

# **The determinants of adhering to rehabilitation in diabetics who have undergone lower limb amputation**

This proposal is being submitted towards partial fulfilment of the MPhil in Public Health degree.

## **Investigator**

Sibusiso Sifunda Bsc (Physiotherapy)

March 2001

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

## Declaration

I **Sibusiso Sifunda**, hereby declare that the work on which this thesis is based is my original work (except where acknowledgements indicate otherwise), and that neither the whole work nor any part of it has been, is being or is to be submitted for another degree in this or any other university.

I empower the University of Cape Town to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signature:

Signed by candidate

Date:

27/05/2002

## Table of Contents

Glossary of Terms

Abstract

### Chapter1. Introduction

1.1 Demographic Information	2
1.2 Diabetes Population Trends in South Africa	4
1.3 Study Setting Rehabilitation Services in Cape Peninsula	6

### Chapter2: Literature Review

2.1 Theoretical Frameworks	9
2.2 Determinants of Adhering to Rehabilitation in Amputees	16
2.3 Rehabilitation Outcomes in Amputees	18
2.4 Management and Complications Of Diabetes	21

### Chapter 3: Goals

3.1 Aims of The Study	23
3.1 Study Objectives	23

### Chapter 4: Methodology

4.1 Population	25
4.2 Sampling Method	25
4.3 Data Collection	26
4.4 Research Instrument	26
4.5 Training of Research Assistants	27
4.6 Pilot Study	27
4.7 Data Collection	27
4.8 Ethical Consideration	28
4.9 Study Limitations	29

### Chapter 5: Results

5.1 Demographic profile	31
5.2 Psycho-social and contextual determinants	35
5.3 Data Reduction	43

### Chapter 6: Discussion and Conclusion

6.1 Discussion	48
6.2 Conclusion and Recommendations	52

### 7.0 References

### 8.0 Appendices

Appendix a - Consent letter - English	
Appendix b - Consent letter - Xhosa	
Appendix c - Consent letter- Afrikaans	
Appendix d - Questionnaire - English	
Appendix e - Questionnaire - Xhosa	
Appendix f - Questionnaire - Afrikaans	
Appendix g - UCT Research Ethics Committee Approval Letter	
Appendix h - Permission letter, Medical Superintendent	

## ABSTRACT

Chronic diseases of lifestyle (CDLs) have been rapidly increasing in population groups which had previously been least affected by this kind of illnesses. Diabetes Mellitus in particular has been shown to be rapidly increasing in South Africa amongst the non-white population which traditionally, had low reported prevalence rates of the condition. The rapid increase in urbanisation and adoption of a western diet by the urbanised black population has been one of the main contributing factors. In contrast to this picture the socio-economic status of this population has remained relatively low and the high costs involved in long term management of CDLs, poses a potential time bomb to the public health system. This study sought to explore the psychosocial determinants of adhering to rehabilitation for diabetic amputees.

Twenty-eight questionnaire based semi-structured interviews were conducted with patients who had undergone lower limb amputations due to the complications of diabetes. Cross sectional purposive sampling was employed to select participants for the study. Sixteen females and 12 males were interviewed with a mean age of 61.7 years of age. The results showed that environmental barriers and poor knowledge of the pathogenesis of the disease and the rehabilitation protocol had a stronger impact on an individual's ability to complete a rehabilitation programme successfully. Social support and confidence in performing required activities were also very strong factors.

## **Glossary Of Terms**

**Rehabilitation:** The term rehabilitation has been used loosely to include all the procedures that are necessary towards long-term rehabilitation of diabetic amputees.

**Diabetes Mellitus:** This is a condition characterised by chronic hyperglycaemia and disordered carbohydrate, lipid and protein metabolism, that is associated with the development of specific micro vascular and non specific macro vascular disease. For the purpose of this study the term is used referring to both Non Insulin Dependant Diabetes Mellitus (NIDDM) and Insulin Dependant Diabetes Mellitus (IDDM).

**Poly- Pharmacy:** this refers to the large number of different medications that elderly people have to take in their everyday life to manage chronic conditions

**Determinants;** These are all the factors predisposing, enabling and re-enforcing health related behaviour.

**Cor-morbidities;** For the purpose of this study this refers to all the other chronic diseases that require long term medication and are usually associated with old age.

**Chapter 1.0 INTRODUCTION**

University of Cape Town

## **1.1 Background**

The South African population is estimated at about of 43 million citizens (Stats SA, 2000) who are unequally distributed over nine provinces. African black people make up the biggest group at 77% with white people at 11 %, “coloured” people at 9% and South Africans of Indian descent making up 3 % of the population. About 54% of the population live in urban areas with varying rates of urbanisation within provinces.

Gauteng Province has the highest rate of urban dwellers at 97 % while the Northern Province has 11% of its population living in urban settings. There has been an increase in the rate of urbanisation post the 1994 general elections when the laws restricting movements were fully scrapped (Cunningham et al., 1997 pg 226). This rural-urban migration has been due to the lack of economic activity in the rural areas, which has forced people to flock into the cities to look for employment opportunities.

South Africa is considered an upper middle-income country. Despite this seemingly good economic picture the South African economy is characterised by gross extremes of wealth and poverty. The huge income gap between the rich and the poor sectors of the South African population is evident in the disease patterns as they are stratified according to income group, with the rich suffering from Chronic Diseases of Lifestyle (CDLs) and the poor populations a large burden of disease from infectious conditions. However it should be noted that lately the disease patterns have been gradually changing across the socio-economic strata due to urbanisation and dietary changes. The real impact of the move by lower socio-economic status into Chronic Diseases of Lifestyle such as diabetes mellitus and hypertension will be felt even more in the distant future as the proportion of older people steadily increases across all racial groups (Cunningham et al, 1997 pg 227-228).

The cost of managing these conditions are usually very high and require long term management which will put a huge strain on the health budget as public sector health needs start leaning more towards CDL management.

In South Africa the poorest 40% of the population only earns 4 % of total income whilst the richest 10 % controls over 51 % of total income. A clearer picture of the severity of the situation emerged from the summary of the 1996 Census, which showed that the bottom 25% of the population earned less than R500 a month, which is less than the R800 poverty line, set by Statistics South Africa (Stats SA, 2000). Furthermore statistics show that only 5% of the African Black population earn more than R3500 a month, despite accounting for over three-quarters of the entire population (SA Health Review, HST, 1997).

*Table1: The following table taken from the SA Health Review (1996 demonstrates the breakdown of poverty across different racial groups.*

	<b>Whites</b>	<b>Coloureds</b>	<b>Asians</b>	<b>Blacks</b>
<b>Average household income (Rands)</b>	3544	1474	2679	679
<b>% Of households in poverty</b>	2.1	18.5	6.2	47.2
<b>% Of individuals in poverty</b>	2.1	19.8	6.8	57.2

Source: South African Health Review (1996): Health Systems Trust, Durban, PG 13

The “Coloured” and as well as the Black African population, which are the population groups that form the large majority of the study population, are at the bottom rung of the socio-economic rung in the country. The shocking reality is that while they remain very poor they have steadily had an increase in the burden of disease from chronic diseases of lifestyle. Much as this study will be focusing on these two racial groups, it does seek to address rehabilitation outcomes based on race but focuses on the prevailing similar socio-economic conditions that this population groups face in the “Cape Flats” areas of Cape Town.

## 1.2 Diabetes Population Trends in South Africa

Diabetes mellitus (DM) falls within the broad category of disease commonly known as chronic diseases of lifestyle. This group of conditions was commonly associated with higher socio-economic sectors of the population and traditionally the lower socio-economic sectors in the country suffered from infectious conditions (Cunningham et al., 1997 pg 228). The White and Asian sectors of the population have traditionally had higher prevalence rates of DM when compared with African Black and "Coloured" populations (Omar et al., 1993 & Omar et al., 1994). While the rates of DM have remained relatively constant for the former two population groups there has been a sudden increase in the prevalence of the disease in the African Black and Coloured population (Levitt, 1997). The recent upsurge in rural-urban migration has changed the picture dramatically as the disease patterns are no longer as clear-cut. The adoption of urban lifestyles such as a diet including fat, sugar and salt saturated foods, coupled with the sedentary lifestyle has meant that poor people in urban areas start showing higher prevalence of DM.

In rural black populations the rate of DM has been shown to be around 2 % (Kakembo et al, 1996; Walker & Walker, 1994) while in the urban populations the rates reported range between 6% and 8 % which shows a four-fold increase in risk. Levitt et al. (1993) reported that the length of time spent in an urban area was an independent risk factor for developing diabetes among Black South Africans who live in the townships in Cape Town. Similar studies conducted in Durban and Johannesburg revealed a similar trend of increase in the rate of DM in the urban African Black population (Omar et al, 1993 & Omar et al, 1994). This presents a potential time bomb in the health system as more and more blacks are moving into urban areas and adopting lifestyles which put them at risk of suffering from DM.

Many people in urban areas still live in situations that limit their life scope, and the choices that people will make when exposed to unemployment, high calorie foods, cigarettes, alcohol and reduced physical activity have a profound effect on the types of conditions that affect them (Detels & Breslow 1997).

Another study conducted on the urban "Coloured" population in Cape Town reported rates of DM at around 28 % in elderly people who had spent most of their lives living in urban areas (Charlton et al., 1997). According to Levitt et al. (1993) the rate of DM in the African Black population grew four-fold over a period of twenty years:

Considering that movement between rural and urban areas in this country is no longer restricted since the demise of apartheid the situation is very likely to be even worse in 20 years-time. Detels and Breslow (1997) also reiterated the fact that while chronic diseases have remained constant in the white population, their prevalence has been coming to the fore in groups that were previously not heavily affected by these conditions.

Pickup and Williams (1994 pg 519) mentions the following main types of diabetic complications, namely diabetic eye disease, diabetic neuropathy, diabetic nephropathy, diminished immunity micro vascular disorders and diabetic foot disorders. The last two complications, which are decreased circulation due to micro vascular problems and the diabetic foot are the main complications, which this study is focusing on as they usually lead to a stage where an amputation of the lower limb becomes inevitable. Undergoing a lower limb amputation is a very traumatic experience both psychologically and physically and taking into account that most people undergo this operation in their old age it can easily lead to a drastic drop in physical activity and independence.

Amputation in diabetic patients can lead to complete disability if patients are not put through proper rehabilitation and management protocols as the likelihood of progressing to more proximal amputations and later on bilateral amputation is very high. Rehabilitation workers and other health care workers face the challenging task of providing diabetic patients with comprehensive management protocols that can help reduce the need for more drastic operations, which lead to severe disability.

### **1.3 Study Setting: Rehabilitation Services in the Cape Peninsula**

The amputee rehabilitation programme at Groote Schuur Hospital (GSH) is the largest rehab setting that focuses on long-term management of patients who have undergone lower limb amputation in the Western Cape. An average of 300 patients attend this facility twice a month for exercise classes. Diabetics makes up about 90 % of the total population attending the classes, with the rest being victims of violence mainly train accidents as well as other conditions such as neoplasm.

Due to the large numbers patients can only be accommodated in the rehabilitation classes twice a month, and therefore they are expected to do most of their exercises in their homes if the programme is to be of any benefit. Due to staff shortages in the hospital system it is usually difficult to establish whether patients do continue with their management at home. The hospital gym is also well equipped with hi-tech equipment which none of the patients had in their home setting considering the desperate economic conditions under which they live.

A multi-disciplinary outpatient clinic is also held on the same premises every Monday afternoon where patients are constantly evaluated for their progress in preparation for the issuing of prosthesis.

The clinic is staffed by a social worker, physiotherapist, occupational therapist, surgeons and a dietician. This clinic also serves as the point where patients can be placed on the waiting list for a prosthesis, which comes from the Conradie Orthotic and Prosthetic Workshop. The average waiting period for prosthesis is about 12 months but it can be as long as 18 months (Ivey, 2001, personal communication). The Conradie workshop is the only workshop of its kind in the province for the public sector. Apart from manufacturing the prosthesis the centre also acts as the repair centre for damaged walking devices. On addition to make aids for all the government hospital the centre also supply all the special schools for disabled children in the province, which makes satisfying every need in time to be almost impossible and thus the long waiting lists.

A large number of the patients attending the rehabilitation classes also migrate back and forth between the Eastern Cape and the Western cape as most African Blacks living in the township still maintain dwellings in the former homelands in the Eastern Cape. This implies that successful rehabilitation in this group of patients should take into consideration the dimension of periods of absence and try to empower the patients in such a way that they can be able to sustain the programme even if they are not in the Western Cape. Proper research into determinants of adhering to exercise therefore require a more in-depth exploration of the patients point of view as opposed to using only quantitative measures of function and mobility.

## **Chapter 2. LITERATURE REVIEW**

University of Cape Town

## 2.1 Theoretical Frameworks

Rehabilitation programmes assumes an expected change of behaviour from a sedentary life to a more active life after injury or amputation, whereby patients are expected to perform exercises at home on a daily basis for the rehabilitation goals to be met. Exercise is a voluntary health behaviour that can be modified through proper education and modelling of the correct behaviours to the target group. Traditional rehabilitation programmes have failed to identify the fact that behaviour is a multi-faceted phenomenon and therefore requires properly planned intervention and education programmes that should take into consideration the psycho-social processes that are involved in behaviour change. Since most protocols used in physiotherapy rehabilitation programmes are based on literature on rehab protocols from western countries. The use of theories on psychosocial determinants can provide useful way of evaluating these interventions and fine-tuning them to suit local SA conditions.

Theories provide a very useful framework for studying the determinants of behaviour change in individuals, groups and even societies. Since behaviour change involves a situation whereby a new behaviour competes or attempts to replace former patterns of inactive behaviours, understanding the way new behaviours are initiated and maintained is crucial for rehabilitation to be successful. That said, theoretical models in isolation will not provide all the answers to behaviour change, but when used in combination they can provide valuable information towards long - term rehabilitation outcomes (US Department of Health and Human Services, 1996). The following is a brief description of theories which are usually used in rehabilitation research most of them dealing with exercise, which is in essence the main component of rehabilitation for amputees.

### **2.1.1 The Health Belief Model**

The health belief model was developed in an effort to explain the wide failure of people to participate in programmes to prevent disease and was then later extended to explain behaviour in response to diagnosed illnesses and their compliance to the prescribed management regimens for the condition (Strecher & Rosenstock, 1997).

This theory states that people will be motivated to adopt and maintain new health behaviour based on the following constructs.

***Perceived Susceptibility:*** This dimension measures an individuals' own subjective perception of contracting an illness. For existing illnesses it has been reformulated to include the persons acceptance of the condition and the required actions to avoid further complications.

