the study sample may be too small to provide sufficient evidence for this statement.

It is also important to note that the availability of nutrition advisors was only reported at one PHC facility. In terms of providing LM education and counselling these HPs have a vital role. The limited access to dietitians at PHC facilities further reinforces the need to advocate and utilise these HPs.

It is important to note though that all facilities reported the availability of retinal and foot screening services for CDL patients.

8.6.3. Factors that motivate HPs to provide lifestyle counselling to CDL patients

When identifying factors that motivate HPs to provide education and counselling to patients only 3 intrinsic factors emerged. The most grounded being the caring nature of the HPs. This identifies the type of HP that is required to work in the PHC system in South Africa. There was also a report that being a CDL patient and thus having first hand knowledge of chronic conditions also served to motivate a HP to educate and counsel fellow CDL patients. Furthermore, HPs reported that providing education and counselling was part of their professional responsibilities.

The most grounded extrinsic factor was that of patient adherence. HPs have reported that they are motivated and encouraged when patients' establish good management of their conditions as a result of the advice that they have provided. Furthermore, HPs reported a sense of achievement and excitement when patients return to the facility and thank them for the advice they have received. This supports Truswell's[11] findings in which he reported that visible results and feedback from patients act as reinforcing factors that motivate HPs.

The desire to reduce the morbidity and mortality associated with CDL served as a strong motivating factor. Furthermore, HPs are of the opinion that empowering patients in terms of providing education and counselling would enable them to manage their conditions better and thus experience less CDL-related complications, thereby reducing the workload of HPs.

In addition, a supportive working environment was also reported to be a factor that facilitated the provision of LM education and counselling. This supports Truswell's[11] findings that support from colleagues is also a reinforcing factor that motivates HPs. The conditions that HPs are subjected to in their place of work should therefore be optimal. In this case it refers to a sense of validation and knowing that the work that a HP provides is acknowledged.

8.6.4. Barriers that impede the provision of education and counselling to CDL patients

When identifying barriers that impede education and counselling to CDL patients, the first point to note was although the sample sizes of doctors, nurses and health promoters were relatively equal, doctors reported experiencing far more barriers than other HPs did.

When comparing professional disciplines, the lack of time, shortage of staff and the lack of equipment were common barriers to all HPs. Health promoters were more likely to report barriers relating to their other duties; while nurses reported the lack of space, the high patient load and the lack of patient adherence. Although doctors reported similar barriers, they additionally reported language barriers as well as issues regarding both staff and patients' attitudes to education and counselling.

There is a large body of evidence that supports that a lack of time is cited by most HPs as the most important barrier that restricts their ability to provide LM and education and counselling to their patients.[2, 9-10, 15, 23, 32] Upon investigating the lack of time as a barrier, it was evident that it occurs as a result of other underlying barriers. Figure 8.24 illustrates a network depicting the barriers that cause the lack of time. These include staff shortages, lack of equipment, patient load, language barriers as well as other responsibilities or duties staff have. This figure also illustrates that staff shortages have a direct effect on other responsibilities of staff. The relationship between these barriers has previously been identified in the literature. Pelto *et al.*[13] and Brotons[28] mentioned that characteristics regarding health service management such as the lack of personnel (staff) and the lack of resources at PHC facilities resulted in a limitation of the time that HPs have available for nutrition counselling. Aira *et al.*[26] further supported these relationships when they reported that most doctors considered a lack of time to be an important barrier since there were many other tasks to perform during a consultation. HPs in this study stated that the average duration of consultations with patients was 7 minutes, during which they needed to examine and treat patients in addition to providing education and counselling. Furthermore, the language barriers identified in Figure 8.24 refers to the need to utilise interpreters during consultations with patients. Doctors in this study reported that this may actually waste time since interpreters often do not convey information in the same way that either the doctor or the patient would. It is therefore reasonable to predict that by resolving these underlying barriers, for example providing access to an adequate supply of equipment and efficient maintenance of equipment, the lack of time would possibly be resolved as well. This would therefore facilitate health promotion and education and counselling of CDL patients.

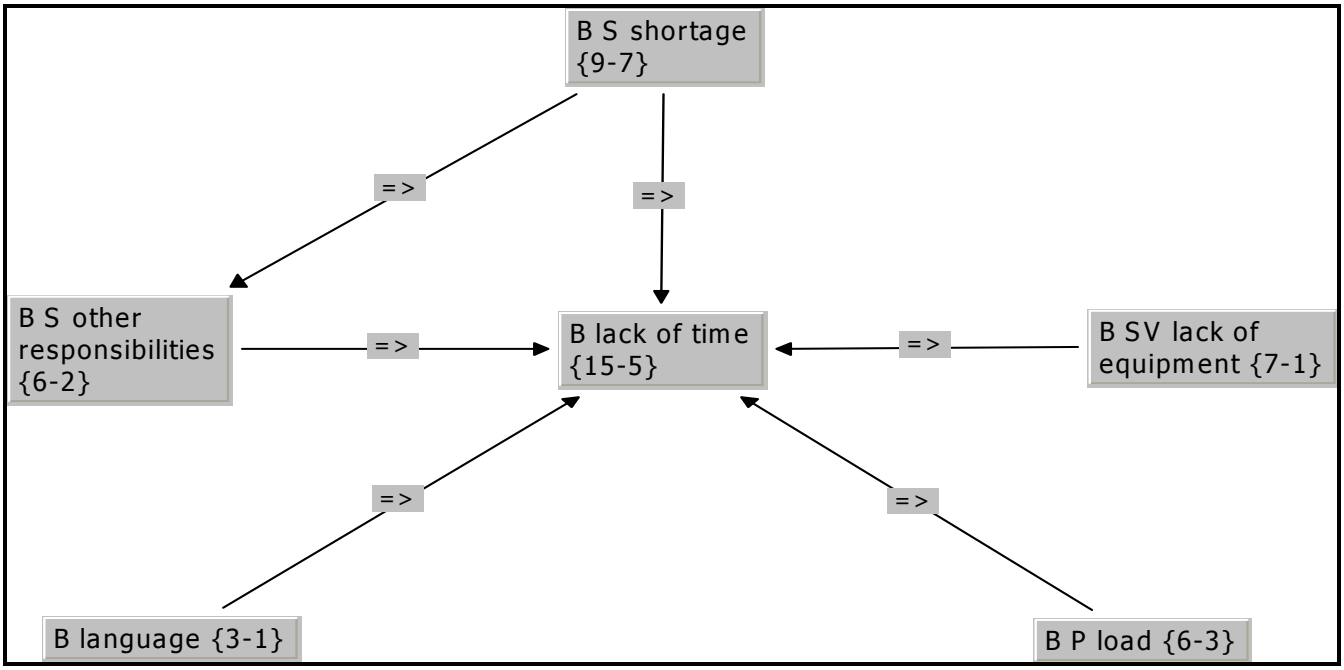

Figure 8.24: Network illustrating the underlying barriers that result in the lack of time.

* (=>) – indicates that a code is the cause of another code is the cause of

* {x-y} – x indicates the groundedness (frequency) with which the code occurs, while y indicates the linkages (number of associations) it forms with other codes

Tripp-Reimer *et al*.[35] also identified issues of service availability such as the number and type of providers in the facility as barriers. The lack of providers (staff shortages) negatively impacts health service delivery and causes a host of other related barriers. This is illustrated in Figure 8.25, which depicts staff turnover as a cause of staff shortages, while the staff rotations, lack of knowledge, staff attitudes, staff fatigue, and other responsibilities of staff occur as a result thereof. The lack of knowledge depicted in this network refers to reports that pharmacists should educate patients regarding their prescribed medication. However, as a result of staff shortages, pharmacists may not be able to provide this service adequately and often delegate other staff members to issue the medication to patients. Since the delegated staff members often do not have sufficient training, they are unable to educate patients on their medication usage. The lack of knowledge among staff members can easily be resolved by providing training courses or workshops.

A solution to overcome this barrier may simply lie in recruiting more staff. This would lift some of the burden on the existing staff. Furthermore, when someone is selected to attend a function or a workshop (other responsibilities), there should still be someone at the facility to continue providing a service to the patients. Alternatively, attendance at workshops should be requested and planned in

advance thereby affording health promoters as well as other staff members the opportunity to plan their programmes around the workshops.

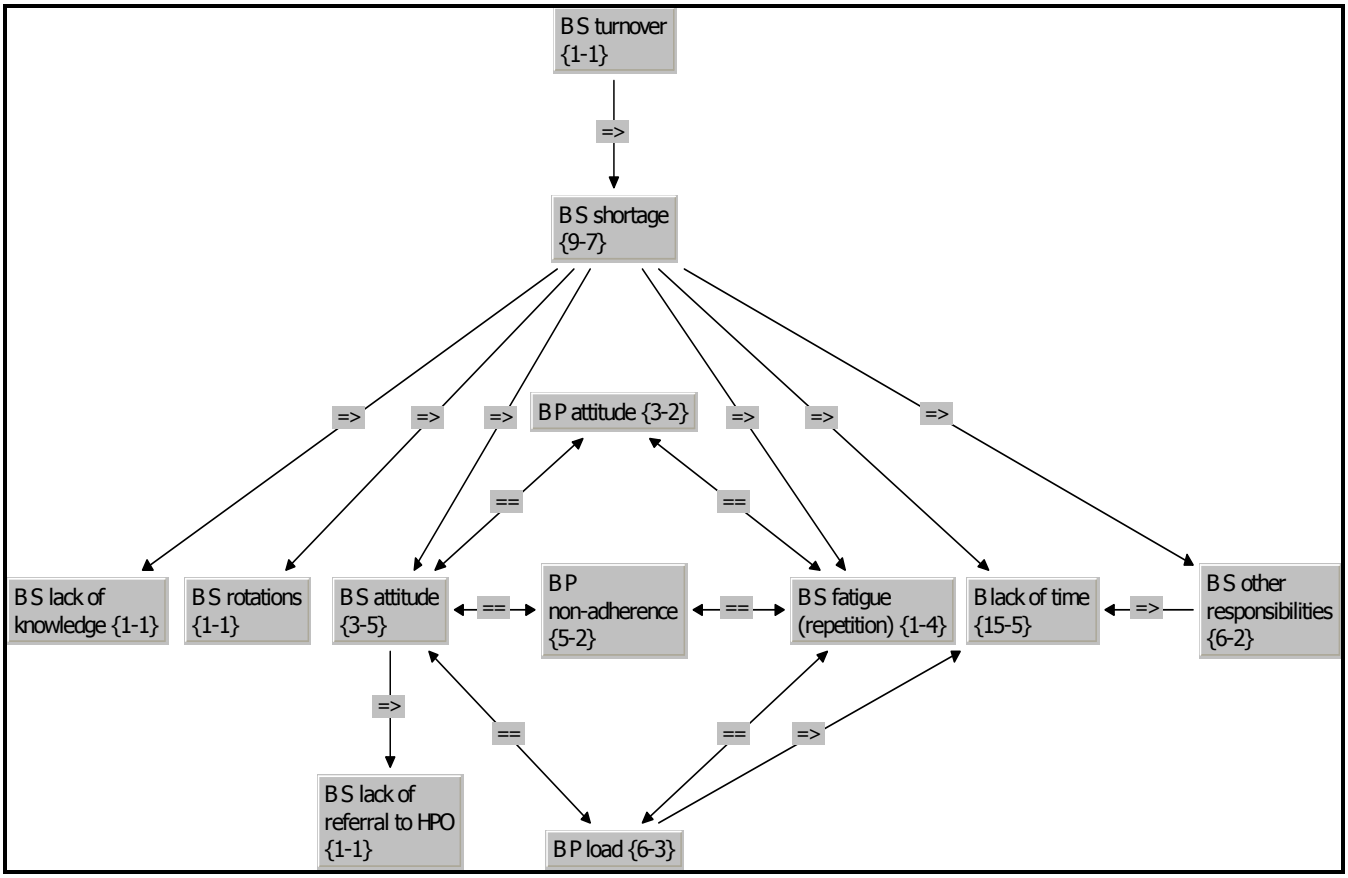

Figure 8.25: Network illustrating the factors associated with staff shortages.

