

**AN EVALUATION OF HEALTH PROMOTERS' ADHERENCE TO A PLANNED  
DIABETES EDUCATIONAL INTERVENTION THAT INCLUDES MOTIVATIONAL  
INTERVIEWING AT COMMUNITY HEALTH CENTRES IN CAPE TOWN**

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**SUBMITTED TO THE UNIVERSITY OF CAPE TOWN**

In partial fulfilment of the requirements for the degree

**MASTER OF SCIENCE IN NURSING**

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Date: 26th May, 2014

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## DECLARATION

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I, Buyelwa Majikela-Dlangamandla, hereby declare that the work on which this dissertation 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 another university.

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



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Signature

26 May 2014

Date

## ACKNOWLEDGEMENTS

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The randomised controlled trial (as well as this sub-study) was supported by the International Diabetes Federation BRIDGES Grant, which was supported by an educational grant from Lilly Diabetes (ST09-040). We thank the Chronic Diseases Initiative for Africa as well as Stellenbosch University for additional funds towards this project. We are grateful to the Department of Health for their support and for granting us access to the Community Health Centres. We thank all of the patients for participating in this study.

My sincere thanks go to my supervisors, Dr Una Kyriacos and Professor Bob Mash, for their guidance, patience and support. I also thank Professors N.S. Levitt and C. Steyn and Dr Cathy Murphy for their continued encouragement and support. I want to thank Mrs Susan Botha who is always very helpful and pleasant.

## DEDICATION

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I wish to dedicate this study to Phumeza Mawonga, a teenager with type 1 diabetes who sadly passed on in her sleep. Her death was one of the reasons for the creation of my post as a means of supporting the diabetes community.

I humbly welcome the opportunities in my career as a nurse, such as learning from people with diabetes and their families, the ability to support and empower both patients and health care workers, and to be part of the diabetes team. I am also grateful to be a member of the Postgraduate Diploma in Diabetes Nursing Task Team. I believe that diabetes education in South Africa and in Africa is improving and will continue to make a difference in the diabetes community.

To my mother who always believed in me, my husband and my children who supported me, thank you.

## ABSTRACT

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**Background:** Eleven per cent of the adult population in Cape Town is affected by diabetes and this is predicted to increase substantially in the next decade. The health care system in the public sector is overburdened and poorly resourced, contributing to suboptimal quality of care and patient education being offered in an ad hoc manner. Community health centres in the Western Cape Metropole employ health promoters as one of the strategies to address these challenges. HPs are mid-level workers trained to deliver health education.

**Aim:** To evaluate the extent to which health promoters in public sector community health centres adhered to a style of communication derived from motivational interviewing and to the designed content and mode of delivery of a diabetes education programme.

**Objectives:** To assess: 1) health promoters' competency in motivational interviewing, and 2) the extent to which health promoters adhered to the recommended content on diabetes and group facilitation processes. Sub-objectives: 3) to establish the content and face validity of a researcher-designed observation checklist, and 4) to describe health promoters' demographic characteristics.

**Methods:**

**Design:** A descriptive observational design was employed. Data were collected by digital voice recorder and structured observation of 32 randomly sampled group education sessions between October 2010 and April 2011. Audio recordings were analysed by listening to the entire recorded session using a validated motivational interviewing assessment tool incorporating a scoring system. Observed sessions were analysed using a checklist to score items.

**Setting:** This study was a sub-study within a broader pragmatic randomised controlled trial. The trial evaluated the impact of an educational intervention on a range of clinical outcomes. This sub-study was conducted in 17 randomly selected community health centres in the Cape Town Metropole.

**Study population:** The evaluated intervention was delivered by 13 of 23 (56.5%) randomly selected trained health promoters.

**Results:** On a scale of beginning-level proficiency to competency in motivational interviewing for group education sessions, health promoters' overall competence was below beginner proficiency (3.4, SD=0.5) although some individual HPs achieved beginner proficiency and/or competency. In overall guiding style HPs scored higher in the first sessions than in later sessions and performed well in the use of open ended questions. The local MI expert found the researcher-designed

observation checklist to be valid (4 = extremely relevant for each item). The extent to which the planned content was covered ranged between 75% and 89.5%.

**Conclusion:** This study has shown that collectively, the 13 mid-level workers' ability to use motivational interviewing style in group education sessions was below beginner proficiency level but they appear to have the potential to improve their competence with additional training and practice.

**Keywords:** Diabetes, Group education, Health education, Motivational interviewing, Mid-level health workers, South Africa, Primary care.

## ABBREVIATIONS

---

CHC	Community health centre
CR	Complex reflections
CQ	Closed questions
CVI	Index of content validity
DSME	Diabetes self-management education
EC	Externalising conversations
GI	Giving information
GPs	General practitioners
HBA1c	Glycated haemoglobin
HP	Health promoter
IDF	International Diabetes Federation
MI	Motivational interview/ing
MIA	MI adherent
MINA	MI non-adherent
MITI	Motivational Interviewing Integrity Code
NICE	National Institute for Health and Clinical Excellence
OQ	Open-ended questions
PHC	Primary health care
REC	Research Ethics Committee
R:Q	Reflection to question ratio
SR	Simple reflections or summaries
UCT	University of Cape Town
UK	United Kingdom

# CHAPTER ONE: INTRODUCTION

---

## 1.1 Introduction

The World Health Organisation has estimated that the total number of people with diabetes worldwide will increase from 171 million in 2000 to 366 million in 2030 (Wild *et al.*, 2004). In South Africa researchers have reported prevalence rates for diabetes of 2.4% in men and 3.7% in women; in this Demographic and Health Survey 13 827 adults (15 years and over) were interviewed with a response rate of 93% (Mollentze, 2006). In the Western Cape urban areas in South Africa studies suggest rates as high as 33% (Matsha *et al.*, 2012). High levels of death from cardiovascular disease are reported in cases of diabetes, as well as increased prevalence of other complications such as amputations and renal disease (Wild *et al.*, 2004).

Diabetes is a chronic disease that demands the patient's long-term and continued commitment to self-care and preventive care behaviour. The experience of living with diabetes is dependent on each patient's life and social circumstances. Patients with diabetes must make a series of daily decisions involving blood glucose monitoring, medication, nutrition, physical activity, and stress management. An important goal of diabetes education and care is enhancing the perceived self-efficacy of patients to self-manage their diabetes (Atak, Köse & Gürkan, 2008).

Self-efficacy has been defined as the perceived ability or confidence to engage and master various situation-specific self-management tasks such as insulin injection. Self-efficacy has become an important and useful concept in assessing the willingness and ability of people to engage in various behavioural challenges, including preventive and disease management behaviours. Enhanced self-efficacy has been reported to improve self-managed diabetes (Atak, Köse & Gürkan, 2008).

Knowledge by providing health education is regarded as one of the most important responsibilities of health providers (Karakurt, 2012) and, in the context of diabetes knowledge is a pre-condition for effective self-management. An appropriate educational approach and follow-up have been identified necessary in order to improve self-

management behaviours of patients with diabetes. The International Society for Paediatric and Adolescent Diabetes proposed a definition of diabetes education as 'The process of providing the person with the knowledge and skills needed to perform diabetes self-care, manage crises and to make lifestyle changes to successfully manage the disease' (Swift, 2007:103-109).

An audit conducted in rural KwaZulu-Natal in South Africa has shown that patients are not equipped with the necessary knowledge to manage their diabetes and prevent complications. The basic knowledge about how diabetes works and the importance of adopting a healthy lifestyle in addition to medication to effectively manage diabetes is vital (Moodley & Rambiritch, 2007). Lack of knowledge can result in uncontrolled diabetes, which would lead to complications. Other research in the Western Cape has shown that there is no structured and systematic education programme for diabetic patients in the province (Mash, Levitt *et al.*, 2008). Education is performed in an ad hoc and unpredictable manner, mainly by nurses and doctors.

Barriers reported by health care providers in the public sector services include the lack of time available to undertake structured diabetes education and counselling because of the high numbers of patients, a lack of quality educational resources, lack of adequate training and language barriers. This results in diabetic patients lacking knowledge and motivation to effectively manage and improve their diabetes. As the rates of diabetes increase and the non-communicable diseases receive increasing strategic priority, policy makers in South Africa are seeking effective methods of education on and management of diabetes (Mash *et al.*, 2008).

Community health centres (CHCs) in the Western Cape are the first point of contact for people seeking health care and are situated in the community so as to be easily accessible. CHCs are primary health care (PHC) facilities and refer patients needing further care to secondary or tertiary level health care facilities. The public sector health care system is generally overburdened and poorly resourced, contributing to the suboptimal quality of care offered by health care workers in these facilities (Levitt *et al.*, 1997; Martell & Van Vuuren, 2007). Some CHCs have health promoters (HPs) with a designated responsibility for health education, and they have been identified by chronic

care teams as a feasible option for the delivery of an education and counselling programme for diabetic patients (Mash *et al.*, 2008).

HPs in South Africa are mid-level workers who generally have a minimum of 12 years of schooling. The Department of Health in the Western Cape has acknowledged that this category of health worker needs further training in effective communication methods if they are to play an effective role in assisting patients to better manage their condition. The counselling method of motivational interviewing (MI) has been recommended in the literature on diabetes as an effective approach to helping patients build motivation and confidence to undertake the behavioural changes necessary for effective diabetes self-management (Heisler & Resnicow, 2008). This approach is described further in the review of the literature in Chapter Two.

Of the 45 CHCs in the Cape Metropole, 23 (51%) currently have HPs; the Western Cape Province has a total of 120 HPs. Most CHCs have set aside a specific day each week to see diabetic patients. They are usually scheduled to attend the clinic as a group and are given appointments to be seen for review every 3 months. Educational materials for individual and group education are available from non-governmental organisations and pharmaceutical companies, but are not officially disseminated or recommended by the Department of Health.

## 1.2 Background

This study is a sub-study within a larger, pragmatic cluster randomised controlled trial (RCT). The abstract of the RCT is provided in Appendix B. The aim of the RCT was to evaluate the impact of a structured group diabetes education intervention on a range of clinical outcomes.

**Primary outcomes of the RCT:** Diabetes-specific quality of life, diabetes self-care activities, weight loss, reduction in glycated haemoglobin (HbA1c).

**Secondary outcomes of the RCT:** Self-efficacy, locus of control, mean blood pressure, mean weight loss, mean waist circumference, mean HbA1c, mean total cholesterol. Data were collected at baseline and after 12 months.

A diagrammatic representation of the sub-study presented here in relation to the RCT and other sub-studies is given in Figure 1-1.

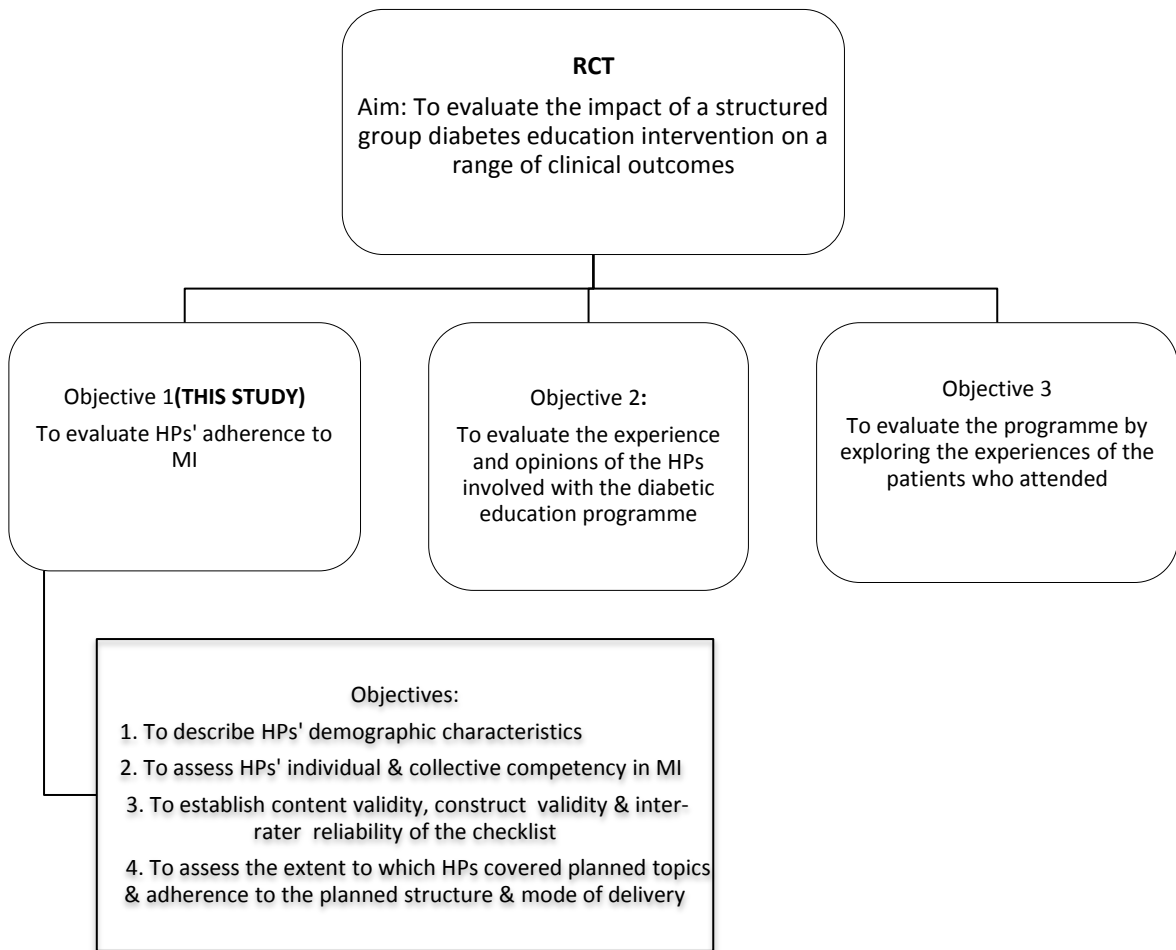


Figure 1-1: The relation of this sub-study to the RCT

This RCT was a result of the 2006-2008 appreciative inquiry project to improve the annual review of diabetic patients in the Cape Metropole. During this project the quality of care in the annual audit showed significant improvement in clinical outcomes. At the end of this project the staff identified the need for a better approach to diabetes education. They collaborated in designing the content of a more structured programme to be delivered by HPs (Mash *et al.*, 2008). HPs' level of knowledge regarding the key diabetes education message has been found to be similar to that of doctors and better than nurses (Parker *et al.*, 2010), but as they usually give didactic talks to groups of patients in the waiting room the effectiveness of this education is probably low.

The study also reported that primary care providers who promoted lifestyle modification often did not have sufficient knowledge to provide practical advice to patients (Parker *et al.*, 2010). In response to both the recommendations that emerged from the appreciative inquiry process and the findings of Parker *et al.*'s study, a diabetes education programme was developed by the RCT researchers, with help from the researcher of this sub-study and a social scientist with an interest in behavioural change counselling.

The education programme was planned according to these recommendations to consist of four group-based educational sessions on the topics that were recommended by the HPs in the appreciative inquiry. The topics were as follows:

Session 1: Understanding diabetes

Session 2: Understanding your medication

Session 3: Living a healthy lifestyle

Session 4: Preventing complications

These topics were to be delivered by HPs in a guiding style (MI), each lasting 20–60 minutes.

A group education approach makes sense in the South African and Western Cape context where doctors and nurses are a scarce resource and time for individual counselling is very limited. No studies have been published to date on the use of group diabetes education by mid-level health workers and whether this is effective. There are also no published studies on the use of group MI in the South African PHC context. It is therefore clear that there is a need for evaluation of structured and sustainable diabetic educational programmes with appropriate educational materials for diabetic patients in the Western Cape.

Training mid-level health providers such as HPs in South Africa would be a practical solution to the shortage of professional health workers for health education. Mash *et al.*'s 2008 study also highlighted the fact that in order to provide effective, high-quality diabetes education, HPs must not only have a sound clinical understanding of diabetes, but also have appropriate communication skills (Mash *et al.*, 2008).

The education intervention was delivered by HPs and implemented in randomly selected CHCs in the Cape Metropole. The target population for the RCT was type 2 diabetic patients attending 34 public sector CHCs. The CHCs were randomly assigned into 17 control and 17 intervention centres. Between 40 and 60 patients were recruited at each CHC and divided into four groups. The intervention groups received the structured education programme (four sessions, each held a month apart) delivered by HPs to groups of 10–15 diabetic patients at a time. The control group received usual care and education; usual education consisted of ad hoc educational talks in the diabetes clinic waiting area or in the consultation if time allowed (Mash *et al.*, 2012).

The larger RCT study aimed to demonstrate effectiveness of this educational intervention (a structured education programme delivered by HPs to groups of 10–15 diabetic patients at a time) by evaluating the impact on self-care, control of diabetes, and quality of life. If it succeeded, the study team planned to inform policy makers and managers of the district health services and engage with them in deciding whether to implement the education programme more widely.

The sub-study reported on here contributed to the RCT by describing the extent to which HPs adhered to the model of diabetes education required by the intervention. This study aimed to assess the competency of the HPs in delivering the intervention using the guiding style derived from MI. It also involved an assessment of the content of diabetes-related information provided by the HPs and the way in which they structured this.

### **1.3 Research question**

The research question in this study is: To what extent do HPs in public sector CHCs adhere to a style of communication derived from MI and to the designed content and mode of delivery of a group diabetes education programme?

### **1.4 Aim of the study**

The aim of this study was to evaluate the extent to which HPs in public sector CHCs adhered to a style of communication derived from MI and to the designed content and mode of delivery of a group diabetes education programme.