***Perceived Severity:*** this dimension involves an evaluation of both medical and clinical consequences and possible social consequences. For instances the potential loss of the contra lateral leg or a more proximal amputation on the same leg, can be cues for adhering to rehabilitation in diabetic amputees.

***Perceived Benefits:*** This refers to an individual's perception of the potential benefits that can result from the behaviour change. For instance increased physical mobility leading to a better quality of life can lead to sustained performance of exercises.

***Perceived Barriers:*** These are the individual's (whether real or imagined) self identified barriers to modifying or changing a health behaviour.

### **2.1.2 Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour**

The Theory of Reasoned Action (TRA) as developed by Ajzein and Fishbein (1980), is founded on the belief that an individual's performance of a voluntary activity is determined primarily by the person's intention to perform that behaviour. The intention to perform behaviour relies on two major factors namely,

**Attitude:** this deals with the person's attitude towards the intended behaviour and their weighted evaluations of potential outcomes of performing the behaviour. For instance teaching a patient how to walk in rehabilitation when the patient only values wheelchair mobility as a better outcome can lead to frustrations to both patient and Physiotherapist due to the differing outcome expectations.

**Subjective Norms:** This refers to a person's social environment and their beliefs. The way other people (health workers) think they should do rely on the person's motivation to comply with their opinion based on their environment and beliefs. Expectations from health workers to perform exercises at home, as well as cutting down certain foodstuffs in diabetic patients rely heavily on a person's social environment. The opinion of the health worker should not conflict with the opinions of peers, family and significant others if a person is to successfully adopt specific health behaviour.

The Theory of Planned Behaviour (TPB) was further developed by Ajzein (1991) to expand on the TRA to include any additional factor of perceived behavioural control. Perceived Behavioural Control is based on the idea that behavioural performance is determined jointly by motivation (intention) and ability (behavioural control). Ajzein argued that an individual will expend more effort to perform behaviour when their perception of behavioural control is high (Montano & Kasprzyk, 1997; Nutbeam & Harris, 1998). A person's perception of control over behavioural performance, together with intention, is expected to have a direct effect on behaviour, particularly when an accurate assessment of control has been made. Furthermore perceived control is determined by control beliefs concerning the presence or absence of resources for, and impediments to behavioural performance.

Thus a person who holds strong beliefs about the existence of factors facilitating performance of behaviour will have high perceived control, and conversely a person who holds strong beliefs about the existence of factors that impede behaviour will have low perceived control of the behaviour (Montano & Kasprzyk, 1997). These are very important constructs when you take into consideration the cultural, socio-economic, age and religious background of the patients who attend rehabilitation services in Cape Town.

### **2.1.3 Social Learning Theory/ Social Cognitive Theory**

The Social Learning Theory (SLT) was first described by Albert Bandura in 1969, and later referred to as the Social Cognitive Theory (SCT). The SLT model provides a further step in the study of behaviour determinants as it moves to a level where it looks at individual behaviour, in relation to the way that people interact with their immediate environment. The SLT has many constructs which are used in studying behaviour determinants, and the following constructs have been associated with physical activity and rehabilitation programmes;

#### ***Self- Efficacy***

Self- efficacy is defined as a person's estimation of their ability to perform the particular behaviour in a particular situation i.e. how confident are they in their capability to perform the behaviour

#### **Collective Efficacy.**

Collective efficacy is the latest addition to the group of constructs in SCT, which extrapolates from self-efficacy to a broader type of ability at interpersonal level (Bartholomew et al.; 2001). This refers to a group or unit's shared belief in its conjoint capabilities to perform an activity.

This can be applied at the family level whereby a spouse or children can help the diabetic amputee in their programme due to their perception of how much skills they have collectively. In diabetes where dietary modifications are always essential, this can go a long way in ensuring that the people responsible for buying and preparing food stuffs in the family demonstrate strong collective efficacy

### ***New skills***

This refers to the ability of a person, a community or an organisation to be able to carry out the behaviour or health action (Kok et al, 1991). To an individual or group of people where exercising is not a norm it can become a new skill through appropriate intervention.

### ***Reinforcing factors***

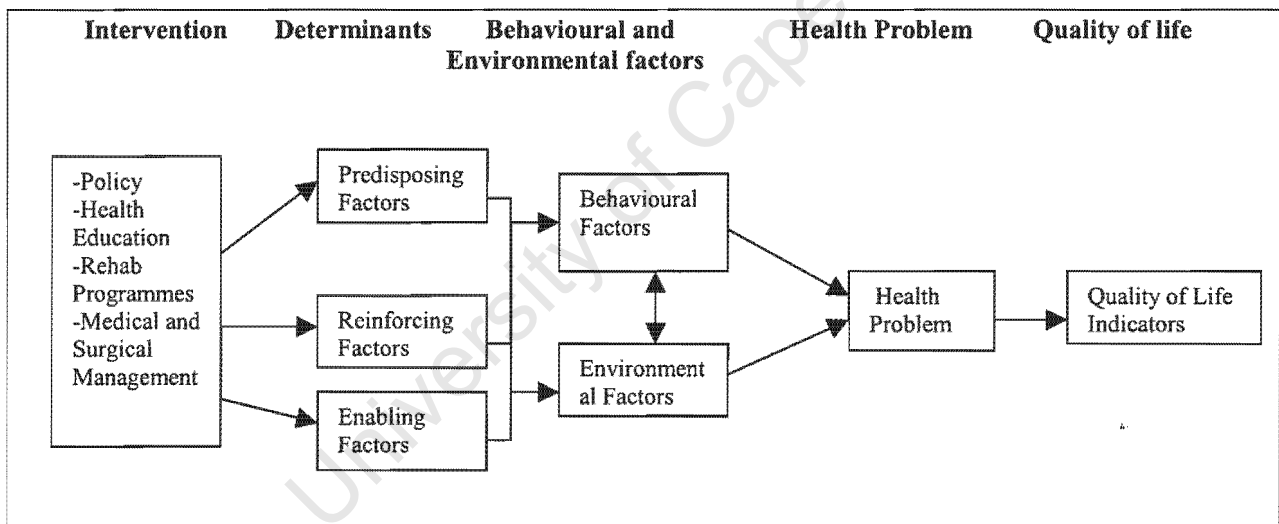
The reinforcing factors are those consequences of action that determine whether a person receives positive or negative feedback on performing a particular health action. These include social support from peer influences, health care providers and other important people. Reinforcing factors could include social benefits (such as recognition), physical benefits (such as relief from pain or convenience), tangible benefits (such as avoidance of cost), and imagined or vicarious rewards (such as improved appearance or association with an admired person).

### ***Outcome- Expectations:***

Outcome expectation is a judgement of the likely consequence that certain behaviour will produce (“ when I do my exercises every day I can prevent the need for a more proximal amputation on my leg”). Outcome expectations are the values that individuals place on a certain outcome (Bartholomew et al, 2001)

### 2.1.4 The PRECEDE-PROCEED Model

The following is a brief overview of the PRECEDE-PROCEED model developed by Green and Krueter (1991) as a framework for the planning, implementation and evaluation of health intervention programmes. The PRECEDE-PROCEED [Acronym for *p*redisposing, *r*einforcing, and *e*nabling construction, *e*ducational (and environmental) *d*agnosis and *e*valuation- *p*olicy, *r*egulatory, and *o*rganisational constructs in *e*ducational and *e*nvironmental *d*evelopment] model draws its strength from its ability to combine constructs from different theories of behaviour into one logical framework that can systematically be used to plan, implement and evaluate health interventions in population groups or even individuals.



*Fig 1: A Modified Version of The PRECEDE-PROCEED adapted from Health Promotion Planning: An Educational and Ecological Approach by Green and Kreuter, 1991.*

The model provides an approach that systematically coordinates the use of theories and data in planning and evaluation of programmes at different level. Traditional management of conditions jumps from the health problem stage, to the intervention stage and if outcomes are not as expected poor patient compliance is usually quoted for the poor results in rehabilitation.

For the purpose of this study the focus will be on the determinant level of health behaviour with a slight overlap into behavioural and environmental factors, which are generally highly neglected areas in rehabilitation research.

The model identifies three categories of determinants that influence individual or collective behaviour including organisational actions in relation to the environment. Each of these categories is believed to have a different type of influence on the health behaviour. These categories are useful as they enable the health worker to make the transition between perceptions and real skills that are necessary to perform the health behaviour. The categories are explained as follows:

**Predisposing factors** are those antecedents to behaviour that provide the rationale or motivation for the behaviour (e.g., knowledge, beliefs).

**Enabling factors** are those antecedents to behaviour that enable a motivation to be realized (e.g., skills to practice safe sex through negotiating condom use, facilities in the communities that promote wheel-chair use such as paved roads and ramps).

**Reinforcing factors** are those factors subsequent to behaviour that provide the continued reward or incentive for the health behaviour and contribute to its maintenance or repetition (e.g., social support from family and friends, home exercise programmes that are user friendly and suitable for the patient's home situation).

As behaviour is seen as a multifaceted phenomenon, the model suggests that a given behaviour can be explained as a function of the collective influence of these three factors. If a programme focuses on only the predisposing factors, there is a likelihood that it would fail to change behaviour except in a small group of people who have the resources and rewards readily available

## 2.2 Determinants of Adhering to Rehabilitation in Amputees

Behaviour theories emphasize that learning a new complex pattern of behaviour like for instance changing from a sedentary lifestyle to an active lifestyle or cutting fatty foods in your diet, requires modifying many of the small behaviours that compose an overall complex behaviour. For example reducing fatty foodstuffs in a diabetic diet would involve modifying the supply and distribution of foodstuffs into local shops, the place where they buy food and the way the food is prepared in their homes.

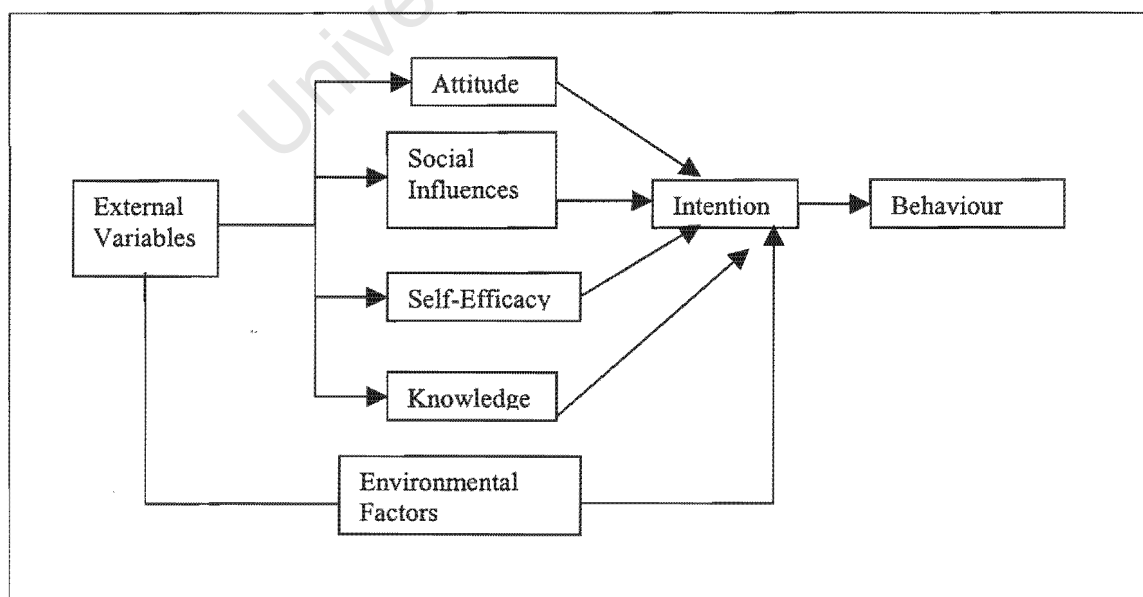
Principles of behaviour modification states that a complex activity such as performing exercises at home needs to be broken down into simple smaller units (e.g. Perform 3 arm exercises and 3 leg exercises per day 3 times a day before every meal doing 10 repetitions each).

The expected behaviours need to be simple enough with clear progression goals and progress evaluation. The correct understanding of the determinants under-girding that behaviour is very crucial if behaviour is to be sustained by an individual. For the purpose of the study adhering to a rehabilitation programme has been defined as consistent performance of the following activities;

- Attending rehabilitation classes continuously until prosthetic fitting is applied
- Proper care of stump and contra lateral leg by doing daily observations and reporting any ulcers, wounds or ingrown toe nails
- Maintaining the correct diet as advised by the dietician at the Amputation clinic
- Continuous use of issued assistive devices both within and outside the home setting
- Daily performance of home exercise programme
- Compliance with the prescribed medication for controlling diabetes.

The Attitude-Social influence-Self Efficacy Model (ASE) as developed by De Vries and Backbier (1994) has been used to analyse determinants of adhering to physiotherapy programmes in the Netherlands (Alewijse et al 2001).

The ASE assumes that rehabilitation related behaviour is determined mainly by the three constructs of attitude, social influences and self –efficacy which are derived from TPB and SCT and therefore takes into account issues like social norms, modelling and social support. Due to the different socio-economic and cultural conditions in the South African context a third dimension of External Environmental factors such as type of accommodation (e.g. shack vs. house or “Cape flat”) plays a very important role in the intention to adhere to rehabilitation and the inclusion of this dimension as a very important determinant in the SA context. Knowledge has also been identified as an additional factor due to the marked differences that exist in the terminology used in defining DM, in our communities especially since the condition is widely defined with the word “sugar” which real plays a large impact on the potential existing prevention practices surrounding the condition.



*Fig.2: A modified presentation of the ASE model of behavioural determinants*

Thus according to the ASE model the key to changing adherence to rehabilitation programmes would be analysing determinants of the intention to adhere, which in turn gives a direct indication of whether the behaviour will be adopted and sustained by the individual. In a study done on African American adults on the determinants of physical activity, Trost and Pate (1996) identified three psycho-social determinants of performing exercises which were self efficacy, perceived barriers and outcome expectations which are all covered in the framework of the ASE model and therefore makes it one of the most extensive approaches to studying determinants related to exercise performance.

A similar study on elderly citizens who had been diagnosed with type 2 DM was conducted with participants from different ethnic backgrounds (Hays & Clark, 1999). Knowledge, skills, self- efficacy and outcome expectations came out as key positive determinants for engaging in exercise activities.

Johnson (2000) conducted a similar study in England with elderly patients of Asian ancestry and found that even though there were no major ethnic differences in the determinants of engaging in physical activities, there were still subtle cultural and religious considerations that need to be taken into consideration when designing programmes for special population groups. For instance the issue of exercising with both genders and the dress code required to perform exercises is a crucial aspect in programmes targeting Islamic and African Black communities.

