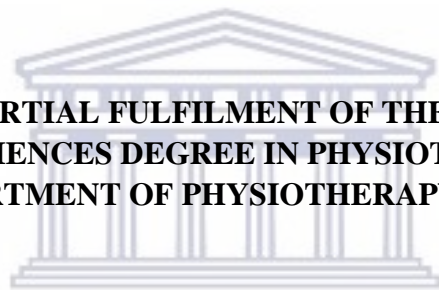


**THE PERCEIVED ROLE OF PHYSIOTHERAPISTS IN THE
PROMOTION OF PHYSICAL ACTIVITY**

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**THESIS SUBMITTED PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR A MASTER OF SCIENCES DEGREE IN PHYSIOTHERAPY IN THE
DEPARTMENT OF PHYSIOTHERAPY**



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SUPERVISOR: PROF. J. PHILLIPS

ABSTRACT

Studies have demonstrated that physical inactivity has been recognised as a major cause of death and disability, and it has been linked to the onset of non-communicable diseases and risk factors such as high blood pressure, diabetes, and heart diseases. Several studies have revealed that regular physical activity is essential to the physical, mental, health and wellbeing of people of all ages. Health care professionals such as physiotherapists are in a position to promote physical activity through development of a plan for physical fitness, the promotion of health and wellness, health education and physical conditioning. This study sought to investigate the physiotherapy students' perception of their role in the promotion of physical activity. A mixed method design was used in this study, and data was collected by means of a self-administrated questionnaire and a focus group discussion. The questionnaire assessed knowledge, role perception, level of confidence, barriers, feasibility, and self-efficacy regarding physical activity promotion, while the focus group discussion explored the experience of the physiotherapy students in the promotion of physical activity. The Statistical Package for Social Sciences (SPSS) version 21.0 was used for the capturing and analysis of the quantitative data. Descriptive statistics were employed to summarise demographic information as means, standard deviation, frequencies, and percentages. Inferential statistics were used to determine the association between

key variables. An audio-recorded focus group discussion was transcribed verbatim, and field notes typed up. Thematic analysis was used to unpack the qualitative data. Ethical issues pertaining to informed consent, anonymity, confidentiality and the right to withdraw from the study were communicated and respected in the study. A total of 86 students participated in the quantitative part of the study and had a mean age of 21.81 years old ($SD=1.39$). The findings revealed that the participants have good knowledge and attitude (confidence, role perception) toward the promotion of physical activity to their patients but do not counsel many of them, due to insufficient time and lack of counselling experience. The findings revealed that the participants were well aware of the importance of including physical activity in their treatment plan to increase body awareness, improve health, improve psychological state, prevent or treat non-communicable diseases, and for the reduction of other risky behaviour such as alcohol use and smoking. The participants revealed that the undergraduate and clinical training provided them with the basic tools to treat the patient competently, and that they were well aware of the importance of gaining proper experience to be able to understand themselves. The findings in this study revealed that discussing physical activity with their patients, and giving information regarding physical activity were the most common methods used in promoting physical activity, and there are barriers to physical activity promotion, which need to be addressed. The study concluded that physiotherapy students have positive knowledge and role perception in health promotion within the appearance of some barriers.

KEY WORDS

PHYSIOTHERAPY

ROLE

PHYSICAL ACTIVITY PROMOTION

PERCEPTIONS



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DECLARATION

I hereby declare that “**The Perceived Role of Physiotherapists in the Promotion of Physical Activity**” is my own work, and that it, or any part of it, has not been submitted for any degree or examination in any other university, and that all the sources used or quoted have been indicated and acknowledged by complete references.

Khawla Krayem

Signature.....



Witness

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Signature..... Prof. J. Philips

DEDICATION

This thesis is dedicated to the Lord God Almighty. I also dedicate this work to the spirit of my pure father and to my loving mother, and the rest of my family (brothers and sisters) for their love, their constant belief in me, and the parental care that made me whom I am. I also dedicate this thesis to my beloved Abdulhalim and my daughter Bailasan for the love, patience and support that you have shown me.



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I would also like to express my gratitude to the students in Physiotherapy Department at University of Western Cape who participated in the study.

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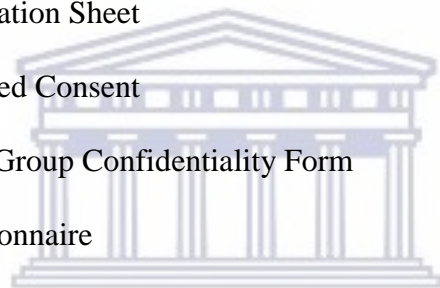
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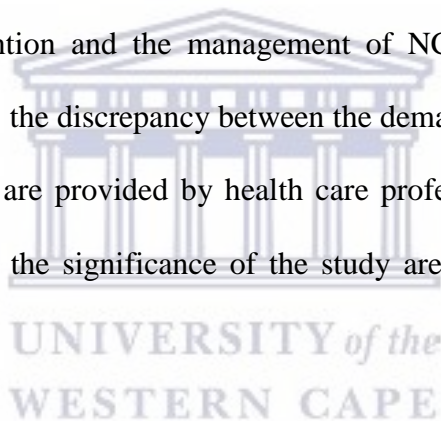
CHAPTER ONE

INTRODUCTION

1.1 Introduction

This study focuses on the increasing need for healthcare professionals such as physiotherapists

to promote physical activity participation to their clients in an effort to curb the increase of non-communicable diseases (NCDs). Therefore, this chapter provides an overview of the role that physiotherapists can play in the promotion of physical activity for both the prevention and the management of NCDs. In addition, the problem statement highlights the discrepancy between the demands of the population health and the services that are provided by health care professionals. The overall aim, specific objectives and the significance of the study are also outlined in this chapter.



1.2 Background to the Study

At the beginning of the 21st century, lifestyle conditions including ischemic heart disease, hypertension, stroke, obesity, diabetes and cancer are on the rise (Andrade & Dean, 2008). The World Health Organisation (WHO) (2002) further stated that NCDs are the cause of death of 60% of all the deaths globally and 80% in developing countries. Almost a decade ago, researchers warned that by 2020 NCDs would be almost 50% of the burden of disease in Sub-Saharan Africa (Sobngwi, Mbanya, Unwin, Aspray & Albert, 2001). All these diseases have preventable risk

factors in common, including the lack of physical activity, unhealthy diet, tobacco and alcohol use (Yach, Hawkes, Gould & Hofman, 2004).

The World Health Organisation has warned that, although there is sufficient evidence to support the inclusion of physical activity in the daily lives of those with NCDs exist, physical inactivity is now recognised as the fourth leading risk factor resulting in mortality worldwide (WHO, 2004). Other research has also shown that physical activity is an excellent means for both the primary and secondary prevention of NCDs such as hypertension and diabetes because of the benefit on the individual's health and well-being (Kruk, 2007). In addition, it has been shown that physical inactivity combined with unhealthy lifestyles, including unhealthy diet, alcohol and excessive smoking habits, are mostly causes of NCDs. More specifically, inactivity and unhealthy eating habits are associated with weight gain that is one of the major causes of NCDs. Therefore, physical activity is important factor for improving and preventing of the development of NCDs (Reiner et al., 2013).