(=>) - indicates that a code is the cause of another code

{x-y} - x indicates the groundedness of the code, while y indicates the linkages (number of associations) it forms with other codes

(B S…) - code name: initial prefix 'B' = barrier and secondary prefix 'S' = staff

(B P…) - code name: initial prefix 'B' = barrier and secondary prefix 'P' = patient

Studies have also identified HPs' attitudes as a barrier to providing education and counselling to patients.[29, 35] Figure 8.25 further investigates these factors that are associated with staff attitude and staff fatigue. Patient load attitude and adherence is directly associated with staff attitude and staff fatigue, thereby affecting the level and commitment staff have to provide education and counselling to these patients. One HP mentioned that she did not experience any barriers that prevented her from providing education and counselling to patients however, at a later stage she mentioned that patient non-adherence was the only difficulty that she experienced. This supports evidence from numerous studies that HP perceive patient non-adherence as a barrier that prevents education and counselling.[4, 10, 32]

Staff attitude also results in lack of referrals amongst HPs. Results presented in this chapter shows that HP at facilities are not always aware of the services provided by other HPs available at the same facility. Furthermore, some HPs may not value the services that can be provided by other HPs, thus resulting in the lack of referral between HPs. Communication between various professional disciplines should be improved in order to create awareness and respect for complementary services that can be provided to patients.

Moore *et al*.[30] identified the lack of space at PHC facilities as a barrier that prevents the provision of education and counselling. Reagon *et al*.[36] described the adequacy of physical facilities at PHC facilities in South Africa in a national survey. These authors assessed the adequacy of consultation rooms, waiting areas, toilets and access for the disabled. Table 8.25 illustrates their findings. Consultation rooms were considered adequate if they contained examination couches, working examination lights, hand wash basins with running water and soaps well as both audio and visual privacy. Nationally 59% of facilities had consultation rooms that met these criteria, while the Western Cape appeared to be in a more favourable position with 96% of facilities meeting these criteria. The adequacy of waiting rooms was assessed in terms of available seating for patients, ventilation and natural lighting. Nationally 48% of facilities had adequate waiting areas, while 73% of facilities in the Western Cape were considered to have adequate waiting areas. Toilets for staff and patients were considered adequate if they had a handwash basin with running water and soap. Only 42% and 69% of facilities had adequate facilities nationally and in the Western Cape respectively.

Table 8.25: Adequacy of physical facilities at PHC facilities in South Africa in 2003[36]

		Province									
	Year	EC	FS	GP	KZN	LP	MP	NC	NW	WC	RSA
		% Facilities with adequate physical facilities									
Adequate consultation rooms	2003	39	80	83	46	59	24	79	44	96	59
Adequate waiting area	2003	41	43	50	37	41	35	90	56	73	48
Wheelchair accessible	2003	11	41	36	19	26	12	52	10	27	24
Toilet for disabled people	2003	18	48	39	22	31	12	56	17	28	28
Adequate toilets for patients and staff	2003	35	22	40	58	32	39	47	35	69	42

Although the PHC facilities in the Western Cape appear to be in a more advantageous position with respect to physical facilities than many others in the country, they are still in need of some infrastructural changes. The fact that the researcher had to conduct interviews in her car at certain institutions is a testimony to the lack of space experienced at some facilities. Factors that are associated with the lack of space as a barrier are illustrated in Figure 8.26. The results of this study show that lack of space directly results in the inability of HPs to provide both individual and group counselling sessions to patients. The implementation and maintenance of effective chronic club

systems as well as the flow of patients through the facility are also hampered by the lack of space. Furthermore access to services such as foot screening, x-ray facilities and specialist services are also impaired as a result of space constraints.

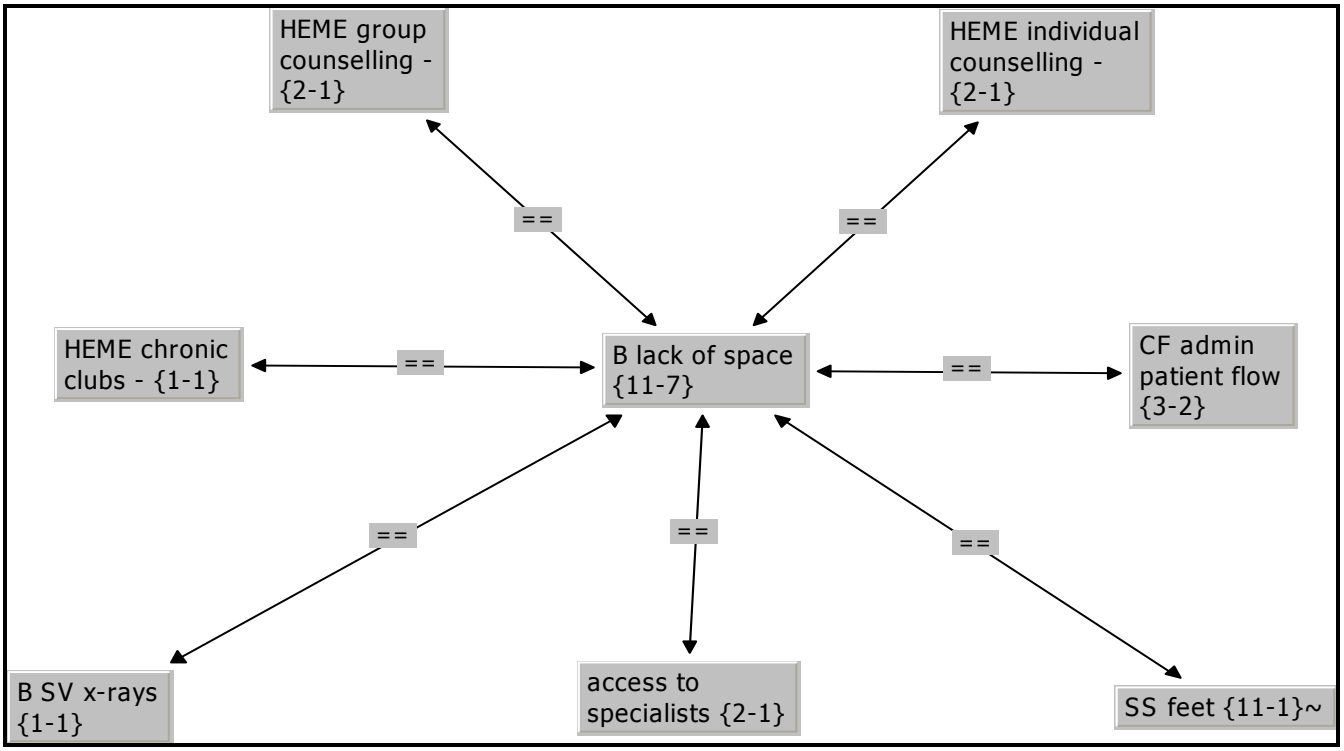

Figure 8.26: Network illustrating factors that are associated with the lack of space.

* (==) – indicates associations between codes

* {x-y} – x indicates the groundedness (frequency) with which the code occurs, while y indicates the linkages (number of associations) it forms with other codes

8.6.5. HPs perceptions of the role of LM in the management of CDL patients

In this study, the majority of HPs believe that LM is an effective method of managing and reducing the complications associated with CDL. These HPs stated that LM is the cornerstone of CDL treatment and presents more that 50% of the treatment that patients should receive. HPs also believe that misconceptions regarding LM can be eradicated by providing adequate education and counselling to patients. However, HPs are aware that optimal patient care can only be achieved if patients play an active role in managing their conditions by demonstrating adherence to the education and counselling provided to them.

The literature provides evidence that indicates that some HPs question the efficacy of LM in the management of CDL patients. However, this is not reflected in this study as it did not emerge during the interviews conducted for this study.

8.6.6. HPs perceptions regarding health education materials and methods at their disposal

In 2003, Reagon *et al*.[36] conducted a national survey of PHC facilities in South Africa. One of the focus areas of this survey was the availability of appropriate health education materials. Although their survey did not include materials related to LM or CDL, generally these authors reported poor availability of materials for promoting health and preventing disease especially materials written in local languages. This study confirms their findings since the first issue of concern regarding health education materials is the large proportion of HPs that reported experiencing difficulties accessing health education materials. These can be summarised as a reported scarcity of materials at the PGWC resource centre, the limited availability of materials in local languages and transport to collect these materials. As a result HPs have resorted to copying old materials or materials sourced from other institutions. The scarcity of materials directly affects the optimal provision of education and counselling since these materials are thus selectively issued to patients.

HPs who reported easy access to materials, were employed at facilities who had access to guest speakers such as pharmaceutical representatives. The materials these HPs referred to were those provided by the representatives and not the materials that are supposedly available from the PGWC.
It is also important to note that doctors and nurses, other than nurses working in facilities without health promoters, were unaware of where education materials could be sourced from. This knowledge may not be required in order for them to perform their duties; however it alludes to the lack of communication between staff members as well as the lack of validation for the services provided by other HPs.

Pamphlets were reported to be an effective type of health education material. The reasons for this included the ease with which they could be read and understood they were also said to be effective when used in combination with individual or group counselling sessions. However, some HPs reported mixed reviews, stating that there is no means of confirming that the patients read or even implement any of the advice provided in the pamphlets. Furthermore HPs mentioned that pamphlets may not be effective for all patients since there are a large proportion of patients that are unable to read to due illiteracy as well as poor eyesight.