### **2.3 Rehabilitation Outcomes in Amputees**

Diabetes is the leading cause of lower limb amputation in the older populations worldwide, and several studies report that up to 90% of all the amputations in this group are due to complications of Diabetes (Collin & Collin, 1995; Cutson & Bongrioni, 1996).

The postoperative mortality rate is reported at around 15 % and several studies have reported that up to 20 % of Diabetics lose their contra lateral leg within 2 years of having their first amputation (Cutson & Bongrioni 1996; Condie et al., 1996; Pell et al., 1993). Considering the severe physical limitations associated with bilateral amputation consistent exercising can be one way of preventing further loss of limbs in diabetic patients. Despite the seemingly gloomy picture of diabetes and amputation, it has been found that with proper rehabilitation elderly patients with amputations can continue to enjoy a high quality of life. Collin and Collin (1995) reported that over 75 % of the patients die within 5 years of having their first amputation. This makes it important for rehabilitation staff to fully understand the needs of the elderly amputee to ensure maximum mobility as soon as possible.

Several studies have shown that age alone cannot be used as criterion for excluding patients from acquiring prosthesis or setting goals for rehabilitation, but the presence of co morbidities such as hypertension and coronary heart disease (CHD) can seriously compromise the rehabilitation outcome (Pernot et al., 1997). Since most elderly people tend to have multiple medical conditions that require continuous medication the issue of poly-pharmacy and provides a huge challenge in their consistent and correct intake of medication. Rehabilitation programmes should therefore focus on the needs and expectations of both patient and health worker to avoid the potential frustration that can be caused by disregard for the patients realistic needs and circumstances.

Exercise provides a two-tier benefit factor to diabetic amputation patients because not only does it prepare them for subsequent use of a prosthesis it has also been reported to provide increased insulin sensitivity and glucose tolerance in diabetics (Hays & Clark, 1999).

Diabetic amputation rehabilitation also involves the continuous self care of amputated leg and remaining leg to avoid the necessity to amputate at a more proximal level as well as the loss of the other leg, which really changes the expected rehabilitation outcomes in elderly patient as they have very low chances of being able to use bilateral prosthesis.

#### **2.4 Management and Complications Of Diabetes**

Since DM is a chronic condition it therefore requires a long- term management through lifestyle modification and medication. Obesity is one of the major risk factors for developing DM (Levitt, 1997) and once a patient has been diagnosed with the condition certain dietary changes are necessary. Taking the issue of poverty into consideration it is usually not easy for people to switch into healthier eating habits.

There seems to be a lack of a consistent management protocol in the way that DM is managed in different primary health care centres as different hospitals gave different management approaches during a record review study of day hospitals in the Western Cape (Levitt et al., 1996). In the Western Cape most diabetics collect their medications in their local day hospitals, which are primary level health care centres. Each day hospital has its own “Diabetic Club” which acts both as a support group as well as a health education forum for patients (Goodman, 1997).

The clubs are staffed by nursing sisters, community nurses, social workers, rehabilitation health workers and medical doctors. They also found that foot and eye examinations were rarely done on diabetic patients in day hospitals.

Goodman et al. (1997) conducted an audit of staff knowledge on the management and identification of the complications of DM in twelve public sector day hospitals.

Senior staff members consisting of doctors, nurses, primary health care (PHC) nurses and staff nurses were interviewed all having an average of six years in practice. They found good knowledge of the complications of diabetes, but there was a serious inadequacy in the identification of signs and symptoms of diabetic emergencies which is a cause for concern as these are the people who should be passing on this type of information to their patients through health education programmes. This is a matter of serious concern as daily examination of ulcers and feet condition are crucial for early detection of complications which could reduce the need for amputation at a later stage. On-going in service training among staff and a multi disciplinary approach has been found to be crucial in the management of diabetes (Condie et al, 1996; Goodman, 1997)

## **Chapter3.0 GOALS OF THE STUDY**

University of Cape Town

### **3.1 Aims of The Study**

This study seeks to identify the determinants of the intention for adhering to a rehabilitation programme in diabetic lower limb amputees until successful fitting of prosthesis.

### **3.2 Specific Objectives**

3.2.1 To establish the barriers to adhering to rehabilitation with a main focus on exercise and stump care

3.2.2 To establish the re-enforcing factors to long-term adherence to rehabilitation in diabetic amputees.

## **Chapter4.0 METHODOLOGY**

University of Cape Town

#### **4.1 Study Design**

A combination of quantitative and qualitative study designs, using an interviewer administered semi- structured questionnaire was utilised for the study.

The questionnaire consisted of both closed and open- ended questions. The qualitative approach was chosen as a method of choice for the study due to its ability to allow for in-depth unrestricted collection of information from participants as most of the information depended on individual experiences and circumstances. As this study sought to study determinants from the patient's perspectives, this type of study design allowed for the inclusion of additional information, which might not have been encountered in the literature while still providing a meaningful source of information for the researcher. The quantitative aspect addressed mainly issues related to assistive devices and levels of mobility as well as environmental factors enhancing or hindering function within the home and community setting.

#### **4.2 Population**

The study population consists of all the amputee patients attending the rehabilitation classes at Groote Schuur Hospital, who had undergone lower limb amputation due to complications of diabetes mellitus. The Groote Schuur amputation rehab classes has approximately 350 patients enrolled for rehab classes and over 320 (91%) of these amputations were due to diabetes. The exercise sessions are held 3 times a week, but due to a large patient load, each patient can only attend at two weeks intervals. The patients are expected to continue with the exercise programme at home. The population is drawn mainly from the Cape Flats area of Cape Town, which consist of mainly Blacks and Coloured Townships.

### **4.3 Sampling Method**

Cross sectional purposive sampling was utilised to select participants from the sampling frame derived from the rehabilitation unit records. Stratification was then employed to divide the participants into 3 strata based on the type of accommodation where they lived. The decision to stratify according to living circumstances was reached after conducting a few unstructured interviews with patients at the clinic where it was established that the structural differences between formal and informal housing played a major role in a patient's rehabilitation outcome. Only participants with unilateral amputations were selected for the purposes of this study as bilateral amputees vary tremendously in terms of rehabilitation outcomes when compared to unilateral amputees.

### **4.4 Research Instrument**

A semi-structured interviewer administered questionnaire was utilised to ensure smooth progression of the discussion and also for ensuring uniformity of the issues that were covered with the participants. The questionnaire was based on the theoretical constructs covered in the theories of reasoned behaviour, theories of reasoned action and the health belief model as integrated in the ASE model, which is widely used for behavioural studies focusing on physical activity. The questionnaire was then translated into Xhosa and Afrikaans to allow for the inclusion of participants who were not competent in English. For easier management of data most of the interviews were conducted in English where possible so as to reduce the need to transcribe and translate the data.

#### **4.5 Training of Research Assistants**

The two Research Assistants (RAs) were experienced in the field of amputation rehabilitation, but still needed to get further training from the researcher so they could master skills and knowledge on the principles and theories under-girding physical activity, more especially exercise. A two-day training session was conducted over a weekend to ensure that there was consistency in the way questions were asked as well as data gathering during the interviews.

#### **4.6 Pilot Study**

The questionnaire was tested during September 2001 with a group of patients who were also similar to the study population. This was done to test content validity and reliability of the questions being asked. Another important factor was to test the accuracy of the translated versions into Afrikaans and Xhosa. Based on the findings of the pilot study, the questionnaire was then modified and a few questions that were not applicable to the South African population context were taken out of the questionnaire. The pilot study was also used to measure the time required to administer the questionnaire which was an important step due to the time limitations that we had with participants

#### **4.7 Data Collection**

Patients were briefed about the study during one of their visits to the unit during the months of October to December 2001. Patients who were willing to participate were then given the consent form and then booked for an interview with the research assistants during the Semi-structured interviews were conducted with questions consisting of both closed and open ended questions.

To capture all the data both written responses and a tape recorder was used during the interviews. The two RAs conducted interviews in both English and Xhosa while the investigator only conducted English interviews. A tape recorder and field notes were utilised to capture additional information from the open - ended questions of the questionnaire. All the interviews were conducted in the private waiting rooms in the hospital rehabilitation unit. The interviews lasted for about 60 minutes on average, but it was noted that those conducted in Xhosa lasted up to 75 minutes due to the translation and clarification of terms

## **4.8 Ethical Considerations**

### **4.8.1 Informed Consent**

Permission to conduct the study was granted by the head of physiotherapy services at Groote Schuur Hospital as well as the Medical Superintendent responsible for outpatient services at the hospital. Further permission to gain entry was obtained from the head of the Amputation Rehabilitation unit at the hospital. The study was also approved by the UCT human research ethics committee. Individual consent was then obtained from patients through the use of an information leaflet and a consent form, which was given to all selected participants. Patients were informed about their choice to decline from being part of the study in a language of their choice. They were also reassured that refusing to participate was not going to affect their rehabilitation programme. Consent letters informing participants about the study its objectives, were translated into Afrikaans and Xhosa in order to ensure proper understanding by all the participants. Verbal consent was obtained in cases whereby a participant was interested in being part of the study, but they were not able to read and write.

#### **4.8.2 Confidentiality**

Participants were informed that information gathered during the study was to be treated in the strictest confidence. This was highlighted to all the participants who were involved in the study and they were also told about the safekeeping of the tape-recorded information so that they were all clear about who had access to the information that they were giving.

#### **4.9 Study Limitations and Potential Bias**

Due to time constraints only a limited number of participants could be included in the study, but it was still felt that the amount of information from this sample was adequate to pave a way for much more bigger in-depth studies into the subject.

Another potential limitation was the lack of a staff interview component in the study, but the researcher had spent two years working in the rehabilitation unit and therefore deliberately avoided including staff in the enquiry as he was familiar to some of the problems as perceived by staff.

## **Chapter 5.0 RESULTS**

University of Cape Town

## **5.1 Demographic Profile of Sample**

The demographic profile of the participants is given in Table 5.1. Data was collected from a total of 28 amputee patients at various levels of their rehabilitation. Sixteen of the participants (57.1 %) were female and 12 (42.9 %) were male

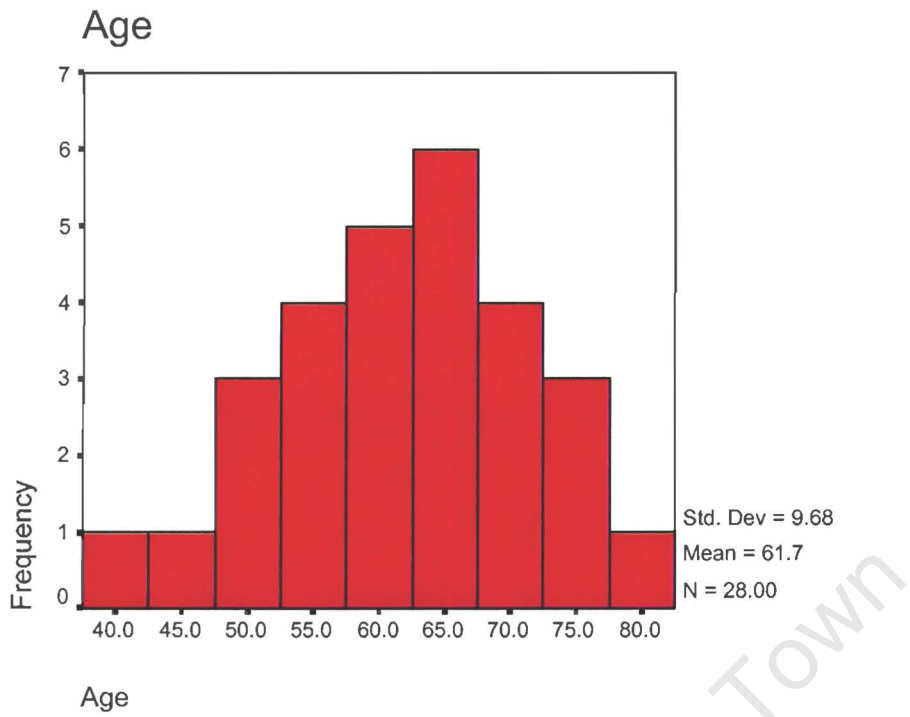
The mean age of the sample was 61.7 years (Figure 5.1), which is consistent with other studies on rehabilitation outcomes in diabetic amputees (Condie et al, 1996; Cutson et al, 1996; Kald et al, 1989). The age ranged between 42 and 80 years.

Twenty-six (92.9%) of the participants came from the Cape metropolitan area, while 2 (7.1 %) came from the Wineland region of the Western Cape. One participant was a refugee who had recently arrived in Cape Town and was living in an informal settlement in the Township.

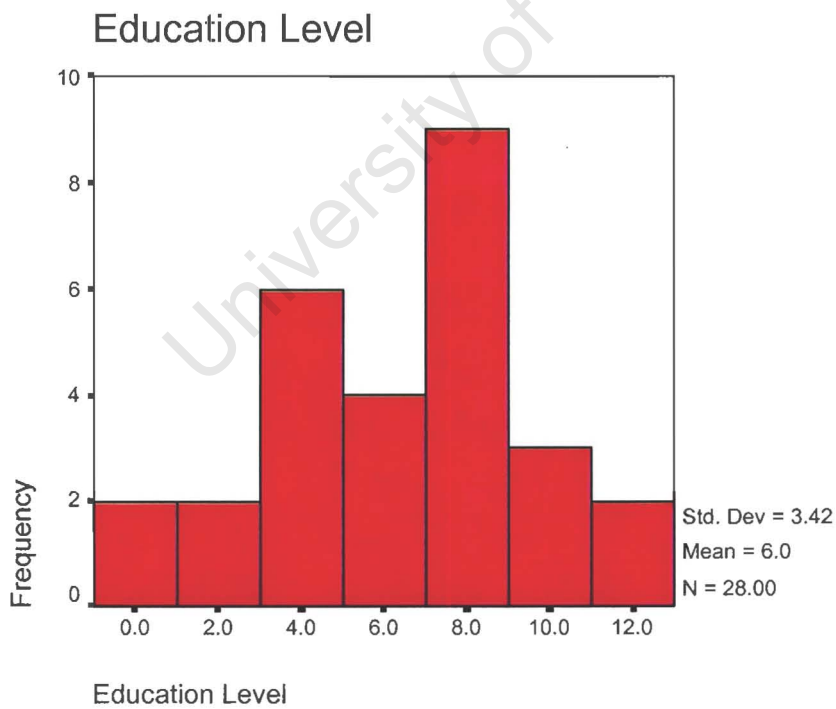
The average time spent in formal education was 6 years (0 –12 years) (Figure 5.2) with the lowest being 2 participants who had no formal education at all. Most participants were married or living with their spouses (57 %) while on the other hand a significant number had deceased spouses (39.3%). About half of the participants interviewed reported using hospital transport (Figure 5.3) to attend their rehabilitation sessions twice a month. That means that the adherence to the programme also rely to a large extent on the efficiency of the hospital transport service, which is a free service for picking up patients from their homes to attend their hospital appointments.