Scientific evidence has linked regular physical activity to a wide range of physical and mental health benefits (Van Dyck & Salmon, 2015; Kesaniemi et al., 2010). Malik et al. (2014) also agreed by stating that there is vast evidence stressing the health, social, and psychological benefits associated with an active lifestyle. Some of the benefits of physical activity include helping to build and maintain healthy bones and muscles, control body weight, reduce feelings of depression and anxiety, and promoting psychological well-being. Therefore, physical activity help people

improve the cardio-respiratory system and metabolic health and can reduce the risk of NCDs (O'Donovan et al., 2010; Gill & Cooper, 2008).

Hence, regular physical activity has been successfully included in primary prevention, treatment, and rehabilitation for many chronic diseases (Josefsson et al., 2014). Despite the recognised health benefits of regular physical activity, studies have shown that sedentary behaviour is highly prevalent, and the data from adults in high-income countries suggested that the majority of times awake spent are sedentary. Further, high levels of sedentary behaviour such as daily sitting are associated with increased risk for several chronic conditions and mortality (Biswas et al., 2015). Given the increasing emphasis on the importance of regular physical activity, the current recommendation is for all individual to obtain moderate-intensity aerobic physical activity for a minimum of 30 minutes a day for five days a week (Carroll et al., 2011). This is to help protect against the major chronic diseases including hypertension, Type 2 diabetes, obesity, heart disease, stroke, and depression (Berra et al., 2015).

It is recognised that primary healthcare professionals such as physiotherapists are ideally positioned to promote physical activity as a health promotion measure to their clients (Shirley, Van der Ploeg & Bauman, 2010). These authors further stated that physiotherapists have great potential to promote physical activity because they prescribe exercise for a wide range of musculoskeletal conditions that need rehabilitation. Physiotherapists are also health professionals who can provide health

education, as their contact time with patients are much longer when compared to most other health professionals such as doctors (Verhagen & Engber, 2009). In the normal physiotherapy assessment, information such as smoking history, nutritional profile, body mass index (BMI), physical activities, and exercise profiles are all issues investigated and can assist the physiotherapist in their role in health promotion (Andrade & Dean, 2008).

Chevan and Haskvitze (2010) suggested that physiotherapist's role in promoting physical activity appears to be through the improvement and planning of physical fitness programmes, promoting health, wellness, and physical education. Several studies agreed that physiotherapists should advise patients about their lifestyle behaviour. For example, education regarding the results of unhealthy lifestyle to motivate the patients to change their unhealthy lifestyle, is one of the ways (Geense et al., 2013). Numerous groups of health professionals and health practitioners reported that advice from health professionals significantly influence adoption of healthy lifestyle behaviour, including regular physical activity, which increases satisfaction of patients (Lin-js et al., 2014).

Skills and knowledge are necessary to deal with patients regarding the implementation, development, and evaluation of a health promotion plan. Health professionals, including physiotherapists, are appropriately skilled to promote physical activity among their patients and they have knowledge and skills of appropriate physical activity (Gosselink, 2008). Furthermore, health professionals

play an integral role in promoting health-enhancing behaviour such as physical activity and they encourage the patient to increase their physical activity levels (Loprinzi et al., 2014). Regular physical activity is one of the most powerful health promoting practices that healthcare professionals can recommend for patient (Berra et al., 2015).

1.3 Problem Statement

There is a huge discrepancy between the demands of the population health and the services that can be provided by healthcare professionals. At the start of the 21st century, glaring gaps and inequities in health persist not only between countries, but within countries too. Furthermore, fresh challenges to the public health of populations are looming such as new infections, environmental and behavioural risks. Health systems are therefore struggling to keep up with these demands. Health professionals such as physiotherapists should play an increasing role in preventing some of these challenges such as NCDs. Physiotherapists can prevent and treat these diseases with exercise or physical activity, as they are health professionals with expertise in prescribing exercise for health. As a member of a multidisciplinary team, physiotherapists can and should collaborate with others in the team to implement programmes to address the global epidemic of NCDs. It is therefore important to understand the role physiotherapists perceive they have to encourage or promote physical activity as these perceived roles are established during training, it is important to get or understand of physiotherapy students' perceptions of their role in the promotion of physical activity.

1.4 Research Question

What are UWC physiotherapy students' perceptions of their role in the promotion of physical activity?

1.5 Overall Aim of the Study

To investigate UWC physiotherapy students' perception of their role in the promotion of physical activity.

1.6 Specific Objectives

- To determine the knowledge of UWC physiotherapy students regarding their role in the promotion of physical activity for better health.
- To determine the confidence of UWC physiotherapy students regarding their role in the promotion of physical activity for better health.
- To determine the role perception of UWC physiotherapy students regarding their role in the promotion of physical activity for better health.
- To determine the barriers and feasibility of UWC physiotherapy students regarding their role in the promotion of physical activity for better health.
- To determine the counselling practice of UWC physiotherapy students regarding their role in the promotion of physical activity for better health.

- To determine the perceived self-efficacy of UWC physiotherapy students with regarding the incorporation of health promotion in their practices.
- To explore the experiences of UWC physiotherapy students with regard to the promotion of physical activity in clinical practice.

1.7 Definitions of Terms used

Activity: The execution of a task or action by an individual (WHO, 2001).

Barrier: Anything that causes you to slip up in your goal or anything that makes it difficult or not possible to make progress (Tank, 2008).

Confidence: The belief about the validity of our own thoughts, knowledge or performance that relies on a subjective feeling (Grimaldi et al., 2015).

Counselling practice: The process of giving professional advice and counsel, recommending a course of action or correcting deficiencies in the performance of a task or function (Workforce Development Definitions, 2009).

Disability: An umbrella term for impairment, activity limitation and participation restriction and it denotes the negative aspects of interaction between an individual who has a health condition and the individual's contextual factors, which are environmental and personal factors (WHO, 2001).

Environment factors: Constituents of the person's life milieu that can influence the accomplishment of daily activities or activities or social roles (Rochette, Desrosiers & Noreau, 2001).

Exercise: is defined as a physical activity that is planned, structured, repetitive, with the objective of improving the general physical fitness through increased strength, endurance and flexibility (Durstine & Moore, 2003).

Feasibility: Psychometric property of a standardish outcome measure, provide criteria for assessing feasibility and then present a framework for changing practice to increase the routine use of standardised outcome measures (Slade et al., 1999).

Health promotion: It is a process of enabling people to increase control over and improve their health in order to reach a state of complete physical, mental, and social well-being (Coulson, Goldstein & Ntuli, 2002).

Healthcare professionals: Primarily concerned with diagnosing and treating health problems in human and with providing related services such as pharmacy, nutrition, speech therapy, physiotherapy and occupational therapy, in addition to specialist physicians and general practitioners (Galarneau, 2004).

Knowledge: It is a dynamic process that includes synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products in order to strengthen the health care system (Straus et al., 2009).

Non-communicable disease: Diseases or conditions that occur in or are known to affect individual over an extensive period of time and for which there are no known causative agents they are transmitted from one affected individual to another. NCD includes diseases as hypertension, diabetes mellitus, and cardiovascular diseases (Daar et al., 2007).

Physiotherapy: Is a health care profession concerned with identifying and maximising quality of life and movement potential within the spheres of health promotion, prevention, treatment interventions, habilitation, and rehabilitation to facilitate physical, psychological, emotional, and social wellbeing of an individual or population (World Confederation of Physical Therapy, 2013).

Physical activity: Any bodily movements that produced by skeletal muscle that result in energy expenditure (Khan et al., 2012).