## 1.5 Primary objectives

The primary objectives and sub-objectives of the study are outlined below:

- 1.5.1 To assess HPs' individual and collective competency in MI using a validated tool with a scoring system for 'beginning proficiency' and 'competency'.
- 1.5.2 To assess the extent to which HPs covered the diabetic topics listed in the training manual and adhered to the planned structure and mode of delivery of the educational sessions using a locally validated observation checklist.

*Sub-objectives:*

- 1.5.3 To establish the content and face validity of a researcher-designed checklist that could be used to observe the content and mode of delivery of the education sessions.
- 1.5.4 To describe HPs' demographic characteristics.

## 1.6 Significance of the study

This study made an important contribution to the RCT by performing a descriptive and qualitative assessment of the HPs' fidelity to the designed intervention, which added a different dimension to and assisted with interpretation of the results of the RCT. The study will also add to the literature on whether mid-level health workers from low- and middle-income countries can provide effective diabetes education using group MI. Data from this study should be useful in planning for improved diabetic education in the public sector PHC setting in South Africa.

## 1.7 Summary

The number of people with diabetes is increasing worldwide including the developing countries such as South Africa. This chronic disease results in high levels of death from cardiovascular disease as well as increased prevalence of other complications such as amputations and renal disease. Diabetes demands the patients' long-term and continued commitment to self-care and preventive care behaviour. Diabetes education is a process of providing the person with diabetes with the knowledge and skills needed to perform

diabetes self-care, manage crises and make lifestyle changes to successfully manage the disease (Clement, 1995).

In terms of the structure of this dissertation, this chapter presented an outline of the aim, objectives and significance of the study. In Chapter Two a literature review pertinent to group MI in diabetes is presented. The chosen methodology for conducting the study and for collecting and analysing the data is presented in Chapter Three. The study findings are presented in Chapter Four, and these study findings are discussed in Chapter Five, which also presents the implications, recommendations and conclusion of the study.

## CHAPTER TWO: LITERATURE REVIEW

---

### 2.1 Introduction

In this chapter a review of published work that is relevant to group MI in diabetes is presented to give a fuller understanding of the context in which the study was conducted and to guide the research question. A review of the literature also highlighted gaps in the existing published literature.

### 2.2 Review of the published literature

Multiple bibliographic databases were searched (EBSCO, CINAHL, Africa Wide and Medline) for relevant articles using key words (diabetes, group education, health education, motivational interviewing, mid-level health workers, South Africa, primary care) covering the years 2000–2013. Books on MI were also used to obtain a general overview of the subject. References from journals which were published before 2000 are cited sources which appeared in the reviewed literature.

### 2.3 Key themes

Certain key themes emerged from the review of the literature, and the results are presented under the following headings:

- Diabetes self-management education;
- Group-based diabetes education;
- MI;
- Use of MI in diabetes education;
- Use of MI in a low-resource setting;
- Delivery of MI diabetes education by different categories of health worker;
- Health workers' experience with MI; and
- MI in groups.

#### 2.3.1 Diabetes self-management education

Diabetes self-management education (DSME) is the process of providing the person with diabetes with the knowledge and skills needed to perform self-care, manage crises, and make lifestyle changes required to successfully manage diabetes (Clement, 1995). The goal of DSME is to enable the person with diabetes to be knowledgeable and become the

most active participant in his or her diabetes care. The term 'self-management education' emphasises the need for people with diabetes to manage their diabetes on a day-to-day basis. Unfortunately more than 50% of people with diabetes receive limited or no DSME. DSME is associated with reduced hospitalisations for diabetes-related problems and related health costs (Clement, 1995). Clement (1995) identified important aspects which should be considered when planning to offer DSME, and discussed them under the following headings:

- DSME is most effective when coupled with expert adjustment of medication and reinforcement of learned behaviours by the health care provider.
- DSME is effective only when behaviour change strategies are extensively used.
- Instruction in the use of self blood glucose monitoring data to optimise the insulin regimen is essential for optimal glycaemic control in insulin-treated patients.
- DSME has been widely recognised as an integral part of diabetes treatment, and when combined with timely and appropriate adjustment of medication is associated with reduced morbidity and possibly reduced mortality.

Clement (1995) encourages health care workers to work closely with the patient's health care providers and to ensure that their interventions make extensive use of behaviour change strategies that appropriately match the needs and abilities of their patients.

During 2008 the National Institute for Health and Clinical Excellence (NICE) in the United Kingdom, which issues evidence-based clinical practice guidelines to health care providers, recommended that all people with diabetes should attend a structured patient education programme with yearly follow-up and review (NICE, 2008; Hall, 2008).

However, it is evident from published studies that patients who never received DSME had a four-fold increased risk of major diabetes complications compared with patients who received some form of DSME (Clark, 2008).

Published data from the NICE (2008) study indicated that in the UK people with diabetes are offered education at least at the time of diagnosis, with great variation in terms of length, content and style of educational options among services. Only some of the educational programmes offered are structured, with very few of them being formally evaluated, and few individuals who deliver education have been formally trained for this service (Clark, 2008).

Even where DSME is recognised as important, the number of patients with diabetes who receive education is small due to several barriers, including access and DSME delivery approaches that may not be effective in empowering patients with diabetes to effectively manage their condition (Siminerio *et al.*, 2008). Providing DSME at primary care level could be a feasible option to reach patients who may not be receiving DSME services. It is evident from published literature that offering diabetes self-management counselling during busy office visits becomes a challenge for health providers. Tasks that are necessary for effective diabetes self-management, such as insulin injections, may not be sufficient to motivate patients to make and sustain behaviour changes (Heisler *et al.*, 2008).

In traditional medical model patient education programmes the patient is viewed as the recipient of care, and is expected to accept and comply with the prescriptive regimens of the expert (Rollnick, Miller & Butler, 2008). Furthermore, health worker-centred approaches may transfer knowledge which lacks personal relevance and fails to increase self-confidence (Rollnick, Miller & Butler, 2008).

In addition, the International Diabetes Federation (IDF) (IDF, 2000) found that diabetes self-management is among the most difficult of all chronic illness self-management regimens. To effectively self-manage diabetes, people with diabetes must identify symptoms of emerging health crises, adhere to often complex medication schedules, and modify long-standing lifestyle behaviours. Many people with diabetes have difficulty meeting the demands of their illness and as a result end up experiencing poor outcomes (Atlas, 2000).

### **2.3.2 Group-based diabetes education**

Group diabetes education has been proven to be effective in improving diabetes knowledge, reducing the need for diabetes medication, improving glycated haemoglobin (HbA1c) levels, lowering blood pressure and increasing weight loss (Deakin *et al.*, 2005). The effectiveness of group diabetes education is also supported by a study reported by Rickheim *et al.* (2002), which demonstrates that diabetes education delivered in a group setting, compared with an individual education setting, was equally effective at providing equivalent or slightly greater improvements in blood glucose control. Group diabetes

education was also just as effective in delivering key educational components as individual education, and may allow for more efficient and cost-effective methods in the delivery of diabetes education programmes (Rickheim *et al.*, 2002). Group education has been reported to have many advantages, such as:

- creating a support system for patients;
- reinforcing the idea that the patient is not alone in their experience; and
- being cost-effective as more patients can be counselled at one time with fewer counsellors (Ingersoll, Wagner & Gharib, 2000).

A study published in 2006 in the UK reported a primary care structured group education programme called “the diabetes X-Pert programme” which was based on theories of patient empowerment and discovery learning for adults with type 2 diabetes. The aim of the study was to assess the effectiveness of the X-Pert programme on clinical, lifestyle and psychosocial outcomes. The programme was delivered by health care professionals such as nurses, dieticians and support staff who attended the educators’ course and purchased a pack of educational visual aids. The programme covered a range of topics to help people with diabetes understand their condition. Participants received group diabetes education sessions of 2 hours’ duration every week for 6 weeks and the control group received individual appointments (Deakin *et al.*, 2006).

It is reported that the X-Pert programme empowered patients with skills and confidence, leading to increased diabetes self-management and sustained improvements in clinical, lifestyle and psychosocial outcomes. At 14 months participants in the X-Pert programme showed improved glycaemic control, reduction in total cholesterol level, body weight, body mass index and waist circumference, reduced need for diabetes medication, increased consumption of fruit and vegetables, enjoyment of food, knowledge of diabetes, self-empowerment, self-management skills and improved treatment satisfaction (Deakin *et al.*, 2006). The authors conclude that diabetes education improves quality of care and fuels national health services’ efficiency, and that a patient-centred education programme can enhance self-efficacy which in turn will improve diabetes self-

management. The X-Pert programme is still rolled out in the UK to benefit more patients with diabetes.

### 2.3.3 MI

MI is a “directive client centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence” (Rollnick & Miller, 1995). It is defined by its spirit as a facilitative style for interpersonal relationship and not by technique. Rather than simply giving advice, MI uses a guiding style to engage with patients, gain an understanding of their perspective, evoke their own motivations to change and promote autonomy in decision making. It has been shown to promote behaviour change in various health care settings and can improve the health practitioner relationship and the efficiency of the consultation (Rubak *et al.*, 2005). Review of MI has shown that it has had clinically significant effects in three out of four studies, outperforming traditional advice-giving approaches in the treatment of multiple conditions and behaviours in about 80% of included studies (Rubak *et al.*, 2005).

Heisler and Resnicow (2008) describe MI as both a set of techniques and a counselling style where the role of the provider is to encourage patients to think about and articulate their own reasons for making changes. Patients are also encouraged to think about how their behaviour supports or conflicts with their own goals and values, and to develop an action plan (Heisler & Resnicow, 2008). Table 2-1 shows guiding principles of MI and Table 2-2 outlines key roles for providers using MI to encourage behaviour change. To effectively implement these principles providers need to learn and practice core techniques and strategies. The core principle of the MI approach is negotiation rather than conflict (Miller & Rollnick, 2002). The patient-centred and collaborative aspects of MI may be new to many health care providers trained in more prescriptive, advice-giving approaches (Heisler and Resnicow, 2008).

Table 2-1: Guiding Principles of MI (Heisler & Resnicow, 2008:162)

- Health behaviours relate to deeper issues/values.
- If you are ordered to do something, it is likely that you will do the opposite. (Advice, persuasion, and even information elicit resistance as much as they do change.)
- Your beliefs are more influenced by what you hear yourself say than by what others say to you.
- Behaviour change is driven by motivation and confidence ('self-efficacy'), not information.
- Motivation is a state of readiness for change that may fluctuate over time or from one situation to another and can be influenced to change in a particular direction.
- Motivation can be evoked in a patient, but not imposed.
- Much can be covered in a 10-minute encounter.

Table 2-2: Primary care provider role in MI (Heisler & Resnicow, 2008:162)

- The primary care provider's obligation is to help patients examine and explore their ambivalence and the pros and cons of change and to identify and mobilise their own intrinsic values and goals to stimulate behaviour change – NOT to ensure change.
- Develop discrepancy: How does current behaviour conflict with core values?
- Minimise unsolicited advice.
- Avoid argumentation and direct persuasion.
- Roll with resistance:
  - Patients overcome their own obstacles
  - It's a dance, not a wrestling match
- Encourage "change talk": self-motivating statements made by patients:
  - Recognition of an issue
  - Exploration of patients' personal reasons for making a change
  - Discussion of potential consequences of current behaviours
  - Expression of hope or confidence about making a change
- Elicit and encourage patients' beliefs in their ability to carry out and succeed in achieving a specific action step.
- Help patients identify a specific step that is important to them and that they are confident they can carry out.
- Help patients identify and articulate possible barriers to achieving the specific step they have chosen and possible ways to overcome those barriers.
- Provide support and arrange follow-up.

#### 2.3.4 Use of MI in diabetes education

Heisler and Resnicow (2008) pointed out that the use of MI in clinical diabetes care can help patients make and sustain healthy changes. Although knowledge and information are necessary for patients to manage their diabetes effectively, these are not sufficient to motivate them to make and sustain behaviour changes. Supportive physician communication results in higher patient satisfaction and adherence to treatment plans. Heisler and Resnicow (2008:161) state that to fully support patients with diabetes self-management, primary care physicians must be able to:

1. Assess behavioural and motivational status;
2. Help patients build motivation for change;
3. Collaboratively select a plan of action;
4. Negotiate realistic goals;
5. Tailor treatment plans to patients' situations; and
6. Provide ongoing follow-up and support.

Diabetes consultations may be as complex as the disease itself, which also requires a number of interrelated self-management behaviours. During each consultation the physician has many competing aims, ranging from screening for complications, information giving and reviewing management skills, to identifying and solving problems. The patient, on the other hand, has his/her own agenda – which could be different from that of the clinician. In addition, pressures of time and competing priorities contribute to the barriers of exploring lifestyle change with patients (Doherty & Roberts, 2002).

Doherty and Roberts (2002) developed a consultation roadmap to assist clinicians with difficult consultations. This roadmap navigates through the agenda of the patient, the clinician's agenda and a menu of different options to discuss and to identify a patient's readiness to change.

A diabetes control and complications trial during 1993 proved that a tight regimen of self-care improves glycaemic control, and reduces the risk of complications associated with type 1 diabetes mellitus (Knight *et al.*, 2003). However, due to behavioural and psychological barriers to adopting a tight regimen of self-care, many patients with type 1 diabetes do not benefit from the usual intensive insulin treatment. Better psychosocial interventions such as 'externalising conversations' (EC) are identified as one of the means to help young adult patients with type 1 diabetes cope more effectively with their diabetes (Knight *et al.*, 2003).

Knight *et al.* (2003) reported that perceptions and coping with diabetes could be changed using group MI and EC. In this research 20 adolescents with poorly controlled diabetes were allocated to treatment and control conditions; treatment consisted of MI and EC sessions, while the control consisted of usual care. Participants completed semi-structured questionnaires assessing their perceptions and management of diabetes before and after the intervention and again at 6 months after the intervention. The treatment group shifted their perceptions of diabetes: they felt less threatened and had

more feelings of control and acceptance. This resulted in planning a larger RCT which will investigate the relationship between shifts in perception and better diabetes management (Knight *et al.*, 2003).

West *et al.* (2007) conducted an RCT to determine whether the addition of MI to a behavioural obesity treatment programme for overweight women with type 2 diabetes enhanced long-term weight loss and metabolic control. All participants received an 18-month, group-based behavioural obesity treatment and were randomised to individual sessions of MI or attention control (total of five sessions) as an adjunct to the weight control programme. Overweight women with type 2 diabetes who were treated with oral medications and were able to walk for exercise were eligible for the study. Weight and HbA1c were assessed at 0, 6, 12 and 18 months. Women in MI lost significantly more weight at 6 months ( $P=0.01$ ) and 18 months ( $P=0.04$ ). Increased weight losses with MI were mediated by enhanced adherence to the behavioural weight control programme. Significantly greater HbA1c reductions were observed in those undergoing MI at 6 months ( $P=0.02$ ), but not at 18 months (West *et al.*, 2007).

### **2.3.5 Use of MI in low-resource settings**

The use of MI for diabetes education is not common in the South African context, and no previous studies have evaluated the ability of HPs to learn MI. The use of MI in groups as opposed to individual counselling sessions is also an aspect that is only now receiving attention internationally.

However, several studies in South Africa have focused on MI. In 2004 a study by Allen and Mash explored the application of brief MI by general practitioners (GPs) in a public sector primary care setting in Cape Town by means of a cooperative inquiry group. (Brief MI is an adapted MI approach for application in general health settings.) This participatory action research involved four action-reflection cycles over a 5-month period. During this period GPs received training in the use of brief MI skills in their practice and were asked to document and reflect on their experience. The results showed that GPs found the emphasis on self-evaluation, personal choice and control useful for both themselves and their patients. Skills in open questioning, assessing ambivalence and readiness to change and exchanging information carefully were also found to be helpful. The GPs had mixed

experiences with skills for agenda setting (negotiating the topic for the session with the patient), but thought MI to be relevant and applicable in their work (Allen & Mash, 2004).

A study in Zambia, Africa, was conducted to educate the population about practices of safe water drinking using the MI style (Thevos *et al.*, 2000). After the intervention it was reported that chlorine sales (used to purify the water) increased two to four times in the community visited by MI-trained volunteers compared to the community where only the regular educational materials were used (Thevos *et al.*, 2000).

Another study by Everett-Murphy *et al.* (2010) in South Africa evaluated the effect of a smoking cessation intervention for disadvantaged pregnant woman attending public sector antenatal clinics in Cape Town. The intervention cohort was offered self-help quit materials in the context of brief counselling using a guiding style by midwives and peer counsellors, while the natural history cohort received usual care. Smoking behaviour was measured in early, mid and late pregnancy in both groups. By the end of the pregnancy 28% of women in the intervention cohort had reduced their cotinine levels by at least half compared to 16% in the comparison cohort, and 7% more women in the intervention cohort had quit smoking altogether (Everett-Murphy *et al.*, 2010).

Evangelini, Longley and Swartz (2011) evaluated a 12-hour course of MI delivered to 17 lay HIV/AIDS counsellors in the Western Cape Province of South Africa. After the training a marked change from MI-non-adherent practice to more MI-adherent practice was noticed. However, few counsellors reached the level of beginning proficiency in MI and all struggled to learn active listening skills. In a follow-up of MI competence in the same cohort of lay HIV counsellors results confirmed that changes in their level of MI competence as a result of a brief MI course were maintained over a 1-year period, and in some cases were enhanced (Evangelini, Longley and Swartz, 2011).