**Table 5.1: Socio-demographic characteristics of the sample (N=28)**

Variable	Frequency	Percent
<b>Gender</b>		
Male	12	42.9
Female	16	57.1
<b>Marriage Status</b>		
Single/Divorced	1	3.6
Married	16	57.1
Widow	7	25.0
Widower	4	14.3
<b>Housing</b>		
Shack	6	21.4
Council House	14	50
"Cape Flats"	3	10.7
Hostel	5	17.9
<b>Financial Status</b>		
Disability Grant	12	42.9
Private pension	3	10.7
State Pension	10	35.7
Waitlisted for Grant / Pension	3	10.7
<b>Cormobirdities (Chronic)</b>		
0	4	14.3
1	11	39.3
2	7	25.0
3+	6	21.4
<b>Waiting Period for Prosthesis</b>		
0-6 months	9	32.1
7- 12 months	6	21.4
Over 12months	12	42.9
Prosthesis issued	1	3.6
<b>Assistive devices issued</b>		
1	7	25.0
2	16	57.1
3+	5	17.9
<b>Mode of Transport to Rehab</b>		
Family/ own car	9	32.1
Taxi	1	3.6
Train	0	0
Hospital transport	14	50
Dial a ride	2	7.2
Other (private hire)	2	7.2

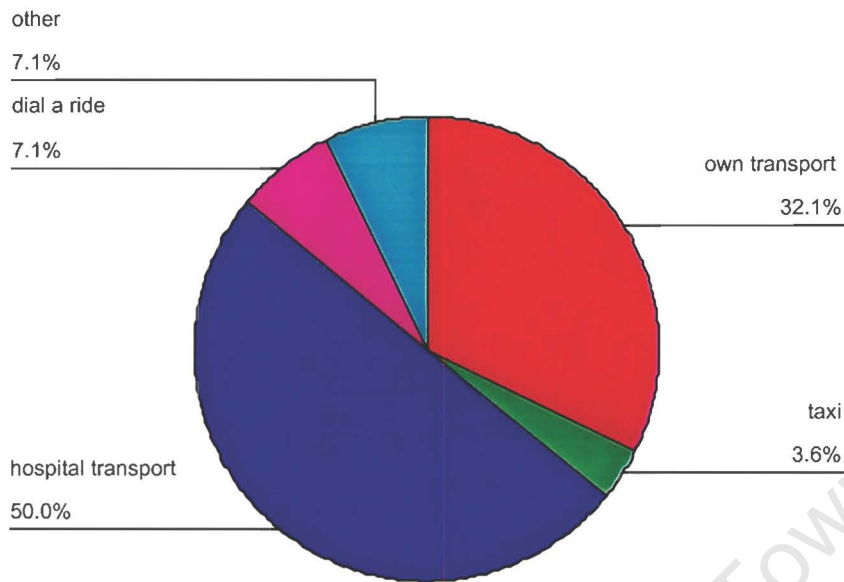


*Figure5.1: Graph showing age distribution of participants*



*Figure5.2: Graph showing education levels of participants*

## Mode of Transport



**Figure 5.3: Pie-Chart Showing modes of transport**

Most of the participants relied on government pension and disability grants for subsistence (89 %) (Table 5.1) and none of the participants reported to be still in active formal employment. The average waiting period before the issuing of a prosthesis was between 12 and 18 months (64 %) which means that participants could be attending rehabilitation classes for up to 2 years before being discharged.

## **5.2 Psycho-social and Contextual Determinants**

The following results presents data, which emanated from both the quantitative and the qualitative aspects of the research findings. As the research questionnaire was already precoded with themes based on the psychosocial constructs of adhering to rehabilitation, the qualitative data was analysed by categorising into themes, while the statistical software programme SPSS version 10 was used for analysing the quantitative data. From this analysis we then extracted the major barriers to adhering to rehabilitation as well as the enabling and re-enforcing factors to adhering to long-term rehabilitation protocols for diabetic amputee patients.

### **5.2.1 Barriers to adherence to long-term rehabilitation protocols**

#### **5.2.1.1 Environmental Determinants**

Environmental determinants came out strongly as the main barriers to adherence with poor infrastructure in the community was cited as the main barrier by participants (Table 5.2). Public transport was a major problem as the train and the taxi services, the two most popular modes of public transport in the Cape Town area were inaccessible to people on wheelchairs and walking frames. This resulted in the need to hire private cars when going out and even when coming to attend rehabilitation classes. Only 2 participants (7.2 %) mentioned utilising the services of “Dial- A - Ride”, a public transport service (see figure5.3) that was set up as a pilot project in the peninsula for transporting disabled people at the same rates as other mini bus taxis.

***Table 5.2: Impact of environmental determinants on rehabilitation***

<b>Statement</b>	<b>% In agreement</b>	<b>% In disagreement</b>
Poor Housing hinders rehabilitation	<b>51.7</b>	48.3
Lack of transport leads to low adherence	<b>58.7</b>	41.3
Poor facilities hinders rehabilitation	<b>60.7</b>	39.3
Environment inappropriate for use of assistive devices	<b>63.8</b>	36.2

An interesting finding was the fact that only 51.7 % of participants actually felt that their housing was a barrier. This could be explained by the fact that over half the participants came from council houses which are usually better than shacks and “Cape Flats” infrastructure in the neighbourhoods where most of the participants came from. The informal houses usually have no running water and toilets are usually outside the house and patients have to walk on sandy surfaces where wheelchair mobility is usually almost impossible. The “Cape Flats” are blocks of flats, which consist of poorly constructed and crowded housing project, which do not cater for any disability concerns at all.

*“ The wheelchair is useless around my house as my shack has got no space at all and outside my house the surface is full of sand, so I never use my wheelchair at home ”*

(68-year-old woman from Nyanga)

*‘ There is no lifts man. When I go up to my flat in third floor I climb backward on my buttocks you see. My wheelchair lives on the ground floor by my friend's place ’*

(63-year-old man from Steenberg)

#### **5.2.1.2 Knowledge**

The level of knowledge about diabetes management varied depending on the type of rehabilitation protocol. Issues like feet examination, adhering to the correct diet and regular checkups scored very high points amongst the participants (Table 5.3). The interesting observation was that these were mostly management activities, while more preventative activities such as smoking, protecting the feet and avoiding injuries scored very low. This indicates a discrepancy between knowledge of management and preventative measures.

Participants reported that they have used home remedies (35 %) and consulted traditional healers to cure diabetes (14 %). This is a very important factor in planning management approaches of the condition, as it is a very unique contextual issue that demonstrates how important it is to incorporate the role of indigenous knowledge systems in planning health programs.

**Table 5.3: Knowledge of management protocol for diabetic amputation rehabilitation**

Rehabilitation Protocol	Always	Sometimes	Never
<b>Daily feet examination</b>	<b>75.3</b>	14.0	10.7
<b>Maintaining diabetic diet</b>	<b>71.4</b>	21.4	7.1
<b>Regular check ups at clinic</b>	<b>67.9</b>	25.0	7.1
<b>Monitoring blood sugar</b>	<b>64.3</b>	14.3	17.9
<b>Consistent correct use of medication</b>	<b>60.7</b>	25.0	14.3
<b>Perform stump bandaging</b>	<b>57.1</b>	35.7	7.1
<b>Monitor atrophic signs and diabetic ulcers</b>	<b>57.1</b>	25.0	17.9
<b>Perform home exercise program</b>	<b>50.0</b>	39.3	10.7
<b>Stopping smoking</b>	<b>50.0</b>	35.7	14.3
<b>Wearing well fitting footwear</b>	<b>46.4</b>	39.3	14.3
<b>Avoid walking barefoot</b>	<b>46.4</b>	21.4	32.1
<b>Take caution with warm objects and fire</b>	<b>35.7</b>	35.7	28.6

**Bold: Desired Response**

Most of the participants when asked to explain what causes diabetes the word “sugar diseases” (“suiker” and “iswekile”) came out very often. This indicates a variation between the medical explanation of the disease and the way communities understand it. This also has serious implication on the way diet modification has to be taught, as sugar seems to be seen as the main cause with other potentially bad food substances being consumed without knowing that they are not good for the condition.

### 5.2.1.3 Attitude

Attitude towards rehabilitation activities as well as general attitude towards life can be serious barriers towards adherence. Over half the participants (51.7 %) reported that they had no desire to be more independent in their activities of daily living and about half the participants reported that they never enjoyed doing exercises.

This indicates a serious barrier if health workers are not aware of these issues, as it can lead to the situation where patients' rehabilitation goals and outcomes differ from those of the health worker.

**Table 5.4: Participants attitude towards rehabilitation activities**

Statement	% In agreement	% In disagreement
Does exercises to avoid losing other leg	<b>56.4</b>	43.6
Has problem with mixed gender classes	28.5	<b>71.5</b>
Has problem with exercise dress code	23.9	<b>74.1</b>
Enjoy doing exercises	<b>50.0</b>	<b>50.0</b>
Enjoy peer support in classes	<b>52.1</b>	47.9
Want to be more independent	<b>51.7</b>	48.3

**Bold: Positive attitude**

On further probing using open ended questions, it was noticed that there was a general decrease in participants' involvement in activities that they used to enjoy before they had their legs amputated. These activities ranged from religious activities, recreational activities and hobbies as well as employment. Even though attitude was generally positive and participants felt good about their lives, there was a general tendency to think that physical activity has to be minimal due to the amputation. People who had reported active hobbies before the amputation shifted to more labile activities such as reading, watching television and knitting.

*"I just decided to stop going to work because I never felt up to it anymore, and I also could not go for a drink with my friends after work anymore"* (58 year old former Accountant who opted for early retirement)

#### **5.2.1.4 Social Challenges**

Most services in these communities do not cater for the needs of disabled people and the infrastructure is also not conducive to functional use of assistive devices such as wheel -chairs and walking frames. Participants also faced challenges in trying to attend their places of religious worship as most of them became almost inaccessible. Prayers also became a challenge for Islamic amputees and their religious practice was strongly affected by undergoing an amputation.

#### **5.2.1.5 Economic Challenges**

As seen on the demographic data most of the participants are over the age of 60 years, and they all heavily relied on government grants to survive (89 %)(Table5.1). Due to the poor infrastructure in the communities this population faces major challenges when its time to collect they state pension from the pay points. Some of the participants were supporting their whole households including children and grand children with their pension money.

### **5.2.2 Enabling and Re-enforcing factors to adherence in long term Rehabilitation**

#### **5.2.2.1 Social support**

Support systems in the home and community setting varied amongst individuals.

Family members mostly spouses (Table 5.5) played a large role in acting as caregivers for the participants. Participants who had no spouses (25 %) received support from both their children and grandchildren.

Spouses and children mostly played a role in encouraging patients to perform activities while grandchildren played a more active role as they assisted with the performance of activities (64.3%). Friends also played a bigger role in encouraging and role modelling more than actual hands on involvement through practical assistance (Table 5.5)

**Table 5.5: Table showing social support (n=28)**

<b>Social support</b>	<b>Often</b>	<b>Sometimes</b>	<b>Never</b>
<b>Expectations to perform rehab activities from:</b>			
Spouse	57.2	10.7	7.1
Children	71.5	7.1	17.9
Grandchildren	53.5	10.7	21.4
Friends	50.0	21.4	42.9
<b>Assistance with rehab activities from:</b>			
Spouse	39.3	21.4	21.4
Children	42.8	10.7	35.7
Grandchildren	35.7	28.6	17.9
Friends	32.2	21.4	42.9

There was a general lack of clarity in terms of how much “help” should be given to the amputees, as in some instances family members ended up taking over the tasks that patients were supposed to be doing for themselves as part of the rehabilitation programme. In some instances participants resented the total take over of their independence by family members who are trying to help them. There were also strong cultural and religious differences in terms of how much help and taking over a spouse is supposed to do when their partner gets disabled.

#### **5.2.2.2 Self Efficacy**

Self-efficacy was a major enabling factor as it demonstrated how confident patients were in utilising both their knowledge and skills from the rehabilitation protocols.

There was a very high level of confidence in consistent and correct use of medication (96.4%) and this was followed by confidence in performing activities at home.

This relies on patients' ability to remember the exercises to be able to adhere to the programme (Table 5.6). Patients demonstrated very low self-efficacy in using their assistive devices around their communities (53.6%), which can be expected as the environment around the community has already been cited as a major barrier to rehabilitation

**Table 5.6: Table showing Self-efficacy (n=28)**

<b>Self-efficacy (confidence)</b>	<b>% Confident</b>	<b>% Not Confident</b>
Taking diabetes medication	96.4	3.6
Performing home exercises	89.3	10.7
Remembering exercises	78.5	21.5
Using assistive devices at home	77.9	22.1
Performing prone lying	71.4	28.6
Doing daily limb observations	67.9	32.1
Doing stump bandaging	64.3	35.7
Using device around community	53.6	46.4

### **5.2.2.3 Knowledge**

Knowledge of condition and all the possible complications was a strong motivator for patients to adhere to rehabilitation. Participants also tended to perform activities that have been outlined to them in detail as to their benefits such as prone lying and stump bandaging which are usually re-enforced to patients during rehab classes. Consistent use of medication was also high, as patients generally perceive that it helps to halt the progression of the disease. Knowledge of the severity of complications such as eye problems and bilateral amputation also re-enforced adherence in patients.

#### **5.2.2.4 Attitude**

Patients' attitude towards exercise was a strong re-enforcing factor towards adhering to rehabilitation. Most of the patients did not want to lose their contra-lateral leg (56.4 %), which could have motivated them to do their activities at home and also attend rehabilitation sessions. A positive attitude towards other participants in the rehabilitation classes was demonstrated by most of the participants who reported that they had no problems with mixed gender classes (71.5 %). Peer support from other amputees was also cited as a strong motivator for adhering to sessions as it provided an opportunity for role modelling and psychological support for the amputee patients.

University of Cape Town

### **5.3 Data Reduction**

The psychosocial constructs of adhering to long-term rehabilitation were then tested for internal consistency and reliability using the statistical software package SPSS version 10. The Chronbach Alpha measure of reliability was used to determine the reliability of the research instrument (Table 5.7). Reliability of 0.60 and above is usually considered to be significant on the Chronbach scale but for the purposes of this study 0.50 was accepted as being reliable. This was done after taking into consideration the fact that determinant studies are relatively new in rehabilitation research.