Physiotherapy students: Students who study undergraduate studies in the physiotherapy programme.

Self-efficacy: People's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives (Williams and French, 2011). In addition, defined as people's judgement of their capabilities to organise and execute courses of action required to attain designated types of performances (Schunk, 1991).

1.8 Abbreviations used

AIDS: Acquired Immune Deficiency Syndrome

BMI: Body Mass Index

CHS: Community and Health Sciences

HIV: Human Immunodeficiency Virus

NCDs: Non-Communicable Diseases

SPSS: Statistical Packages for Social Sciences

SD: Standard Deviation

UWC: University of Western Cape

USA: United State of America

WCPT: World Confederation Physical Therapy

WHO: World Health Organisation

1.9 Outline of the Chapters of the Study

Chapter One: This chapter provides a background to the study by highlighting the role of physiotherapy in the promotion of physical activity. It is followed by the problem statement, research question, aims and objectives of the study. The chapter ends with the definitions of terms used and abbreviations in the study.

Chapter Two: This chapter provides a review of the relevant literature in the area of physical activity, health promotion and the role of physiotherapists.

Chapter Three: Describes the methodology used in the current study. It provides a description of the research design, study setting, the population and sample of each of the phases of the study as well as the methods used to collect the data. A description of the data analysis is also provided and the chapter ends with a description of the ethics that guided the study.

Chapter Four: Describes the results of the quantitative phase of the study. The results complemented with tables and figures.

Chapter Five: This chapter outlines the results of the qualitative analysis of the focus group discussions conducted. The themes are outlined and illustrated with appropriate quotes from the participants.

Chapter Six: Provides an integral discussion of the results of both phases of the study and compares the results with the salient literature.

Chapter Seven: This chapter gives a summary of the thesis and outlines recommendations, strengths and limitations of the study.



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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the existing literature relating to physical activity promotion. Literature pertaining to health promotion in general and the role of the physiotherapist in health promotion is reviewed. In addition, the role of physiotherapists in the promotion of physical activity is reviewed.

2.2 Health Promotion

Globally, at the beginning of the 21st century, risky lifestyle conditions for people with ischemic heart disease, smoking, hypertension, stroke, obesity, diabetes, and cancer have predominated (Dean, 2009). It is a major concern of all health professionals, and it is clear that the risk factors of these conditions should be addressed by all (Dean, 2009). It is required from the patient to change health-related behaviour including diet, physical activity patterns, and weight. To achieve these changes, health professionals such as physiotherapists can offer health education and promotion to their clients with regard to nutrition, physical activity patterns, and stress reduction. Physiotherapists can prevent and treat these diseases with exercise or physical activity, as they are health professionals with expertise in prescribing exercise for health (Briefing Paper of the WCPT, 2012).

Barrette et al. (2012) stated that healthcare professionals should promote physical activity to all patients with non-communicable diseases such as hypertension, cardiovascular and diabetes, especially to those who are not physically active. Healthcare professionals also have to include suitable counselling for their clients (Healey et al., 2012). Moreover, healthcare professionals play an important role in physical activity promotion; they encourage the patient to engage in health promotion (Huijg et al., 2015).

The World Health Organisation (WHO) reported that the health promotion includes building healthy public facilities, creating supportive environments, strengthening community, developing personal skills, and re-orienting health services (WHO, 2002a). Moreover, health promotion acknowledged that both behaviour and environment affect health (Bartholomew et al., 2006).

Bartholomew et al. (2006) suggests that both behavioural and environmental factors have an impact on health. Thus, to understand health promotion, there is a need to acknowledge, assess, and strategies on how these elements may be dealt with in everyday life. It should be noted that there has been an increase of non-communicable diseases such as cancer, diabetes, and cardiovascular disease. These diseases have become a major problem globally. It is evident that the social class of individuals, and the region they are based in, determines the growth of these diseases. WHO (2002b) recognized that there is global strategy on diet, physical activity,

and health. It described the strategy as a backbone for promoting global population health by changing to a healthier diet and increasing physical activity to prevent chronic disease, as well as providing social and environment changes.

Cardiovascular, cancer, chronic obstructive pulmonary disease, diabetes, cerebrovascular disease and HIV/AIDS are identified as the top worldwide diseases (WHO, 2003). The leading risk factors include high blood pressure, obesity, physical inactivity, high cholesterol, unhealthy diet, alcohol and tobacco, and it is evident that a combination of these factors nurtures the risk of chronic diseases.

Health behaviour including health promotion, education programmes and interventions are most likely to benefit individuals and communities when the programme or intervention are guided by a theory of health behaviour. Moreover, health education covers the continuum from disease prevention and promotion of optimal health to the detection of illness to treatment, rehabilitation, and long-term care. It includes infectious and chronic diseases, as well as attention to environmental issues (Sallis et al., 2015). In addition, health education is considered a primary strategy of health promotion, provides a favorable foundation for changing ecologies and social structures. Behavioural education and change at an individual level is related to six major settings: worksites, communities, healthcare sites, houses, schools and homes. The overall aims of health education is to change the individual's health related attitude, knowledge, motivations, and ultimately behaviour (Glanz et al., 2002). Furthermore, Whitlock et al. (2002) confirmed that

the change in health behaviour will impact on quality of life. Thus, change in behavioural factors or the behaviour itself are affected by health education.

Several researchers reported that they consider regular physical activity, good nutrition, social activity, preventive examination and access to medical care as different types of health promotion behaviour (Rea et al., 2004; Fjeldsoe et al., 2011 & Chobanian et al., 2003). However, many people with disabilities have greater difficulty to participate in health promotion behaviour when compared with the general population, because of their limitation in physical and/or intervention programme access. Moreover, the greatest service health professionals can provide is to educate and assist each individual to optimize control and quality of his/her life (Provance, 2014; Stuifbergen & Becker 2001).

Rimmer et al. (2004) found that the benefit of physical activity for health and function for people is to prevent or delay chronic diseases. In addition, people without disabilities engage in physical activity within their lifestyle more than people living with a disability; 56% of adults with disabilities do not engage in physical activity, compared to 36% of adults without disabilities (Rimmer et al., 2004). Promoting physical activity to people living with disability is important for public health. Experts reported that trained health professionals manage people with disabilities to self-manage their own health promotion activities. Health professionals and service providers must recognise all factors such as personal and environment to improve or impede participation in health promotion activities. In addition, benefits of physical activity for people without physical disabilities are

similar as for people with physical disabilities, such as reducing the chance of heart disease, obesity and Type 2 diabetes (Jaarsma et al., 2014).

To promote the health of the individual, health professionals should increase awareness of the calorie content in food items, so calorie-intake could be controlled in order to prevent increase in weight. Vegetables and low-fat dairy products are considered as healthy options to prevent weight increase. In addition, changing the consumption of selected carbohydrates with protein from plant sources, or with mono-unsaturated fat can lower blood pressure (Van Horn et al., 2016; Appel, 2005).

2.3 Physiotherapists' Role in Health Promotion

According to Breba et al. (2004), poor lifestyle choices made by individuals can be improved by health promotion strategies, and physiotherapists are in the ideal position to develop health promotion strategies and plans in order to address health promotion goals with their patients. According to Verhaegen et al. (2009), physiotherapists are under-utilised for promoting a physically active lifestyle, although they are well placed to play an important public health role. The physiotherapist's role in health promotion starts with giving advice and education about the importance of the inclusion of physical activity in one's daily routine. This advice and guidance can give patients/clients the confidence to engage in physical activity under the guidance of their physiotherapist (Van der Ploeg et al., 2007). In the United States of America (USA), physiotherapists are known as primary health promoters encouraging patients/clients on a physically active lifestyle. They are indeed involved in setting up fitness programmes and exercises (Rea et al., 2004).