### **2.3.6 Delivery of MI diabetes education by different categories of health worker**

In 2009 it was reported that 12 studies of a Cochrane Review on group diabetes education made use of doctors, nurses or dieticians to facilitate group educational sessions. These studies discovered that health care providers who engage with MI skills experience a more positive provider/patient relationship and a lowering of stress and frustration around negotiating behaviour change (Lundahl & Burke, 2009).

A study conducted by El Mallakh *et al.* (2012) describes interventionist training procedures for a pilot intervention study that tested the effects of a nurse-delivered MI intervention on diabetes self-care among adults diagnosed with diabetes mellitus. Nurses received training which consisted of didactic workshops and practice sessions. Their fidelity to the MI style was assessed by using the MI Treatment Integrity Scale (MITI) tool. Scores on the MITI were in the proficient and competent range. The results suggested that training strategies were sufficient to promote satisfactory interventionist fidelity to MI (El-Mallakh *et al.*, 2012).

GPs are another category of health provider reported to have been trained in MI for diabetes (Rubak *et al.*, 2009). Training GPs in MI succeeded in improving patients' understanding of diabetes, their beliefs regarding treatment aspects, and their contemplation about and motivation for behaviour change. Whether these results could be sustained long term and whether they were clinically relevant in terms of changes in risk profile needs further research.

### **2.3.7 Health workers' experiences with MI**

Various categories of health workers have used MI counselling and have shared different experiences with it. Twenty nurses who worked in PHC settings and actively used MI in their work as a method of health promotion were interviewed on their experiences in the use of MI (Brobeck *et al.*, 2011). The researchers' aim was to describe the nurse's experiences with MI in health promotion. Nurses described working with MI as demanding and requiring professional experience, training and the opportunity to practice the method. They mentioned that it was necessary to have a genuine interest in working with MI in order to use the method effectively. They realised that lifestyle changes take time and that patients should not be rushed. They found MI to be an enriching method to work with and found it stimulating to see that patients were satisfied and gained a better understanding of their lifestyle problem.

MI was perceived as a form of professional development for the nurses. Nurses described MI as an effective method for health promotion and that it increased motivation and had positive results both in groups and during one-on-one sessions. They observed that MI was applicable to many areas of their work and that patients became aware about

lifestyle change. Nurses mentioned that during the process they also gained better understanding of patients' failures and viewed them rather as learning opportunities (Brobeck *et al.*, 2011).

In South Africa a report on the experiences of HPs in the use of group MI was found to be positive, and is reported in detail in Chapter Four.

### 2.3.8 MI in groups

MI groups are defined by Wagner and Ingersoll (2012:70) as groups that

- (1) use MI spirit, processes, and techniques to increase motivation for change, (2) foster healthy interaction among members and leaders to promote change, and (3) include two or more group members and one or more leaders who meet in a shared physical space.

To adapt MI to group format, one needs to modify concepts, strategies and techniques that were developed for individual interactions. Some aspects of group MI are not applicable in individual MI and vice versa. A goal of group MI is to assist people regain balance in their lives and broaden the way they think about possibilities of their lives. Wagner and Ingersoll (2012:54) suggest some guiding principles for MI group leaders including the following:

- Maximize group member's participation
- Encourage members to take ownership of change
- Explore both positive and negative experiences
- Facilitate group cohesion and collaboration
- Tailor the content to broadly address client's experiences and interests
- Focus on potential solutions.

For these principles to be adapted to group MI, several strategies such as 'OARS' (open questions, affirmations, reflections and summaries) are required to encourage participation (Wagner & Ingersoll, 2012). Wagner and Ingersoll (2012), report that MI groups occur more frequently in MI research, focusing mostly on substance use as the target behaviour. These studies offer preliminary evidence that MI groups affect some

predicted processes of change, are equal to other active interventions in reducing substance use, and can increase the quality of following participation in treatment and aftercare.

Velasquez, Stephens and Ingersoll (2006) affirm that MI can be adapted with some critical modifications to a group therapy format. They acknowledge that group MI is relatively new, with a number of practical implications, and that further research is needed to study MI in a group setting and to identify both its strengths and limitations. Because of its broad appeal and evidence, more providers are being trained in MI, and Velasquez, Stephens and Ingersoll. (2006) encourage them to be clinically innovative and creative in adapting their MI skills in groups.

In 2010 Holstad *et al.* (2011) tested the efficacy of using MI in a group format to promote adherence to antiretroviral medication and risk reduction behaviours in HIV-infected women in America. The MI group sessions had better attendance than the education sessions. The results showed that adherence significantly declined in both groups over the 9-month post-intervention follow-up period, and that there was no significant difference between the groups for the risk reduction behaviours. This was in contrast to several other studies, which showed improvement in adherence and clinical outcomes in one-on-one sessions (Holstad *et al.*, 2011).

## 2.4 Summary

Living with diabetes has been described as a difficult process which requires long-term adherence to a complex diet, physical activity, medication and blood glucose monitoring. MI has been shown to enable behaviour change in these key areas relevant to diabetes and its management. MI has also been recommended as a skillful guiding style to elicit behavioural change and promote self-care (Rollnick, Miller & Butler, 2008). A systematic review in 2005 concluded that MI outperforms traditional advice-giving in 80% of studies (Rubak *et al.*, 2005). In diabetes education MI has been found to help patients make and sustain healthy changes (Heisler & Resnicow, 2008).

The use of MI for diabetes education is not common in the South African context, and the use of MI in groups as opposed to individual counselling sessions is also an aspect that is

only now receiving attention internationally. Group approaches to diabetic education have been shown to be effective and according to Wagner and Ingersoll (2012) and Ingersoll, Wagner & Gharib, (2000) have many advantages.

There are no other reported studies that used mid-level workers to facilitate group educational sessions with MI as a diabetes intervention.

## CHAPTER THREE: METHODS

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### 3.1 Introduction

The sub-study reported here contributed to the larger RCT (Figure 1-1) that is introduced below. A description of the design of the sub-study then follows.

#### 3.1.1 Pragmatic cluster RCT

A study protocol of this trial has been published (Mash *et al.*, 2012). This larger pragmatic cluster RCT evaluated the effectiveness of a group diabetes education programme delivered by HPs using a guiding style (derived from MI) in CHCs in Cape Town, South Africa.

In the larger RCT a total of 34 CHCs were randomly assigned to either, control or intervention groups, with 17 CHCs in the intervention group and 17 CHCs in the control group. The patients with type 2 diabetes in the intervention group received a structured education programme consisting of four sessions each held a month apart. The control group received usual care, which consisted of ad hoc advice during consultations and occasional educational talks in the waiting area. A total of 720 patients were recruited in the intervention arm and 850 in the control arm, giving a total of 1570. Self-efficacy, locus of control, self-care activities, HbA1c, weight, waist circumference, blood pressure, total cholesterol and quality of life were measured at the baseline and also at 12 months. Primary outcomes showed improvement in diabetes self-care activities, including 5% weight loss and 1% reduction in HbA1c. Secondary outcomes were improved diabetes-specific self-efficacy, locus of control, mean blood pressure, mean weight loss, mean waist circumference, mean HbA1c, mean total cholesterol and quality of life (Mash *et al.*, 2012).

In the RCT at each of the 17 intervention sites, four groups (N=68 groups) of 10–15 diabetic patients each, labelled A, B, C and D, were recruited and gave informed consent. The intervention was offered when the patients had a scheduled routine visit to the CHC. The designated HP for that site delivered the four educational sessions to each of the four groups of patients recruited into the study. At each site, 16 group sessions were offered.

Of the 17 CHCs, only 13 had HPs and 3 of the HPs agreed to offer the intervention at sites that did not have HPs, and one retired HP was contracted for this purpose. Thirteen HPs participated in the study.

Group educational materials were developed for the RCT and provided to assist with discussions. Examples include a flipchart with pictures, such as the body cells and insulin represented as keys, that were used to explain basic physiology in a simple way that was easily understood by all patients, and true and false question cards that generated discussion and learning about the myths surrounding diabetes.

HPs received a four-day training programme before the start of the diabetes educational intervention programme and a further 2-day training halfway through the intervention. Training for the HPs was based on a model for teaching communication skills that required the skills to be explained theoretically, modelled by the facilitators, and simulated in practice by the participants. The training focused on learning the structure and content of the sessions, using the resource materials, the guiding style of communication and skills in facilitating groups. The training also included an update of their knowledge of diabetes. The principal investigator for the RCT, a social scientist with an interest in behaviour change counselling and the researcher were involved in the training. The training programme for the HPs is outlined in Appendix C.

### **3.2 Aim and objectives of the sub-study**

The aim of this study was to evaluate the extent to which HPs in public sector CHCs adhered to a style of communication derived from MI and to the designed content and mode of delivery of a diabetes education programme.

To achieve the aim the following primary objectives were identified:

- 3.2.1 To assess HPs' individual and collective competency in MI using a validated tool with a scoring system for 'beginning proficiency' and 'competency'.
- 3.2.2 To assess the extent to which HPs covered the diabetic topics listed in the training manual and adhered to the planned structure and mode of delivery of the educational sessions using the locally validated observation checklist.

Sub-objectives:

3.2.3 To establish the content validity and face validity of a researcher-designed checklist that could be used to observe the content and mode of delivery of the education sessions.

3.2.4 To describe HPs' demographic characteristics.

### **3.3 Study design**

A descriptive observational (Grimes and Schulz, 2002a) research design was employed for the sub-study to provide an accurate portrayal of HPs' competence in MI and adherence to the educational programme. Grimes and Schulz' algorithm for classification of types of clinical research (Grimes and Schulz, 2002a) justifies the suitability of this design for this study. "Descriptive studies often represent the first scientific toe in the water in new areas of inquiry" (Grimes and Schulz, 2002b).

### **3.4 Setting**

The setting for the sub-study was determined by the RCT. As indicated above, the intervention for the RCT was conducted at 17 randomly selected CHCs in the public sector of the Cape Town Metropole. These CHCs were attended by patients with diabetes, who came on a monthly basis for their review appointment with the doctor/clinical nurse practitioner or to collect their medication. Patients spoke Xhosa, Afrikaans and English and came from low socio-economic backgrounds. These CHCs usually allocate a specific day each week to see patients with diabetes. Patients with diabetes received ad hoc education during their consultation with the nurse practitioner or a doctor as well as educational talks in the waiting room as part of their usual care. Observation of the education sessions took place within these CHCs.

### **3.5 Gaining access**

Permission to conduct the study between September 2010 and December 2011 was obtained by the team conducting the RCT and was given by the Department of Health. Practical support for the study was then obtained by the RCT team from the manager of

the HPs, the facility managers of the CHCs and the staff involved in chronic care for diabetes.

### **3.6 Study population**

Thirteen HPs working in the CHCs in the Cape Metropole comprised the study population. HPs are mid-level workers and the policy of the Department of Health is to have an HP at every CHC. HPs tend to come from the community which they serve and share the same language and culture. They are required to have a secondary school education up to at least Standard 8<sup>1</sup> and to be competent in reading and writing English. Once employed, HPs have additional in-service training in the knowledge and skills required to deliver health education messages and promote health. These competencies were considered adequate for their ability to use MI in group education sessions.

### **3.7 Sampling and sample size**

The sampling for this sub-study was dictated by the broader sampling framework of the RCT. Thirty-six educational sessions were systematically selected to ensure that each site and each session was sampled equally. For each session sampled the group (A, B, C or D) was then randomly chosen using computer-generated random numbers. Table 3-1 shows the CHCs and the 36 randomly sampled group education sessions (A, B, C and D) at each facility.

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<sup>1</sup> 10 years of schooling: 7 years of primary school and 3 years of high school level of education.

**Table 3-1: A sample of educational sessions**

No.	CHC	Session 1	Session 2	Session 3	Session 4
1	Albow Gardens	B		A	
2	Bishop Lavis		D		B
3	Delft	D		A	
4	Dr Abdurahman		A		D
5	Durbanville*	B		C	
6	Goodwood (Dirkie Uys)		B		A
7	Guguletu	D		A	
8	Hanover Park		B		D
9	Hout Bay*	D		B	
10	Lotus River		C		D
11	Nolungile	C		D	
12	Nzamezabantu		D		A
13	Reed Street*	B		A	
14	Retreat*		C		B
15	Ruyterwacht*	B		D	
16	Scottsdene		D		C
17	Vanguard	A	C	B	D

\*These CHCs did not have a HP

All HPs working in the randomly selected facilities were willing to be included in the study. They all signed a consent form to participate after having the study explained to them. No educational sessions took place at Reed Street CHC because the HP had resigned during the period of study, and (only) one session was recorded at Hout Bay, Scottsdene and Durbanville CHCs because the observer was attending education sessions in other health centres at the same time. Four educational sessions were done at Vanguard, three at Dr Abdurahman and two at the rest of CHCs. The total number of recorded sessions was therefore reduced from 36 to 32 and is displayed in Figure 4 with patient attendance.

### 3.8 Intervention: The diabetes education sessions

Diabetic patients who were willing to participate in the study and who had given written consent received four sessions of group education. The sessions were offered when the patients were scheduled for a routine visit to the health centre. The plan was to keep the groups together throughout the programme.

HPs received an initial 4-day workshop before they started the educational programme. The workshop focused on the content of the first two sessions and the guiding style of communication. A further 2-day workshop was held 3 months later. The workshop focused on the content of the second two sessions and reinforcement of the guiding style. The training itself was conducted as a demonstration of what was expected from them during the diabetes education sessions with the patients. Training was led by the principal investigator of the RCT and the researcher with assistance from other experts in behaviour change counselling and diabetes.

The HPs were given brief personal feedback by the researcher after each patient group education session in order to help them improve their performance. Strengths and weaknesses of the session were discussed with each individual HP in a supportive and encouraging manner.

### **3.8.1 Procedures**

#### ***3.8.1.1 Educational sessions***

Patients received four educational sessions, each lasting 20–60 minutes. Sessions were offered by an HP when the patients were scheduled for a routine clinic visit. Each specific group was scheduled to remain together through the programme. The four sessions were as follows:

Session 1: Understanding diabetes

Session 2: Living a healthy lifestyle

Session 3: Understanding the medication

Session 4: Preventing complications.

The sessions were designed to be congruent with a guiding style.

#### ***3.8.1.2 Educational materials***

##### ***3.8.1.2.1 Visual aids***

New graphic materials with pictures were developed by the principal investigator of the broader RCT, who is also an expert in MI, for use during the education sessions to help patients understand the pathophysiology of diabetes as well as the effects of medication

and self-care activities. These pictures were designed and printed in the format of a flipchart. Figure 2 shows an example of a visual aid from the flipchart that simplifies the pathophysiology of type 2 diabetes. A comprehensive set of food cards illustrating local South African foods was also used in group activities.



**Figure 2: Simplified visual illustration of the pathophysiology of type 2 diabetes**

Patient education materials on foot care, coping with stress, alcohol and smoking cessation were also used during sessions and given to patients to read at home. All HPs used the teaching aids during group sessions. The flipchart was often used as a reference during other sessions when necessary. Figure 3 shows an HP using a flipchart during an education session. Permission to use the illustration and the photograph on Figures 2 and 3 was received from the trainer and the patients.



**Figure 3: HP using a flipchart during an education session**

#### **3.8.1.2.2**      *Summary sheets*

Summary sheets (Appendix C) were useful in guiding and reminding the HPs about the topics to be covered for each education session. They were written in bullet point form showing step-by-step processes on one page per session.

#### **3.8.1.2.3**      *Demonstration aids*

Actual samples of insulin vials, insulin syringes, disposable insulin pen sets, a blood monitoring machine and oral medication were always available for teaching purposes. In cases where patients did not know the name of their medication, they could then identify it.

### **3.8.2 Mode of delivery**

The structure of the sessions was designed based on an Elicit Provide Elicit model (Rollnick, Miller & Butler, 2008) and HPs were expected to exchange information with patients using the same strategy, rather than just transferring it. This strategy involved the following three steps in a cyclical process (Rollnick, Miller & Butler, 2008):

- Elicit either the group's prior knowledge or what they are most interested in learning about with regard to a specific topic.
- Provide the group with information in a neutral way that builds on what they already know or that addresses what they are most interested in.
- Elicit how group members will make sense of or apply this information personally.

In addition, HPs made a conscious effort to implement the following specific communication skills as they were trained to use them:

- Use of more open than closed questions.
- Use of summaries and simple reflections.
- Use of affirmations.

Sessions were conducted in the patients' preferred: English, Afrikaans or isiXhosa. The researcher is proficient in all three languages. The HP's first/home language tends to be the same as that of the patients, except in few cases. If the HP's first language differed

from that of the patients, English was used as the shared second or third language. In some instances language barriers and low literacy levels were experienced, where the meaning of some words was not understood by the patients, such as 'carbohydrates'. In cases where the group had mixed languages, such as Afrikaans and isiXhosa, the HP spoke both languages.

The HPs were given brief personal feedback by the researcher after each patient group education session in order to help them improve their performance in the future. Strengths and weaknesses of the session were discussed with each individual HP in a supportive and encouraging manner.

### **3.9 Data collection**

Fidelity to the planned educational programme and to the communication style was assessed by observing 32 randomly selected group sessions (Table 3-1). The researcher was present at each of the randomly selected sessions and recorded the sessions on a digital voice recorder and later evaluated them using the MITI tool, which is validated for assessing proficiency in MI. MITI determines whether the counsellor achieved beginning proficiency or competence in MI. For this study the researcher listened to the entire digital voice recorder for coding and not selected segments; if a selected segment had been used, the researcher would have risked having limited or insufficient material for coding.