**Table 5.7: Constructs, item scales and reliability analysis (n=28)**

<b>Construct</b>	<b>Cronbach's Alpha</b>	<b>Item range</b>	<b>Mean item score</b>
Attitude - Performing activities	0.48	1-5	2.6
- Other amputees	0.56		3.8
Self Efficacy	0.72	1-5	3.2
Knowledge Cause Management	0.65 0.70	1-3	2.4 3.7
Environmental Community Home	0.65 0.58	1-4	3.4 2.8
Social influence Social support	0.70	1-5	3.8

### **Environmental determinants**

Environmental determinants addressed mainly variables that were measuring public transport accessibility as well as housing conditions within the home, as well as infrastructure around the community that was disabled friendly. Participants were asked if they agreed if certain conditions hindered with their rehabilitation progress with a strong lean towards activities of daily living and independence. Five possible responses were given, ranging from strongly agree to strongly disagree. The items produced two factors after factor analysis was performed. When measuring internal consistency by performing a reliability analysis, home conditions gave a Chronbach's Alpha of 0.58 and Community determinants scored 0.65, which shows that most participants agreed about community barriers to rehabilitation.

### **Knowledge**

Knowledge regarding cause and management of diabetes and its complications was measured using fifteen items. Factor analysis confirmed that these items could be divided into two different categories. The first item was measuring knowledge about the cause and pathogenesis of diabetes using a three-item scale (yes, no, Don't know) and the second factor measured the knowledge about the long-term management of diabetes and the benefits of rehabilitation also using a three-item scale (always, sometimes, never).

Reliability analysis showed that the second factor had a more reliable index (Chronbach Alpha = 0.70), while the first factor had very low reliability (Chronbach Alpha = 0.56) and these could have been due to the fact that this factor also measured culturally based issues such as use of home remedies and consultation of traditional healers, which received, varied responses.

### **Self - Efficacy**

Self-efficacy was measured using an eight item with a scale of five possible responses (extremely confident to extremely not confident). Reliability analysis showed that the items had a very high internal consistency with a Chronbach Alpha of 0.72.

Participant's self - efficacy in performing exercises both in the rehabilitation unit and in the home environment was measured as most of the rehabilitation happens in the home environment. Due to the requirements of long term medication and dietary controls in managing diabetes it was important to measure how confident participants, were in adhering to the long - term management protocols.

### **Social Influence**

Social support in the home environment was measured using eight items on a scale of 5 (Chronbach Alpha = 0.70) Factor Analysis resulted in only one factor which was social support mostly in the home situation. Participants were asked to rate how much their family members encouraged them and also assisted them with performing rehabilitation activities at home. This was a very important factor in terms of the long term success of the rehabilitation as health professionals had very limited contact time with individual patients and therefore family support was very important.

## **Attitude**

Attitude towards performing exercises both at home and in the rehabilitation unit was measured using six items on a five-point scale (strongly agree to strongly disagree).

Factor analysis resulted in three factors, which were; measuring attitude towards performing exercises at home, attitude towards performing exercises in the rehab unit and attitude towards other fellow amputees at the gym. Reliability analysis resulted in a low internal consistency (Chronbach Alpha = 0.48)

University of Cape Town

## **Chapter 6: DISCUSSION and CONCLUSIONS**

University of Cape Town

## **6.1 Discussion**

The main purpose of this study was to explore the significant determinants of adhering to physiotherapy treatment among patients attending rehabilitation classes in a Cape Town urban population. Most of the studies done on this research subject have been mainly on urban western populations (Alewisjnse et al, 2001; Griese et al., 1993; Hays & Clark, 1999 ), which made this a groundbreaking enquiry as it took into account the contextual issues, which are only unique to the South African Socio-economic and cultural conditions.

Self-efficacy has been singled out as a main predictor of intention to adhere to long-term physical exercise programs (Alewijjnse et al, 2001) for populations in Western countries. Developed countries usually have much more developed health information dissemination mechanism which results in very high level of knowledge amongst the general population and this is made easier by the fact that most health information and concepts are based on languages that are easily understood. The situation in South Africa is not so straightforward as the knowledge base is very low as demonstrated by the study population (87 % reported that diabetes is caused only by sugar). Many medical concepts usually need to be translated into local languages, which present a lot of challenges to both health workers and patients in trying to achieve a good knowledge base. The reported use of traditional remedies to treat the condition also needs to be acknowledged by health professionals when working with patients and take account of its impact on the rehabilitation outcome.

Attitude proved to have the least correlation as a determinant to adhering to long-term rehabilitation. There is many potential reasons for this finding including the fact that attitude tends to be based on the knowledge base about a particular subject. The construct of attitude is also very culturally relative such that measuring attitude towards exercise needs to take the cultural norms of the target population. Johnson (2000) states that exercise related behaviour is usually controlled by outcome expectations and social norms, which determine an individual's intention to perform the activity, and in non- western societies exercising is not usually practiced in a formalised manner.

The emergence of the environment as a main barrier to rehabilitation poses a great challenge to the present of system of inpatient facility based rehabilitation programmes as this separates clinicians from the patient's immediate challenges in their communities. This can lead to poor rehabilitation outcome if the programmes are not tailor made for individual patient needs, which is something that tends to happen if patients are managed as a group. Evaluation and assessment tools in rehabilitation needs to be adapted to include some of this determinants in order to enable the health worker and the patient to work out programmes and protocols that will work for that patient and also encourage adherence both at facility and home level.

Another strong point that imaged was the poor understanding of preventative measures such as smoking cessation, blood sugar monitoring and protecting limbs from injuries as diabetics tends to have slower wound healing. Much as the management oriented activities such as visits to clinic and dietary modifications were well adhered to if they are not coupled with good preventative measures they can lead to unnecessary complications and poor rehabilitation outcomes.

Rehabilitation health workers also need to be aware of the factors that re-enforces and encourages patients to adhere to rehabilitation protocols. A good social support system both at home as well as among patients themselves in the rehabilitation sessions can lead to higher adherence to rehabilitation. A total of 52.3 % (Table 5.4) expressed that they enjoyed the peer support during their visits to the rehabilitation unit and this can also be used as a psychological support system due to the trauma involved in losing a limb. Role modelling can also be used to encourage patients who are de-motivated by exposing them to amputees who have successfully completed their rehabilitation. The social support factor also underscores the importance of involving family members when prescribing activities as they have contact with the patient much more often than the health work and so if they know what needs to be done they can play a big role in encouraging and assisting in the home activities.

This study also demonstrated the need for researchers to formulate models of health behaviour that are appropriate for conditions in the developing world. The ASE model has worked well to predict adherence behaviour in western populations but the social circumstances that are found in South Africa made it critical to include environmental determinants, which are the main barrier to performing rehabilitation activities. The South African context also presents with different type of environmental issues ranging from poor housing in the informal settlements and the “Cape Flats” complexes to lack of disabled friendly infrastructure around the communities such as shopping malls, train stations and places of worship.

The train system is totally inaccessible to people in a wheel chair such that if you undergo an amputation you may not be able to use the train ever again unless you can mobilise using crutches which, is a challenging task in the presence of the large staircases that are usually found in most train stations.

The study also exposed the potential problems associated with the new referral system, as it is not fully understood by both health workers and service users. This was clearly demonstrated in the example of the participant who had to travel for over 3 hours (Ashton to Cape Town) to get to the rehab centre at a very costly price both in terms of money and time. The “Dial-A-Ride” disabled transport system was established as a pilot project system that utilises a toll free number to which wheelchair bound individuals can book to be picked up by mini buses that are equipped with wheelchair facilities. This is a very important services but it does not seem to be reaching its target market, as most patients were not aware of its existence, as evident by only two people (7.2. %) in our sample reporting ever using it.

A large number of the sample population (85.7 %) reported that they were also suffering from at least one other chronic condition. Conditions mentioned included hypertension, stroke, arthritis, gout, coronary heart disease and asthma. This presents a major challenge to rehabilitation programmes targeting older people as most of these conditions greatly reduce physical activity levels. Most of these conditions also require long term medication, which brings more challenges to elderly patients when trying to correctly administer and adhere to prescribed medications.

## **6.2 Conclusion and Recommendations**

Chronic diseases of lifestyle requires a multidisciplinary approach if they are to managed effectively as the interventions involved usually involves a multifaceted approach requiring different professional disciplines and expertise. It is evident that the burden of disease in the population as a result of diabetes will be reaching alarming levels at some point in the near future. Up till now the focus on CDL research has been mainly on prevalence rates and trends amongst population groups and while acknowledging the importance of this type of information a long -term prevention approach requires enquiry that employs multiple research paradigms. It is widely agreed that these conditions are widely due to behaviour which is usually conned somehow negatively as “lifestyle “ which is somewhat a misnomer as lifestyle usually implies choice when in reality behaviour does not only depend on choice but on the inter-play of a number of other factors that cannot all be based on personal choice. The poor skills on the preventative aspects of managing diabetes, also makes the need to an integrated approach to be a pertinent issue in health practice.

*Table 5: An adapted Health Promotion Matrix showing a possible systematic approach to diabetes intervention programmes.; Adapted from Reddy & Meyer-Weitz, 1999)*

<b>Health promotion</b>	<b>Primary Prevention</b>	<b>Early Detection</b>	<b>Patient Care</b>
<b>Health education</b>	Dietary education Promote general physical activity		
<b>Facilities/Provision</b>	Provide recreational and exercise facilities in communities	Efficient screening services in PHC clinics	Rehabilitation services
<b>Regulation/legislation</b>	Government subsidies and /or tax exemption on healthier foodstuffs		Efficient processing and distribution of disability grants
<b>Technology</b>		User friendly home glucose and BP monitoring equipment	Advanced surgical techniques Advanced prosthetic equipment

For a developing country this is indeed an ambitious but, yet attainable framework and even if not tackled in its entirety it still provides a much more structured approach to the management of diabetes and other chronic conditions at various levels of the disease. This can also provide a much more structured approach to other research questions such as adoption and maintenance of proper diets, adherence to long term diabetes medication, prevention of diabetes related complications. This multi-sectorial and multidisciplinary approach can expose a number of other areas that health workers may need to address through research for new innovative interventions as well as evaluation of existing interventions with their patients.

## Chapter 7 REFERENCES

Ajzen I, (1991): the Theory of Planned Behaviour, Organisational Behaviour and Human Decision Processes, Vol 50, 179-211

Ajzen I, & Fishbein M, (1980): Understanding attitudes and predicting social behaviour, Englewood, NJ, Prentice Hall.

Alewijnse D, Mesters I, Metsemakers J, Adriaans J, van den Adriaans B, (2001), Predictors of intention to adhere to physiotherapy among woman with urinary incontinence, Health Education Research: Theory and Practice, Vol. 16 (2), 173-186

Bandura A, (1969): Principles of behaviour modification, Austin, Texas, Reinhart and Winston

Bartholomew L K, Parcel G S, Kok G, Gottlieb N H, (2001) Intervention Mapping Designing Theory-and Evidence-Based Health Promotion Programs, Mountain View, California, Mayfield Publishing Company

Charlton K E, Levitt S N, Lombard C J, (March 1997): The prevalence of diabetes mellitus and associated risk factors in elderly coloured South Africans, SAMJ, Vol. 87 (3), 364-367

Condie E, Jones D, Treweek S, Scott H, The Scottish Physiotherapy Amputee Research Group (SPARG), (1996): A One year National Survey of Patients Having a Lower Limb Amputation, Physiotherapy, Vol. 82 (1), 14-20

Cunningham P, Papenoe D, Bouer B, (1997): Sociology (First South African Edition), South Africa, Prentice Hall

Cutson T M, Bongiorno DR, (1996): Rehabilitation of the Older Lower Limb Amputee: A Brief Review, Journal of American Geriatric Society, Vol. 44, 1388-1393

Goodman GR, Zwarenstein MF, Robinson IL, Levitt NS (March 1997): Staff Knowledge, attitudes and practices in public health sector primary care of diabetes in Cape Town, SAMJ, Vol. 87(3), 305-309.

Green LW, Kreuter, (1999): Health Promotion Planning, An Educational and Ecological Approach, Third Edition, Mountain View, California, Mayfield Publishing Company

Griese' ML, Gauthier-Gagnon C, Martineau G, (August 1993): Prosthetic Profile of People With Lower Extremity Amputation: Conception and Design of a Follow –up Questionnaire, Archives of Physical Medicine and Rehabilitation, Vol. 74, 862-869

Hayes, LMO & Clark, D, (May 1999): Correlates of Physical Activity in a Sample of Older Adults with Type 2 Diabetes, Diabetes Care, Vol. 22 (5), 706.

Helm P, Engel T, Holm A, Kristiansen VB, Rosendahl, (April 1986): Function of the lower limb amputation, ACTA Orthopeadica Scandinavia, Vol 57(2); 154-157

Helman CG, (2000): Culture, Health and Illness, Fourth Edition, London, The Bath Press

Ivey K.(2001): Amputee Rehabilitation Specialist, Groote Schuur Hospital Physiotherapy Unit, Cape Town

- Johnson MRD, (March 2000): Perceptions of barriers to healthy physical activity among Asian communities; Sports, Education & Society Vol 5(1); 51-71
- Kalk WJ, Huddle KRL, Raal FJ, (1993): The age of the onset and sex distribution of insulin-dependent diabetes mellitus in Africans in South Africa, SAMJ Vol. 69, 552-556
- Kok, G, Devries H, Mudde AN & Stretcher V (1991): Planned Health education and the role of Self-efficacy, Health Education Research, Vol. 6(2), 231-238
- Levitt SN, Katzenellenbogen JM, Bradshaw D, Hoffman N M, Bonnici F, (April 1993): The Prevalence and Identification of Risk for NIDDM in Urban Africans in Cape Town, South Africa, Diabetes Care. 16 (4), 601-606
- Levitt NS, Zwarenstein MF, Doepfner S, Bawa AA, Katzenellbogen J, Bradshaw D, (1996): Public sector primary care of diabetics-a record review of quality of care in Cape Town, SAMJ, Vol. 86 (8), 1013-1016
- Levitt NS, Bradshaw D, Zwarenstein MF, Bawa AA, Maphumulo S. (December 1997): Audit of public sector primary care in Cape Town, South Africa: high prevalence of complications, uncontrolled hyperglycaemia, and hypertension, Diabetes Medicine, Vol 14(12), 1073-7
- Montano DE & Kasprzyk D (1997): The theory of Reasoned Action and The Theory of Planned Behaviour in Glanz K, Lewis FM & Rimer BK: Health Behaviour and Health Education: Theory, research and Practice. San Francisco CA, Jossey-Bass.
- Muecke L, Sheker S, Dwyer D, Israel E, Flynn JPG, (1992): Functional Screening of Lower-Limb Amputees: A Role in Predicting Rehabilitation Outcome? Archives of Physical Medicine & Rehabilitation, Vol. 73, 851-858
- Nutbeam D. & Harris E. (1998): Theory in a Nutshell; A practitioners guide to commonly used theories and models in Health Promotion. Monograph, National centre for Health Promotion, University of Sydney, Sydney, Australia
- Omar MAK, Seedat MA, Motala AA, Dyer RB, Becker P, (1993): The prevalence of diabetes mellitus and impaired glucose tolerance in a group of urban South African Blacks, SAMJ, Vol. 83: 641-642
- Omar MA, Seedat MA, Dyer RB, Motala AA, Knight LT, Becker PJ (1994): South African Indians show a high prevalence of NIDDM and bimodality in plasma glucose distribution patterns, Diabetes Care, Vol. 17(1): 70-73
- Pell JP, Donnan PT, Fowkes FGR, Ruckley CV, (July 1993): Quality of Life Following Limb Amputation for Peripheral Arterial Disease, European Journal of Vascular Surgery, Vol. 7, 448-451
- Pernot HF, de Witte LP, Lindman E, Cluitmans J (May 1997): Daily functioning of the lower extremity amputee: An Overview of Literature. Clinical Rehabilitation, Vol. 11(2): 93-106
- Pickup CJ & Williams G (1994): Chronic Complications of diabetes, Oxford, Blackwell Scientific Publication.
- Reddy PS & Meyer-Wertz A (1999): Sense and Sensibilities; The psychosocial and Contextual determinants of STD related behaviour, MRC printers, Cape Town.