Physiotherapists can also play an important role in assisting patients to maintain a healthy weight, make healthier food choices, increasing cardiovascular fitness, reducing smoking habits, reducing feeling of sadness, as well as increasing a feeling of satisfaction with life (Molenaar et al., 2009).

Addressing health behaviour changes, including smoking cessation, optimal nutrition, maintaining a healthy weight, regular healthy activity, exercise, optimal sleep and minimal stress has been identified as a priority for physiotherapists in this century (Dean et al., 2011). Verhagen and Engbers (2009) suggest that the aim of physiotherapy is to maintain, restore, improve and identify maximise human movement within the field of promotion, prevention, treatment and rehabilitation. Hence, physiotherapy impacts on lifestyle, work and leisure, and implementing healthy behaviour is both curative and preventive. Change of lifestyle is an important aspect to preventing most non-communicable diseases and as such physiotherapy helps a patient to self-manage their conditions by changes to their lifestyle and behaviour. By accepting responsibility for their own health, and adopting a healthy lifestyle, patients can manage the risk factors associated with non-communicable disease. In addition, the physiotherapy forms part of the health care system (Eales, 2001).

Dean (2009) reported that in order to add variety to role of the contemporary physiotherapists, these health professionals should broaden their level of expertise from the treatment of disabilities and illness, to concentrate on general health practice, in particular primary and secondary diseases. In addition, these health

professionals need to complement their knowledge with skills to promote behavioural changes based on the biopsychosocial perspective, which includes biological, psychological, behavioural, environmental and social aspects of health.

The findings by Shirley et al. (2010) reported that different barriers affect physiotherapists in the promotion of physical activities. These factors include lack of time, lack of confidence, and limited incorporation of counselling skills into treatment sessions. Furthermore, the barriers also include attitudinal and system barriers. Attitudinal barriers include efficacy or even the status of physical activity promotion, while system barriers include the lack of incentive, standard protocols, success in the counselling role, appropriate training, as well as the absence of a daily coordinated and systematic approach in the practice operations.

The majority of the studies focused on the role of physiotherapists as educator for exercise-based interventions and described the physiotherapists as counsellors of physical activity to increase muscular strength and exercise capacity (Taylor et al., 2009). In addition, the majority of physiotherapists used the skills training daily to counsel patients on physical activity (Erin et al., 2012). Therefore, physiotherapists are typically identified as specialists in clinical exercise because of their unique professional education, and their role in counselling patients in exercise, nutrition, dietary, smoking and stress reduction (Frerichs et al., 2012). Negative health behaviour, for example smoking, poor diet, inactivity, stress and poor sleep adversely impact physical therapy outcomes and the patient's health. Therefore, there is a need for physiotherapists to initiate and/or support health behaviour change

interventions (Dean et al., 2012). In addition, the studies reported by Shirley et al. (2010) investigated the role of physiotherapists as promoters of non-treatment physical activity for better health, and the results suggests that they were aware of their role and these physiotherapists had sufficient knowledge regarding this area.

Simon et al. (2009) suggested that the physiotherapist's role should not only be to provide treatment to patients, but also to provide inputs to healthcare for patients' health needs. Like other professions, physiotherapists should educate for health change through the promotion of physical activity (Frantz, 2008). Furthermore, physiotherapists, as healthcare professionals, are also able to deliver health education to patients, as well as other health professionals for example, physicians, nurses and dietitians. In particular, they have expertise in counselling patients on related physical activity, which appears to have a more successful outcome in changing their lifestyle behaviour (Alexander et al., 2012; Molenaar et al., 2009). Finally, the greatest service health professionals can provide to the public is to educate and assist each individual to optimise control and quality of life (Provance, 2014).

2.4 The Benefits of Physical Activity

Regular physical activity is essential to improve health in the general population. There is widely-spread confusion between physical activity and exercise. The study done by Khan et al. (2012) reported that physical activity is defined as any bodily movement that is produced by skeletal muscle that results in energy expenditure. This can be measured in kilocalories (kcal) or kilojoules (kj); 4.184 kcal is

equivalent to 1 kj. Moreover, the physical activity is considered as a daily life activity, for example occupational, sports, household or other activities. In contrast, exercise is defined as a sub-set of physical activity that is planned, structured, repetitive and has a final or intermediate objective to improve or maintain physical fitness. Kesaniem et al. (2001) suggested that physical activity is important in health promotion, and it is considered as a primary agent for optimising health. It is an integral part of primary health care. Regular physical activity, using large muscle groups such as walking, running and swimming produces cardiovascular adaptations that increase exercise capacity, endurance and skeletal muscle strength. It also prevents the development of coronary artery disease (Jacobson et al., 2005).

To promote and maintain health, all adults should participate in moderate-intensity aerobic activity for a minimum of 30 minutes, or vigorous-intensity aerobic activity for a minimum of 20 minutes. Physical activity plays an important role for individual health optimising behavior, and contributes to population health (William et al., 2007). Benefits of physical activity and exercise includes improving, maintaining and developing cardiorespiratory fitness for healthy adults, as well as helping to reduce and prevent the risks associated with ischemic heart disease. It also has a beneficial effect on other health conditions, for example hypertension, diabetes and osteoporosis (Aittasalo, 2006).

For adults and children, physical activity is an important contributor to the cardiovascular health, weight control and general fitness. It is important for achieving cardio-metabolic risk reduction and optimal health and it is essential to the

concept of energy balance i.e. energy or calories burned (Van Horn et al., 2016). In the study on cardiorespiratory fitness it was found that physical activity plays an important role in improving cardiorespiratory fitness, which is associated with reduced morbidity and mortality, and dependent on changes in weight and abdominal adiposity (Lavie et al., 2015).

The World Confederation for Physical Therapy, (2007) confirmed that physical activity and exercise are important to promoting the health and well-being of individuals. The physical activity intervention / treatment is an essential to improving movement, maximising function, workability, impairments, activity limitations and disabilities, and to restore safety of the body system. Alwan et al. (2010) suggested the prevalence of chronic non-communicable diseases such as diabetes, cardiovascular disease and chronic lung diseases are caused by unhealthy lifestyle, and a primary cause of death and disability in the world. Moreover, the cessation of smoking, alcohol abuse and weight loss plays an important role in promoting health and prevention of disease.

A study regarding people with diabetes has demonstrated that physical activity can help people with diabetes to achieve a variety of goals including cardiorespiratory fitness, improved glycemic control, decrease in insulin resistance, improvement of lipid profile, blood pressure and an increase in urinary protein excretion after physical activity (Chudylyk et al., 2011; Colberg et al., 2010). Furthermore, people with Type 2 diabetes are at risk of heart disease, and regular physical activity is associated with a reduction in the prevalence of heart disease, and a reduction in

mortality. The same author also found that increased physical activity levels is essential to improving glycemic control and reduces the need for antihyperglycemic agents and insulin (Sigal et al., 2013). There are three large clinical trials from Finland, China and United State that have shown that the main method of preventing diabetes in adults is weight loss and increased physical activity (Balk et al.,2015). Finally, the combination of a healthy diet and physical activity promotion programs among people who are at increased risk for Type 2 diabetes, reduced the risk from 50% to 60% (Balk et al., 2015).