Posters received similar numbers of reviews for both positive and negative impressions regarding their effectiveness and practicality. Positive reviews were based on their high visibility and ease of accessibility within PHC facilities as well as the opportunity they provide to allow patients to access information while they wait for assistance at the facility. The illustrations on posters were reported to increase the ease with which patients can recall the information provided. Negative impressions

included illiteracy but were mainly based on the HPs perceptions that patients do not read posters since they only attend the facility with the aim of receiving their treatment and leaving the facility as soon as possible. Other reasons alluded to their longevity in that they can be damaged or stolen easily.

Booklets were reviewed positively, with HPs citing that they were more substantial than pamphlets and were therefore more revered. Another reason was its availability in local languages.

Diet sheets received mixed reviews with similar reasons to pamphlets. This included that patients tend to follow them for a while but then lose interest. Therefore they are not a sustainable form of education material. Furthermore, there is no means of confirming that patients' improvements are related to the information they received on the diet sheets.

Due to the ineffectiveness associated with posters, one facility showed an initiative in the form of painting health education messages on the walls within the facility. Although one of the HPs was still of the opinion that these paintings were ineffective, citing that patients do not actually take note of them, they did manage to overcome the disadvantages related to posters since these paintings could not be damaged or stolen.

Individual counselling was the method that received the most positive reviews, with HPs stating that this method may be the largest contributory factor to patient adherence. However, they also state that although it may be effective for some patients, it may not work for others. Furthermore, HPs perceive that the effectiveness of counselling is dependent on whether or not patients are adherent to the information that is provided.

Group counselling sessions have been perceived to be effective however, they do not afford patients the opportunity to ask personal questions. Conversely, they are structured such that staff are usually outnumbered by patients in these sessions and as a result they may not always be able to retain the attention of all the patients attending these sessions.

Although existing chronic clubs may not be working effectively, an efficient chronic club system is reported to facilitate the flow of patients through the facility, thereby improving the treatment that CDL patients receive.

HPs reported that support groups provide an ideal environment for interaction between fellow CDL patients and allows them to encourage and support each other. This empowers patients to take responsibility for their own health.

HPs also identified alternative methods to improve patient adherence. These suggestions included providing incentives to patients in order to encourage them to adhere to recommendations provided by HPs. Furthermore, there was a suggestion that HPs should be allowed to take patients to tertiary facilities in order to expose them to the extent of complications that can arise as a result of non-adherence.

8.6.7. HPs prioritise health education and counselling for different health conditions

The group of HPs that were selected to participate in these interviews were chosen on the basis of their involvement with CDL patients. It is therefore reassuring to note that these HPs ranked diabetes and hypertension as the most important conditions that require LM education and counselling. The reasons provided are reflected in more detail within the results section however, the majority of HPs stated that they prioritised these conditions on the basis of the burden of disease and the profile of patients attending their facilities.

8.6.8. Further support services and suggested changes to the facility

Before discussing the support services and suggested changes identified by HPs, it is important to take note of the following quotation in which a HP stated that although education and counselling is important at PHC level, health promotion should be implemented earlier.

- ***"…I think that probably education for diabetes and hypertension and all that should start before they've got them in school and things you know healthy eating and exercise and so on. Because at the moment I think we closing the stable doors after the horse has bolted***" - P 2: Doctor - Lady Michaelis - 2:56 (488:490)

However, while methods to address earlier implementation of health promotion are being resolved, the support services and changes to the facility that are currently required, needs to be addressed. These are illustrated in Figure 8.27, which depicts the association between these factors and the provision of LM education and counselling as well as overall patient care within PHC facilities.

In 1997, Goodman *et al.*[32] reported suggestions from PHC facility staff in the Western Cape Metropol to overcome the barriers that they experienced. This included improving staff relations by conducting feedback meetings between staff, induction and education of new staff as well as improved tolerance among staff members. They also suggested improving the relationship between staff and patients by spending more time with patients or reducing the patient load, educating patients on all aspects of

their conditions and ceasing staff rotation between facilities. Other suggestions included implementation of a feasible appointment system, improving patient education, access to health promotion material, access to dietetic services, a patient default or recall system, improving the administrative system as well as improving access to adequate hospital supplies. In this study, 10 years later, HPs at these facilities are still making the same suggestions.

Further support services identified by HPs are distributed on the left side of Figure 8.24. These include support related to staff, health education materials and methods, sponsors and equipment.

Support services regarding staff at facilities included increasing the staff complement, providing access to continuous education and support as well as providing access to specialist staff.

Support regarding health education material mainly focussed on improved access to materials, especially culturally appropriate materials. With respect to health education methods, HPs requested improved access to audiovisual equipment and audiovisual aids, as it provided a medium through which patients could access information visually. HPs further requested support in implementing and maintaining chronic club systems as well as support groups. Furthermore HPs requested support in the form of guest speakers that could provide information sessions to patients.

In terms of equipment, HPs requested being provided or sponsored with equipment that could be distributed among patients for monitoring their conditions at home. More importantly though, HPs requested improved access to increased numbers of equipment such as baumanometers, glucometers and measuring tapes as well as adequate maintenance of faulty equipment.

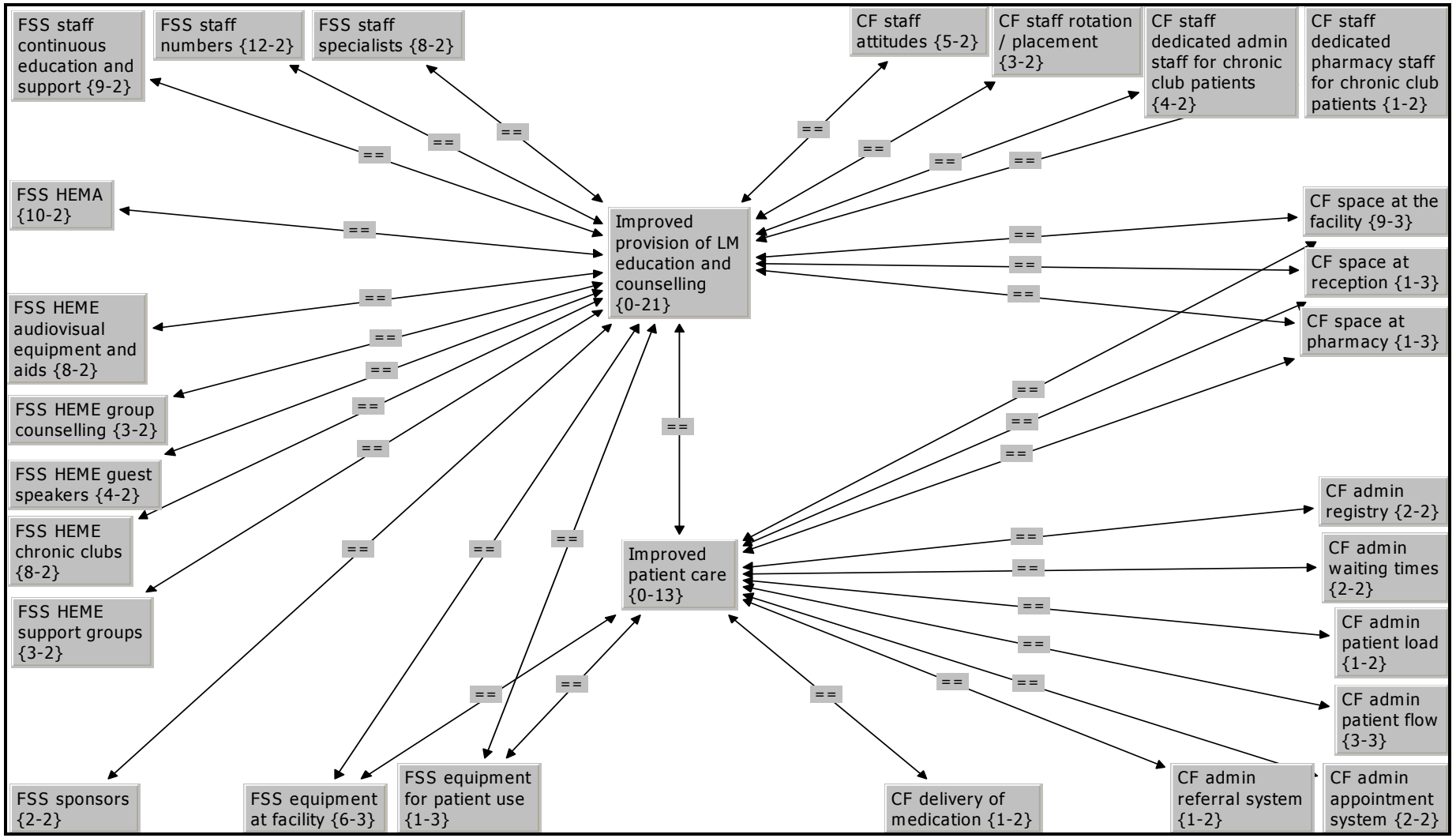

Figure 8.27: Network illustrating the association between support services and suggested changes to the facility and the provision of LM education and counselling within PHC facilities.

* (==) – indicates associations between codes

* {x-y} – x indicates the groundedness (frequency) with which the code occurs, while y indicates the linkages (number of associations) it forms with other codes

Changes to the facility are distributed on the right side of Figure 8.27. These include changes related to staff, space, administration as well as a medication delivery system. Some of these changes directly affect the provision of LM education and counselling, while others would affect overall patient care.

The changes associated to staffing included HPs suggestions that there should be dedicated personnel to tend to chronic patients at both the reception area as well as the pharmacy area. Furthermore, a suggestion to reduce staff rotations within the facility or at least allow staff the option of longer durations for placements within rotations. This was stated to improve the implementation and maintenance of chronic clubs as well as providing a certain measure of continuity of care to patients attending these clubs.

The most common change to the facility was in terms of structural changes. These included increasing the overall size of the facility in order to provide more space. HPs specifically suggested that the space allocated to pharmacy and reception should be increased in order to reduce patient waiting times and facilitate the flow of patients through the facility.

There were many recommendations regarding administrative changes. These mainly included reducing the patient load and improving the flow of patients through the facility. HPs suggested implementing an effective appointment system that would restrict the number of patients attending the facility per day and ultimately reduce the patient waiting times. There were also suggestions to improve the referral system between PHC and tertiary facilities. Furthermore, these HPs also suggested implementing a patient registry in order to track patients who default from the system.

To further improve overall patient care, HPs suggested implementing a medication delivery service for patients who are unable to attend the facility.

Instituting measures that consider these suggestions would create a more supportive environment for staff and therefore ensure an improvement in the provision of LM education and counselling as well as overall patient care.