During the first session the researcher was introduced to the group, where permission to observe and to record the session and follow-up sessions was obtained. Patients were informed that the researcher was focusing only on the HP's style of education. Each patient and HP who participated in the intervention signed consent (Appendices F and G). The researcher sat quietly outside the discussion circle and did not participate. To avoid distraction, the researcher wrote notes immediately after each session. HPs were encouraged to speak clearly and to use words rather than only gestures (such as nodding) to ensure accurate and total capturing of the conversations. All possible strategies were applied to reduce noise during sessions, such as keeping the doors closed.

Group sessions were stratified to ensure that each site and session was sampled equally. The researcher noted the extent to which the session followed the intended content and process and also made additional field notes. Sessions were recorded on audiotape.

### **3.9.1 Data collection tools**

#### ***3.9.1.1 MITI Code Version 3.1.1***

The MITI Code is a widely used, validated tool for assessing competence in delivering MI by providing information on how well or poorly a practitioner uses MI (Appendix A). The use of the MITI tool also provides feedback that can be used to increase clinical skill in the practice of MI. The MITI tool approach is intended to be used: 1) as a treatment integrity measure for clinical trials of MI; and 2) as a means of providing structured, formal feedback about ways to improve practice in non-research settings.

The MITI tool has two components: global scores and behaviour counts. A global score requires the coder to assign a single number from a five-point scale to characterise the entire interaction. These scores are meant to capture the rater's global impression or overall judgement about the dimension, sometimes called the 'gestalt'. Five global dimensions are rated: evocation, collaboration, autonomy/support, direction, and empathy. This means that each MITI review will contain five global scores.

A behaviour count requires the coder to tally instances of particular interviewer behaviours. These running tallies occur from the beginning of the segment being reviewed until the end. The coder is not required to judge the quality or overall adequacy of the event, as with global scores, but simply to count it.

#### ***3.9.1.2 Observer checklist: Construction and validation***

A structured observation tool (Appendix E) was developed by the researcher based on the group diabetes education manual that was developed for use in this sub-study (Appendix C). The researcher observed and used the checklist to objectively score the extent to which HPs covered the structure and content of diabetes education. The manner in which they managed group facilitation processes, as instructed during their training, was also observed.

### **3.9.1.2.1**      *Expert opinion on index of content validity of each item on the observation checklist*

The observation checklist was then validated by one local expert in MI using an index of content and face validity (CVI) tool adapted from Kyriacos (2011) (Appendix D). The CVI is a tool used to assess validity of the observation tools, where a rating of 3–4 indicated a high validity. There are few experts in MI in South Africa, and therefore only one expert was used to validate the checklist at the time of the intervention. Results from the validation index are presented in Table 3-2.

Table 3-2: Content validity of the observation checklist

Item	Index of content validity (CVI)			
	1 = Irrelevant	2 = Unable to assess relevance without item revision or item is in need of such revision that it would no longer be relevant	3 = Relevant but needs minor alteration	4 = Extremely relevant
<b>Session 1</b>				
Introduction				√
What is diabetes				√
Myths and facts exercise				√
Goal setting				√
<b>Session 2</b>				
Introduction and sharing of experiences				√
Managing diabetes with medication				√
Dealing with low blood glucose				√
Goal setting				√
<b>Session 3</b>				
Introduction and sharing of experiences				√
Eating a healthy diet				√
Increasing physical activity				√
Other lifestyle issues				√
Goal setting				√
<b>Session 4</b>				
Sharing of experiences				√
Symptoms of high blood glucose				√
Complications				√
Foot care				√
Group facilitation skills				√
Deals effectively with loud versus quiet people				√
Minimises negative interactions/deals with conflict				√
Enhancing motivation to change				√

Data in Table 3-2 indicate that the observation checklist was rated 4 (Extremely relevant) for each item. The expert did not report omissions in items for the observation checklist and no further comments were added.

### 3.9.1.2.2 Evaluation of face validity of the observer checklist

Results for face validity of the observation checklist (sub-objective 1.5.3) are presented in Table 3-3.

**Table 3-3: Observation checklist face validity**

	Very skilful	Satisfactory	Needs improvement	Unacceptable
<b>Session 1: Understanding diabetes</b>				
Layout	√			
Format	√			
The response scale	√			
Visually easy to read	√			
Visually easy to comprehend	√			
<b>Session 2: Living a healthy lifestyle</b>				
Layout	√			
Format	√			
The response scale	√			
Visually easy to read	√			
Visually easy to comprehend	√			
<b>Session 3: Understanding the medication</b>				
Layout	√			
Format	√			
The response scale	√			
Visually easy to read	√			
Visually easy to comprehend	√			
<b>Session 4: Preventing complications</b>				
Layout	√			
Format	√			
The response scale	√			
Visually easy to read	√			
Visually easy to comprehend	√			

The experts' evaluation of the face validity of the observation checklist scored 4 (Very skilful) (100%) for all 20 items. No omissions were identified. The expert found the observation checklist to be valid.

### 3.9.1.2.3 Use of the structured observation checklist and field notes

The researcher-designed structured observation checklist was also used to assess the extent to which the session followed the intended content and process. Additional field notes were used to assist the researcher in recalling the sessions and to describe any issues observed during group facilitation. The results of the structured observation tool were used to analyse which sections of the planned sessions were actually delivered and therefore which diabetic topics were actually covered. The results from multiple

observations of the same session were collated to provide a summary of the overall percentage of each session which was actually delivered according to plan.

Field notes were also used to count the frequency of additional events or to make additional observations for each session. The manner in which they facilitated the group process (group facilitation skills) was also observed. These observations were broken down into sub-headings including: patient attendance, space for education sessions, use of teaching aids, and group dynamic skills such as encouraging active participation of all patients by asking questions and allowing group work when necessary. These subheadings are explained in detail in the results chapter.

The data generated from field notes were transcribed and brought together in a single document. Important additional issues that could impact on HP performance or fidelity to the intervention were then identified. The data were not sufficient for formal qualitative data analysis.

#### ***3.9.1.3 Digital voice recorder***

An Olympus digital voice recorder (DM-5/DM-3) was used to record the educational sessions. The recorder had an instructions manual that assisted the researcher with maximum and safe use for information capturing. The recorder was fully charged each time before use to ensure full coverage of long sessions. The recorder automatically generated a different electronic file for each session. These sessions were then downloaded onto the computer for storage and analysis. Only the researchers had pin code access to the recorded sessions.

### **3.10 Data management and analysis**

#### **3.10.1 Process of data analysis**

Out of 64 diabetes education sessions, 32 were audio-recorded and each audio-recorded educational session was analysed using the criteria specified in the MITI Code Version 3.1.1 (Appendix A) to evaluate the HPs' adherence to the MI approach. The first section of the MITI generated measurable numerical data, as it involved global rating in relation to five key characteristics of MI (empathy, direction, autonomy/support, collaboration) on a five-point Likert scale (1–5), with the coder assuming a beginning score of '3' and

moving up or down from there. A mean global rating was then calculated from these five separate ratings for each individual HP.

The second section was used to capture behaviour counts for each HP during the entire recorded educational session: open-ended questions (OQ) or closed questions (CQ), giving information (GI), simple reflections or summaries (SR), MI adherent (MIA) or non-adherent (MINA) behaviours. The behaviour counts were then used to calculate a number of summary scores. The researcher was trained by an expert in MI and was found to be competent in the use of the MITI tool. All data were put together on Excel, which assisted the researcher to organise, code and create charts. The following are examples of utterances from the HPs education sessions for each behaviour code:

**Giving information (GI):** This category was used when the HP gave information, education, provided feedback or disclosed personal information. When the HP gave an opinion, without advising, this category (giving information) would be used. It was understood as providing the group with information in a neutral way that builds on what they already know or addresses what they are most interested in. The HP would then elicit how group members will make sense of or apply this information personally. Giving information was not used in the scoring, for example: “What you need to know about diabetes is that it is a progressive condition and the complications of diabetes cannot be reversed. That is why control is very important.” (Audio recording: 110523).

**Closed questions (CQ):** This behaviour code was used when an HP asked a question that could be answered with a “Yes” or “No” response. Example: “*Do you take a drink [alcohol]?*” (Audio recording: 110309).

**Open questions (OQ):** An open question was coded when an HP asked a question that allowed a wide range of possible answers. Example: “*What else can we do to enhance our health?*”, (Audio recording: 110309, time 08:22), and “*How do you prepare your food?*”, time 01:07.

**Summaries or simple reflections (SR):** This category was meant to capture summaries or reflective listening statements made by the HP in response to a patient’s statements. Summaries or reflections demonstrate what meaning the HP has derived from the

patient's discussion or responses. Example: *"So you are trying to do a little more ... What comes out is that she is trying, so there is real effort"*, (Audio recording: 110523, time 133:24), and *"So, your goal is to look more better after yourself than you do now"*, (Audio recording: 110218, time 01:37).

**MI adherent (MIA):** This category was used to capture particular behaviours of the HPs that were consistent with an MI approach. MI-adherent utterances are those that ask permission to discuss a specific behaviour, affirm the patient's self-efficacy or offer appropriate support for the patient's efforts to engage with the topic. Example *"And now that you know that you are doing so well, how do you feel?"*, (Audio recording: 110516, time 10:28), and *"The last time you were here, your readings were one of the best also, were 4 and 5"*, time 03:42. These examples demonstrate that the HP affirmed the patient's self-efficacy and offered encouragement.

**MI non-adherent (MINA):** This category was used to capture those HPs' behaviours that were inconsistent with an MI approach. MINA utterances are those that prescribe solutions in the form of advice, confront the patients in a blaming or judgemental way, or direct the patients as to what they 'must do'. Example: *"We must watch how we cook our food, instead of frying we must grill our food"*, (Audio recording: 110309, time 11:52). This statement is MINA because the HP is making decisions for patients and is giving them advice.

The HPs were given brief personal feedback by the researcher after each session in order to help them improve their performance. Strengths and weaknesses of the session were discussed with each individual HP in a supportive and encouraging manner.

A list of summary scores that serve as outcome measures for determining competence in MI and formulae for calculating rating is provided in Box 1.

Box 1: Summary scores for determining competence in MI and formulae for calculating rating

Global rating	= (Evocation + Collaboration + Autonomy/Support)
Per cent complex reflections (% CR)	= $R_c$ / Total reflections (Not measured)
Per cent open questions (% OC)	= $OQ$ / ( $OQ$ + $CQ$ )
Reflection-to-question ratio ( <b>R:Q</b> )	= Total reflections/( $CQ$ + $OQ$ )
Per cent MIA	= $MIA$ / ( $MIA$ + $MINA$ )

Data in Table 3-4 show the recommended proficiency and competency thresholds based on the MITI coding system.

**Table 3-4: MI proficiency and competency thresholds**

Clinician behaviour count or summary score thresholds	Beginning proficiency	Competency
Global clinician ratings	Average of 3.5	Average of 4
Reflection to question ratio (R:Q)	1	2
Per cent open questions (%OQ)	50%	70%
Per cent complex reflections (%CR)	40%	50%
Percent MIA	90%	100%

The use of complex reflections (that attempt to interpret a deeper meaning) were not counted as they were not part of the training; only the frequencies of simple reflections/ summaries were recorded. The global rating scores and summary scores obtained from the analysis of each session were collated into an Excel spreadsheet. The average scores of specific sessions, specific HPs, specific site and for all sessions were obtained. These average scores were interpreted according to the level of competence and are presented in the results chapter. The larger study only required an average competence score for the group as a whole and not for individual HPs.

The digital recordings of the whole session were used to code the HPs' utterances in terms of these defined behaviours and then to count how often they occurred. Each utterance was coded once, according to whether it was MIA/MINA, an OQ/CQ, a summary/reflective listening statement, or just sharing information. If there was a conflict between coding an utterance as MIA/MINA and one of the other options, then

MIA/MINA took precedence as long as there was no doubt in the coder’s mind. The number of times a code occurred in a given session was counted and the totals were used to calculate a number of summary scores, which are interpreted in terms of either beginning proficiency or competence in MI.

### 3.10.2 Training in MITI and reliability of the researcher in coding and scoring the educational sessions

The researcher received training in the use of the MITI coding system from the principal investigator in the RCT, who had previously used the MITI tool in research and is an accredited MI trainer with the International Network of Motivational Interviewing Trainers (MINT [www.motivationalinterview.org](http://www.motivationalinterview.org)). The researcher read the book on MI in health care (Rollnick, Miller & Butler, 2008) and the attached MITI tool manual (Appendix A) to gain deeper understanding of the subject.

The researcher received two 4-hour training sessions, each including practical scoring practice of recorded education sessions. Initially a comparison of the trainer and researcher scores (Table 3-10) was very different, and a follow-up training session was therefore planned for the researcher and completed a week later. In addition, the trainer and the trainee adapted the definitions of the global ratings to be more descriptive of what was expected in the diabetes education sessions, as shown in the Tables 3-5 to 3-9.

**Table 3-5: Evocation**

<b>In essence this is about how much change talk is evoked from the patients – this excludes evoking talk that is just about recall or understanding of information / messages. Change talk should be about the desire, ability, reasons, need or commitment to change their behaviour</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
HP actively tells the patients how they must change and what they must change without evoking any change talk	HP relies on giving information and educating the patients, albeit in a neutral way, without evoking any change talk	HP shows no particular interest in change talk when it occurs  Gives information or education in a standardised way without adapting or modifying it to the patient’s circumstances	HP actively evokes change talk at the beginning and end of the session  Accepts the patient’s own attempts, reasons for change and ideas of how change should occur  Does not attempt to educate or re-direct if the patient resists	HP works consistently throughout the session to evoke change talk  This is not the same as evoking the patient’s recall or understanding of the information or messages given

**Table 3-6: Collaboration**

<b>In essence this is about who does most of the speaking, how much interaction there is and to what extent the patients can influence what is discussed</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
The HP gives a talk and educates patients without patient participation in the session	Patient participation is limited to questions and answers with no opportunity to influence the content of the session	Patients occasionally have influence over what is discussed, but mostly there is a question and answer feel and minimal interaction between patients	Patients speak for at least 30% of the time and have some influence over what is discussed	Patients speak for at least 50% of the time and substantially influence what is discussed

**Table 3-7: Autonomy/support**

<b>In essence this is about the extent to which the HP empowers the patients with a sense of control and choice over what and how to change</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
HP destroys or denies the patient's perception of control and choice over what and how to change	HP discourages the patient's perception of control and choice over what and how to change	HP is neutral with regard to the patient's control and choice over what and how to change	HP is accepting and supportive of the patient's control and choice over what and how to change	HP markedly enhances the patient's feeling of control and choice over what and how to change

**Table 3-8: Direction**

<b>In essence this is about the extent to which the HP keeps the process focused on the planned topics and target behaviours</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
HP has no influence over the focus and flow of the session and the group discusses whatever it wants to	HP has little influence over the focus and flow of the session and misses most opportunities to bring the group's attention back to the planned focus and target behaviours	HP tries to keep the session on track, but is easily diverted away from the planned focus and target behaviours	HP is generally able to keep the discussion on topic and moving forward; there may be some instances of wandering off the planned focus and target behaviours	HP keeps the session on track and focused on the desired topics and target behaviours, and always brings the group's attention back to the focus of the session

**Table 3-9: Empathy**

<b>In essence this is about the extent to which the HP attempts to understand the patient's ideas, feelings and perspective and the depth of accurate understanding</b>				
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
HP makes no attempt to understand the patient's perspective	HP makes the occasional or sporadic attempts to understand the patient's perspective	HP demonstrates that they are trying to understand the patient's perspective	HP makes active and repeated attempts to understand the patient's point of view	HP makes active and repeated attempts to understand the patient's point of view

	Understanding may be inaccurate and erodes rapport with the group	Understanding is mostly accurate, with an occasional misunderstanding. Rapport is maintained	Understanding is accurate but mostly limited to the explicit content	Understanding is at a deeper level in terms of the underlying meaning, even if this has not been explicitly stated
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After the second training session three more recorded sessions were scored independently by the trainer and the trainee. The results were similar with minor insignificant differences in all areas, except for summaries/reflections in the one tape, as shown in Table 3-10.

Data in Table 3-10 show the scores of all of the individually scored sessions between the trainer and the trainee for a representative sample of the educational sessions for the purpose of assessing HPs' fidelity to MI. The researcher received training before she could do the coding for the study independently.

**Table 3-10: Comparison of the trainer and trainee scores in use of the MITI tool coding system**

TAPE NO.	HEALTH CENTRE	BEHAVIOUR COUNTS	TRAINER SCORES	TRAINEE SCORES
11523	Hout Bay	MIA	6	5
		MINA	4	3
		CQ	15	15
		OQ	40	44
		SR	20	0
		EVOICATION	3	3
		COLLABORATION	3	3
		AUTONOMY	3	3
		DIRECTION	5	4
		EMPATHY	3	4
110519	Hanover Park	MIA	1	1
		MINA	3	3
		CQ	4	4
		OQ	3	3
		SR	0	0
		EVOICATION	3	2
		COLLABORATION	2	2
		AUTONOMY	3	2
		DIRECTION	4	3
		EMPATHY	2	2
171110	DirkieUys	MIA	1	1
		MINA	2	2
		CQ	4	7
		OQ	18	23
		SR	4	3
		EVOICATION	3	3
		COLLABORATION	4	4
		AUTONOMY	3	3
		DIRECTION	5	5
		EMPATHY	3	3
<b>GLOBAL RATING</b>				
110523	Hout Bay	% MI	60	62.5
		% OQ	72.7	74.6
		R:Q	0.4	0
		Global	3.4	3.4
110519	Hanover Park	% MI	25	25
		% OQ	42.9	42.9
		R:Q	0	0
		Global	2.8	2.2
171110	Dirkie Uys	% MI	33.3	33.3
		% OQ	81.8	76.7
		R:Q	0.2	0.1
		Global	3.6	3.6

After the additional three training sessions the trainer and trainee both observed an education session delivered by an HP and scored the session independently

immediately thereafter, using the MITI tool. The researcher and the MI expert coded the sessions independently, and discussed the results with feedback until their results were consistently the same, to ensure inter-rater reliability.