Studies have demonstrated that physical inactivity and a less active style has been associated with increased risk of cardiovascular disease, which is a high cause of death worldwide. Moreover, increases in physical activity levels, combined with diet and the introduction of muscle-strengthening activities at least twice per week helps to improve cardiovascular outcomes (Lanier et al., 2016). Substantial studies have estimated that higher levels of physical activity and participating in exercise training provides protection in primary and secondary prevention of coronary heart disease and lowers cardiovascular risk in middle-age (Swift et al., 2013).

Graham (2016) indicated that engaging in regular physical activity has been shown to positively affect cognitive processes related to normal aging, including memory and attention, and protect against cognitive decline and dementia. Randomised controlled trail study identified that people who participated in a physical activity intervention reported the greatest reduction in disturbance in psychological well-being, such as depression. There is significant support for physical activity as an

effective alternative treatment for depression, which is more accessible than traditional psychiatric treatments (Parker et al., 2016; Busch et al., 2015). Modifications of risk factors such as smoking and sedentary behaviour and increases in physical activity levels have been shown to decrease blood pressure, and therefore prevent hypertension (Papathanasious et al., 2015).

2.5 Summary of the Chapter

The findings within the literature highlights the global increase in physical inactivity. The findings have highlighted the importance of the role of physical activity in combating noncommunicable diseases and improving health among all categories of people. The literature also emphasizes the importance of the promotion of physical activity, and it is clear that the promotion of physical activity should be a priority to all healthcare professionals. Physiotherapists should behave as play an important role as health professionals since they have the knowledge and skills to promote healthy behaviour. The literature highlights the benefits of physical activity in improving health and quality of life. Despite the available literature as reviewed in this chapter, no literature with regards to the perceived role of physiotherapists and physiotherapy students in South Africa are wident. Therefore, this study will investigate physiotherapy students' perception of their role in the promotion of physical activity.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter described the methodological approach used in this study and the procedures used to meet the research objectives of the study. A clear description of the research setting, study design, study population and sampling are given. In addition, descriptions of the methods used to collect and analyse the data are outlined. Finally, the ethics guiding the study are described.

3.2 Research Setting

The study was conducted at the University of the Western Cape (UWC). It is located in the Northern Suburbs of Cape Town and has seven Faculties. The Department of Physiotherapy is one of nine departments in the Faculty of Community and Health Sciences (CHS) (UWC, 2016). The Department of Physiotherapy offers a four-year undergraduate degree, accepting between 50 and 60 students annually. The third and fourth year of study are spent mainly on clinical rotations, where students are exposed to clinical practice, working among clinicians in various settings.

3.3 Research Design

A mixed methods approach which consists of a quantitative element, followed by a qualitative element, was employed in this study. The explanatory sequential strategy of mixed methods design was employed, starting with quantitative data collection and analysis, which preceded qualitative data collection and analysis (Creswell & Clark, 2007). A mixed methods approach helps the researcher to achieve extensiveness, depth and understanding of the area to be researched (Johnson, Onwuegbuzine & Tumer, 2007). The two methodologies are integrated in the discussion of the results.

By utilizing both quantitative and qualitative research and data, the researcher gains a breadth and depth of understanding and corroboration; while off-setting the weaknesses inherent to using each approach by itself (Onwuegbuzie & Johnson, 2004). One of the most advantageous characteristics of conducting mixed methods research is the possibility of triangulation, which is the use of several means (methods, data sources and researchers) to examine the same phenomenon (Lincoln & Guba, 1985).

The quantitative approach was used to determine the knowledge, level of confidence, role perception, barriers, feasibility, self-efficacy and counselling practices of physiotherapy students with regard to their role in the promotion of physical activity to their patients/clients. And present the study sample of the knowledge, confidence, role perception, barriers, feasibility and self-efficacy of physical activity promotion in relation to encouragement of ten or more patients per month to become more

active and encouragement fewer than ten per month to become more active. And The qualitative approach was used to better understand the meaning, experiences and perception of a diverse group of human beings (Scharlach et al., 2006; Meadows, 2003). The qualitative approach was found more appropriate to explore the experiences of physiotherapy students with regard to the inclusion of health promotion in their clinical practice at UWC.

3.4 Data Collection Methods

As outlined above, the data for the study was collected in two phases, that is, quantitative and qualitative phases. The study population and sample, the specific methods used and the data analysis are described separately for each phase below.

3.4.1 Quantitative Phase

3.4.1.1 Study Population and Sampling

The population for this study included all the third and fourth year physiotherapy students at the University of Western Cape, registered for the 2016 academic year. There were a total of 107 students registered in the third and fourth year of study in the Physiotherapy programme at UWC. There were 56 students registered in the third year and 51 in the fourth year. All the students in the third and fourth year of study were approached for participation in the study. The third and fourth year of study are spent mainly on clinical rotations, where they are exposed to clinical practice. Therefore, they are exposed to patients to implement, plan, and evaluate physiotherapy knowledge, including physical activity and promotion.

3.4.1.2 Data Collection Instrument

A self-administered questionnaire was used to collect data for this phase. The questionnaire was adapted from previous research done by Shirley et al. (2010), that investigated the phenomena of physical activity promotion by physiotherapists and physiotherapy students.

The first section of the instrument required information on socio-demographic characteristics such as age, gender, year of study, health promotion courses, dependents living at home and province of residence. The subsequent sections requested information regarding knowledge, perception of role, level of confidence, barriers, feasibility and self-efficacy of physical activity promotion. The section regarding knowledge consisted of four items and investigated the respondents' knowledge regarding the promotion of physical activity, for example: "half an hour of walking on most days is all the exercise that is needed for good health". The section regarding perception of role consisted of two items and investigated respondents' perception of their role regarding the promotion of physical activity, for example:

"Suggesting to patient ways to increase daily physical activity is part of the physical therapist's role". The section regarding confidence consisted of three items and investigated respondents' confidence regarding the promotion of physical activity, for example: "I feel confident in giving general advice to patients on a physically active lifestyle". The section regarding barriers to health promotion consisted of six items and investigated perceived barriers to the promotion of physical activity for example: "lack of

time”. The section regarding feasibility consisted of four items and investigated feasibility of respondents promoting different physical activities, for example: “brief counselling integrated into your regular consultations”. The section regarding self-efficacy consisted of twelve items and investigated respondents’ self-efficacy regarding promoting physical activity, for example:

“When the patient is aware of the problem and/or desires to improve”. All items were scored on a 5-point Likert scale. Respondents could choose responses ranging from strongly agree to strongly disagree.

3.4.1.3 Reliability

This questionnaire has been used previously in the study by Shirley et al. (2010), and demonstrated good reliability and validity for use among physiotherapy students and physiotherapists. The instrument was piloted among 20 students to assess clarity and understandability. A focus group discussion was conducted with the participants to assess the relevance of the items for the current context. All the participants of the focus group discussion found the instrument to be relevant and easy to use.