Strecher VJ & Rosenstock IM (1997): The Health Belief Model in *Glanz K, Lewis FM & Rimer BK; Health Behaviour and Health Education: Theory, research and Practice*. San Francisco CA, Jossey-Bass.

Tabachnick BG. & Fidell LS (1996): *Using Multivariate Statistics*, 3<sup>rd</sup> Edition, Harper Collins College Publishers, and Northridge, CA

U.S. Department of Health and Human Services, (1996): *Physical Activity and Health: A Report of the Surgeon General*, Atlanta, GA

Walker CR, Ingram RR, Hullin MG, McCreath, (August 1994): Lower limb amputation following injury: a survey of long-term functional outcome, *Injury*, Vol. 25, 387-392

University of Cape Town

## **Chapter 8 Appendices**

University of Cape Town

## **Appendix A Participant Information Leaflet and Informed Consent**

**Title of Study:** The determinants of adhering To Rehabilitation in Diabetics who have undergone Lower Limb Amputation

Dear Participant.

### **INTRODUCTION**

My Name is Sibusiso Sifunda and I am a physiotherapist by training. I am presently conducting a study to identify the predictors of continued rehabilitation in amputees who have diabetes. You have been selected to participate in this research study after being identified as someone who can provide essential information that is required by the study. Permission to conduct the study has been granted by the Head of Physiotherapy rehabilitation and the rehabilitation staff. Before you agree to take part in this study you should fully understand what is involved. You should not agree to take part unless you are completely happy about all the procedures involved.

### **Purpose of the study**

The study aims to conduct a survey type exploration of the predictors associated with the intention to adhere to physiotherapy rehabilitation in diabetic amputees

### **Duration of the Study**

The study would require about 45 minutes of your time answering pre-determined questions and also giving some extra information based on your personal experience of having an Diabetes and an amputation. In order to facilitate accurate collection of information we will be recording some parts of our conversation with a tape recorder

### **Has The Study Received Ethical Approval**

The study has received ethical approval from the Research Ethics Committee of the University of Cape Town (UCT).

### **Participant Rights During the Study**

Your participation in this study is totally voluntary ( you do not have to take part in the study if you do not want to). You are free to withdraw at any point without having to give an explanation. You do not have to answer questions that you do not want to answer. All given information will be kept private and none of the rehabilitation staff will ever know how you answered.

### **Source of Additional Information**

If you require more information please contact: Sibusiso Sifunda, P O Box 13616 Mowbray 7705, Telephone; (021) 938 0451 E-mail; [sibusiso.sifunda@mrc.ac.za](mailto:sibusiso.sifunda@mrc.ac.za)

**Confidentiality**

Information gathered from this study will not be revealed to a third party at any point, but will be used exclusively by the researcher. Identification information will not be included in the final report and will not be revealed to any other party if supplied to the researcher. Only the researcher will have access to both the written and tape recorded information.

**Informed Consent**

I hereby confirm that I have been informed by the researcher Sibusiso Sifunda about the nature, conduct and benefits of the study. I have also read and understood the above written information regarding the study. I am aware that details regarding my sex, age, identity will be kept anonymous in the project report.

I have had sufficient opportunity to ask questions and declare myself prepared to participate in the study

Participant:

---

Printed Name	Signature	Date
--------------	-----------	------

Investigator:

---

Printed Name	Signature	Date
--------------	-----------	------

Thank you, for your participation in this study

Yours Sincerely

Sibusiso sifunda  
Researcher

## **Appendix B Participant Information Leaflet and Informed Consent**

**Isihloko Sophando:** Izikhombisi zokunamathela ekubuyiselweni esimeni kwabo baneswekile abaqhawulwe umlenze

Mthabathi Nxaxheba Othandekayo

### **INTSHAYELELO**

Igama lam ndingu Sibusiso Sifunda ndingugqirha wamathambo ngokoqeqesho. Ngokwangoku ndiqhuba uphando ukufumanisa izalathiso zokubuyisela esimweni kwabo baqhawulwe umlenze abanesifo seswekile. Ukhethiwe ukuba uthabathe inxaxheba kolu phando emva kokuba kuboniwe ukuba ungumntu onokunikezela ngenkcazelo ebalulekileyo efunekayo kolu phando. Imvume yokuqhuba olu phando inikezelwe ngoyiNtloko kweZonyango Lwamathambo nokuBuyiselwa esiMeni nabasebenzi bezokubuyisela iSimo. Phambi kokuba uvume ukuthabatha inxaxheba kolu phando kufuneka uqonde kakuhle okuchaphazelekayo. Ungangavumi ukuthabatha inxaxheba de kube kanti wanelisekile koku konke okuchaphazelekayo.

#### **Iinjongo zolu phando**

Olu phando lujonge ekuqhubeni ukuhlola ekuluhlobo lophando lwezikhombisi ezinxulunyaniswa neenjongo zokunamathela ekubuyiselweni esimeni kunyango lwamathambo kwabo baqhawulwe imilenze beneswekile

#### **Ixesha eliza kuthathwa luphando**

Uphando luza kufuna malunga ne 45 lemezuzu lwexesha lakho uphendula imibuzo esele ilungisiwe kade nokunikezela enye inkcazelo ebhekiselele kumava akho okuba neswekile yaye uqhawulwe umlenze.

#### **Ingaba uphando luyifumene imvume yokuqhubela phambili**

Uphando luyifumene imvume yokuqhubela phambili kwiKomiti yoPhando ekwi Dyunivesithi yase Kapa (UCT).

#### **Amalungelo omthabathi nxaxheba nexesha lophando**

Ukuthabatha kwakho inxaxheba kolu phando kungokuzithandela (awunakuthabatha inxaxheba xa ungafuni) Ukhululekile ukuba ungarhoxa nanini na ngaphandleni kokunika inkcazeli. Awunakuziphendula iimpendulo xa ungafuni ukuziphendula. Lonke ulwazi olufumanekileyo luya kugcinwa luyimfihlelo yaye akakho kubasebenzi bokubuyisela esimeni abazokwazi ukuba uphendule wathini na.

#### **Indawo apho unokufumana enye inkcazelo**

Ukuba ufuna inkcazelo dibana no: Sibusiso Sifunda, P O Box 13616 Mowbray 7705, Ifowuni; (021) 938 0451 E-mail; [sibusiso.sifunda@mrc.ac.za](mailto:sibusiso.sifunda@mrc.ac.za)

**Imfihlelo**

Inkcazelo eqokelelwe kolu phando ayiyi kuveliswa komnye umntu nanini na, kodwa iza kusetyenziswa ngumphandi. Inkcazelo yokuzazisa ayiyi kufakwa kwingxelo yokugqibela yaye ayiyi kwaziwa nangomnye umntu ukuba inikezelwe kumphandi.

**Ukuxelelwa ngemvume**

Ndiyaqinisekisa ukuba ndixelelwe ngumphandi uSibusiso Sifunda malunga nobume , indlela yokuziphatha nokunokuthi kuvunwe kolu phando. Ndiyifundile yaye ndiyayiqonda inkcazelo ebhalwe ngasentla malunga nophando. Ndiyazi ukuba iinkcukacha malunga nobuni, iminyaka nokwaziwa kwam kuza kugcinwa kuyimfihlelo kwingxelo yophando.

Ndibe nalo ixesha ngokwaneleyo lokubuza imibuzo yaye ndazichaza ukuba ndikulungele ukuthabatha inxaxheba kuphando.

Umthabathi nxaxheba:

Igama ngokucacileyo	Umsayino	Umhla
---------------------	----------	-------

Umphandi:

Igama ngokucacileyo	Umsayino	Umhla
---------------------	----------	-------

Inggina;

Igama ngokucacileyo	Umsayino	Umhla
---------------------	----------	-------

Enkosi, ngokuthabatha inxaxheba kolu phando

Owakho Ozithobileyo

Sibusiso sifunda  
Umphandi

## **Appendix C Participant Information Leaflet and Informed Consent**

**Titel van die Studie:** Die bepalers van reaksie op Rehabilitasie in Diabete wat Laer Ledemaat Amputasie ondergaan het.

Liewe Deelnemer.

### **INLEIDING:**

My naam is Sibisiso Sifunda en ek is 'n opgeleide fisioterapeut. Ek is tans besig met 'n studie van aaneenlopende rehabilitasie vir geamputeerde persone wat diabetis het. U is gekies om deel te neem aan hierdie navorsingstudie nadat u geïdentifiseer is as iemand wat waardevolle inligting kan verskaf wat deur die studie verlang word. Toestemming om die studie te doen, is verleen deur die Hoof van Fisioterapeutiese Rehabilitasie sowel as die Rehabilitasie personeel. Voordat u instem om deel te neem aan die studie, moet u ten volle verstaan wat dit behels. U moet nie instem om deel te neem tensy u nie ten volle gelukkig is oor al die prosedures wat betrokke is nie.

### **Doel van die studie**

Die studie beoog om 'n opname-tipe ondersoek uit te voer van die bepalende faktore wat gepaard gaan met die voorneme om te reageer op fisioterapeutiese rehabilitasie in geamputeerde diabete.

### **Duur van die studie**

Die studie sal omtrent 45 minute van u tyd vereis om vooraf bepaalde vrae te beantwoord en ook om bykomende inligting te verskaf, wat gebaseer is op u persoonlike ondervinding as 'n Diabeet en 'n geamputeerde persoon.

### **Het die studie Etiese Gedkeuring verkry**

Die studie het Etiese Goedkeuring verkry van die Navorsing Etiese Komitee van die Universiteit van Kaapstad (UK)

### **Deelnemers se regte tydens die studie**

U deelname aan hierdie studie is absoluut vrywillig (u hoef nie deel te neem aan die studie as u nie wil nie). U is vry om te eniger tyd te ontrek, sonder om enige verduideliking te gee. U hoef nie vrae te beantwoord wat u nie wil beantwoord nie. Alle inligting wat u verstrek, sal privaat gehou word en niemand van die Rehabilitasie personeel sal ooit weet wat u geantwoord het nie.

### **Bron van addisionele inligting**

Indien u meer inligting verlang, kontak asseblief vir: Sibisiso Sifunda, P O Box 13616, Mowbray, 7705, Telephone (021) 938 0451, E-mail: [sibusiso.sifunda@mrc.ac.za](mailto:sibusiso.sifunda@mrc.ac.za).

**Konfidensialiteit**

Inligting wat verkry is deur hierdie studie, sal nie op enige tydstip aan 'n derde party bekend gemaak word nie, maar sal uitsluitlik deur die navorser gebruik word. Inligting oor identifikasie sal nie by die finale verslag ingesluit word nie en dit sal nie aan 'n derde party bekend gemaak word nie, indien dit aan die navorser verskaf word.

**Ingeligte Toestemming**

Ek bevestig hiermee dat ek deur die navorser, Sibusiso Sifunda, ingelig is oor die aard, omvang en voordele van die studie. Ek het ook bogenoemde inligting aangaande die studie gelees en verstaan. Ek is daarvan bewus dat inligting oor my geslag, ouderdom en identiteit sal anoniem bly on die verslag van die projek.

Ek het genoegsame geleentheid gehad om vrae te vra en verklaar myself bereid om aan die studie deel te neem.

Deelnemer:

---

Naam in drukskrif	Handtekening	Datum
-------------------	--------------	-------

Navorsers:

---

Naam in drukskrif	Handtekening	Datum
-------------------	--------------	-------

Getuie:

---

Naam in drukskrif	Handtekening	Datum
-------------------	--------------	-------

Dankie vir u deelname aan die studie.

Die uwe

Sibusiso Sifunda  
Navorsers

## Appendix D Questionnaire English

### Demographic Information

1. Age

---

2. Gender

- Male     Female

3. Marital Status

- Single  
 Married  
 Widow  
 Widower

4. How many years of formal education do you have?

---

5. When were you first diagnosed as a diabetic?

---

6. Date and Level of amputation

---

7. How long have you had your Amputation

- 0-6 months  
 7- 12 months  
 Over 12 months  
 Prosthetic stage

8. Are you Presently receiving any form of Private/ government welfare payment either pension or disability grant.

- Government grant  
 Private pension  
 State pension  
 Waitlisted for grant/ pension

### Environmental Determinants

9. What Type of Accommodation do you live in?

- Shack  
 Council House  
 "Cape Flat" (\*\*\*\*\*)  
 Hostel  
 Other \_\_\_\_\_
-

10. Do you feel that your Accommodation Hinders your Rehabilitation Programme

- Strongly Agree
- Agree
- Disagree
- Strongly disagree
- Other

10b) Do you feel that the infrastructure around your community hinders your rehabilitation.

- Strongly Agree
- Agree
- Disagree
- Strongly disagree
- Other

10c). If You agree with 10a & 10b above can you explain how this impacts negatively on your Rehabilitation

---

---

11. Do you go to any of the following places of religious gathering regularly?

- Church or church meetings
- Mosque
- Hindu Temple
- No
- Other (please specify) \_\_\_\_\_

12. What form of transport do you use to attend your rehabilitation sessions

- Own Transport
- Train
- Taxi
- Bus
- Hospital Transport
- Dial- A- Ride
- Other \_\_\_\_\_

13. Do you feel that your transport mode impacts negatively your rehabilitation needs

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

14. What assistive devices do you presently have issued for your home use.

- Wheelchair
- Crutches
- Walking Frame
- Walking Stick
- Prosthesis
- Other.