### **3.11 Ethical considerations**

The planned intervention was purely educational and motivational and did not interfere with the patients' medication or therapy. Patients made decisions about their behaviour or change in lifestyle themselves, and therefore the study did not anticipate any significant risks to the participants. The social and scientific value of the research is outlined in the introduction and literature review.

#### **3.11.1 Independent review**

The RCT received ethical approval from the Human Research Ethics Committee at Stellenbosch University (7 December 2009 N09/10/260), Cape Town. The RCT proposal was also reviewed independently by the IDF as part of the submission for funding.

This sub-study received approval from the University of Cape Town (UCT) Department of Health and Rehabilitation Sciences Research Committee and then the UCT Faculty of Health Sciences Human Research Ethics Committee (REC Ref. 005/2011).

The proposal for the RCT was also reviewed by the service providers and permission to conduct the larger RCT study was formally obtained from the Deputy Director-General of the Provincial Department of Health by Professor Mash and his research team. Approval for the evaluation of the HPs using the MITI tool was part of the original proposal submitted to the Province and was therefore included.

The study received approval from the manager of the HPs for the Western Cape Metropole. The sub-structure and facility managers were consulted, following the permission granted by the Deputy Director-General, to gain access to the clinics and to plan the practical implementation. The purpose of the present study was explained verbally and in writing to managers and participants.

### **3.11.2 Declaration of Helsinki principles**

The Declaration of Helsinki principles (World Medical Association, 2008) were applied to the ethical considerations in this study and are explained under the following sub-headings.

#### **3.11.2.1 Scientific validity**

MI is a well-known scientifically tested method of counselling clients and is viewed as a useful intervention strategy in approaching lifestyle challenges and disease. MI in a scientific setting has been proven to outperform traditional advice-giving in the treatment of a broad range of behavioural problems and diseases (Rubak *et al.*, 2005).

#### **3.11.2.2 Fair Selection of study population**

Every effort was made to minimise bias. Randomisation of the research sites where the education sessions took place contributed to minimising bias and fair selection of the HPs and recorded sessions, as described in section 3.6–3.7. The participants were not from a vulnerable group (e.g. children, mentally ill).

#### **3.11.2.3 Favourable risk-benefit ratio**

There were no risks attached to participation in the research and HPs benefited from additional training based on the recordings of their sessions.

#### **3.11.2.4 Informed consent**

Written consent was obtained from each individual HP selected to participate in the intervention (Appendix F). This included consent to observe, audiotape and analyse their education sessions. They were assured of confidentiality of their scores and that their names would not be mentioned in research reports. Each participant was given a printed copy of the Patient Information Sheet (Appendix F).

In the RCT written consent (Appendix Ga) was obtained from the patients to record the selected sessions; this was in addition to the general consent obtained to participate in the larger study. Written translation of consent forms into Afrikaans (Appendix Gb) and isiXhosa (Appendix Gc) was done by people fluent in these languages. These translations

were back translated by different people who are also fluent in Afrikaans and isiXhosa, to check the accuracy of the translations. All study participants were adults.

#### ***3.11.2.5 Respect for participants and study communities***

HPs and patients were made aware that they could withdraw from the study at any time. Analysis of the recordings by the MITI only coded the HPs' utterances and the identity of individual HPs was not needed or revealed in the reporting of the study. Patients' dialogue was not analysed in this study. The audiotapes were only accessed by the research team, who had a pin code to do so, and will be deleted after the archive period (3 years) has expired. The purpose of the training was given and explained to HPs and patients.

### **3.12 Summary**

Data in this descriptive surveillance sub-study was collected by structured observation and digital recordings of 32 randomly sampled group diabetes education sessions. Recordings were analysed by listening to the entire tape using a validated MI assessment tool incorporating a scoring system, and the observed sessions were analysed using a checklist to score items.

These education sessions were offered in a guiding style by 13 HPs to the diabetic patients who attended public sector CHCs in the Cape Town Metropole. The study received approval from the manager of the HPs for the Western Cape Metropole. HPs who agreed to participate received training before they started the educational programme, which focused on the content on diabetes and the guiding style of communication. The training itself was conducted as a demonstration of what was expected from them during the diabetes education sessions with the patients.

This study was a sub-study within a broader pragmatic RCT. The trial evaluated the impact of an educational intervention on a range of clinical outcomes. This sub-study evaluated the HPs' adherence to MI and assessed the extent to which they covered the educational content.

## CHAPTER FOUR: FINDINGS

### 4.1 Introduction

The aim of this study was to evaluate the extent to which HPs in public sector CHCs adhered to a style of communication derived from MI and to the designed content and mode of delivery of a diabetes education programme. The findings presented in this chapter are from 32 of 64 (50%) randomly selected observed and audiotaped diabetes education sessions. Sessions were recorded between February and June 2011. Patient attendance per session ranged from 2 to 13, and in a few sessions only one patient attended. Education was delivered by 13 HPs at the 17 randomly selected CHCs in the intervention arm of the larger RCT.

#### 4.1.1 Description of HPs' demographic characteristics

Although a sub-objective (1.5.4), the demographic characteristics of the participants are presented first (Table 4-1) to contextualise the study.

**Table 4-1: HPs' demographic data**

HP	Age (years)	Race*	Sex	Educational level	Years of service	Home language
1	49	Coloured	Female	Matric†	7	Afrikaans
2	35	African	Female	Matric	4	Xhosa
3	50	Coloured	Female	Degree	23	English
4	58	Coloured	Female	Matric	30	Afrikaans
5	38	African	Male	Matric	4	Xhosa
6	61	Coloured	Female	Matric	20	Afrikaans
7	59	African	Female	Matric	24	Xhosa
8	30	African	Female	Matric	1	Xhosa
9	34	Coloured	Male	Matric	14	Afrikaans
10	49	Coloured	Female	Matric	24	English
11	51	African	Female	Higher Diploma	24	Xhosa
12	50	African	Female	Matric	17	Xhosa
13	48	Coloured	Female	Matric	15	Afrikaans
Total 13 HPs	Mean age 47.9	African: 6/13 (46%), coloured: 7/13 (54%)	Female: 11/13 (84,6%), male: 2/13 (16.6%)	Matric: 11/13 (84.6%) Degree: 1/13 (7.6%) Higher Diploma: 1/13 (7.6%)	Mean 15.9 yrs service	Xhosa: 6/13 (46%) Afrikaans: 5/13 (38.4%) English: 2/13 (15.3%)

\*South African classification.

† A high school matriculation certificate indicating a minimum of 12 years of schooling.

Data in Table 4-1 show that the mean age of the HPs was 47.9 years, ranging between 30 and 59 years, and 69.2% were over 40 years of age. Of the 13 HPs, 7 (53.8%) were defined as coloured, 6 (46.1%) were black (Xhosa) and none were white in terms of the South African demographic classification (Posel, 2001). Eleven (84.6%) HPs were female and 2 (16.6%) were male. One (7.6%) HP was recently retired, but agreed to participate in the study. Most of the HPs had been employed by the Department of Health for several years; their range of experience in the field varied vastly, from 1 to 30 years.

#### **4.1.2 Primary objective 1: HPs' individual and collective competency in MI**

The first primary objective (1.5.1) was to assess HPs' individual and collective competency in MI using a validated tool with a scoring system for 'beginning proficiency' and 'competency'. 'Global spirit', according to Moyers *et al.* (2010), is conceptualised as the interventionist's use of evocation, collaboration, autonomy/support, direction and empathy. When these strategies are used, they are rubric rated on a 1–5 scale, with 1 indicating minimal use, and 5 indicating highest use. Global spirit is scored by calculating the average scores of these strategies. According to the MITI scale, the mean score of 3.5 indicates beginning proficiency, while competency is a score of 4.0 (Moyers *et al.*, 2007). The HPs' global spirit rating is presented in Table 4-2.

**Table 4-2: Individual HP's scores and the mean scores of the characteristics of MI**

HP No.	Evocation	Collaboration	Autonomy	Direction	Empathy	Global rating
HP 1	3.0	4.0	2.5	5.0	3.0	3.5
HP 2*	2.0	4.0	3.0	5.0	3.0	3.4
HP 2	2.5	2.5	3.0	5.0	1.5	2.9
HP 3*	3.0	3.0	3.0	4.0	4.0	3.4
HP 3	4.0	3.7	3.7	5.0	3.3	3.9
HP 4	4.0	3.0	4.0	5.0	3.0	3.8
HP 5	3.0	3.5	3.0	3.5	2.5	3.1
HP 6	3.0	3.7	3.3	4.7	3.3	3.6
HP 7	4.0	4.0	3.0	5.0	4.0	4.0
HP 8	3.0	4.0	4.0	5.0	3.0	3.8
HP 9	3.5	4.0	3.0	4.5	3.5	3.7
HP 10	4.0	5.0	3.5	4.5	3.0	4.0
HP 11	3.0	3.5	3.0	4.0	3.0	3.3
HP 12	3.0	3.0	3.0	4.0	3.0	3.2
HP 13*	2.5	2.5	2.5	5.0	2.0	2.9
HP 13	2.5	3.0	2.0	5.0	2.5	3.0
<b>Mean scores (SD)</b>	<b>3.1 (0.7)</b>	<b>3.5 (0.8)</b>	<b>3.0 (0.6)</b>	<b>4.6 (0.5)</b>	<b>2.9 (0.7)</b>	<b>3.4 (0.5)</b>

\*HP 2, HP 3 and HP 13 did group education sessions in more than one CHC.

SD = standard deviation.

Data in Table 4-2 show that some individual HPs achieved beginner proficiency and/or competency in the MI scale for group education sessions, whereas the overall mean global rating for the HPs was 3.4 (SD=0.5) which is below beginner proficiency level. The mean score for direction was high at (4.7, SD=0.5), which evaluated how well the HPs kept the discussions focused on the planned content. Collaboration (3.6, SD=0.8) was rated above the threshold; however, ratings for empathy (2.9, SD=0.7), evocation (3.2, SD=0.7) and support for choice and control (autonomy) (3.1, SD=0.6) were lower. Out of 16 scores (13 HPs plus an additional 3 for HPs 2, 3 and 13), 8 (50%) individually achieved a global rating above the threshold. One (6.2%) scored exactly beginning proficiency, and 7 (43.75%) did not achieve beginning-level proficiency. Only 2 (12.5%) scored <3.0 and will have brought down the mean for the group as a whole.

The MITI tool also includes measurements of numerous behaviours demonstrated during the counselling session. These behaviours include: the use of simple reflections (SR), complex reflections (CR) open-ended questions (OQ), and closed-ended questions (CQ). Frequencies of these utterances are used to calculate final fidelity scores for % OQ, % CR, and reflection to question ratio (R:Q). Beginning proficiency in MI intervention delivery is

defined as 50% OQ, 40% CR, and R:Q of 1 during an intervention delivery. Competency in MI intervention delivery is defined as 70% OQ, 50% CR, and R:Q of 2 (Moyers *et al.*, 2007). These scores are displayed in Table 4-3.

**Table 4-3: Domains, calculations, and minimum scores for proficiency and competency of the MITI scale**

MITI domain	Calculation	Minimum proficiency score	Minimum competency score
<b>GS</b>	(Evocation + collaboration + autonomy)/3	Average of 3.5	Average of 4
<b>% CR</b>	$(\text{CR}/\text{total reflections}) \times 100$	40%	50%
<b>% OQ</b>	$(\text{OQ}/(\text{OQ} + \text{CQ})) \times 100$	50%	70%
<b>R:Q</b>	Total reflections/(CQ + OQ)	1	2
<b>% MIA</b>	$(\text{MIA}/(\text{MIA} + \text{MINA})) \times 100$	90%	100%

GS = Global spirit rating; CR = Complex reflections; R:Q, Reflection to question ratio. Values for each domain are based on number of interventionist behaviours in a 20-minute segment of an intervention delivery session (Moyers *et al.*, 2007).

HPs' scores of behaviour count are displayed in Table 4-4 based on calculations in Table 4-3. The use of complex reflections (that attempt to interpret a deeper meaning) were not counted as they were not part of the training, and only the frequencies of simple reflections/summaries were recorded.

**Table 4-4: HP individual and mean scores of behaviour count using the MITI tool**

Health promoter	Global spirit rating	% MIA	% open questions (% OQ)	Reflection-to-question ratio (R:Q)
HP 1	3.5	33.3	78.7	0.11
HP 2	2.9	16.7	58.3	0.01
HP 3	3.4	85.3	66.8	0.1
HP 4	3.8	61.5	75.4	0.21
HP 5	3.1	62.5	52	0.1
HP 6	3.6	57.5	63.3	0.2
HP 7	4.0	100	63.3	0.17
HP 8	3.8	100	55.7	0.1
HP 9	3.7	75	63.2	0.08
HP 10	4.2	77.8	70.3	0.16
HP 11	3.3	50	74.6	0
HP 12	3.2	0	61.9	0
HP 13	2.9	34.2	68.2	0.1
<b>Mean scores (SD)</b>	<b>3.4 (0.5)</b>	<b>57.9(36.3)</b>	<b>65.4 (13.1)</b>	<b>0.1 (0.08)</b>

SD = standard deviation.

The HPs' scores demonstrate that they achieved below beginning-level proficiency in terms of the total characteristics of the guiding style and the MI characteristics as shown by the global spirit ratings. They demonstrated the ability to ask more open questions (65%), while their low score in the reflection-to-question ratio of 0.09 shows that they failed to demonstrate active listening skills.

Data showing the difference in HPs' performance between the first half (1<sup>st</sup> and 2<sup>nd</sup> sessions) and the second half (3<sup>rd</sup> and 4<sup>th</sup> sessions) of the study are shown in Table 4-5.

**Table 4-5: Fidelity to the guiding style during the first and second half of the intervention**

Variable	Target for beginning-level proficiency	Target for competency	Results for sessions 1–2		Results for sessions 3–4		Difference
			Mean score	SD	Mean score	SD	
Global spirit rating (1–5)	3.5	4	3.5	0.50	3.4	0.44	0.1 less in 2 <sup>nd</sup> half
% open questions	50	70	65.4	13.0	64.6	13.9	0.8 less in 2 <sup>nd</sup> half
Reflection-to-question ratio	1	2	0.1	0.08	0.1	0.09	None
% MIA	90	100	59.6	36.5	38.7	33.6	20.9% less in 2 <sup>nd</sup> half

SD = standard deviation.

HPs scored higher in the first sessions than in the later sessions. The percentage of MIA dropped by 20.9% in the second half of the intervention.

Data in Table 4-6 show the difference in HPs' performance in their delivery of diabetes education when in their own centres compared to being in other centres. Of the 13 HPs, 3 HPs conducted additional diabetes education sessions in CHCs that were not their own.

**Table 4-6: Data showing HPs' performance in delivery of diabetes education in their usual versus other CHCs**

	Usual CHC	Other CHC	Difference
Global spirit rating	3.5	3.4	0.1 (less in not own)
% MIA	51.5	44.5	7.0 (less in not own)
% OQ	65.1	44.5	20.6 (less in not own)
R:Q	0.1	0.1	None

HPs' performance scored higher in most areas when at their own centres. The HPs also scored a higher percentage on open questions in their own centres (65.1%) than when they were in other CHCs (44.5%). The HPs were expected to facilitate four group diabetes education sessions and to cover planned content in each session. A structured observation tool (Appendix E) was used to assess the extent to which the content was covered and which sections of the planned sessions were actually delivered.

#### **4.1.3 Primary objective 2: Assessment of HPs educational sessions**

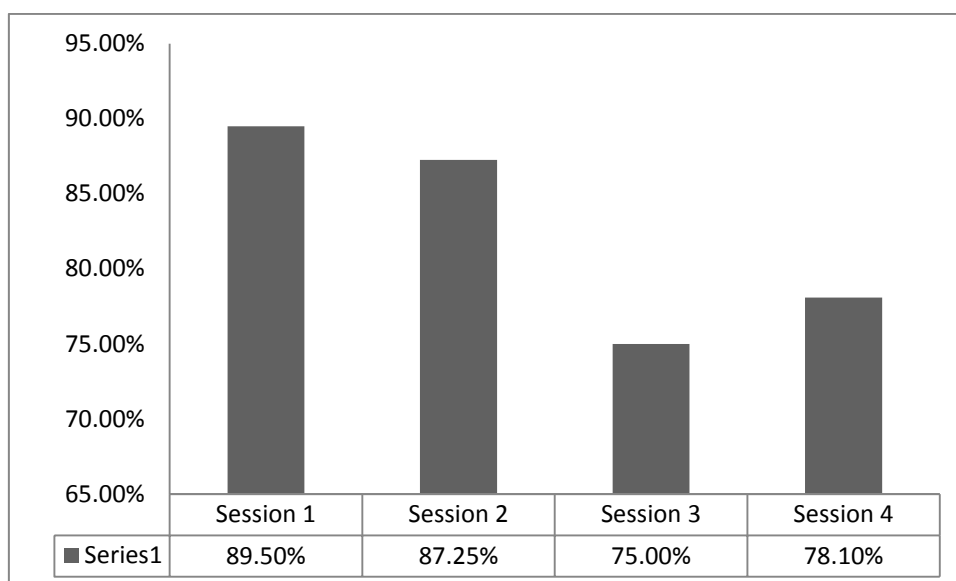
The second primary objective (1.5.2) was to assess the extent to which HPs covered the diabetic topics listed in the training manual and adhered to the planned structure and mode of delivery of the educational sessions using a locally validated observation checklist. HPs were expected to cover planned content during each educational session. Data to show the percentage coverage of specific content in the education sessions (not done/partly done/fully done) are presented in Table 4-7, and the mean scores are shown in Table 4-8.