3.4.1.4 Data Analysis

Complete data was captured on a spreadsheet in the Microsoft Excel programme in preparation for analysis. Double data entering was done to ensure data quality. The data was then transferred into the Statistical Package for the Social Sciences (SPSS) version 21.0. Descriptive statistics, including frequencies and percentages were employed to provide a description of the study sample. Prevalence tables were used to describe categorical data, while means and standard deviations were used to

describe continuous data. Inferential statistics were employed to compare knowledge, confidence, role perception, barriers, feasibility and counselling practices of physical activity among groups using multiple logistic regression analyses. Logistic regression analysis was used to calculate odds ratios to compare physiotherapists who encouraged ten or more patients per month to become more active. Similarly, odds ratios were also calculated to compare between physiotherapy students with relation to encouragement ten or more patients per month and who encouragement less than ten patients per patients.

3.4.2 Qualitative Phase

Study population and sample: The study population for this phase included all those that participated in the first phase of the study. Purposive sampling was used to select participants for this phase. Purposive sampling is a non-probability sampling technique in which specific criterion which are relevant to the study are developed by the researcher to be used for recruitment of participants. No “a priori” sample size was calculated, but initially 15 physiotherapy students were invited to participate in this phase. Data gathering was stopped when saturation was reached.

3.4.2.1 Data Collection Methods

The data for this phase of the study was by means of a focus group discussion. Student who participated in the first phase of the study were invited to participate in the qualitative phase of the study. Only fourth year students indicated their willingness to participate. The focus group discussion was conducted by the researcher and research assistant with fourth year students at the Physiotherapy Department. The venue for the group discussion was

chosen because it was convenient, quiet, and no possible disruptions were likely. At the start of the focus group discussions, the researcher explained to the participants that the purpose of the discussion was to gain an understanding of the inclusion of the promotion of physical activity in the management of their clients, and the factors associated with it. The focus group discussion was conducted in English and was audio-recorded. The discussion continued until saturation was reached and no new information emerged from the discussions (Polit & Beck, 2004). The focus group discussion lasted approximately 30 minutes.

3.4.2.2 Data Analysis

Qualitative data analysis seeks to organise and reduce the data gathered into the themes, or essences, which in turn can be fed into descriptions, models, or theories (Walker & Myrick, 2006). The analysis of the focus group started with the transcription of the information from the audiotape recordings to produce manuscripts. A comparison was made with the notes taken during discussion to verify the accuracy. Transcripts were read though several times by the researcher, with the emphasis on the emergence of the themes. Notes were made throughout the reading of the transcripts and the data was coded in themes, followed by the creation of broad categories of emerging themes, which fit together. The analysis was done by reading though the transcripts several times, making as many headings as possible to describe all the aspects of the content. Furthermore, grouping of the themes into broader categories was done in order to reduce the number of themes or small categories (that is, very similar categories were conflated to come up with one). However, the researcher emphasised searching the categories that have internal

convergence and external divergence, which means that the categories must be internally consistent but distinct from one another (Marshall & Rossman, 1999). After the deviation of themes, an independent researcher was asked to read through the transcripts and generate themes thus increasing the credibility (validity) and dependability (reliability) of the categorising. The lists of the researcher and the independent researcher were then compared. No differences were found.

3.4.2.3 Trustworthiness

As proposed by Lincoln and Guba (1985), cited in Shenton (2004), trustworthiness of qualitative research could be ensured through the consideration of four criteria, namely: credibility, confirmability, transferability and dependability (Graneheim & Lundman, 2004). The supervisor functioned as an auditor to make sure that information given to the participants was recorded, and that all questions on the interview guide were standardised. In addition, the researcher kept an audit trail.

- (i) **Confirmability:** The term confirmability refers to the objectivity of the study where the outcomes are supported by the collected data (Polit & Beck, 2004; Lincoln & Guba, 1985). To ensure confirmability, the researcher kept a record of all baseline data safely for further analysis, and provided enough substantiation that the findings and their interpretation were grounded in the data.

(ii) **Transferability:** (in preference to external validity/generalisability) is about how much the data can be generalised to the community. In this study, sufficient description of the content of the participants' views and perceptions was made in order to allow future readers to make an informed decision regarding transferability. To enhance transferability of the qualitative data, a clear and distinct description of the study setting, the selection and characteristics of participants, data collection and process of analysis was used (Graneheim & Lundman, 2004).

(iii) **Credibility:** Is referred to as internal validity. This is the confidence in the truth of the data collected by the researcher and its interpretations (Polit & Beck, 2004). To enhance credibility of the qualitative data, the themes presented were illustrated with represented quotations from the transcribed texts (Graneheim & Lundman, 2004).

(iv) **Dependability:** Refers to the evidence that the process of data collection and analysis is consistent. It further means that if the same study were to be repeated over time in a similar context it, would bring similar results (Polit & Beck, 2004; Lincoln & Guba, 1985).

3.5 Ethics

Permission and ethics clearance was sought from the Senate Research Committee at the University of the Western Cape (UWC) (**Appendix A**). Further permission was

sought from the Registrar at UWC and the Head of Department of Physiotherapy (**Appendix B**). The study was conducted according to the ethical practices pertaining to human subjects as specified by the Faculty of Community and Health Sciences Research Committee. The purpose of the study was clearly explained by the researcher to the participants (**Appendix C**). Signed written informed consent was sought from all participants (**Appendix D**). Students who participated in the focus group discussions signed a focus group confidentiality binding form (**Appendix E**). Participation in the study was voluntary. The participants were informed of their right to withdraw from the study at any time without any consequences. Participants were treated with respect and dignity. The consent forms, information sheets and questionnaires (**Appendix F**) were available in English only, as the medium of instruction at UWC is English.

Identification codes using numbers were used on data forms to ensure anonymity. During the reporting of qualitative results, pseudonyms were used to disguise the identity of the participants. Information obtained from the participants was for the study only and it was handled with confidentiality. Pseudonyms will be used to protect participants' identities when the results are published. Transcripts and memoranda were also locked in a locked cabinet and no unauthorised persons had access to the data. Minimal perceived risks were expected in the study. However, if participants were affected by the study and they experience the questions to be traumatic, the participants were referred to a counsellor for management. The finding of the study will be made available to all the relevant stakeholders.

3.6 Summary of the Chapter

This chapter provided information regarding the methods used to collect and analyse data to meet the objectives of the study. Issues pertaining to reliability, validity and ethics were also described. The following chapter outlines the results of the statistical analysis that attempted to answer the research questions that are qualitative in nature.



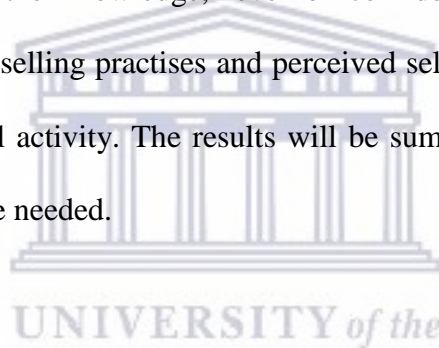
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CHAPTER FOUR

QUANTITATIVE PHASE

4.1 Introduction

This chapter presents the results of the quantitative phase of the study that attempted to answer the objectives as stated in Chapter One: to determine the perception of physiotherapy students with regard to their role in physical activity promotion. The following will be outlined in the chapter: an overview of the socio-demographic profile of the participants, the knowledge, level of confidence, role perception, barriers and feasibility, counselling practises and perceived self-efficacy with regard to the promotion of physical activity. The results will be summarised in tables and illustrated with figures where needed.