15. How would you rate your assistive device (s) in terms of usefulness in your home circumstances?

- Not Feasible
- Good for Cosmetic Use
- Improves Self Care
- Partial restoration of Independence
- Full restoration of Independence

16. How Long did you wait before being issued with a prosthesis

- Still in the waiting list
- 0-6 months
- 7-12 Months
- 12- 18 months
- Other (specify) \_\_\_\_\_

17. Do you feel that the period you had to wait for your prosthesis decreased your motivation to do your exercises?

- Strongly Agree
- Agree
- Disagree
- Strongly Disagree

18. What other problems do you usually face in terms of consistent use of Your assistive devices around your home and community? Explain

---

19. Do you suffer from any one or more of the following conditions?

- Chronic heart disease
- Hypertension
- Arthritis
- Stroke
- Gout
- Other \_\_\_\_\_

## **Knowledge**

20. Can you tell me briefly what the condition "diabetes" is called in your community and what causes it?

21. Can this condition be cured using home remedies/ traditional medicine

- Yes
- No
- Don't know

22. Have you ever consulted a traditional healer for the management of this condition

- Yes
- No
- Do not remember

**23. Which of the following activities are necessary as part of your daily rehabilitation protocol**

- a) Daily examination of your feet  
 Always  sometimes  Never
- b) Daily checking of atrophic signs(e.g. Ingrown toenails, dryness)  
 Always  sometimes  Never
- c) Daily bathing of feet  
 Always  sometimes  Never
- d) Wearing of well fitting footwear  
 Always  sometimes  Never
- e) Avoiding walking bare feet  
 Always  sometimes  Never
- f) Avoiding wearing constricting clothing on your legs  
 Always  sometimes  Never
- g) Taking caution with hot objects/fires on your feet  
 Always  sometimes  Never
- h) Monitoring blood sugar  
 Always  sometimes  Never
- i) Consistent correct use of your medication  
 Always  sometimes  Never
- j) Maintaining the correct diet  
 Always  sometimes  Never
- k) Going for regular check ups at your day hospital/clinic  
 Always  sometimes  Never
- l) Stopping smoking  
 Always  sometimes  Never
- m) Perform exercises as recommended by the physiotherapist  
 Always  sometimes  Never
- n) Perform correct stump bandaging  
 Always  sometimes  Never

### **Self Efficacy**

24. How confident are you in performing your exercises at home as suggested by your physiotherapist?

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I never perform my exercises at home

25. How confident are you in remembering your exercises at home as suggested by your physiotherapist?

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I never remember my exercises at home

26. How confident are you in taking your diabetes medication and other medication that you are required to take daily?

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I do not take my medications daily

27. How confident are you in performing the following activities at home

a) Using your assistive device within your home

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I never use my assistive device at home

b) Using your assistive device around your community

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I never use my assistive device around my community

c) Performing your own stump bandaging

- Extremely confident
- Confident
- Not very confident
- Not at all confident
- I never do my own stump bandaging at home

d) Performing your prone lying

- Extremely confident
- Confident
- Not confident
- Not at all confident
- I never lie in prone at home

e) Doing daily observations on your stump and your other leg

- Extremely confident
- Confident
- Not confident
- Not at all confident
- I never do observations on my stump and other leg

### **Attitude**

28. Before my amputation I used to be involved in the following activities

- Religious activities in my community
- Volunteer work around my community
- Physical activities such as walking and running
- Home maintenance activities
- Non strenuous sports activities
- Vigorous job activities at work
- Other ( elaborate)

29. After undergoing my amputation I am still involved in the following activities.

- Religious activities in my community
- Volunteer work around my community
- Physical activities such as walking and running
- Home maintenance activities
- Non strenuous sports activities
- Vigorous job activities at work
- Other (elaborate)

**30. I perform my exercises at home everyday because**

a) I want to be able to walk again

- Strongly agree
- Agree
- Disagree
- strongly disagree

b) I do not want to lose my other leg

- Strongly agree
- Agree
- Disagree
- strongly disagree

c) I enjoy doing exercises

- Strongly agree
- Agree
- Disagree
- strongly disagree

31. I feel uncomfortable doing exercises in a mixed gender classes

- Strongly agree
- Agree
- Disagree
- strongly disagree

32. I feel uncomfortable doing classes while dressed in my cultural/religious costumes

- Strongly agree
- Agree
- Disagree
- strongly disagree

33. I feel more comfortable doing exercises when I am in a large group for peer support.

- Strongly agree
- Agree
- Disagree
- strongly disagree

**Social Influence**

34. My wife/husband expect me to perform my exercises daily

- Very often
- Often
- Sometimes
- Never
- I don't have a wife/husband

35. My children expect me to perform my exercises daily

- Very often
- Often
- Sometimes
- Never
- I do not have children

36. My grand children me to perform my exercises daily

- Very often
- Often
- Sometimes
- Never
- I do not have grandchildren

37. My friends me to perform my exercises daily

- Very often
- Often
- Sometimes
- Never
- I do not have friends

38. My wife/husband assist me with performing my exercise routine daily

- Very often
- Often
- Sometimes
- Never
- I do not have a wife/husband

39. My children assist me with performing my exercise routine daily

- Very often
- Often
- Sometimes
- Never
- I do not have children

40. My grand children assist me with performing my exercise routine

- Very often
- Often
- Sometimes
- Never
- I do not have grand children

41. My friends assist me with performing my exercise routine

- Very often
- Often
- Sometimes
- Never
- I do not have friends

**Thank You For Participating In This Study**

**Demographic Information**

1. Umdala kangakanani

---

2. ungutata okanye ungumama

- utata     umama

3. Utshatile

- Awutshatanga  
 Utshatile  
 Umhlokokazi  
 Umhlolo

4. Ufunde imiyaka emingaphi?

5. Wafunyaniswa nini ukuba unesifo seswekile?

---

6. Izinga lokunqunyulwa

---

7. Unexesha elingakanani unqunyuliwe

- 0-6 yeenyanga  
 7- 12 yeenyanga  
 Ngaphezu kwe 12 yeenyanga  
 Sele unalo mlenze ufakelweyo

8. Ukhona umrholo owufumanayo kuRhulumente / ecaleni nokuba ngumhlalaphantsi okanye imali yenkam-nkam.

- Imali kuRhulumente  
 Umhlalaphantsi osecaleni  
 I-penshini  
 Ndisalindile imali kuRhulumente

**Inkcazo apho uhlala khona**

9. Loluphi uhlobo lwendawo ohlala kuyo?

- Ibobosi  
 Indlu yekansile  
 "Cape Flat" (\*\*\*\*\*)  
 Ihostele  
 Enye \_\_\_\_\_
-

10. Ubona ngathi indawo ohlala kuyo iyaphazamisana nenkqubo yonyango

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu
- Enye (nceda ucacise)

10 b). Ukuba uyavumelana no 10 ngentla cacisa ziphumo zini ezimbi enazo malunga nonyago

---

11. Uyaya qho kwenye yezindawo zonqulo zilandelayo?

- Ecaweni okanye indibano yecawe
- mosque
- etempelini yama Hindu
- Hayi
- ewe enye indawo, (nceda ucacise)

12. Loluphi uhlobo lwesithuthi osisebenzisayo xa usiya kwinkqubo yonyango

- Isithuthi sakho
  - Uloliwe
  - Iteksi
  - Ibhasi
  - Isithuthi sasesibhedlele
  - Dial- A- Ride
  - Esinye
- 

13. Ubona ngathi isithuthi sakho siyakhabana nezidingo zonyango lwakho

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

14. Zeziphi izixhobo esele zikhutshiwe wazinikwa ukuncedisana nawe ekhaya.

- Isitulo esinamavili
- Iintonga zokuhamba
- Ifremi yokuhamba
- Intonga yokusimelela
- Umlenzwe ofakelweyo
- Enye.

15. Ungazibeka kweliphi inqanaba ezi zixhobo zincedisana nawe ngokubaluleka kwazo kwisimo sasekhaya

- Azilo ncedo
- Ilungile ukuzenzeni mhle
- Ziphucula indlela yokuzihoya
- Zibuyisa kancinci ukungaxhomekeki
- Zibuyisa ngokupheleleyo ukungaxhomekeki

16. Ulinde ixesha elibngakanani phambi kokuba unikwe umlenze wokufakelwa

- Ndikuluhlu lwabalindileyo
  - 0-6 yeenyanga
  - 7-12 yeenyanga
  - 12- 18 yeenyanga
  - Enye (cacisa)
- 

17. Ubona ngathi ithuba olinde ngalo umlenze wokufakelwa lilehlisile izinga lokuzilolonga / ukujima kwakho?

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

18. Zeziphi ezinye iingxaki oqhele ukudibana nazo ngokusebenzisa rhoqo izincedisi zakho ekhaya nasekuhlaleni? Cacisa

---

19. Awuguli sesinye okanye ezinye zezi zimo zilandelayo?

- Isifo sentliziyo
  - High blood (Hypertension)
  - Isifo samathambo
  - I-Stroke
  - Isifo samathambo (Gout )
  - Esinye
- 

## Ulwazi

20. Ungandithela gqabagqaba yintoni "isifo seswekile" sibizwa ngokuba yintoni engingqini yakho yaye sibangelwa yintoni?

21. Esi sifo singanyangeka ngokusebenzisa imixube yasekhaya / amayeza esintu

- Ewe
- Hayi
- Andiyazi

22. Wakhe wadibana nogqirha wesintu ukunyanga esi sifo

- Ewe
- Hayi
- Andikhumbulu

23. **Kwezi zilandelayo yeyiphi ebalulekileyo njengenxalenye yonyango lwakho**

a) Ukuxilongwa rhoqo kweenyawo zakho

Qho     Ngamanye amaxesha     Zange

b) Ujongo lweempawu zokoma kwesikhumba. Inzipho eziziphumelayo, ukoma

Qho     Ngamanye amaxesha     Zange

c) Ukuhlamba iinyawo rhoqo

Qho     Ngamanye amaxesha     Zange

d) Ukunxiba izihlangu ezikulingana kakuhle

Qho     Ngamanye amaxesha     Zange

e) Ukuphepha ukuhamba ngeenyawo ezingenazihlangu

Qho     Ngamanye amaxesha     Zange

f) Ukuphepha ukunxiba iimpahla ezikupitsayo emlenzeni

Qho     Ngamanye amaxesha     Zange

g) Ukulumkela izinto ezitshisayo / umlilo ezinyaweni

Qho     Ngamanye amaxesha     Zange

h) Ukuhlola iswekile egazini

Qho     Ngamanye amaxesha     Zange

i) Ukusela amayeza ngokufanelekileyo

Qho     Ngamanye amaxesha     Zange

j) Ukugcina isondlo esilungileyo

Qho     Ngamanye amaxesha     Zange

k) Ukudibana nogqirha rhoqo uhlolwe esibhedlele / ekliniki

Qho     Ngamanye amaxesha     Zange

l) Sukuyeka ukutshaya

Qho     Ngamanye amaxesha     Zange

m) Ukuzilolonga ngokomyalelo wogqirha wamathambo

Qho     Ngamanye amaxesha     Zange

n) Ukuzibhandeja ngendlela eyiyo

Qho     Ngamanye amaxesha     Zange

## Ukuzithemba (Self-Efficacy)

24. Uzithembe kangakani malunga nokuzilolonga kwakho ekhaya ngokwemiyalelo kagqirha wamathambo?

- Ndizithembile kakhulu
  - Ndizithembile
  - Andzithembanga kakhulu
  - Andizithembanga tu
- Andisisebenzisi*

25. Uzithembe kangakani malunga nokukhumbula ukuzilolonga kwakho ekhaya ngokwemiyalelo kagqirha wamathambo?

- Ndizithembile kakhulu
  - Ndizithembile
  - Andzithembanga kakhulu
  - Andizithembanga tu
- Andisisebenzisi*

26. Uzithembe kangakanani malunga nokusela amayeza namanye ekufanele uwathathe rhoqo?

- Ndizithembile kakhulu
  - Ndizithembile
  - Andzithembanga kakhulu
  - Andizithembanga tu
- Andisisebenzisi*

27. Uzithembe kangakanani nokwenza oku kulandelayo ekhaya

a) Ukusebenzisa isincedisi ekhaya

- Ndizithembile kakhulu
- Ndizithembile
- Andzithembanga kakhulu
- Andizithembanga tu
- Andisisebenzisi

b) Ukusebenzisa isincedisi ekuhlaleni

- Ndizithembile kakhulu
- Ndizithembile
- Andzithembanga kakhulu
- Andizithembanga tu
- Andisisebenzisi

c) Ukuzibopha ngokwakho ngebhandeji

- Ndizithembile kakhulu
- Ndizithembile
- Andzithembanga kakhulu
- Andizithembanga tu
- Andizibophi ngebhandeji

- d) Ukulala ngesisu
- Ndizithembile kakhulu
  - Ndizithembile
  - Andzithembanga kakhulu
  - Andizithembanga tu
  - Andilali ngesisu

- e) Ukuzihlola qho emlenzeni osikiweyo nakomnye umlenze
- Ndizithembile kakhulu
  - Ndizithembile
  - Andzithembanga kakhulu
  - Andizithembanga tu
  - Andizihloli imilenze

### Isimo

28. Phambi kokunqunyulwa bendisoloko ndizibandakanya noku kulandelayo

- Ezenkolo ekuhlaleni
- Ukusebenza ngaphandle kwentlawulo ekuhlaleni
- Ukushukumisa umzimba ngokubaleka nangokuhambahamba
- Ukukhathalela ikhaya
- Ukudlala imidlalo engenabunzima
- Ukwenza umsebenzi odinga amandla emsebenzini
- Enye ( cacisa)

29. Emva kokunqunyulwa nangoku ndisazibandakanya noku kulandelayo.

- Ezenkolo ekuhlaleni
- Ukusebenza ngaphandle kwentlawulo ekuhlaleni
- Ukushukumisa umzimba ngokubaleka nangokuhambahamba
- Ukukhathalela ikhaya
- Ukudlala imidlalo engenabunzima
- Ukwenza umsebenzi odinga amandla emsebenzini
- Enye ( cacisa)

30. Ndiya zilolonga ekhaya yonke imihla kuba

a) Ndifun ukukwazi ukuhamba kwakhona

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

b) Andifuni kulahlekana nomnye umlenze

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

c) Ndiyakuthanda ukuzilolonga

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

31. Ndiziva ndingonwabanga ukuzilolonga apho kuxutyenwe ngokwesini

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

32. Andikhululeki ukuya eklasini ndinxibe isintu / ngokwenkolo yam

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

33. Ndiziva ndikhululeke kakhulu xa ndizilolonga neqela ukuze ndifumane inkxaso.

- Ndiyavumelana kakhulu
- Adiyavumelana
- Andivumelani
- Andivumelani kakhulu

### **Impembelelo ekuhlaleni**

34. Umfazi/umyeni wam ulindele ukuba ndizilolonge yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinaye umyeni

35. Abantwana bam balindele ukuba ndizilolonge yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abahlobo

36. Abazukulwana bam balindele ukuba ndizilolonge yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abahlobo

37. Abahlobo bam balindele ukuba ndizilolonge yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abahlobo

38. Umfazi/umyeni wam uyandincedis rhoqo ukuqhubeka nokulolonga yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinaye umfazi/umyeni