**Table 4-7: Intervention content covered during sessions**

SESSIONS	TOTAL SESSIONS No.	NOT DONE No. (%)	PARTLY DONE No. (%)	% Mean completion
Session 1: Understanding Diabetes	N=8			
Introductions				100
What is diabetes		1 (8.3)		92
Myths and facts		2 (16.6)		83
Goal setting		1 (8.3)	1 (8.3)	83
MEAN COMPLETION (%)				89.5
Session 2: Understanding the medication	N=9			
Introductions and sharing of experiences		1 (12.5)		87
Managing diabetes with medication				100
Dealing with hypoglycaemia			2 (25)	75
Goal setting		1 (12.5)		87
MEAN COMPLETION (%)				87.25
Session 3: Living a healthy lifestyle	N=6			
Introductions and sharing				100
Eating healthy			1 (16.6)	83
Physical activity		2 (33)		67
Other lifestyle issues		2 (33)	1 (16.6)	50
MEAN COMPLETION (%)				75
Session 4: Preventing complications	N=9			
Sharing experiences		1 (12.5)		87.5
Symptoms of High blood glucose		1 (12.5)	1 (12.5)	75.0
Complications			1 (12.5)	87.5
Foot care			3 (37.5)	62.5
MEAN COMPLETION (%)				78.1

Data in Table 4-7 show that HPs covered most of the planned content in all four sessions. On average they delivered 89.5% of the content for 'Understanding diabetes', 87.25% for 'Understanding the medication', 75% for 'Living a healthy lifestyle' and 75.75% for 'Preventing complications'. Other lifestyle issues that were irrelevant to many patients (such as alcohol abuse and smoking) were left out by most HPs, and this may be the reason that this component of session 3 has the lowest adherence. A summary of content completion is displayed in Table 4-8.

**Table 4-8: Mean completion of session content**



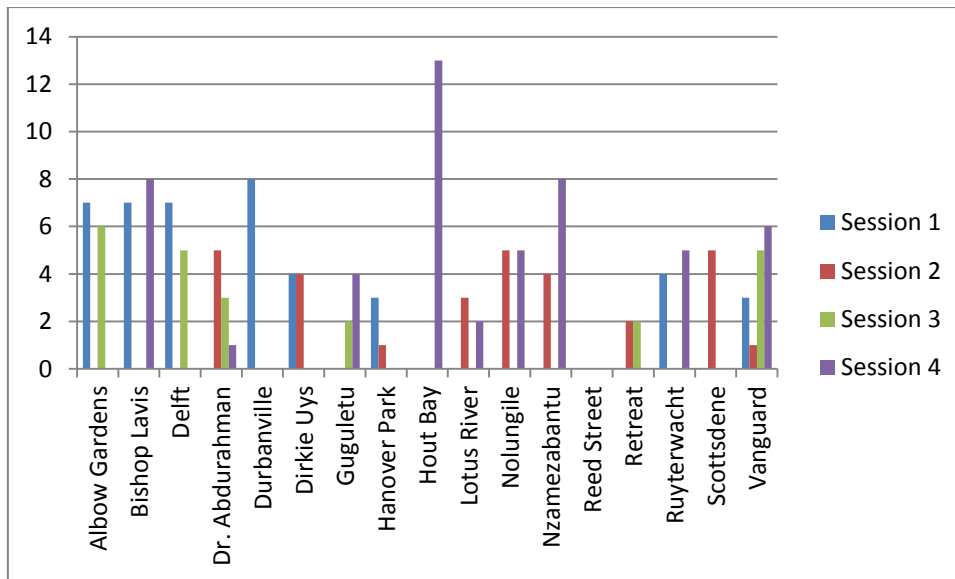
Data in Table 4-8 show that the percentage of content coverage for all sessions was good, ranging between 75% and 89.5%. The duration of the sessions ranged between 20 and 60 minutes.

## 4.2 Field notes

Data generated from field notes were transcribed and brought together in a single document. Important additional issues that could impact on HP performance or fidelity to the intervention were identified and are explained under the subheadings below.

### 4.2.1 Patient attendance

The plan was to have 10–15 patient attendance per group session. Patient attendance was a problem in all CHCs, with the patients coming on the wrong dates for their group sessions or out of sequence, resulting in too few patients attending in one session. Patient attendance therefore ranged between 1 and 8 people, and in one case 13 patients attended only one session. When this happened the HPs had to restructure their sessions and had to be prepared for any one of the four sessions on a particular day, because they did not know which sessions the patients had already attended. Figure 4 shows patient attendance in all CHCs and group sessions.



**Figure 4: Patient attendance and recorded group sessions**

The intervention was not done in Reed Street CHC as the HP resigned during the period of study. When only 1 patient turned up in the clinic for the education session, the HP continued to offer it and did not cancel. This poor patient attendance interfered with the effective group education intervention.

#### 4.2.2 Space

Suitable space for group sessions was the main challenge for most HPs. Noise and interruptions during the sessions were common. It was more difficult to find suitable space for group education in the mornings, as the health centres were full and spaces were committed to other purposes. Some made a plan to use another facility in the community; others made special arrangements at their CHCs.

Sometimes the venue would be double-booked and the HP would be expected to use another space elsewhere. One HP was using a corner in the waiting area until a space was secured at the sorting room, and the last session was held in a doctor's consulting room. Most venues were too small and made it difficult to sit in a circle.

#### 4.2.3 Use of teaching aids

All HPs used the flipchart, true/false cards and food cards during relevant sessions. The flipchart was used as a reference during follow-up sessions when necessary. Summary

sheets were used to guide the HPs to follow a correct sequence during the session as well as to remind the HPs about topics to be covered during a specific session.

#### **4.2.4 Group dynamics skills**

All HPs encouraged active participation of all members by asking questions and by allowing group work when necessary. No conflicts among the patients were observed during sessions.

#### **4.2.5 Language**

Out of 32 recorded sessions, 14 were facilitated in English, 6 in isiXhosa, 10 in Afrikaans and both English and isiXhosa were used in 2 sessions. Sessions were conducted in the language that was preferred by the patients. The HP's first/home language tends to be the same as that of the patients, except in few cases. For example, in one CHC the HP's first language was isiXhosa and the patient spoke Afrikaans; sessions were then conducted in English.

In one CHC the HP had a group of multilingual patients, including isiXhosa, English and Afrikaans. She presented the session in both English and isiXhosa. This resulted in a very long session, with many interruptions to the flow of the session.

### **4.3 HPs' experiences of group MI education**

At the end of the intervention another researcher conducted three focus group interviews with the HPs who had participated in the intervention, to explore their perspectives on their training as well as the group education sessions. A summarised report of their feedback is displayed in Table 4-9.

**Table 4-9: Summary of HPs’ reported experiences of group MI diabetes education**

Group MI style diabetes education					
Training	Resource materials	Design of sessions	Communication style and skills	Facilities (CHCs)	Patients
Successful and role-modelled the communication style and skills.	Were relevant, understandable and useful.	Need to expand topics, e.g sexuality.	HPs perceived it as feasible and better.	Space for group work a problem.	Major problem with attendance.
HPs felt confident at end of training.		Consider inclusion of family members.			Positive changes in self-efficacy and self-care.

#### 4.4 Summary of findings

HPs were good at keeping discussions focused on planned topics, moving forward and thereby achieving target behaviours. However, HPs’ attempts to understand patients’ ideas, feelings and perspectives were poor. The study showed that some individual HPs achieved beginner proficiency and/or competency in the MI scale for group education sessions, whereas the overall mean global rating for the HPs was 3.4 (SD=0.5) which is below beginner proficiency level. The HPs’ collective result was ‘beginning proficiency’ on MI for the first and second sessions, but surprisingly their collective competency dropped below this level in the third and fourth sessions.

The component of the larger study that explored the experience of the HPs during the group diabetes education reported that training was nevertheless perceived as successful, and the use of small group education as the main teaching method showed both advantages and challenges involved in group diabetes education (Botes, Majikela-Dlangamandla & Mash, 2013). Anecdotal feedback from the HPs’ manager suggests that her perception of the HPs who were trained in MI was that they were more confident and effective than those who were not trained, and she has requested that the rest of the HPs be trained in MI.

# CHAPTER FIVE: DISCUSSION, IMPLICATIONS, RECOMMENDATIONS AND CONCLUSION

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## 5.1 Introduction

The number of people with diabetes, a chronic condition with devastating cardiovascular, renal and ophthalmological consequences, is increasing worldwide. Diabetes education, particularly group education, provides the person with diabetes with the knowledge and skills needed to perform self-care, manage crises and make lifestyle changes to successfully manage the disease.

The sub-study reported here contributed to a larger RCT by describing the extent to which HPs (that is, mid-level workers) adhered to the model of diabetes education required by the intervention for the RCT. This sub-study aimed to assess the competency of HPs in MI during their delivery of educational sessions. This study also involved direct observation of the diabetic content and structure covered in the educational sessions. The aim of the study was achieved by setting objectives and sub-objectives, the findings for which are summarised below.

## 5.2 Principal findings

- **Primary objective 1: To assess HPs' individual and collective competency in MI using a validated tool with a scoring system for 'beginning proficiency' and 'competency'**

After training, HPs collectively achieved below beginning proficiency level in MI, with a global spirit rating of 3.4 (Table 4-2). Their behaviour count demonstrated that they asked more open questions, but their active listening skills were poor (Table 4-4). Their scores were higher in the first two sessions than in the two later sessions, and the adherence to MI dropped by 20% in the second half of the intervention (Table 4-5).

- **Primary objective 2: To assess the extent to which HPs covered the diabetic topics listed in the training manual and adhered to the planned structure and mode of delivery of the educational sessions using the locally validated observation checklist**

The content coverage for all four sessions was good: Understanding diabetes: 89.5%; Living a healthy lifestyle: 87.25%; Understanding the medication: 75.0%; and Preventing complications: 78.1%. HPs relied mainly on resource materials and lacked confidence in the medication session.

- **Sub-objective: To establish the content and face validity of a researcher-designed checklist that could be used to observe the content and mode of delivery of the education sessions**

The observation checklist was rated 4 (extremely relevant) for content validity of each item so no changes were made to the instrument.

- **Sub-objective: To describe HPs' demographic characteristics**

Most of the HPs were older than 40 years of age (Table 4-1). The 'typical' HP was classified as coloured [South African classification] and female, and had a range of experience in the field varying between 1-30 years but no tertiary education. The Western Cape Department of Health employs them as mid-level health workers to offer health education to the patients at the CHCs.

### **5.3 Limitations and strengths of the study in relation to published studies**

There are no other reported studies that used mid-level workers to facilitate group educational sessions in MI for a diabetes intervention study. Comparison of the methods used in this study with other intervention studies in which MI was used for diabetes intervention has to be interpreted with caution.

The researcher assisted in training the HPs and this may have increased the risk of personal bias in scoring them as the researcher had to develop a supportive relationship with the HPs. However, being aware of the potential for personal bias limited the possibility thereof and, in addition, the audio-recordings were available for others to check and are available for three years. There was also the possibility of performance bias, defined as "exposure to other factors apart from the intervention of interest" (Cochrane Collaboration, c2004–2013).

A limitation during some of the education sessions where there was a multicultural group of patients was the need to use two or three languages when participants requested that content be repeated in their language. This disturbed the flow of the session and made these particular sessions longer than anticipated. This may have impacted on the HPs attempt to implement the MI style. For example, some HPs whose home language was Xhosa or Afrikaans facilitated the education sessions in English whereas they might have been more comfortable speaking in their own language which might have enhanced their adherence to the MI style. The advantage for both HPs and patients was in those groups where everyone spoke the same language having the same cultural values and beliefs.

Another limitation of the study was the need to modify the globally validated MITI tool to exclude the 'complex reflections' component to facilitate its use by midlevel workers. The HPs were therefore not trained in complex reflections and were not assessed in this area.

The observation checklist was purposefully designed to assess the extent to which the HP adhered to the intended content and process of the planned sessions. The validation of the checklist was limited by having only one expert and this has implications for extrapolation of the results to other populations. Its use in other studies would therefore require further validation.

There was no baseline measurement for MI style: the MITI tool was originally validated for assessment of individual MI counselling, and its use in this study was applied to MI in a group situation. HPs therefore had the additional task of group facilitation skills, such as ensuring participation of all patients and managing the domineering ones, in addition to learning and applying the new guiding style of MI.

In this study the HPs were assessed on the MI guiding style only, and other behaviours, whether good or bad, are not reported on. It has been noted in other studies that fidelity assessment focuses only on interventionist behaviour which captures fidelity to the delivery of the intervention, and does not include an assessment of participant behaviour during an intervention session which relates to an equally important aspect of the intervention (Bellg *et al.*, 2004).

The training period for HPs may have been too short as, after 48 hours of training, they collectively achieved only beginning proficiency in MI in terms of their overall guiding style and the use of open-ended questions. HPs struggled with active listening and, at times, continued to offer unsolicited advice. Although HPs did not deliver 100% of the planned content, the percentage of content coverage for all sessions was good, ranging between 75% and 89.5%.

Group MI is a fairly new form of intervention with a number of practical implications. Because of its appeal and the growing evidence of MI's effectiveness, more providers are being trained in MI and are being encouraged to be innovative and creative in adapting their MI skills in a group setting (Velasquez, Stephens and Ingersoll, 2006). The intervention described in this study was an innovation in diabetes education. In the educational programme intervention for this study, definitions of global ratings were adapted to be more descriptive of what was expected in the diabetes education sessions.

HPs perceived the approach to training as successful and felt confident in their ability to deliver the diabetes education programme. They identified the resource material as the most useful component of the programme, as they believed that patients' ability to understand their disease as well as their ability to plan self-care activities improved. HPs found the new communication style (MI) and skills useful, as they thought that this method engaged patients in a meaningful conversation. They reflected that they would continue using this new method of engaging patients as they perceived that the sessions improved patients' confidence and that patients were taking control of their diabetes in issues such as medication and eating habits. Problems relating to lack of available space in the health facilities to carry out group education and poor patient attendance had a negative impact on effective delivery of the programme.

Most HPs came from the same communities as those they served, and this made the education sessions more acceptable and culturally sensitive to the patients. Although HPs were fluent in English, it was their second language. English was used for only some of the group educational sessions. In addition, the trainer and the trainee adapted the definitions of the global ratings to be more descriptive of what was expected in the diabetes education sessions.

Lack of space in the health facilities for education sessions and poor patient attendance were the main challenges. In some instances patients did not keep to their original group, and the HP then had to be ready to conduct a different session to the one initially planned.

#### 5.4 Study findings in relation to published studies

After 48 hours of training, HPs collectively scored below beginning proficiency level in the MI style. They are mid-level health workers with no tertiary education. In Evangelini *et al.*'s (2009) study undertaken in South Africa, few lay HIV counsellors reached beginning proficiency in MI. There are some similarities between the HIV/AIDS counsellors and the HPs in terms of level of demographic characteristics and setting, HPs' mean score on the MI global rating was also below 'beginning proficiency' in this study. In both these studies few HIV counsellors and few HPs reached beginning proficiency.

There are no other reported studies that used mid-level workers to facilitate group educational sessions in MI as a diabetes intervention. Extrapolation of findings from the present study to the published literature will therefore be limited and will have to be interpreted with caution. However, studies that used doctors, nurses or dieticians to facilitate group educational sessions in other contexts revealed that these health professionals were in the proficient and competent range in the use of MI style (Lundahl & Burke, 2009). It is reported that both HPs and nurses have found MI to be beneficial for themselves and for patients (Brobeck *et al.*, 2011).

MI has been found to be an effective intervention for both patients with type 1 (Knight *et al.*, 2003) and type 2 diabetes mellitus (West *et al.*, 2007). The counselling method of MI has been recommended in the literature on diabetes as an effective approach to helping patients build motivation and confidence to undertake the behavioural changes necessary for effective diabetes self-management. Heisler and Resnicow (2008) pointed out that the use of MI in clinical diabetes care can help patients make and sustain healthy changes.

The positive impact of group diabetes education that was noted in patients that participated in the present intervention study was similar to the self-reported

improvements in self-care activities in the 'Take Five School' study recently conducted in South Africa (van der Does & Mash, 2013). Another structured group-based diabetes self-management education study undertaken in New Zealand also reported impressive results in diabetes care aspects at 6 months (Krebs *et al.*, 2013). For every five patients attending a group-based education programme, it is expected that one patient could reduce diabetes medication (Deakin *et al.*, 2006).

The results of this study suggest that HPs were confident and comfortable with facilitation of lifestyle education sessions. They readily took on the responsibility and saw this intervention as falling within their existing scope of work. Prior to the present study HPs had received regular training and had conducted regular health talks in their clinics, so the requirements of this study for voluntary participation were not unfamiliar to them. However, HPs relied heavily on the resource materials on diabetes, because they expressed lack of confidence in some diabetes-specific information such as medication. In another allied sub-study, which involved interviewing the HPs, the HPs reported that they found the resource materials relevant, understandable and useful (Botes, Majikela-Dlangamandla & Mash, 2013).