4.2. Socio-Demographic Characteristics of the Study Sample

All the third and fourth year physiotherapy students registered for the 2016 academic year at the selected University were approached for participation in the study. Therefore, total of 107 students were invited to participate. A total of 86 students agreed to participate and therefore yielded a response rate of 80.4%.

The demographic characteristics of the study sample are summarised in Table 4.1. The mean age of the study sample was 21.81 years old (SD=1.39). More than three-

quarters (76.7%) of the sample was female and 52.3% were in their third year of study as shown in Table 4.1.

Table 4.1 Demographic characteristics of the study sample (n=86)

Variable	Frequency (n)	Percentage (%)
Age: Mean = 21.81 years old; SD=1.39		
Gender		
Male	20	23.3
Female	66	76.7
Year of study		
Third	45	52.3
Fourth	41	47.7
Health promotion course		
Yes	76	88.4
No	10	11.6
Dependants living at home		



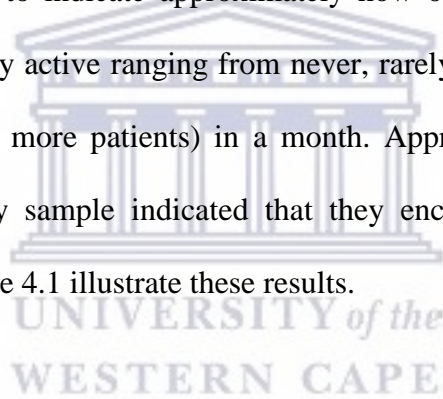
Yes	13	15.1
No	73	84.9

Province of residence

Western Cape	86	100
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4.3 Encouragement of Patients to be Physically Active

Participants were requested to indicate approximately how often they encouraged their patients to be physically active ranging from never, rarely (one to two patients only) to more often (ten or more patients) in a month. Approximately two-thirds (67.4%, n=58) of the study sample indicated that they encourage less than ten patients in one month. Figure 4.1 illustrate these results.



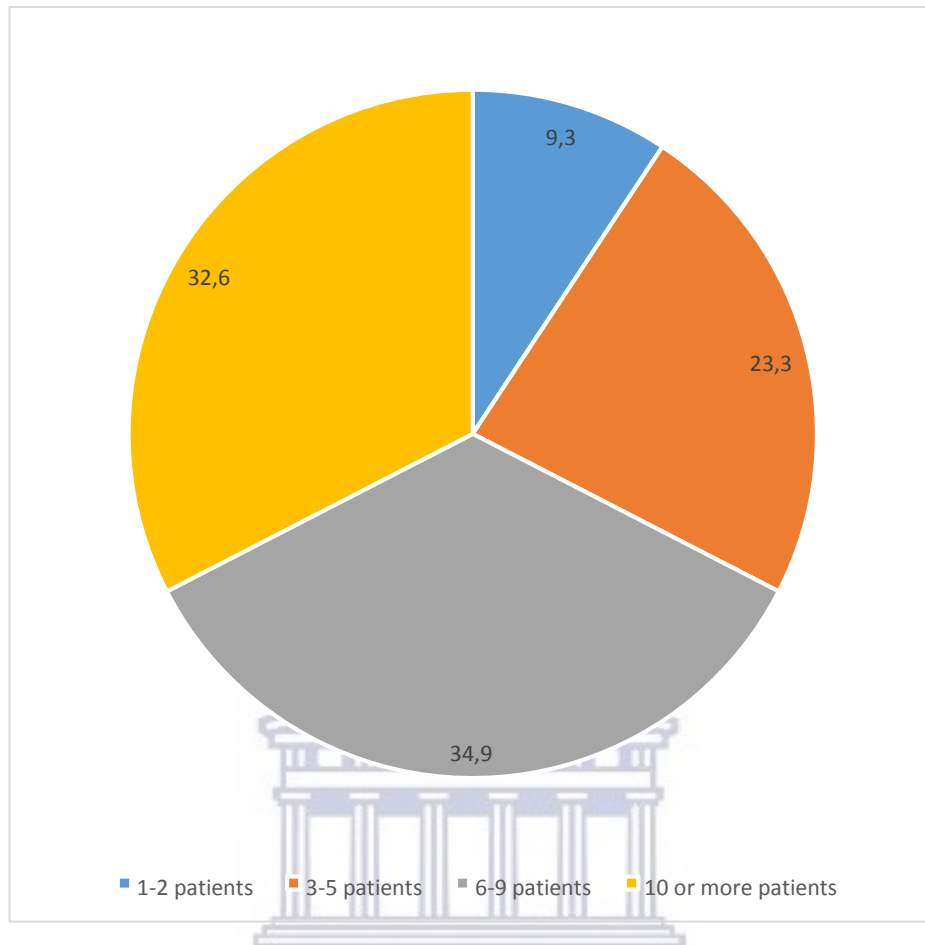


Figure 1 4.1: Number of patients encouraged to be physically active (n=86)

4.4 Knowledge of Physical Activity Promotion

The responses to the questions on knowledge were dichotomized by combining the two “agree” options and combining the “neutral/not sure” with the two “disagree” options. The responses are summarized in Table 4.2 below.

Table 4.2 **Physiotherapy students’ knowledge of promotion of physical activity**
(percentage) (n=86)

Item	Disagree	Agree
Taking the stairs at work and generally being more active each day is enough physical activity to improve health is better than one round of golf per week for good health	55.8	44.2
Half an hour of walking on most days is all the exercise that is needed for good health	43.0	57.0
Exercise that is good for health must make you puff and pant	32.6	67.4
Several short walks of ten minutes each on most days	50.0	50.0

At least half or more of the study sample agreed that “several short walks of ten minutes each on most days is better than one round of golf per week for good health” (50%) and “taking the stairs at work and generally being more active each day is enough physical activity to improve health” (55.8%).

Table 4.3 presents the study sample's knowledge of physical activity promotion in relation to encouragement of ten or more patients per month to become more active and encouragement fewer than ten patients per month to become more active.

Table 4.3 Physiotherapy students' knowledge of promotion of physical activity by number of patients encouraged (n=86).

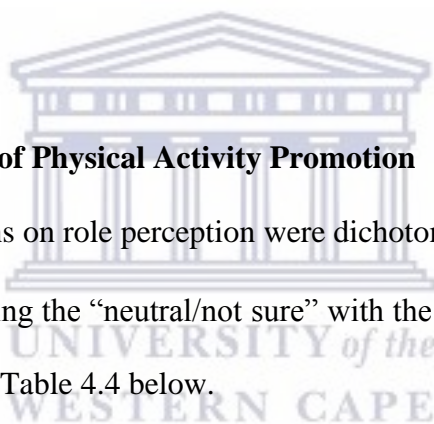
Variable	counselled <10 patients/month (n=58), n agree n (%)	counselled >10 patients/month (n=28), n agree n (%)	odds ratio (95%) CI for those who counselled >10 patients/month compared with <10
Taking the stairs at work and generally being more active each day is enough physical activity to improve health	24(41.4)	14(50)	2.460(0.931-6.497)
Half an hour of walking on most days is all the exercise that is needed for good health	19(32.8)	7(25)	0.663(0.239-1.841)
Exercise that is good for health must make you puff and pant	31(53.4)	12(42.9)	1.072(0.317-3.630)
Several short walks of ten minutes each on most days is better than one round of golf per week for good health	54(93.1)	24(85.7)	2.538(0.239-27.014)

More than half of the students in study sample who counselled more than ten patients per month agreed that “several short walks of ten minutes each on most days is better

than on round of golf per week for good health” (54%), and “taking the stairs at work and generally being more active each day is enough physical activity to improve health” (24%). Those who counselled less than ten patients per month agreed that “several short walks of ten minutes each on most days is better than on round of golf per week for good health” (24%), and “taking the stairs at work and generally being more active each day is enough physical activity to improve health” (14%). As Table 4.3 shows there was no significant association in the odds ratio between students counselling less than ten patients per month and students counselling more than ten patients per month in physical promotion knowledge.