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CHAPTER 9

CONTEXTUALISATION OF FINDINGS AND RECOMMENDATIONS

9.1. INTRODUCTION

In order to successfully prevent and manage chronic diseases, two complementary approaches are required. The first requires intersectoral collaboration across organisations and involves reducing the risk profile of the whole population by promoting healthy lifestyles and preventing the emergence of chronic diseases. This requires legislative, environmental and societal changes. The second is centred in the health services sector and calls for the early diagnosis and cost-effective management of patients with risk factors and chronic diseases in order to prevent or delay the onset of complications associated with chronic diseases. Although these patients only represent the tip of the distribution of risk and need in the population as a whole, this thesis focused on the services at health facilities that are available to this proportion of the population.

The aim of this study was to conduct a formative assessment of health professionals' (HPs') capacity and the conditions within primary health care (PHC) facilities in the Western Cape Metropol that facilitate or impede the provision of lifestyle modification (LM) education and counselling to chronic patients in order to make recommendations for a realistic intervention programme that utilises available resources. The framework in Figure 9.1 details the elements that were identified and explored in this formative assessment.

This chapter serves to integrate the findings of the present study and build on existing information in order to make recommendations for an intervention that will improve HPs' ability to support patients with chronic diseases to adopt healthier lifestyles as well as improve health service delivery to chronic patients.

The validity and reliability of this study was ensured using the concept of triangulation. Triangulation has been defined as a "method of cross-checking data from multiple sources to search for regularities in the research data" by O'Donoghue and Punch,[1] while Altrichter *et al.*[2] contend that triangulation "gives a more detailed and balanced picture of the situation". Denzin[3] identified four basic types of triangulation, two of which were used in this study, namely, methodological and data triangulation which involves using more than one method and more than one source to gather data. Thus by employing both quantitative surveys and qualitative interviews as well as obtaining information from HPs, patients and students the concept of triangulation was achieved.

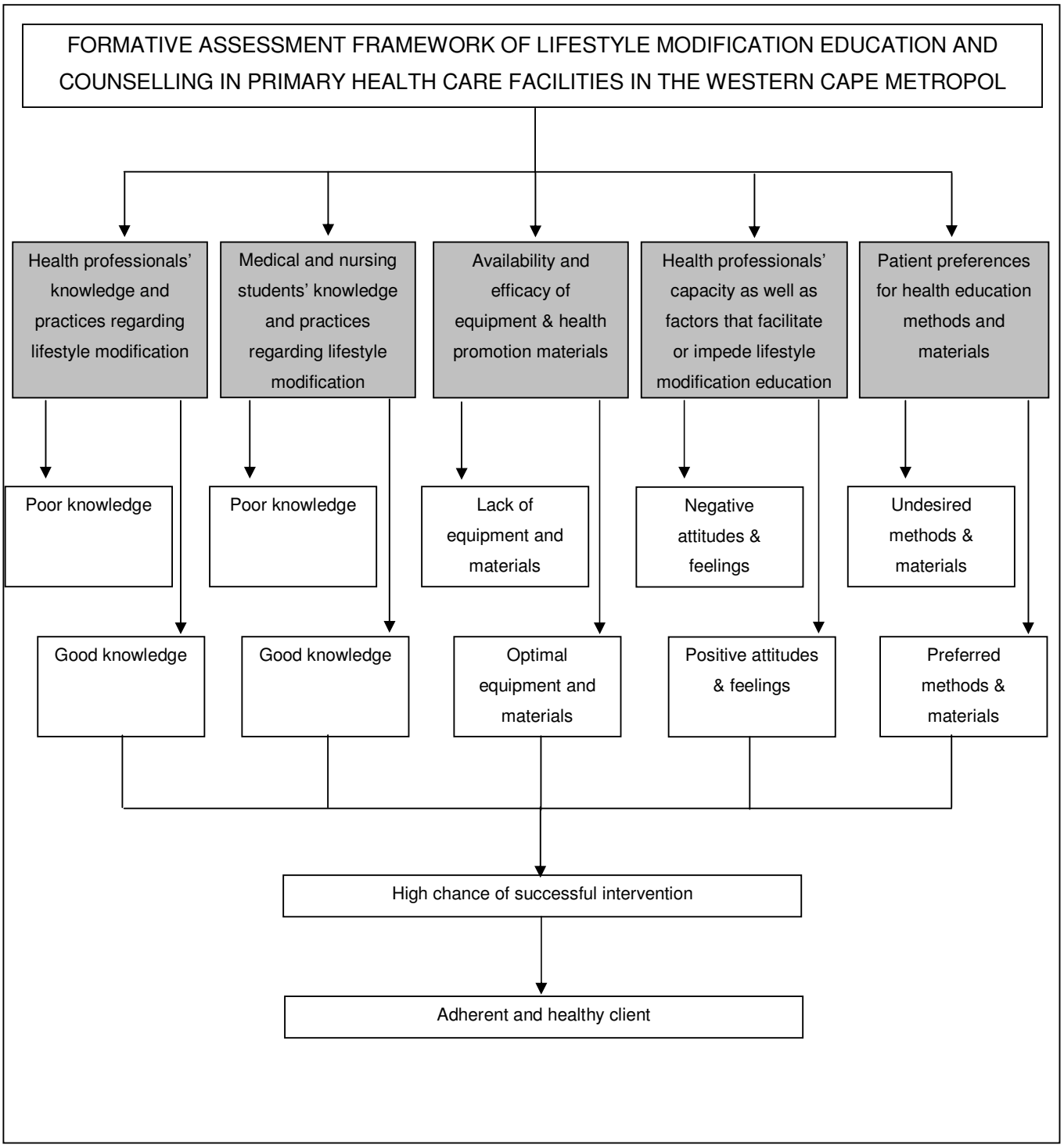

Figure 9.1: Formative assessment framework for data collection in order to make recommendations for a lifestyle modification education and counselling intervention

9.2. INTEGRATION OF THE FORMATIVE ASSESSMENT FINDINGS

In reviewing the literature, it was noted that a model for a National Chronic Disease Programme for South Africa has been developed and proposed by Steyn[4], who based its development on the WHO model for Innovative Care for Chronic Conditions (ICCC). This model, detailed in Figure 9.2 is comprised of 3 components, a primary prevention component which targets the whole population, a secondary prevention component targeting people with risk factors and chronic diseases and lastly a health service development component.

<table>
<tr><td>Primary Prevention
Target Group:
Whole Population</td><td colspan="2">• Promote healthy lifestyle: tobacco, exercise and nutrition
• Motivate the public to seek appropriate screening</td><td rowspan="4">Multidisciplinary research</td><td rowspan="4">Partnerships (including public/private)</td><td rowspan="4">Quality assurance</td></tr>
<tr><td rowspan="2">Secondary Prevention
Target Group:
People with risk factors and chronic disease</td><td colspan="2">Conditions inter-related and often co-exist</td></tr>
<tr><td>• Hyperlidaemia
• Obesity
• Hypertension
• Diabetes
• Cancer
• Geriatrics</td><td>• Tobacco and alcohol addiction
• CVD, stroke and heart attacks
• Chronic Lung disease
• Mental health
• Disability and rehabilitation</td></tr>
<tr><td>Health Service Development</td><td colspan="2">• Organisational structure to provide for both acute and chronic conditions
• Adequate staffing levels
• Staff training in chronic disease care, appropriate utilisation of staff
• Equipment
• Cost-effective locally appropriate management guidelines
• Drug delivery system
• Compliance by activated patients and health care team
• Long term care
• Evaluation adult health indicators health information system</td></tr>
</table>

Figure 9.2: Steyn's proposal of a model for a National Chronic Disease Programme for South Africa.[4]

The results of the present study can be integrated into the health service development component of Steyn's model. Figure 9.3 portrays the components of the present study as well as the health service development components of Steyn's model and further illustrates the associations between them.

Figure 9.3 indicates that the successful treatment of patients with chronic diseases is multi-faceted and requires a collaborative approach which encompasses all the points listed in both Steyn's model and the present formative assessment framework. As indicated in the association between the two, many of the components overlap and as such the following discussion will be structured under two broad categories as illustrated in Figure 9.3. The first category is comprised of issues

related to the organisational structure and will include changes to the organisational structure, adequate staffing levels, equipment and long term care. The second category is comprised of issues related to staff, students and patients and will encompass staff and student training, staff utilisation and compliance of activated staff and patients.

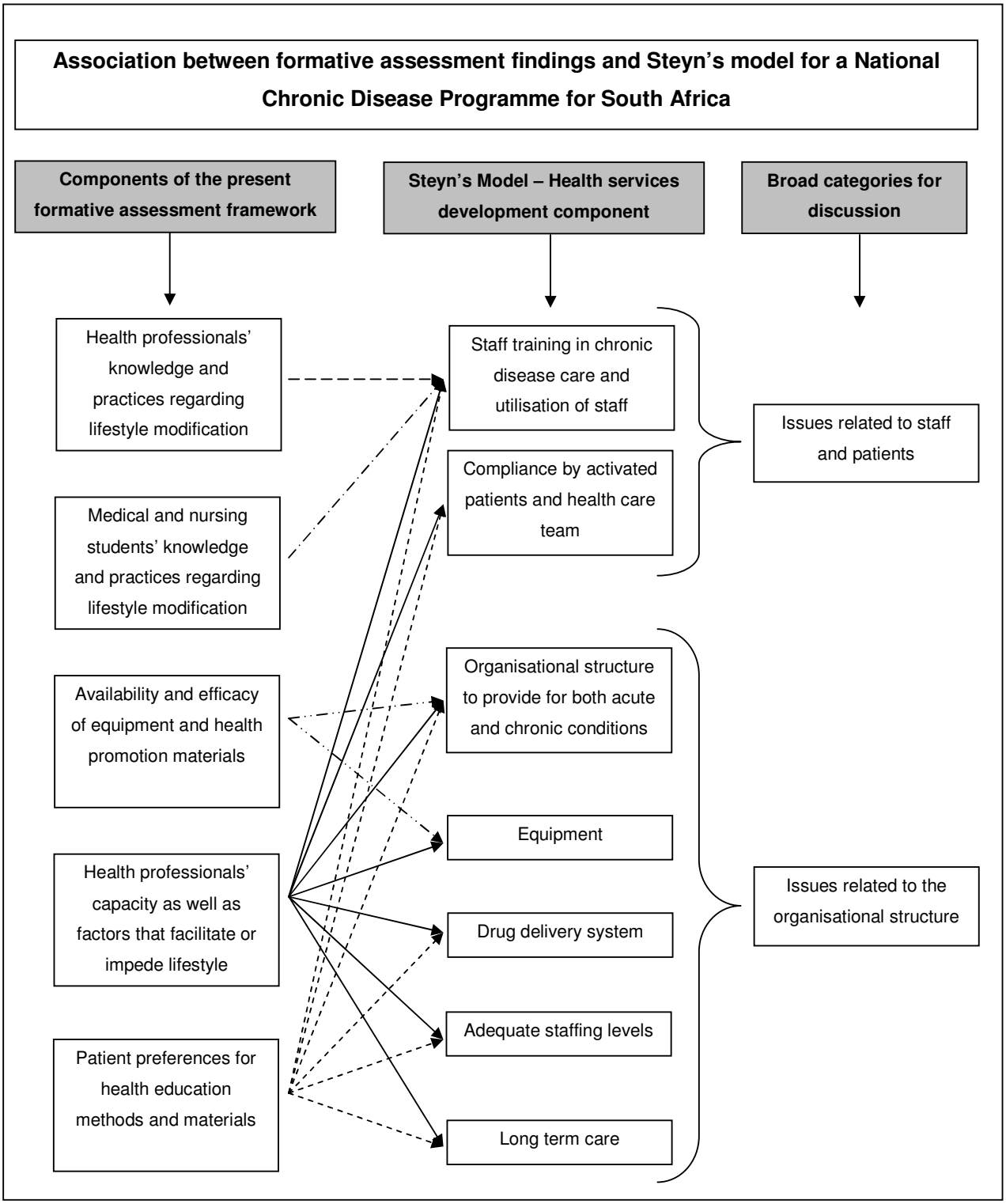

Figure 9.3: Integration of the findings of the present study **into the health service delivery component of Steyn's model for a National Chronic Disease Programme for South Africa**