A sub-study of the RCT that explored HPs' experience during the intervention reported generally positive feedback (Table 4-8). There was a change in the HPs' usual approach to health education, towards a more collaborative one. The impact of this structured group diabetes education intervention on clinical outcomes in the RCT was significant. Primary outcomes showed improvement in diabetes-specific quality of life, diabetes self-care activities, weight loss and a reduction in HbA1c (Mash *et al.*, 2012). The results on the fidelity of the HPs to the planned educational programme will provide useful feedback which will assist with interpretation of the RCT.

## **5.5 Meaning of the study: Possible mechanisms and implications for clinicians or policymakers**

Anecdotal feedback from the HPs' manager suggests that her perception of the HPs who were trained in MI is that they were more confident and effective than those who had not been trained. This manager had attended a few group diabetes education sessions during the intervention, and requested that the remaining HPs who had not been trained

ought to be trained in MI. The manager reported a noticeable change in the HPs' education style, from a didactic approach and giving advice to a guiding and engaging style of providing education.

## **5.6 Unanswered questions or future research**

Further research is needed to study MI in group settings and to identify both its strengths and limitations. One such further research question is: What are the factors that contribute to health professionals who facilitate group educational sessions achieving a proficient and competent range in the use of MI style, whereas mid-level workers did not achieve beginning proficiency in MI after training?

## **5.7 Recommendations**

HPs should continue to be trained in MI for group education in diabetes. The training period for HPs should be extended to allow for inclusion of a number of issues that were identified, such as patient home blood glucose monitoring. Training should also include more complicated topics such as diabetic medication, including insulin.

Intensive training with follow-up in-service training in MI is necessary for mid-level health workers to achieve competency in MI. Additional training that will focus particularly on reflective listening and summaries is recommended (based on the results on MI adherence in this study) to improve HPs' adherence to the MI style and to enable them to better understand their patients. More time should be allocated during training for diabetes-specific information. Regular constructive feedback on their performance in their field of work and on-going support is necessary in assisting HPs to unlearn the old way of teaching.

Lack of space in PHC facilities for patient education needs to be addressed by the district health services, particularly as the manager for the HPs has requested training in MI for the remaining HPs who did not participate in the present study. Such training, it is believed, would enable these HPs also to implement the improved style of education in their health facilities that the MI-trained HPs achieved.

Although the larger RCT showed no significant improvement in any of the clinical outcomes one year after baseline, there was a significant reduction in mean systolic and diastolic blood pressure (Mash *et al.*, 2012). There were significant self-reported improvements after a group education programme. It is recommended that structured group education programmes rather than individual education sessions would reach the majority of patients with type 2 diabetes. Group education sessions would be a cost-effective option for the South African public sector PHC context where resources are limited.

Although knowledge and information are necessary for patients to manage their diabetes effectively, these are not sufficient to motivate them to make and sustain behaviour changes. The curriculum of health care providers must therefore include communication and counselling skills such as MI in addition to the diabetes content. It has also been recommended that patients with diabetes should receive structured diabetes education and regular follow-up and support (Heisler & Resnicow, 2008:161).

## 5.8 Conclusion

This descriptive observational study evaluated HPs' adherence to a planned diabetes educational intervention that included MI. The study showed that some individual HPs achieved beginner proficiency and/or competency in the MI scale for group education sessions, whereas the overall mean global rating for the HPs was 3.4 (SD=0.5) which is below beginner proficiency level. Results showed that HPs appear to have the potential of becoming more proficient and confident with additional training and practice to reach a large number of diabetic patients.

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## APPENDICES

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APPENDIX A: MI assessment tool (MITI)

APPENDIX B: Abstract for the full RCT

APPENDIX C: Health Promoter MI Training

APPENDIX D: Content validity

APPENDIX E: Observation checklist

APPENDIX F: Consent for HPs APPENDIX G: Consent for patients

# Appendix A

## ASSESSMENT TOOL FOR ADHERENCE TO MI PROCESSES

Motivational Interviewing Treatment Integrity Code (MITI)

Coding Sheet rev 10/03

Tape # \_\_\_\_\_

Coder: \_\_\_\_\_

Time: \_\_\_\_\_

### Global Ratings

<b>Evocation</b>		1	2	3	4	5
		Low			High	
<b>Collaboration</b>		1	2	3	4	5
		Low			High	
<b>Autonomy / support</b>		1	2	3	4	5
		Low			High	
<b>Empathy</b>		1	2	3	4	5
		Low			High	
<b>Direction</b>		1	2	3	4	5
		Low			High	

### Behaviour Counts

<b>Giving Information</b>			
<b>MI Adherent</b>	<b>Asking permission, affirm, emphasize control, support.</b>		
<b>MI Non-adherent</b>	<b>Advise, confront, direct.</b>		
<b>Question</b>	<b>Closed Question</b>		
(subclassify)	<b>Open Question</b>		
<b>Reflect</b>	<b>Simple reflections or summaries</b>		

First sentence: \_\_\_\_\_

Last sentence: \_\_\_\_\_

#### List of MITI Codes

EMPATHY	(Global rating of empathy)
SPIRIT	(Global rating of MI Spirit)
GI	(Giving Information)
MIA	(MI Adherent)
MINA	(MI Non-adherent)
OQ	(Open Question)
CQ	(Closed Question)
Rs	(Reflection simple)
Rc	(Reflection complex)

**Note:** Coded transcripts of two MI interviews, taken from the Professional Training Series, are available to assist you in learning to use the MITI. For ease in learning, each interview is coded twice: once for global ratings and once for behaviour counts, although in practice both tasks would usually be done simultaneously. These transcripts, along with the MITI manual itself, can be downloaded free of charge from <http://casaa.unm.edu>.

## Appendix B

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### Technical/Scientific abstract of proposed study

**Title of project:**

Effectiveness of a group diabetic education programme using motivational interviewing in underserved communities in South Africa

**Aim:**

To evaluate, by means of a pragmatic cluster randomized controlled trial, the effectiveness of a group diabetes education programme delivered by health promoters with a guiding (motivational interviewing) style, in community health centres in Cape Town, South Africa.

**Method**

Type 2 diabetic patients attending 45 public sector community health centres will be the target population. A sample size of 1360 patients in 34 clusters of 40 patients will give a power of 80% to detect the primary outcomes with 5% precision. Seventeen health centres (34 in total) will be randomly assigned to either control or intervention groups. In the intervention group the patients will receive a structured education programme (4 sessions) over a period of 1-year, delivered by health promoters to groups of 10-15 diabetic patients at a time. The control group will receive usual care and the individual educational materials.

*Primary outcomes:* diabetes-specific quality of life, diabetes self-care activities, 5% weight loss, 1% reduction in HbA1c

*Secondary outcomes:* self-efficacy, locus of control, mean blood pressure, mean weight loss, mean waist circumference, mean HbA1c, mean total cholesterol

Data will be collected at baseline and 12 months. Primary intention-to-treat analysis will assess primary outcomes. Secondary analysis will use ANOVA to compare means.

**Public health significance**

Diabetes affects 11% of the adult population in Cape Town and is an important contributor to the burden of disease. Previous studies show that quality of care and health outcomes are poor. The development of an effective education programme should impact on self-care, lifestyle change and adherence to medication; and lead to better control of diabetes, fewer complications and better quality of life. The study will inform policy makers and managers of the district health system if they should implement the programme more widely.

**Sustainability**

If the educational programme is shown to be effective, the two supporting institutions (Department of Health and Sub-Saharan Centre for Chronic Diseases) can further disseminate and implement the programme in the Western Cape Province, other Provinces and other Sub-Saharan countries.

## Appendix C

### Health Promoter MI Training

#### Programme

DAY 1		
	Topic	Notes
08h30-10h30	Introductions and ice-breaker Presentation – Overview of the training programme and project Interviews and discussion on <ul style="list-style-type: none"> <li>The challenges of health promotion/behaviour change with diabetic patients</li> <li>Their current successes and factors that build success</li> </ul>	Connect with and understand how the HPOs currently work and how their experiences, struggles and successes with diabetic patients
11h00-13h00	The importance of behaviour change counselling and the potential impact on diabetic patients Introduction to the guiding style and exploration of the characteristics of this style	Motivating the importance of behaviour change counselling and its potential effectiveness Use of DVD
14h00-16h00	Preparation for the session and discussion on how to give useful feedback Practice session 1 with the HPOs role playing the patients in a group Reflection on the session at 3 levels <ul style="list-style-type: none"> <li>The facilitation style</li> <li>The diabetic content / knowledge</li> <li>The process and educational resources</li> </ul>	Need resources for session 1 These 3 levels of reflection will be used in all reflection on the group sessions

DAY 2		
	Topic	Notes
08h30-10h30	Theory, modelling and practice of foundational communication skills: <ul style="list-style-type: none"> <li>Summarising (listening)</li> <li>Elicit-provide-elicite (informing)</li> <li>Open vs. closed questions (asking)</li> </ul>	
11h00-13h00	Modelling of session 2 with the HPOs by Kathy	Materials for session 2
14h00-16h00	Practice of session 2 with a group of diabetic patients in a fish-bowl exercise Closure / initial feedback	4 of the HPOs will practice group facilitation of session 2 Other HPOs observe

DAY 3		
	Topic	Notes
08h30-10h30	Reflection and feedback on the session yesterday 40 mins Communication skills around goal setting and eliciting change talk 40 mins Group facilitation skills 40 mins	
11h00-13h00	Modelling of session 3	
14h00-16h00	Practice of session 3 with a group of diabetic patients in a fish-bowl exercise	Again 4 of the HPOs will have a chance to practice while the others observe

	Closure / initial feedback	
--	----------------------------	--

DAY 4		
	Topic	Notes
08h30-10h30	Reflections and feedback on the session yesterday Modelling of session 4	
11h00-13h00	Practice of session 4 with a group of diabetic patients Final reflection and feedback	Last 4 HPOs practice the group facilitation. Others observe
14h00-16h00	Remaining questions or issues regarding diabetes per se Practical issues regarding the project implementation Focus group interview – feedback on the training, how they have/will change, and the educational model	

## Summary of intervention sessions:

### [Intervention] SESSION ONE SUMMARY: UNDERSTANDING YOUR DIABETES

#### Introduction (30 mins)

What has your experience with diabetes been so far?

“True or false” game (30 mins)

**ELICIT:** Have you heard anything about diabetes that you are unsure of?

**PROVIDE:** Game using the true and false cards

**ELICIT:** Do you have any further questions about any of the information we have discussed so far?  
Did any of the answers to these statements surprise you or make you think differently about your diabetes?

What is diabetes? (30 mins)

**ELICIT:** How would you describe diabetes in your own words?

What questions do you have about how diabetes works?

**PROVIDE:** Provide information on “what is diabetes” and link to the ideas that have come out of the group using the pictures in the flipchart

**ELICIT:** Encourage questions of clarification from the group and ask:

Before we continue on the next topic, do you have any questions about what diabetes is or any of the information we have discussed so far?

Closure: Goal setting (30 mins)

### [Intervention] SESSION TWO SUMMARY: LIVING A HEALTHY LIFESTYLE

#### Introduction- feedback on goals (15 mins)

Food groups (15 mins)

**ELICIT:** Facilitator engages group in a discussion by asking them what kinds of foods they usually eat – make a selection from the cards.

**PROVIDE:** Separate cards into the food groups, using the flipchart to explain the groups

**ELICIT:** Does anyone know which of these food groups has the greatest impact on blood glucose?  
Does anyone know which of these food groups has the greatest impact on weight / waist circumference?

**PROVIDE:** Provide or confirm correct information

**ELICIT:** What are some of the key things that people have learnt regarding their own health eating plans?

**Portion sizes (15 mins)**

**ELICIT:** Many people make healthy food choices but still eat too much. How do you know how much to eat?

**PROVIDE:** Provide or confirm correct information using the flipchart pictures of the Zimbabwean hand jive and the plate

**ELICIT:** Did anything strike people in the group as particularly relevant to them?

Timing of meals (5 mins)

**ELICIT:** How can the timing of your meals affect your blood glucose levels?

**PROVIDE:** Provide or confirm the correct information

Cooking methods (10 mins)

**ELICIT:** What cooking methods do people commonly use?

How does the cooking method impact on your blood glucose or weight/waist circumference?

**PROVIDE:** Provide or confirm the correct information

**ELICIT:** What are some of the most important things that have struck you personally from this discussion on healthy eating?

Increasing physical activity (30 mins)

**ELICIT:** What types of things are you doing when it comes to keeping active?

How much time each week do you spend being active?

Approximately how much activity should you get during the week?

**PROVIDE:** Provide and confirm information on physical activity, maybe demonstrate a simple activity

**ELICIT:** How could you increase activity in your daily routine?

What challenges do you face in keeping active?

How might you overcome these challenges to keeping active?

Other lifestyle issues (15 mins)

**ELICIT:** How do you think alcohol, smoking and stress are related to the control of diabetes?

**PROVIDE:** Provide or confirm information

**ELICIT:** Are there people in the group who would like more help with any of these issues?

Closure: Goal setting (15 mins)

**[Intervention] SESSION THREE SUMMARY: UNDERSTANDING YOUR MEDICATION**

**Introduction – feedback on goals (30 mins)**

Managing diabetes with medication (45 mins)

**ELICIT:** Most of you will be taking medication for diabetes, what has your experience been like?

How has each of your medicines helped your diabetes?

What questions do you have about the medication that you are taking for diabetes?

**PROVIDE:** Show each medication one at a time and explain what each medication does, how it works and how it should be taken.

**ELICIT:** Will any of this help you with taking your own medication?

Dealing with low blood glucose (15 mins)

**ELICIT:** How do you know if your blood glucose is too low? Has anyone experienced what is it like to have low blood glucose?

**PROVIDE:** Summarise and confirm the symptoms of low blood glucose

**ELICIT:** What should you do if your blood glucose gets too low?

What foods can you eat to bring your blood glucose back up?

**PROVIDE:** Summarise and confirm what to do when you have a low blood glucose

**ELICIT:** Having discussed all of this, what might you do differently when you have a low blood glucose?

## **Closure: Goal setting (30 mins)**

### **[Intervention] SESSION FOUR SUMMARY: UNDERSTANDING COMPLICATIONS**

#### **Introduction – feedback on goals (15 mins)**

Symptoms of high blood glucose (15 mins)

**ELICIT:** What does it feel like when your blood glucose is high?

**PROVIDE:** Provide or confirm correct information

**ELICIT:** What sort of numbers do you usually get in the clinic for your blood glucose?

What do you think your blood glucose should be?

**PROVIDE:** Provide or confirm correct information

**ELICIT:** Now that you know these are the normal levels for blood glucose how do you feel about your own blood glucose levels?

What are some of the things that cause high blood glucose?

**PROVIDE:** This is an opportunity to remember and reinforce previous learning

**ELICIT:** What do you think you can do to try and avoid high blood glucose levels?

**PROVIDE:** This is an opportunity to remember and reinforce previous learning

Complications (15 mins)

**ELICIT:** What are some of the complications that you know about or may even have experienced yourself?

**PROVIDE:** Provide or confirm the different complications

Foot care (15 mins)

**ELICIT:** What can you do to avoid problems with your feet?

**PROVIDE:** Handout the list of do's and don'ts for foot care. Read handout and explain content if necessary.

**ELICIT:** Having read through the list, do any of these things look practical or useful for you?

#### **Understanding the clinic and test results (30 mins)**

**ELICIT:** What complications have you been screened for – what tests have you done?

**PROVIDE:** Provide or confirm information on what tests should be done routinely and why

**ELICIT:** How can you ensure that you are getting screened and that any complications you might have are detected early?

**PROVIDE:** Hand out the summary of people's results and discuss in pairs, set targets for the next 6 months.

**ELICIT:** What targets have you set and how do you plan to achieve them?

#### **Closure of the course (30 mins)**

When you look back at the 4 education sessions what changes have you made to the way you look after yourself and your diabetes?

What has it been like participating in this group education?

Data collection again in 1 month and in 6 months at the clinic visit by the research teams

Graduation (15 mins – this is in addition to the usual 2 hrs)

## Appendix D

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Expert Code Number.....

**CHECKLIST**  
**For Index of Content Validity (CVI) and Face Validity of**  
**the**  
**Observation Checklist**

**Researcher:** Buyelwa Majikela-Dlangamandla  
MSc candidate  
Division of Diabetic Medicine and Endocrinology  
Department of Medicine  
University of Cape Town  
OBSERVATORY 7925  
Telephone Number: (021)404 5007  
e-mail: [Buyelwa.Majikela-Dlangamandla@uct.ac.za](mailto:Buyelwa.Majikela-Dlangamandla@uct.ac.za)

Supervisor: Dr U Kyriacos

021-4066410

Title of study: **AN EVALUATION OF HEALTH PROMOTERS' ADHERENCE TO A PLANNED DIABETES EDUCATIONAL INTERVENTION THAT INCLUDES MOTIVATIONAL INTERVIEWING AT COMMUNITY HEALTH CENTRES IN CAPE TOWN**

INFORMATION:

Thank you for agreeing to evaluate the Index of Content Validity<sup>1</sup> (CVI) and face validity of the Observation Checklist (Appendix E). Please email the completed CVI checklist (Appendix D) to the researcher at the above address.

The **purpose** of this checklist is to ensure uniform evaluation by all experts using a structured procedure.

You, the expert, will establish the index of content validity (CVI) for each item using a 4-point ordinal rating scale and this will be taken as the proportion of items that received a rating of 3 or 4.<sup>1</sup> If, in your opinion, there are omissions, these can be listed at the end of each item.