39. Abantwana bam bayandincedis rhoqo ukuqhubeka nokulolonga yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abantwana

40. Abazukulwana bam bayandincedis rhoqo ukuqhubeka nokulolonga yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abazukulwana

41. Abahlobo bam bayandincedis rhoqo ukuqhubeka nokulolonga yonke imihla

- Amaxesha amaninzi
- Qho
- Ngamanye amaxesha
- Zange
- Andinabo abahlobo

**Enkosi kakhulu ngokuthabatha inxaxheba kolu phando**

## Appendix f Questionnaire Afrikaans

### Demografiese Inligting

1. Ouderdom

---

2. Geslag

Manlik     Vroulik

3. Huwelikstatus

- Ongetroud
- Getroud
- Weduwee
- Wewenaar

4. Hoeveel jaar formele opleiding het jy?

---

5. Wanneer was jy vir die eerste keer as 'n diabeet gediagnoseer?

---

6. Vlak van amputasie

---

7. Vir hoe lank is jy reeds geamputeer?

- 0-6 maande
- 7- 12 maande
- Oor 12 maande
- Prostetiese stadium

8. Ontvang jy tans enige private/regering betalings soos pensioen of ongeschiktheidstoelaag.

- Regeringstoelaag
- Privaat pensioen
- Staatspensioen
- Op 'n waglys vir toelaag/pensioen

## Omgewingsfaktor bepalers

9. Watter tipe akkomodasie bewoon jy?

- Gehug (Shack)
- "Council" Huis
- "Cape Flat"
- Hostel
- Ander (spesifiseer asseblief) \_\_\_\_\_

10. Dink jy dat jou akkomodasie jou Rehabitasie program belemmer?

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief)

10b). As jy saamstem met 10 hierbo, kan jy verduidelik hoe dit 'n negatiewe impak op jou rehabilitasie het?

---

---

11. Gaan jy gereeld na een van die volgende godsdienstige plekke toe?

- Ja, kerk of ander kerkbyeenkoms
- Ja, Moskee
- Ja, Hindu tempel
- Ja, ander (spesifiseer asseblief) \_\_\_\_\_
- Nee

12. Watter vorm van vervoer gebruik jy om jou rehabilitasie sessies by te woon

- Eie vervoer
- Trein
- Taxi
- Bus
- Hospitaal vervoer
- Dial- A- Ride
- Ander \_\_\_\_\_

13. Voel jy dat jou tipe vervoer 'n negatiewe impak op jou rehabilitasie behoeftes het?

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

14. Watter hulpmiddels is tans aan jou gegee om tuis te gebruik?

- Rolstoel
- Krukke
- Loopraam
- Steunkierie
- Kunsmatige ledemaat
- Ander (spesifiseer asseblief) \_\_\_\_\_

15. Hoe sal jy jou hulpmiddels beskryf in terme van gebruiksaamheid in jou huislike omstandighede?

- Nie gebruisaam nie
- Goed vir kosmetiese gebruik
- Verbeter selfsorg
- Gedeeltelike verbetering van onafhanklikheid
- Volle verbetering van onafhanklikheid

16. Hoe lank het jy gewag voor 'n kunsmatige ledemaat aan jou gegee is?

- Steeds op waglys
- 0-6 maande
- 7-12 maande
- 12- 18 maande
- Ander (spesifiseer assieblief) \_\_\_\_\_

17. Voel jy dat die periode wat jy moes wag vir jou kunsmatige ledemaat het jou motivering om jou oefening te doen, verlaag?

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

18. Watter ander probleme ondervind jy gewoonlik in terme van die volgehoue gebruik van jou hulpmiddels rondom jou huis en jou omgewing? Verduidelik.

\_\_\_\_\_

19. Ly jy aan enige een of meer van die volgende siektetoestande?

- Kroniese hartsiekte
- Hipertensie
- Artritis
- Beroerte
- Jig (gout)
- Ander (spesifiseer asseblief) \_\_\_\_\_

## Kennis

20. Kan jy my vertel wat die siektetoestand "diabetes" in jou gemeenskap genoem word en wat die oorsaak daarvan is?

---

---

21. Kan hierdie siektetoestand genees word deur huisrate/tradisionele medisyne?

- Ja
- Nee
- Ek weet nie

22. Het jy al ooit 'n tradisionele geneser gespreek vir die behandeling van hierdie siektetoestand?

- Ja
- Nee
- Kan nie onthou nie

23. Watter van die volgende aktiwiteite is nodig as deel van jou daaglikse rehabilitasie protokol?

a) Daaglikse ondersoek van jou voete

- Altyd
- Somtyds
- Nooit

b) Daaglikse nagaan van wegkwyntekens (bv. Ingegroeide toonnael, droogheid)

- Altyd
- Somtyds
- Nooit

c) Daaglikse was van voete

- Altyd
- Somtyds
- Nooit

d) Die dra van skoene wat goed pas

- Altyd
- Somtyds
- Nooit

e) Vemy kaalvoetloperij

- Altyd
- Somtyds
- Nooit

f) Vermoed die dra van stywe klere aan jou bene

- Altyd
- Somtyds
- Nooit

g) Wees versigtig met warm voorwerpe/vure aan jou voete

Altyd  Somtyds  Nooit

h) Monitor bloedsuiker

Altyd  Somtyds  Nooit

i) Volgehoue korrekte gebruik van jou medikasie

Altyd  Somtyds  Nooit

j) Hou vol met die korrekte dieët.

Altyd  Somtyds  Nooit

k) Gaan vir gereelde ondersoeke by jou daghospitaal/kliniek

Altyd  Somtyds  Nooit

l) Ophou rook

Altyd  Somtyds  Nooit

m) Doen oefeninge soos voorgestel deur die fisioterapeut

Altyd  Somtyds  Nooit

n) Pas korrekte verbandgebruik toe aan die geamputeerde ledemaat.

Altyd  Somtyds  Nooit

### **Selfdoeltreffendheid**

24. Hoeveel selfvertroue het u om u oefeninge te onthou soos voorgestel deur die fisioterapeut?

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie

25. Hoeveel selfvertroue het u om by die huis u oefeninge te onthou soos voorgestel deur die fisioterapeut?

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie

26. Hoeveel selfvertroue het u om u diabetes medikasie en ander medikasie te neem soos van u verwag word om daagliks te neem?

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie

27. Hoeveel selfvertroue het u om die volgende aktiwiteite by die huis te doen?

a) Gebruik jou hulpmiddels in en om die huis

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie
- Ek gebruik nooit my hulpmiddels by die huis nie

b) Gebruik jou hulpmiddels in jou omgewing/gemeenskap

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie
- Ek gebruik nooit my hulpmiddels in my omgewing/gemeenskap nie

c) Sit self die verband aan jou geamputeerde ledemaat

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie
- Ek doen nooit my eie verbande by die huis nie

d) Beoefen jou lêhouding

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie
- Ek beoefen nie my lêhouding by die huis nie.

e) Doen daaglikse observasies van jou geamputeerde ledemaat en jou ander been

- Algehele selfvertroue
- Selfvertroue
- Nie baie selfvertroue nie
- Geen selfvertroue nie
- Ek doen nooit observasies van my geamputeerde ledemaat en ander been nie.

## Houding

28. Voor my amputasie was ek betrokke by die volgende aktiwiteite.

- Kerklike aktiwiteite in my gemeenskap
- Vrywilligheidsdienste in my gemeenskap
- Fisiese aktiwiteite soos stap en hardloop
- Huisonderhoud aktiwiteite
- Nie-strawwe sportaktiwiteite
- Strawwe werkaktiwiteite by die werk
- Ander ( Brei uit asseblief) \_\_\_\_\_

29. Na ek my amputasie ondergaan het, is ek nog steeds betrokke by die volgende aktiwiteite.

- Kerklike aktiwiteite in my gemeenskap
- Vrywilligheidsdienste in my gemeenskap
- Fisiese aktiwiteite soos stap en hardloop
- Huisonderhoud aktiwiteite
- Nie-strawwe sportaktiwiteite
- Strawwe werkaktiwiteite by die werk
- Ander ( Brei uit asseblief) \_\_\_\_\_

30. Ek doen my oefeninge by die huis elke dag, want:

a) Ek wil in staat wees om weer te loop

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

b) Ek wil nie my ander been verloor nie

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

c) Ek geniet dit om oefening te doen

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

31. Ek voel ongemaklik om oefening te doen in 'n klas met gemengde geslagte

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

32. Ek voel ongemaklik om oefening te doen terwyl ek kulturele/godsdienstige drag aanhet

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

33. Ek voel meer gemaklik om oefeninge te doen as ek in 'n groot groep is vir groepondersteuning.

- Stem heeltemal saam
- Stem saam
- Stem nie saam nie
- Stem geheel en al nie saam nie
- Ander (spesifiseer asseblief) \_\_\_\_\_

## Sosiale invloed

34. My man/vrou/maat verwag van my om my oefenroetine daaglik te doen

- Baie gereeld
- gereeld
- Somtyds
- Nooit
- Ek het nie 'n "Vrou"/ "Man" / "Maat" nie

35. My kinders verwag van my om my oefenroetine daaglik te doen

- Baie gereeld
- gereeld
- Somtyds
- Nooit
- Ek het nie kinders nie

36. My kleinkinders verwag van my om my oefenroetine daaglik te doen

- Baie gereeld
- gereeld
- Somtyds
- Nooit
- Ek het nie kleinkinders nie

37. My vriende verwag van my om my oefenroetine daaglik te doen

- Baie gereeld
- gereeld
- Somtyds
- Nooit
- Ek het nie vriende nie

38. My man/vrou/ maat help my om my oefenroetine daaglik te doen

- Baie gereeld
- gereeld
- Somtyds
- Nooit
- Ek het nie 'n "vrou"/ "man" / "maat" nie

39. My kinders help my om my oefenroetine daaglik te doen

- Baie gereeld
- Gereeld
- Somtyds
- Nooit
- Ek het nie kinders nie

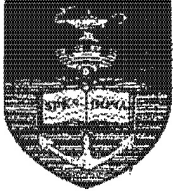
40. My kleinkinders help my om my oefenroetine daaglik te doen

- Baie gereeld
- Gereeld
- Somtyds
- Nooit
- Ek het nie kleinkinders nie

41. My vriende help my om my oefenroetine daaglik te doen

- Baie gereeld
- Gereeld
- Somtyds
- Nooit
- Ek het nie vriende nie

**Dankie vir U deelname aan die studie**



Research Ethics Committee  
Faculty of Health Science  
E46-26 Old Main Building, Groot  
Schoor Hospital, Observatory, 7925  
Queries : Xolile Fula  
Tel : (021) 406-6492 Fax: 406-6411  
E-mail : Xfula@curie.uct.ac.za

07 November 2001

**REC REF: 294/2001**

Mr S Sifunda  
Public Health

Dear Mr Sifunda

**THE DETERMINANTS OF ADHERING TO REHABILITATION IN DIABETICS  
WHO HAVE UNDERGONE LOWER LIMB AMPUTATION**

Thank you for your application submitted to the Research Ethics Committee on the 10 October 2001.

*It is a pleasure to inform you that the Committee has formally approved the above study on the 02 November 2001.*

Attached is a list of Committee members who attended the meeting.

**Please quote above REC reference number in all correspondence.**

Yours sincerely

**PROFESSOR CR SWANEPOEL  
CHAIRPERSON**

ENQUIRIES :  
NAVRAE :  
TELEPHONE :  
TELEFOON :  
FAX :  
FAKS :  
E-MAIL :  
REFERENCE :  
VERWYSING :  
DATE :  
DATUM :

Dr A. ROSSI  
(021) 404-3175  
(021) 404-3004  
[Rmolevel@pawc.wcape.gov.za](mailto:Rmolevel@pawc.wcape.gov.za)  
Rm/S.Sifunda/r  
13 November 2001

PROVINCIAL ADMINISTRATION : WESTERN CAPE

*Department of Health*

PROVINSIALE ADMINISTRASIE : WES-KAAP

*Departement van Gesondheid*

ULAWULO LWEPHONDO : INTSHONA KOLONI

*Isebe Lezempilo*

Mr Sibusiso Sifunda  
P.O.Box 13616  
Mowbray  
7705

Dear Mr Sifunda

**RE: REQUEST FOR PERMISSION TO CONDUCT A RESEARCH PROJECT**

**STUDY TITLE: The determinants of adhering to rehabilitation in diabetics who have undergone lower limb amputation**

I refer to your letter addressed to Dr P. Mitchell: Chief Medical Superintendent dated 20 October 2001 and our telephonic discussion on 26 October 2001.

Thank you for copies of letters from Mrs M. Farquharson: Assistant Director: Physiotherapy dated 1 November 2001 and from Professor C. R. Swanepoel: Chairperson: Research Ethics Committee: UCT Faculty of Health Science dated 7 November 2001.

Please be informed that your request for permission to conduct the above research project is approved.

Yours sincerely

Dr A. ROSSI  
Medical Superintendent

Copy To: Dr P.J. Mitchell  
Mrs M. Farquharson  
*Groote Schuur Hospital*  
Private Bag,  
Observatory, 7935  
Telephone: 404-9111



*Groote Schuur Hospitaal*  
Privaatsak,  
Observatory, 7935  
Telefoon: 404-9111

PROVINCIAL ADMINISTRATION : WESTERN CAPE

*Department of Health*

PROVINSIALE ADMINISTRASIE : WES-KAAP

*Departement van Gesondheid*

ULAWULO LWEPHONDO : INTSHONA KOLONI

*Isebe Lezempilo*

ENQUIRIES :  
NAVRAE :  
TELEPHONE :  
TELEFOON :  
FAX :  
FAKS :  
E-MAIL :  
REFERENSGE :  
VERWYSING :  
DATE :  
DATUM :

1<sup>st</sup> November 2001

Dear Sibu

The Department of Physiotherapy welcomes you to do your research with the amputee patients.

We wish you all the best.

Yours sincerely

Mrs M. Farquharson  
Assistant Director: Physiotherapy

**Groote Schuur Hospital**  
Private Bag,  
Observatory, 7935  
Telephone: 404-9111



**Groote Schuur Hospital**  
Privaatsak,  
Observatory, 7935  
Telefoon: 404-9111