9.2.1. Issues related to the organisational structure

The most challenging aspect of developing an effective system for PHC in South Africa is the need to cater for the quadruple burden of diseases in the country's health services. This ultimately requires a system that effectively addresses both acute and chronic health conditions simultaneously. However, the model of health care required for chronic conditions is fundamentally different to that of acute conditions. While the approach for acute care is disease-centred, hospital based, focused on individual patients, symptom driven and treatment focused, the approach required for chronic care is patient centred, PHC based, focused on the needs of the population, proactive, planned and focused on prevention.[5]

Currently, PHC in South Africa is based on the traditional medical model.[4] While this model may be suitable for treating patients with acute conditions, it is inappropriate and does not cater for the needs of patients with chronic conditions. Regardless of the whether the chronic condition may be heart disease, type 2 diabetes, hypertension or a combination of these, effective management of chronic conditions requires scheduled and regular patient visits to PHC facilities for monitoring disease control, detecting complications, adjusting medications and negotiating lifestyle changes.

According to the Western Cape Health Department's 2004/2005 Annual Report, it has been estimated that chronic patients comprise 50% of attendances PHC facilities. However, under the traditional medical model, HPs are inclined to focus more on the urgent and demanding needs of acute care patients, which ultimately places chronic patients at a disadvantage. The same ideology is applied to providing education and counselling to patients. Greater value is placed on treatment rather than prevention, for example, doctors are more likely to treat smokers with a smoking related disease rather than support asymptomatic smokers to quit. The findings of the present study support the evidence that HPs are more likely to provide education and counselling to patients who are in a higher risk category than those who are at a lower risk.[6-11]

The current PHC approach thus poses many health system barriers that prevent the delivery of optimal and effective health care to chronic patients. The findings of the present study that relate to factors that facilitate and barriers that impede the provision of LM education and counselling are summarised in Boxes 9.1 and 9.2 respectively, while suggestions made by both patients and HPs' to overcome these barriers are summarised in Box 9.3.

Box 9.1: Summary of findings related to factors that facilitate lifestyle modification education

- *Intrinsic factors*: caring nature of HPs, first-hand experience of living with CDL and professional responsibility
- *Extrinsic factors*: patient adherence in terms of improved self-management in response to advice provided by HPs, desire to reduce the morbidity and mortality associated with CDL, ability to reduce staff workload by empowering patients to manage their conditions, support from management and colleagues, reduce the dependence on medication

Box 9.2: Summary of findings related to barriers that impede lifestyle modification education

- *Health service / system related barriers*: lack of time, lack of space, lack of equipment, language barriers, crime, an inefficient administration systems and a lack of medication
- *Staff related barriers*: staff shortage, attitudes, lack of knowledge, frequent rotations and high staff turnover
- *Patient related barriers*: patient load, attitudes, lack of adherence

Box 9.3: Summary of findings related to HPs' and patients' suggestions to overcome these barriers

- *Issues regarding staff*: improve communication and interaction between staff and patients, increasing the staff complement, dedicate specific staff members to work with chronic patients, reduce staff rotations, access to continuous education and support, access to specialist staff
- *Issues regarding administration*: institute a more efficient administration and referral system, implement a patient registry
- *Issues regarding the facility*: provision of comfortable seating, access to clean bathroom facilities, provision of shelter and bathroom facilities outside the facility, structural changes to increase the size of the facility, specifically pharmacy and reception areas, dedicated areas for chronic patients, instituting a medication delivery service
- *Issues regarding health education materials and methods*: institute patients centred counselling techniques, improved access to audiovisual equipment and materials as well as other health promotion materials

In order to deliver efficient health services to chronic patients it is important to include both the HPs and the patients' input on how to do so. The need to change the organisational structure of the health system in order to improve health service delivery to chronic patients is evident from the suggestions in Box 9.5. It has been shown that interventions that have implemented and facilitated health system changes have been effective in improving health service delivery as well as the quality of care provided to indigenous chronic patients attending PHC facilities in Australia and the United States.[12-17] Thus improving health service delivery to chronic patients will ultimately result in optimising the lifestyle modification education and counselling services rendered at PHC facilities.

The study by Bailie *et al.*[12] which was conducted in Aboriginal community health centres in Australia provides insight into system related factors which hinder or facilitate improvements in outcomes of chronic care. These authors discussed the concepts of quality improvement and the need to reorient health services to effectively address chronic care. Health facilities were requested

to develop and implement strategies and action plans to improve services and systems. The strategies and action plans were encompassed within six health system components, which were similar to the health service delivery components previously identified in Steyn's model for a National Chronic Care Programme for South Africa (Figure 9.2).[4, 12] These components will be discussed in the sections that follow.

a) Staff complement and utilisation

One of the leading factors that compromise service delivery is the inadequacy of the staff complement within PHC facilities. The present study echoes this need as the shortage of staff at PHC facilities was identified as a barrier that compromised service delivery and was seen as the root cause of a host of other barriers. The staff shortages at PHC facilities in South Africa can be attributed to the "brain drain" of HPs from the public sector to the private sector and to more lucrative opportunities abroad. Implementation of the District Health System and Decentralisation of health services resulted in an increase in the number of patients attending PHC facilities, further contributing to the current staff-patient ratio at PHC facilities.

Currently, nursing staff at PHC facilities in South Africa, work on a rotation basis whereby they work in different departments and with various disease conditions within the PHC facility. Although staff rotations can be applied successfully in an acute health care service system, a chronic care system requires continuity of care and specialised training in chronic care management. Examples of the training required and how it could be implemented will be discussed later in this chapter. In order to provide continuity of care to chronic patients, designated staff members that will be trained and retained within chronic care services in the form of a dedicated chronic care team are required. This team should be comprised of HPs from a range of disciplines and include doctors, nurses, health promoters, dieticians, pharmacists and administrative staff. The formation of chronic care teams is critical to the delivery of efficient chronic care and should be instituted at all PHC facilities in South Africa. Bailie *et al.*'s[12] results allude to this as health centres in their study identified the need for designated chronic care nurses and lobbied their governing bodies to secure funds to support new positions for a nurse or chronic care co-ordinator.

The findings of the present study indicates that it is easy for individual staff members to lose sight of the importance of their role in the management of chronic patients however, when they attend workshops or group meetings they are reminded of the importance of their individual roles and as such become motivated to provide improved services to chronic patients. Reinforcing the roles of individual HPs in the management of chronic patients thus significantly impact of the quality of care that HPs provide. Health centres in Bailie et al.'s[12] study echoed this need as they reported that regular meetings amongst chronic care teams were required to revise and reinforce the roles of all the team members.

b) Equipment and health promotion material

The scarcity of equipment at PHC facilities is yet another contributing factor to poor service delivery to chronic patients at these facilities. Ideally facilities should have sufficient equipment to render efficient services to chronic patients and also be able to provide patients with equipment for self-monitoring. Although HPs in this study have undertaken the responsibility of sourcing equipment for patients' use, the reality at PHC facilities is that there is still a scarcity of equipment within facilities. This often results in overuse and abuse of available equipment which ultimately results in the constant need for repair and maintenance of equipment. It is therefore important to ensure access to equipment in sufficient numbers. Ideally, each staff member could be issued with their own equipment for which they are responsible. Equipment that is used in the preparation room such as scales, height measures and visual acuity charts could be excluded from this but baumanometers, glucometers and BMI charts could be included. Furthermore, a schedule for maintenance (and repair) of equipment should be established and implemented such that equipment is 'recycled' in order to avoid a shortage of equipment.

One of the issues addressed in the present study which was not the thrust of Bailie *et al.*'s[12] study nor included in Steyn model, was that of access to and efficacy of health promotion materials and methods. The one outstanding finding regarding health promotion materials is that there is an abundance of materials that has been designed by numerous sources, including the Department of Health but the awareness and the presence of these materials at PHC facilities are rather minimal. This includes the National Guidelines for the management of chronic diseases. Conversely, the awareness and presence of materials developed by pharmaceutical companies is far more common since they are delivered to facilities directly by pharmaceutical representatives. Since the Department of Health has invested time and resources in developing health education materials and even clinical management guidelines they should invest further by improving the distribution of these materials to facilities by ensuring delivery of the materials to facilities.

c) Medication delivery system

The medication delivery system for chronic patients in South African PHC facilities needs to be improved. A large proportion of the time that patients spend at PHC facilities can be attributed to waiting for their chronic medication to be dispensed. In 2005 it was estimated that 60% of all visits to 44 PHC facilities in the Western Cape involved collecting medication for chronic diseases[18] as such the possibility of pre-packing these prescriptions exists. In order to reduce the time that patients spend waiting for this service, both patients and HPs in the present study suggested that there should be parallel queues for chronic and acute patients at the PHC dispensary. Some HPs further suggested that facilities provide a medication delivery service for patients who are unable to collect their medication. Health centres in Bailie *et al.*'s[12] study echoed these sentiments and arranged for the delivery of chronic medication to patients in the community.

As yet, separate queues for chronic and acute patients have not been implemented at any PHC facilities, however the merit in this suggestion is clear as these changes would further positively affect the flow of patients though the facility and reduce the amount of time that patients spend waiting to be attended to. Currently chronic patients are required to return to PHC facilities monthly to collect their medications, which ultimately contributes to the long queues and extended waiting times. Steyn recommended that this system should be changed such that where appropriate medications are provided for much longer durations.[4] Implementation of this recommendation would further contribute to reducing the number of patients attending the PHC facility on a given day, reduce the waiting times, improve the flow of patients through the facility and allow the staff to deal more effectively with patients when they attend the facility.