For evaluation of face validity, the checklist includes layout, format, the response scale of 1-4, and if visually easy to read and comprehend.<sup>2</sup>

1. Expert opinion on index of content validity (CVI) of EACH ITEM on the Observation Checklist:

Index of content validity (CVI)					
Item	1 Irrelevant	=	2 = Unable to assess relevance without item revision or item is in need of such revision that it would no longer be relevant	3 = Relevant but needs minor alteration	4 = Extremely relevant
<b>Session 1</b>					
Introduction					
What is diabetes					
Myths and facts exercise					
Goal setting					
<b>Session 2</b>					
Introduction and sharing of experiences					
Managing diabetes with medication					
Dealing with low blood glucose					
Goal setting					
<b>Session 3</b>					
Introduction and sharing of experiences					
Eating a healthy diet					
Increasing physical activity					
Other lifestyle issues					
Goal setting					
<b>Session 4</b>					
Sharing of experiences					
Symptoms of high blood glucose complications					
Foot care					
Group Facilitation skills					
Deals effectively with loud versus quiet people					
Minimizes negative interactions/deals with conflict					
Enhancing motivation to change					

Omissions/Comments:

## 2. Evaluation of FACE VALIDITY

Please tick one box for each statement relating to the Observation Checklist.

	Very skilful	Satisfactory	Needs improvement	Unacceptable
Layout				
Format				
The response scale				
Visually easy to read				
Visually easy to comprehend				

Omissions:

Comments:

**THANK YOU VERY MUCH**

### References

1. Lynn MR. Determination and quantification of content validity. *Nursing Research* 1986;35(6 November/December):382-385.
2. Bowling A, Ebrahim S, editors. *Handbook of health research methods. Investigation, measurement and analysis*. 1st ed. Berkshire, England: Open University Press, 2007.

Copyright: Designed by Una Kyriacos, PhD Candidate, University of Cape Town, Division of Nursing & Midwifery, 2009.

## Appendix E

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### Observation checklist

Date	
CHC	
Health Promoter	
Start & Finishing Time	
Number of participants	
Consent forms signed	
Session	
Seating arrangement	
Incorrect information	
Other topics covered	
Venue details (ventilation, noise, privacy, temperature, space, lighting, etc.)	

### Session1: Understanding diabetes

Item	Not done	Partly done	Fully done
Introduction			
What is diabetes			
Myths and facts exercise			
Goal setting			

Field notes

### Session2: Understanding your medication

Item	Not done	Partly done	Fully done
Introduction sharing of experiences			
Managing diabetes with medication			
Dealing with low blood glucose			
Goal setting			

Field notes

--

### Session 3: Living a healthy lifestyle

Item	Not done	Partly done	Fully done
Introduction sharing of experiences			
Eating a healthy diet			
Increasing physical activity			
Other lifestyle issues			
Goal setting			

Field notes

--

### Session 4: Preventing complications

Item	Not done	Partly done	Fully done
Sharing of experiences			
Symptoms of high blood glucose			
Complications			
Foot care			
Sharing of experiences			

Field notes

--

**Group facilitation skills** (To be used in all sessions)

<b>Deals effectively with loud versus quiet people</b>				
<b>Poor (1)</b>	<b>Fair (2)</b>	<b>Satisfactory (3)</b>	<b>Good (4)</b>	<b>Excellent (5)</b>
Allows one or two loud members to dominate the discussion. Some group members do not participate at all or very little.			Effectively uses strategies to enable the participation of quiet members and limit the dominance of loud members. All members actively participate.	
<b>Minimizes negative interactions/deals with conflict</b>				
<b>Poor (1)</b>	<b>Fair (2)</b>	<b>Satisfactory (3)</b>	<b>Good (4)</b>	<b>Excellent (5)</b>
Group members are allowed to confront, advise and direct each other. There is resistance, irritation or conflict between group members.			Group members are enabled to be supportive of each other, to own their own opinions, affirm each other and be respectful.	
<b>Enhancing motivation to change</b>				
<b>Poor (1)</b>	<b>Fair (2)</b>	<b>Satisfactory (3)</b>	<b>Good (4)</b>	<b>Excellent (5)</b>
The discussion largely focuses on complaints, problems, difficulties and reduces people's motivation to change.			The discussion largely focuses on solutions, hope for the future, successes, and opportunities, which reinforces people's motivation to change	
Notes				

## APPENDIX F

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### PARTICIPANT INFORMATION LEAFLET AND CONSENT FORM

<b>AN EVALUATION OF HEALTH PROMOTERS' ADHERENCE TO A PLANNED DIABETES EDUCATIONAL INTERVENTION THAT INCLUDES MOTIVATIONAL INTERVIEWING AT COMMUNITY HEALTH CENTRES IN CAPE TOWN</b>
---

**REFERENCE NUMBER:**

**PRINCIPAL INVESTIGATOR:** Buyelwa Majikela-Dlangamandla

**ADDRESS:** University of Cape Town  
Division of Diabetic Medicine and Endocrinology

**CONTACT NUMBER: 021 404 5007**

Dear Health Promoter

My name is Buyelwa Majikela-Dlangamandla and I am a Master of Science (Nursing) degree student. I would like to invite you to participate in a research project that aims to evaluate the extent to which health promoters in public sector community health centres adhere to motivational interviewing in the delivery of a planned diabetes educational intervention.

Please take some time to read the information presented here, which will explain the details of this project. Your participation is **entirely voluntary** and you are free to decline to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part.

**This study has been approved by the Faculty of Health Sciences Human Research Ethics Committee (HREC) at University of Cape Town (Telephone: 021 406 6626) and will be conducted according to accepted and applicable National and International ethical guidelines and principles.**

#### **What is expected of you?**

Your normal work includes giving health education to patients attending your Community Health Centre (CHC). I am asking you to give 4 group diabetic education sessions at your designated CHC. I will observe two of these 4 sessions and record the sessions on audiotape. Each session will last about 2 hours but this will be within your normal working time and this has been cleared with your managers. You will therefore not receive extra payment. It is our intention that the study will improve service delivery. I will then listen to the recording and will see if your teaching has met the requirements of this study, that is, if you have used the MI style as you were taught. I will give you feedback after each session.

Some of you will be asked to give these 4 education sessions again at a CHC where there is no health promoter. If you agree to participate in this study please indicate if you are willing to teach at one of the CHCs where there is no health promoter.

**Are there any risks in participating in the study?**

There are no expected risks to taking part in the study. Your identity will not be revealed in the study analysis or reporting of findings because I have given you a code (reference) number. Only I, the researcher and my supervisor, will listen to the tape and I will keep it, and all other information about this study securely locked away and destroy it when the study is over.

**Are there benefits in participating in the study?**

You will benefit directly from this study by acquiring further professional skills and knowledge through the training that the research team will provide. By learning MI skills in particular you will improve your teaching skills which will benefit your patients. You will also receive educational resources and aids, which will assist you in their routine work on an ongoing basis. On completion of the training, you will receive a certificate from the University of Stellenbosch. This will enhance your level of skills development and qualification which could be useful in your future professional advancement.

**If you are willing to participate in this study please sign the attached Declaration of Consent and** *(hand it to the investigator)*

Yours sincerely

Buyelwa Majikela-Dlangamandla (Principal Investigator)

**Declaration by participant**

**By signing below, I ..... agree to take part in a research study entitled “An evaluation of health promoter’s adherence to a planned diabetes education that includes motivational interviewing at community health centres in Cape Town.”**

Please tick Yes or No

I agree to give additional 4 education sessions at another CHC where there is no health promoter	
Yes	No

**I declare that:**

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Print Name:.....

Signature of participant:.....

Signed at (*place*) ..... On (*date*) ...../...../ 2011.

Signature of Principal Investigator:;.....

Signed at (*place*) ..... On (*date*) ...../...../ 2011.

## APPENDIX Ga

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### PATIENT INFORMATION LEAFLET AND CONSENT FORM

<b>AN EVALUATION OF HEALTH PROMOTERS' ADHERENCE TO A PLANNED DIABETES EDUCATIONAL INTERVENTION THAT INCLUDES MOTIVATIONAL INTERVIEWING AT COMMUNITY HEALTH CENTRES IN CAPE TOWN</b>
---

**REFERENCE [participant code] NUMBER:**

**PRINCIPAL INVESTIGATOR: Buyelwa Majikela-Dlangamandla**

**ADDRESS:** University of Cape Town, Division of Diabetic Medicine and Endocrinology

**CONTACT NUMBER: 021 404 5007**

Dear Patient.....

My name is Buyelwa Majikela-Dlangamandla and I am a Master of Science (Nursing) degree student. I would like to invite you to participate in a research project that aims to evaluate how well your health promoter delivers the diabetes education.

**This study has been approved by the Faculty of Health Sciences Human Research Ethics Committee (HREC) at University of Cape Town (Telephone: 021 406 6626) and will be conducted according to accepted and applicable National and International ethical guidelines and principles.**

Please take some time to read the information presented here, which will explain the details of this project.

#### **What do you have to do?**

You have already been asked and have signed a consent form to complete certain questionnaires and tests as well as participate in the diabetes education sessions by Professor R. Mash from Stellenbosch University. During your session today I will use a tape-recorder to record the teaching session. I will then listen to the recording and see if the teaching by the health promoter has met the requirements of this study. This does not affect you at all as the study is assessing the health promoters' ability to get the message across clearly. Only I, the researcher and my supervisor will listen to the tape and I will keep it securely locked away and destroy it when the study is over.

#### **Are there any risks for you?**

There are no expected risks to taking part in the study. Your identity will not be revealed as the study looks only at the health promoter.

**If you do not object to my presence and the recording of the sessions, please sign the attached Declaration of Consent**

Yours sincerely

Buyelwa Majikela-Dlangamandla (Principal Investigator)

**Declaration by participant**

**By signing below, I ..... agree to take part in a research study entitled “An evaluation of health promoters’ adherence to a planned diabetes education that includes motivational interviewing at community health centres in Cape Town”**

**I declare that:**

- I have read the attached information leaflet and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be penalised or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.

Print Name:.....

Signature of participant:.....

Signed at (*place*) ..... On (*date*) ...../...../ 2011.

Signature of Principal Investigator:.....

Signed at (*place*) ..... On (*date*) ...../...../ 2011.

## APPENDIX Gb

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(Afrikaans Patient Consent)

### **PASIËNT SE INLIGTINGSPAMFLET EN TOESTEMMINGSBRIEF**

‘n EVALUERUNG VAN DIE GESONDHEIS PROMOTOR SE BETROKKENHEID BY ‘n BEPLANDE OPVOEDKUNDIGE ONDERSOEK BT DIABETIS. DIT SLUIT MOTIVERINGD GESPREKKE BY GEMEENSKAP GESONHEIDS DIENSTE IN KAAPSTAD IN.

VERWYSING (deelnemer se kode) NOMMER

HOOF NAVORSER: Buyelwa Majikela-Dlangamandla

ADRES: Universiteit van Kaapstad, Afdeling vir Diabetise Geneeskunde en Endokrinologie

Kontaknommer: 021 404 5007

Geagte.....

Ek is Buyelwa Majikela-Dlangamandla. Ek is ‘n Meestersgraad in Wetenskap (Verpleegkunde) student. Ek nooi u om deel te neem aan ‘n navorsingsprojek om te bepaal hoe deeglik die gesondheids promotor diabetis opleiding aan u verskaf.

Hierdie studie is goedgekeur deur die:Fakulteit van Gesondheid Wetenskap, Menslike Hulpbronne Etiese Komitee by die Universiteit van Kaapstad. (Telefoon 021 406 6626).Dit sal volgens van Nasionale- en Internasionale etiese riglyne en beginsels uitgevoer word.

Lees asseblief die inligting soos aan u verskaf. Dit sal die proses deeglik verduidelik.

Watmoet u doen?

U het reeds aan die versoek om voldoen ‘n konsent vorm te teken en om sekere vraelyste te voltooi en om deel te neem aan ‘n diabetis opvoedkundige program, aangebied deur Prof. R. Mash van die Universiteit van Stellenbosch. Tydens vandag se sessie sal ek ‘n bandopnemer gebruik om my te vergewis of die onderrig deur die gesondheidspromotor, aan die vereistes gestel, voldoen. Dit beïnvloed u glad nie, aangesien die studie betrekking het op die gesondheidspromotor se vermoë om die inligting duidelik oor te dra. Slegs ek die navorser sal na die opname luister en dit veilig toesluit. Wanneer die studie voltooi is, sal alle opnames vernietig word

Daar is geenverwagte risikos verbonde aandeelname aan hierdie studie nie. U identiteit sal nie bekend gemaak word nie, aangesien hierdie navorsing slegs op die gesondheidspromotor betrekking het.

Indien u nie teen my teenwoordigheid of die maak van ‘n opname van die sessies, beswaar maak nie, teken dan asseblief die Verklaring van Toestemming

Die uwe

Verklaring deur die pasiënt

Ek ..... die ondergetekende stem hiermee in om deel te neem aan die navorsingsstudie getiteld: 'Evaluasie van die gesondheidspromotor se betrokkenheid tot 'n beplande diabetis opleiding wat motiverings gesprekke by gesondheids sentrums in Kaapstad insluit.

Ek verklaar dat:

- Ek die aangegege inligtingspamflet gelees het en dat dit geskryf is in 'n taal waarmee ek vertrouwd en gemaklik is.
- Ek die geleentheid gehad het om vrae te vra en dat my vrae bevredigend beantwoord is.
- Ek verstaan dat deelname aan die studie vrywillig is en dat niemand my gedwing het om deel te neem nie.
- Indien ek so sou verkies ek die projek op enige tydstip mag verlaat en dat ek nie gepenaliseer of veroordeelsal word nie.
- Ek gevra mag word om die projek voo rvoltooiing te verlaat indien dit in my beste belang is of as ek nie die voorgeskrewe riglyne, soos ooreengekom nakom nie.

Naam in blokletters.....

Handtekening.....

Geteken te (plek) .....

Op ( datum) ...../...../.....

Handtekening van hoof Navorser.....

Geteken te (plek)..... Op (Datum)...../...../.....

## APPENDIX Gc

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(isiXhosa Patient Consent)

ISAZISI NEMVUMELWANO NGOPHANDO

**AN EVALUATION OF HEALTH PROMOTERS' ADHERENCE TO A PLANNED  
DIABETES EDUCATIONAL INTERVENTION THAT INCLUDES MOTIVATIONAL  
INTERVIEWING AT COMMUNITY HEALTH CENTRES IN CAPE TOWN**

**REFERENCE [participant code] NUMBER:**

**PRINCIPAL INVESTIGATOR: Buyelwa Majikela-Dlangamandla**

**ADDRESS:** University of Cape Town  
Division of Diabetic Medicine and Endocrinology

**CONTACT NUMBER: 021 404 5007**

Dear .....

Ndingu Buyelwa Majikela-Dlangamandla, ongu mfundi kwiYunivesiti yaseKapa. Ndiyakumema ukuba uthabathe inxaxheba kuphando oluvavanya indlela o Nompilo abafundisa ngayo ngesifo seswekile besebenzisa uhlobo lwe "motivational interviewing" kwikliniki zaseNtshona Koloni.

**Oluphando luvunyelwe ukubaluhubeke yi Faculty of Health Sciences Human Research Ethics Committee (HREC) e University yaseKapa (Umnxeba: 021 406 6626) yaye luzakuhlonipha imigaqo eyamkelekileyo yelizwe.**

Nceda ufunde ingcaciso ngoluphando.

**Yintoni elindelekileyo kuwe?**

Njengokuba ubuceliwengu Professor R Mash waseYunivesiti yase Stellenbosch, waze wasayina imvumelwano yokuthatha inxaxheba kwimfundiso ngesifo sesweklile izihlandlo ezine. Mna ndizakubakho kwizihlandlo ezibini kuphela apho ndizakurekhoda indlela u health promoter afundisa ngayo nokuba ulandela indlela aqeqeshwe ukuba afundise ngayo. Akukhonto izakukuchaphazela wena. Ndim notitshala wam kuphela abazakumamela irekhoda yaye izakugcinwa ikhuselekile ngalolonke ixesha, ze itshatyalaliswe xa uphando luphelile.

**Ingaba kukho ubungozi ekuthatheni inxaxheba?**

Akukho bungozi bulindelekileyo koluphando. Igama lakho alingekhe libhengezwe kuba umntu ngamnye uzakunikwa inombolo azakwaziwa ngayo.

**Ukuba ubukho bam nokurekhodai imfundiso kwamkelekile kuwe, nceda usayine iphepha lemvumelwano ulinike umphandi.**

Ozithobileyo

BuyelwaMajikela-Dlangamandla (Umphandi)

**Imvumelwano yothatha inxaxheba**

**Mna ..... ndiyavuma ukuthabatha inxaxheba kuphando“oluvavanya indlela o health promoter abafundisa ngayo ngesifo seswekile besebenzisa uhlobo lwe motivational interviewing” kumaziko ezempilo eNtshona Koloni, eKapa.**

**Ndiyavuma ukuba:**

- Ndiyifundile ingcaciso ebhalwe ngolwimi endiluthethayo nendilifunda ngokukhululekileyo.
- Ndibenalo ithuba lokubuza imibuzo nephendulwe ngendlela eyanelisayo.
- Ndiyazithandela ukuthabatha inxaxheba koluphando ngaphandle kokunyanzelwa.
- Ndingayeka naninina ukuthabatha inxaxheba koluphando xandifuna ngaphandle kwesohlwayo.
- Ukuba umphandi ubona kufanelekile ukuba ndingaqhubekiki koluphando nangona lungekapheli ngenxa yokukhusela mna okanye xa ndingalandeli indlela yesivumelwano ndiyakwamkela oko.

IgamaElipheleleyo:.....

Sayina:.....

(indawo) .....(umhla) ...../...../ 2011.

Umphandi: .....

(indawo).....(umhla)...../...../2011