Although the present study inquired about the effectiveness of medication reaching the chronic disease patients, it did not investigate the provincial delivery of medication to the PHC facility. However, patients still reported that facilities run out of chronic medication, thus strategies to prevent this should also be implemented.

Since the inception of this thesis the Western Cape Department of Health has implemented changes regarding the dispensing of medication to chronic patients when they established chronic dispensing units at some of the PHC facilities in the region.[18] These units are now responsible for ordering, receiving, storing, dispensing and distributing medicines for stable chronic disease patients. The dispensing unit sends the medication to the PHC facilities, pre-packed and ready for the patients to collect. These units thus promote increased efficiency of health service delivery for chronic disease patients and also enable pharmacists at PHC facilities to have more time to counsel patients.[18] It is anticipated that in the future this drug delivery system will be rolled out to most PHC facilities.

d) Long term care

One of the key elements for successful chronic care is that it should be patient-centred, since patients and not HPs are ultimately responsible for managing their chronic conditions.[4-5] Patient empowerment in terms of their ability to self-manage their conditions is therefore central to effective chronic care.

A large proportion of patients in the present study selected support groups and chronic clubs as their preferred method of LM education, indicating that they wanted to empower themselves and play an active role in their conditions. They stated that it provided them with an opportunity to share ideas and experiences as well as to obtain and provide support and encouragement to and from fellow patients. Since PHC facilities are based on an acute care model, many of the existing PHC facilities often do not have the infrastructure in terms of the space required to house support

groups. Both patients and HPs in this study suggested that the physical facilities at PHC centres be amended in this regard. Implementing structural changes to facilities may not be an easy task however, new facilities will be built and existing facilities will undergo renovation. It is therefore important to bear the needs and requirements of a chronic care programme in mind when new facilities are designed or existing facilities are renovated.

Support groups at PHC facilities can form the foundation for support groups in the community which caters for the long term care and management of chronic patients. Support groups thus provide links between the PHC facility and the community. Establishing links to the community is important as it can assist HPs in referring patients to services in the community for example, smoking cessation services. Health centres in Bailie *et al.*'s[12] study reported similar needs and as a result they identified and established a list of contacts and services within the community to whom they could refer chronic patients.

e) Administration

Both HPs and patients in the present study commented on the need to improve the current PHC administration systems. There were numerous reports of patients' folders being misplaced or lost at PHC facilities as well as reports that patients have to spend a large amount of time waiting to be advised about their next follow up appointment date. Currently most PHC facilities function using a paper-based administrative system. By implementing a computer based system these administrative problems could easily be resolved. Similar needs were highlighted in Bailie *et al.*'s[12] study, where health centres highlighted the need to support the operation and maintenance of computerised information systems as well as the need to implement an electronic system for medical record keeping and featured appointments.

Health centres in Bailie *et al.*'s[12] study went as far as developing strategies to reorganise individual patient files and perform a complete audit of history notes in patients' files. Although this may seem laborious and intensive it has the ability to be sustainable and provide long term administrative benefits for chronic patients. Though the long-term benefits of the implementation of a computer based system are undeniable, due consideration has to be given to the capital costs thereof, staff training and possibility of theft and vandalism.

9.2.2. Issues related to staff, students and patients

a) Health professionals' and students' knowledge and training on lifestyle modification

HPs' knowledge and practices regarding LM have a direct influence on the information that patients receive. If HPs are equipped with appropriate, accurate and reliable knowledge on LM it will ensure that the information they are able to provide to patients during education and counselling sessions is standardised, thereby eradicating misconceptions and misinformation. The findings related to both HPs and students' knowledge (chapters 4 and 5) in the present study are summarised in Box 9.4.

Box 9.4: Summary of findings related to health professionals and students' knowledge

- HPs knowledge on LM varied extensively across both practicing HPs and students. Although more than half the participants achieved more than 60% on the test, very few managed to achieve the desired knowledge score.
- HPs within the same profession achieved similar knowledge scores, regardless of whether they were practising or still training.
- Doctors and health promoters appeared to be more knowledgeable about LM than nurses, at both a practicing level and a student level.
- Doctors and medical students generally tended to have an accurate perception of their LM knowledge , with some even underestimating their knowledge. Conversely both nurses and nursing students grossly overestimated their actual knowledge.
- Very few HPs and students cited a lack of knowledge or a lack of counselling skills as a barrier to LM education and counselling, thus grossly underestimating their ability to empower patients with chronic diseases.
- Most HPs and students appeared to be knowledgeable about the theoretical concepts of LM, such as limiting sugar and fat intake and increasing fibre intake, however, they experience difficulty in providing patients with practical examples of how to achieve them.
- Most HPs and students reported that they received the majority of their LM information from the mass media

Both practicing HPs and students in the present study indicated that they received most of their LM information via the mass media. Similar findings were reported in a study conducted by Butriss in the United Kingdom.[19] Mass media campaigns have previously been shown to be effective in improving the LM knowledge of the general public[20-29] and thus this avenue of health promotion should be utilised effectively for the population as a whole. However, these findings illustrate the marked lack of LM education that HPs receive during their undergraduate training at tertiary institutions. The development of suitable training modules in LM for use during their undergraduate training has therefore become an urgent need, that should be brought to the attention of the relevant educational institutions.

The wide range in knowledge scores confirms similar reports from developed countries[30-34] and indicates that misinformation and misconceptions regarding LM are rife within PHC facilities. Similarly the finding indicating that HPs appear to be knowledgeable about theoretical LM concepts, but experience difficulty in translating theoretical concepts into detailed practical examples is in agreement with prevailing evidence that there are many gaps in HPs' nutrition knowledge.[19, 35-36] This highlights the need to review the training of HPs with respect to LM as well as the need to standardise the information that HPs, students and patients are exposed to. The manner in which this training should ideally occur needs careful thought as it needs to be addressed at both the level of the student as well as at a practicing HP level.

Implications for the training medical and nursing students.

The current undergraduate curricula for both medical and nursing students needs to be reviewed in order to assess the LM education that students are currently receiving. The curriculum should be restructured to include training on actual LM modules, which is not solely restricted to theory but includes practical workshops on how to apply theoretical knowledge. Though this has been a recommendation commonly cited in the literature,[6, 19, 30, 33, 37-39] it is realised that HP training curricula are very full and thus the viability of this recommendation remains to be tested. However the need to implement this recommendation is evident and thus the necessary advocacy will need to take place to create space in the curricula to allow the inclusion of LM programmes. Planners of medical school curricula need to be made aware that building the skills of students to promote LM using adult education methods will have wide ranging benefits for students throughout their careers.

Implications for the training HPs at a practicing level.

HPs that are already practicing at PHC facilities can be trained by providing continuous education for HPs regarding LM. This could occur in the form of introducing a postgraduate diploma in CDL management at tertiary institutions. In order to attract HPs towards such a programme they would most likely require some form of incentive such as increased remuneration or even sponsorship to obtain these qualifications. There are precedents within the HIV realm where training courses such as the Diploma in HIV Management, offered by the College of Family Physicians of South Africa,[40] contributes towards career development and career pathing. Improving LM education at continuing medical education courses have also been cited as a recommendation in the literature.[41-42] Thus attendance at LM and chronic disease management workshops could form an essential component of continuing education for both medical and nursing professionals. However, these suggestions may not be practical given the current lack of medical and nursing staff at PHC facilities. A more viable recommendation would be to provide in-service training to staff.

There is currently an existing in-service training programme that has been shown to be effective in simultaneously improving the quality of care for chronic (asthma) and infectious diseases (TB).[43-44] This programme is called the Practical Approach to Lung Health and HIV/AIDS in South Africa, or PALSA PLUS and combines symptom- and sign-based guidelines on respiratory diseases, tuberculosis, HIV/AIDS and sexually transmitted infections with evidence-based methods for their implementation. In June 2007 this programme was adopted as national policy. Globally, the programme has been favourably reviewed by the World Health Organization and is viewed as a demonstration project by the Global Alliance Against Respiratory Disease (GARD), recently launched in response to a World Health Assembly mandate to address the issue of chronic diseases (cited Ovations proposal[45]). The programme involves teaching trainer nurses who then visit CHC to train HP staff in the use of PALSA PLUS material. Numerous managers and nurses at PHC facilities that have received training on the PALSA PLUS approach have requested an expansion of the programme to address other chronic diseases, specifically diabetes, hypertension and cardiovascular disease. The developers of the PALSA PLUS programme are currently developing modules for additional chronic conditions.

b) Appropriate staff utilisation

Since doctors and nurses form the frontline of PHC services, they are required to be capable of providing LM education to patients and as such the previous recommendations are centred on improving their knowledge and skills. However, the load of health education and counselling needs to be extended beyond these professionals.

Health promoters and nutrition advisors at PHC facilities are specifically trained and employed to provide health education and counselling to patients on a variety of topics including LM. Since the results of the present study indicate that health promoters' knowledge parallels that of doctors and exceeds that of nursing staff, these HPs provide an alternate avenue through which patients can be supported adopt healthier lifestyles. It is disturbing to note though, that very few patients in the present study (chapter 7), reported that they would prefer to receive information from these HPs. This could be solely attributed to patients' personal preferences and it could be attributed to patients placing more value on information provided by nurses and doctors as they are perceived to have an elevated status in the PHC facility compared to the status of health promoters and nutrition advisors. On the contrary, it may more likely be attributed to patients not being familiar with these HPs as they are currently only available at a few PHC facilities. It is therefore necessary to promote and advocate the value and use of health promoters and nutrition advisors at a PHC level, amongst patients and amongst other HPs to facilitate referrals to them and endorse the services that they provide. Concurrently, more posts for these professionals should be created at a provincial level to ensure that their services are available at all PHC facilities. These recommendations are in line with Steyn's points regarding the proper utilisation of staff.[4]

c) Health professionals' and patients' attitudes and practices regarding lifestyle modification education and counselling

Studies have reported that HPs attitudes regarding the role of LM affect the provision of LM education and counselling. Positive attitudes promote counselling while negative attitudes impede the provision of counselling. The findings related to HPs and patients' attitudes regarding LM education and counselling (chapters 7 and 8) in the present study are summarised in Box 9.5.

Box 9.5: Summary of findings related to health professionals' and patients' attitudes and practices regarding lifestyle modification education

- The majority of HPs in this study believe that LM is an effective method of managing and reducing the complications associated with CDL.
- HPs are aware that optimal patient care can only be achieved if patients play an active role in managing their conditions.
- All HPs, irrespective of their professional discipline acknowledged that they have a role in providing health education to patients
- HPs were more likely to engage in a counselling session with newly diagnosed patients or patients whose conditions are poorly controlled.
- 90% of patients reported that they wanted to receive education and counselling from HPs at PHC facilities
- Very few patients reported experiencing difficulties when trying to obtain information at PHC facilities, they did however experience difficulty in implementing the advice received from HPs,
- HPs and patients view individual counselling as the best method of health education, however, they are aware that this method is not always practical within the constraints of the PHC facility.
- A large proportion of patients identified chronic clubs and support groups as their preferred method of health promotion.
- HPs and most patients prefer audiovisual health education material above written health education material.

HPs' willingness to assist patients was evident in the dedication that some of them portrayed when they reported taking on additional responsibilities (purchasing their own equipment, offering their services to patients who were unable to collect the spectacles and sourcing glucometers that could be distributed for patients' personal use). These HPs are thus already armed with the correct attitude to facilitate LM education and counselling. Ensuring that their knowledge is reliable and standardised further facilitates the provision of appropriate LM education.

However, being armed with the correct attitude and standardised knowledge will not necessarily ensure optimal knowledge and attitude transfer from HPs to their patients. The way in which knowledge is transferred also directly impacts on how patients will receive, implement and apply that knowledge. Studies conducted in South Africa have shown that patients attending PHC facilities tend to be passive and that they do not participate in interaction with health care providers.[4] Steyn comments that this is hardly surprising in the context of the political history of South Africa where passivity of the poor and disenfranchised was demanded by the system.[4] The

traditional authoritarian style of interaction between health care providers and their patients further fuels this situation. This top-down approach may be appropriate for managing acute conditions but is inappropriate for managing chronic patients as it leads to their disempowerment.

Patient empowerment is central to the management of chronic conditions and the utilisation of adult health education principles and the application of behaviour change theories and models are essential for patient empowerment. It is heartening that HPs in the present study acknowledged the need to empower patients to play an active role in the management of their conditions (chapter 8).

The majority of patients in this study have reported that they prefer individual counselling as a method of health education as it provides them with an opportunity to discuss confidential issues and receive information that is specific to their individual consultation and examination (chapter 7). In order enable patients to make healthy lifestyle choices, HPs should be equipped with the necessary skills to effect behaviour change in their patients. This recommendation is in line with Steyn's point on compliance by activated patients and healthcare teams.

Additional implications for training of both students and practising health professionals

Both HPs and students require training in adult health education methods as well as the application of behaviour change models and theories in their counselling sessions. Once again the necessary advocacy will need to take place to create space in students' curricula as well as the HPs' inservice training programmes to allow the inclusion of these items. Such advocacy needs to include the emphasis that the abovementioned training will benefit the student and the HP far beyond the ambit of chronic disease care.

9.3. ADULT HEALTH EDUCATION PRINCIPLES

Knowles[46] described adult learning as a process of self-directed inquiry and argued that:

- Adults have a need to know why they should learn something and has to consider it important to acquire the new skill, knowledge or attitude.
- Adults have a need to be self-directing and decide for themselves what they want to learn.
- Adults have a far greater volume and different quality of experiences such that connecting learning experiences to past experience/s can assist in the acquisition of new knowledge.
- Adults become ready to learn when they experience a life situation where they need to know.
- Adults are motivated to learn by both extrinsic and intrinsic motivation.

Generally, theories on adult education are based on valuing the prior learning and experience of adults. Adult learning requires the building on this prior learning using methods that treat learners with respect and recognise that people have different learning styles and have a variety of responsibilities and time commitments. Effective education also recognises that adults often learn collectively from each other.[47] This provides further motivation for the use of support groups as a method of health education for chronic patients. For effective adult education the 'teacher' merely takes on the role of a facilitator that guides the learning process regardless of whether it is in an individual counselling session or a support group scenario. In order for HPs to become effective 'facilitators', they need to develop a cooperative learning environment that involves their patients in analysing their needs and developing learning objectives based on those needs.

9.4. NEGOTIATING BEHAVIOUR CHANGE IN HEALTH CARE SETTINGS

A detailed discussion of the range and applications of behaviour change models and theories is beyond the scope of this chapter, suffice to say that there are numerous models such as the stages of change theory, the precede-proceed model and the method of motivational interviewing that can be applied effectively in the health care setting.[48] These models call for greater emphasis on self-care and patient-centred authority and responsibility for planning and controlling their health care regimen. Health care workers play a major role in strengthening the motivation and capabilities of their patients to change specific health-related behaviours; however, they play only a supporting role in the more complex, durable and deep-seated lifestyle issues related to health. This supporting role should not be regarded as trivial or unnecessary for without support and encouragement from health personnel, many patients will fail to start or continue the process of change.[48]

LM education and counselling aims to provide patients with information that will ultimately contribute to patients experiencing behaviour changes and adopting healthier lifestyles. However,

behaviour change is not a simple phenomenon but a process. This process includes stages such as precontemplation, contemplation, planning, action and maintenance.[49]

Lifestyle behaviours are influenced by many internal and external factors and might be deeply ingrained. Simply telling people that they must change to improve their health will rarely provide sufficient motivation and confidence to achieve successful and sustained change.[50] Often, HPs use a directive style of counselling whereby they tell a patient to consider a particular line of action which often results in the patient telling the HP why the proposed line of action will not work.[51]

Although HPs are experts in their field, during behaviour change consultations the patient is the 'expert' as he/she knows and understands more about him- or herself than the HP does. In order to adopt the role of behaviour change agents, HPs need to resist the consultation style of direct persuasion and coercion and adopt a patient centred approach. The direct approach often results in patients adopting a defensive attitude followed by a 'yes, but' scenario[52] whereby they provide a variety of valid reasons for not changing their behaviour. Although the patient acknowledges the need for change, he/she is frustrated by the HPs failure to understand why the change is difficult or not possible for the patient.[50]

Conversely, using a patient-centred approach, the HP genuinely attempts to understand the situation through the patients eyes and they work on possible solutions together. This entails using a guiding style of counselling whereby HPs encourage patients to explore their motivations and aspirations.[53] This scenario ends with the patient feeling that they own the plan of action because they created it and more importantly, they feel that it is feasible and realistic.[50]

The principles, skills and strategies required to provide an effective motivational approach during behaviour change consultations, are summarised in Table 9.1.

Table 9.1: Principles, skills and strategies required for an effective motivational approach[50]

Principles	Express sympathy	Understand the patients feelings and perspectives without judging or criticising
	Roll with resistance	Avoid arguing as it is counterproductive and forces patients to adopt a defensive attitude. If it does occur, change the course of the counselling session and invite new perspectives. However, if the response is bristly, back off.
	Support self-efficacy	Assist patients to develop their real sense of self-confidence and belief that of they attempt to make changes they will succeed. It is important to acknowledge past successes.
	Deploy discrepancy	Highlight the discrepancy between patients' present behaviour and their broader goals. The aim is for patients and not HPs to realise the difference between where they are and where they want to be in order for them to present the arguments for change themselves.
Skills	Reflective listening	Check that you have heard the patient correctly by reflecting on what they have said.
	Asking open questions	Questions such as 'Do you…,?' 'Have you…?' 'Are you …?' and 'Will you…?' Tend to result in a simple yes or no answer. Open questions such as 'How..?' 'What…?' and 'When…?' Give patients more opportunity to describe their situation in detail and express issues more fully. The aim of the consultation would be for the patient to do at least half if not more of the talking.
	Summarising	Provide feed back to patients regarding the essence of what you have understood them to have said. This helps to clarify any misunderstandings that could have been raised in the consultation.
	Affirming	Convey the positive things you pick up from patients, to help develop their self-confidence and belief that they can succeed in change.
Strategies	Assess readiness	Assess the patients' importance (in the value of changing) and their confidence (in succeeding). Rollnick suggested using scaled questions, offering patients a scale of one to ten for where they see themselves in terms of importance and them confidence. This could be followed by asking: "What would it take to move you further up the scale?"
	Explore ambivalence	Acknowledge that there are two sides to change by asking the patient what the pros and cons of change are. This process can help patients to develop readiness to change. Overall this process provides both the patient and the HP with a realistic view of how difficult making the change could be.
	Typical day	Ask the patient to talk you through a typical day. This strategy reveals the full picture of the behaviour in question and also provides contextual information such as the patients' social situation, financial position and lifestyle.
	Exchange information	This is important when the patient expresses limited knowledge of the lifestyle change in question, or when it is clear that he/she has been misinformed. However, the manner in which information is exchanged is important and as such information should be offered rather than imposed.

9.4.1. *Interventions for smoking cessation*

Smoking cessation interventions based on behaviour change theories have been successful in PHC facilities in the Western Cape Metropol. A study conducted by Murphy[54] aimed to evaluate the impact of a smoking cessation intervention on pregnant women of mixed descent. The intervention was implemented as part of routine care in four public sector clinics providing antenatal care to women from severely disadvantaged communities. The intervention was based on the evidence-based Guidelines for brief smoking cessation interventions as outlined in the US Public Health Service guideline, "Treating Tobacco Use and Dependence".[55] These guidelines were adapted for pregnant women by the American College Obstetricians and Gynecologists in 2002. In summary, the key interventions in the Guideline are to: identify and document all tobacco users, provide individualised information on the risks of smoking, give clear advice to quit and assess the patient's readiness to quit. If a patient expresses a willingness to make a quit attempt, the discussion of quit strategies, prompting the patient to seek social support, the provision of self-help materials, follow up and referral are all recommended.

The study used a quasi-experimental design, where the control group received usual care, whilst the intervention group was offered self-help quit materials in the context of brief motivational counselling by midwives and peer educators. The peer educators were women recruited from the local community who had quit smoking themselves.

This intervention was shown to be effective in assisting a proportion of women to quit smoking completely and others to reduce their levels of consumption. Quitters came from all categories of smokers, including those who were defined as heavy smokers. Furthermore, the results of this study indicated that while the involvement of midwifes was uneven and fairly limited, the peer educators were the most appreciated aspect of the programme as participants tended to rely on the peer educators to do most of the counselling and distribution of material.[54]

This model of behaviour change that has proved effective in typical urban public sector primary care clinics should be modified to use in the care of patients with chronic diseases. The key elements being that the materials used are specific for the target population, that the HPs they interact with use appropriate adult health education methods and that the interventions are appropriate for the stage of change in which the patient finds themselves with the respect of quitting.

9.4.2. *Interventions to improve physical activity*

A model of intervention to improve physical activity in disadvantaged communities in South Africa suggests an approach that could be linked to primary health care facilties that offer appropriate care for patients with chronic diseases. The Community Health Intervention Programmes (CHIPs)[56] was introduced to communities in August 1997 in response to the growing prevalence and burden of chronic, non-communicable diseases such as hypertension and diabetes. The CHIPs project promotes health through the medium of regular physical activity. Five programmes were designed to respond to the needs of individuals through all phases of the "life-cycle", two of which can be adopted by PHC facilities for patients with chronic conditions. Each of the programmes enfold a two-fold strategy: education to increase awareness regarding the risk for developing chronic diseases of lifestyle and regular physical activity to encourage adherence and self-efficacy in making healthier lifestyle choices.

OptiFit Outreach is offered twice a week to individuals between the age of 18 and 55 at a venue central to the community. Since its inception 30 leaders have been trained and 600 members participate in physical activity twice a week in 12 communities.

- Members participate in walking, running, aerobics and indoor circuit training.
- Community leaders who volunteer to be trained by the CHIPs project conduct and manage the exercise programme in line with the needs of the community.
- The education component focuses on disease prevention, lifestyle management and diet.

"Live It Up" is offered twice a week to individuals 55 years and older at community centres, seniors clubs or places of worship. Evaluation of this programme showed that it was effective in improving dynamic balance and lower body strength as well as decreasing in systolic blood pressure, particularly in hypertensive individuals.[57]

- "Live It Up" members participates in predominantly seated activity to improve their muscle strength and balance.
- The education component focuses on aspects related to disease management as well as coping with the challenges associated with ageing.

The CHIPS programme has shown sustainability over time, changing lives of children, adults and senior citizens. It achieves this through the use of exercise and lifestyle modification - teaching and empowering communities and individuals to a healthier lifestyle. The programme teaches that all individuals can benefit from a healthier lifestyle, regardless of financial circumstances. It also shows a benefit to community spirit, by uniting communities through participation. The next phase of growth is to expand the project nationally and to develop a "train the trainer" model. This programme provides a framework for a support group intervention that can be adopted by PHC facilities in the Western Cape.

9.4.3. *Interventions to improve nutrition*

Currently there is no published data for successful nutrition interventions in PHC facilities in the Western Cape. However, interventions studies in PHC facilities in developed countries (refer to chapter 2) that have reported best-practice behavioural outcomes have utilised behaviour change theories and models such as the stages of change model as well as motivational or negotiation methods of counselling. This further emphasises the need to provide HPs with training in adult health education methods and the application of behaviour change theories in the counselling sessions.

Furthermore physician-endorsed advice as well as follow up consultations with dietitians and nurses generally yielded better behavioural outcomes. This further strengthens the need for doctors to endorse the information and education provided by health promoters and nutrition advisors. This also highlights the need for continuity of care in terms of follow up with chronic patients to achieve sustained lifestyle modification changes.

There is currently a host of education material that have been developed for nutrition and chronic diseases. However, these materials are seldom present at PHC facilities. Access to and distribution of such material need to be improved.

The South African Food based dietary guidelines have been developed by the National Department of Health and should be used as a common resource for nutrition education. Currently these guidelines are available as pamphlets that can be issued to patients during counselling sessions, they are also available as A5 booklets and as a flipchart that can be used for education and counselling in group sessions. Although these flipcharts are a valuable resource, during the course of the present study, the only HPs that had access to them were the nutrition advisors. This resource should be made available to all HPs that interact with chronic patients. Furthermore, Community Health Workers should be trained to use the food based dietary guidelines and in doing so they can provide HPs with examples of culturally appropriate and affordable foods that are available in the community. This will ensure the practical application of these guidelines in the community.

9.5. PROPOSED APPROACH OF THE WESTERN CAPE DEPARTMENT OF HEALTH

Since the advent of the present study, the Western Cape Department of Health (DOH) has developed and started to implement its Healthcare 2010 Plan,[58] which aims to substantially improve the quality of the health service. They plan to achieve these aims by developing and executing four inter-related plans that target service delivery, infrastructure, human resources and financial management. The findings, suggestions and recommendations of the present study provides the Western Cape DOH with baseline evidence that can be used in the development of these plans and can also be used to motivate for the implementation of these plans.

Their service delivery plan, illustrated in Figure 9.4, proposes to provide services to chronic patients at both a facility-based level and a previously non-existent community-based service delivery platform. It is intended that through the strengthening of the community-based level of service delivery, much of the pressure currently experienced by HPs at PHC facilities will be reduced.

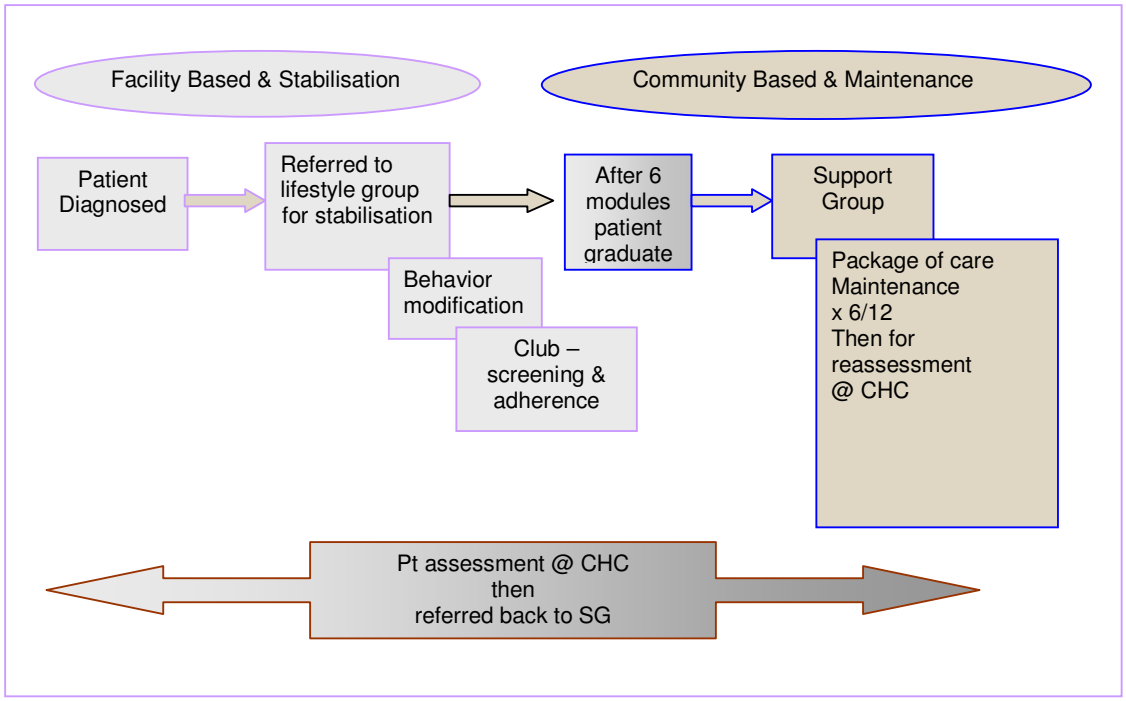

Figure 9.4: Western Cape DoH's proposed model of care for chronic patients[59]

Furthermore the DOH is currently drafting a Chronic Disease Management Policy and Implementation Strategy,[59] of which a proposed action is the formation of chronic disease management teams within facility-based services. These teams will consist of multidisciplinary HPs who are dedicated to provide services to patients with chronic diseases.

The purpose and function of HPs working in facility-based services would be to diagnose new patients and guide them through a therapeutic process. The aims of this process would be 1) to promote patients' acceptance of their chronic condition, 2) to promote an understanding of the

medical management of their condition and 3) to motivate and assist patients' to effect the necessary lifestyle changes to manage their condition.[59]

When a patient has completed the therapeutic phase, he or she would enter the community-based services for maintenance and monitoring of their chronic conditions, health promotion, lifestyle modification education and counselling as well as medication and lifestyle modification adherence support.[59] The Western Cape DOH proposes that community-based services will be rendered by the non-profit sector, mainly by community health workers (CHW). However, these service providers will be funded, trained and performance managed by the managers based at district and sub-district offices of the health department.[59]

The proposed use of CHW as service providers stems from the success of a project initiated by the School of Public Health at the University of the Western Cape.[60-62] This project resulted from a request of community members of Khayelitsha who had noticed an increasing number of people with diabetes and hypertension in their area. Thus a community-based project to increase community awareness about primary prevention of chronic diseases was implemented, the aims of which were: 1) to utilise CHWs, lay people who are elected by the communities in which they serve as change agents in their community, and 2) to develop a chronic disease model, whereby an urban township community can benefit.

This pilot programme successfully managed to increase awareness of chronic diseases among people living in an under-served urban township, it successfully established a health club (community-based support group) and it showed that given knowledge and skills, CHWs can act as agents of change in their community, and are therefore instrumental in the primary prevention of chronic diseases. [60-62]

The Western Cape DOH's planned community-based service delivery platform is exactly based on the needs identified by the data of the present study, as the purpose and functions of the DOH's support groups are summarised as follows: [63]

- Encourage acceptance of chronic conditions
- Provide education and counselling on chronic conditions
- Provide education and counselling on how to manage chronic conditions
- Facilitate the assistance of other professionals to provide specialised support and information.
- Empower clients to achieve an improved state of health and wellness, particularly with regard to nutrition, physical activity and managing stress.
- Enable adherence to medication regimens and lifestyle changes

- Enable regular monitoring of health status and educate and encourage clients in simple self-monitoring
- Encourage and facilitate family involvement in the support of clients
- Assist with referral to other health services and non profit or faith-based organisations

The findings of the present study, related to equipment and suggested changes to facilities provides the Western Cape DOH with a firm basis on which they can develop their Infrastructure / Technology Plan as this plan aims to provide buildings, equipment and maintenance in line with service requirements that are described in their Service Delivery Plan.[58]

The suggestions and recommendations in the present study regarding dispensing of medication to chronic patients should be taken into account in the development of the Western Cape DOH's proposed model to expand their chronic medication delivery service to the community-based service delivery platform. Within this model, stable patients identified by the doctor or clinical nurse practitioner at the PHC facility will be able to collect their medication at a predetermined community-based support group for 5 months, after which the patient returns to the PHC facility for re-assessment by the doctor or clinical nurse practitioner.[59]

9.6. CONCLUDING REMARKS

The data generated in this thesis is timely as there are many plans and policies being developed by the Western Cape's DOH to improve health care for patients with chronic diseases. The DOH's plans and policies will now have to be fleshed out into practical approaches addressing specific shortcomings that currently exist in the system of care for patients with chronic conditions. The data presented in this thesis goes a long way to identify some of those shortcomings that need to be addressed to improve the promotion of a healthy lifestyle in the DOH's plan of work for chronic diseases. Furthermore this data can be used to motivate for the resources required to develop adequate LM methods and tools appropriate for patients with chronic diseases who attend PHC facilities in the Western Cape.

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