4.5 The Role Perception of Physical Activity Promotion

The responses to the questions on role perception were dichotomised by combining the two “Agree” options and combining the “neutral/not sure” with the two “disagree” options. The responses are summarised in Table 4.4 below.



**Table 4.4 Physiotherapy students' role perception of promotion of physical activity
(percentage) (n=86).**

<u>Items</u>	<u>Agree</u>	<u>Disagree</u>
Discussing the benefits of a physically active lifestyle with patients is part of the physiotherapist's role	90.7	9.3
Suggesting to patients ways to increase daily physical activity is part of the physiotherapist's role	83.7	16.3
Physiotherapists should be physically active to act as role model for their patients	59.30	40.7

Table 4.5 presents the study sample's role perception of physical activity promotion in relation to encouragement of ten or more patients per month to become more active and encouragement fewer than ten patients per month to become more active.

Table 4.5 Physiotherapy students' role perception of promotion of physical activity

by number of patients encouraged (n=86).

Variable	Counselled <10 patients/ month (n=58), n agree n (%)	Counselled >10 patients/ month (n=28), n agree n (%)	Odds ratio (95% CI for those who counselled >10 patients/month compared with <10
Discussing the benefits of a physically active lifestyle with patients is part of the physical therapist's role	54(93.1)	24(85.7)	0.817(0.210-3.175)
Suggesting to patients ways to increase daily physical activity is part of the physical therapist's role	51(87.9)	21(75)	1.205(0.195-7.441)
Physical therapists should be physically active to act as role model for their patients	37(63.8)	14(50)	0.231(0.034-1.573)

More than half of the participants in study sample who counselled less than ten patients per month agreed that “discussing the benefits of a physically active lifestyle with patients is part of the physiotherapist's role” (54%) and “suggesting to patients ways to increase daily physical activity is part of the physiotherapist's role” (51%) while those who counselled more than ten patient per month agreed that “discussing

the benefits of a physically active lifestyle with patients is part of the physiotherapist’s role” (24%). As table 4.5 shows there was no significant association in the odds ratio between students counselling less than ten patients per month and students counselling more than ten patients per months in role perceptions of promotion of physical activity.

4.6 Confidence about Physical Activity Promotion

The responses to the questions on confidence were dichotomised by combining the two “agree” options and combining the “neutral/not sure” with the two disagree options. The responses are summarised in Table 4.6 below.

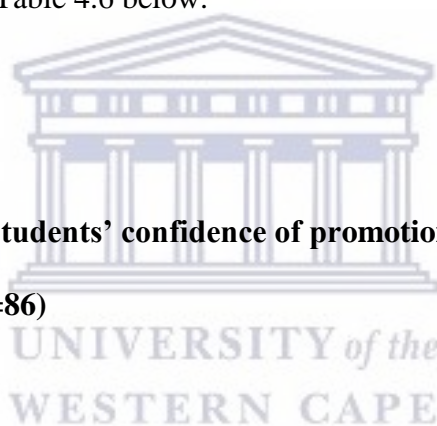


Table 4.6 Physiotherapy students’ confidence of promotion of physical activity (percentage) (n=86)

Items	Agree	Disagree
I feel confident in giving general advice to patients on a physically active lifestyle	11.60	77.90
I feel confident in suggesting specific physical activity programmes for my patients	17.40	77.90

Table 4.7 presents the confidence of physical promotion for the study sample that encouraged ten or more patients per month to be more active and those who encouraged fewer than ten patients per month to become more active.

Table 4.7 Physiotherapy students’ confidence of promotion of physical activity by number of patients encouraged (n=86).

Variable	Counselled <10 patients/ month (n=58), n agree n (%)	Counselled >10 patients/ month (n=28), n agree n (%)	Odds ratio (95%) CI for those who counselled >10 patients/month compared with <10
I feel confident in giving general advice to patients on a physically active lifestyle	48(82.8)	19(67.9)	0.198(0.037-1.066)
I feel confident in suggesting specific physical activity programs for my patients	48(82.8)	19(67.9)	0.629(0.161-2.450)

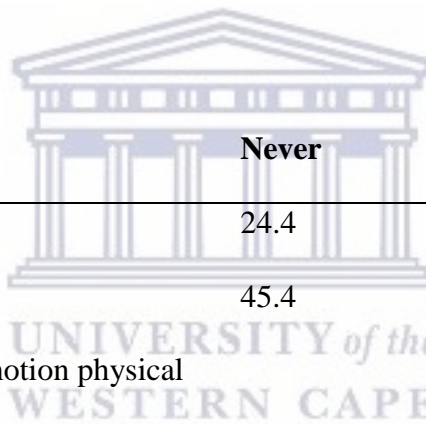
Most of the students who counselled less than patient per month agreed to the statement: “I feel confident in giving general advice to patients on a physically active lifestyle” and “I feel confident in suggesting specific physical activity programme for my patient” (48%). A lower percentage of students who counselled more than ten patients per month agreed to the statement: “I feel confident in giving general advice to patients on a physically active lifestyle” and “I feel confident in suggesting specific physical activity programme for my patient” (19%). As shows in table 4.7 there was no significant difference between students who counselled less than ten

patients per month and with those who counselling more than ten patients per month in confidence of promotion of physical activity.

4.7 Barriers to Physical Activity Promotion

The response to the questions on barriers to physical activity promotion were dichotomised by combining the “never” and “rarely” options and combining the “often”, “very often” and “sometimes” options. The responses are summarised in Table 4.8 below.

Table 4.8 physiotherapy students’ barriers to physical activity promotion (percentage) (n=86)



Items	Never	Often
lack of time	24.4	75.6
lack of counselling	45.4	54.7
lack of remuneration for promotion physical activity	45.6	45.3
lack of interest in promoting physical activity	81.4	18.6
feeling it would not change the patients behaviour	58.2	41.9
feeling it would not be beneficial for the patient	82.5	17.5

Table 4.9 presents the study sample's barriers to physical activity promotion in relation to encouragement of ten or more patients per month to become more active and encouragement of fewer than ten patients per month to become more active.

Table 4.9 Physiotherapy students' barriers to physical activity promotion by number of patients encouraged (n=86).

Variable	counselled < 10 patients/month (n=28), n agree (%)	counselled >10 patients/months (n=28), n agree (%)	odds ratio (95%) CI for those who counselled >10 patient/month compared with <10
lack of time	19(32.8)	8(28.6)	0.370(0.114-1.199)
lack of counselling	13(22.4)	6(21.5)	1.715(0.552-5.330)
lack of remuneration for promotion physical activity	11(19)	5(17.9)	1.467(0.551-3.911)
lack of interest in promoting physical activity	5(8.6)	4(14.3)	2.009(0.767-5.247)
feeling it would not change the patients' behaviour	11(19)	2(7.2)	0.407(0.142-1.166)
feelings it would not be beneficial for the patient	2(3.4)	1(3.6)	0.869(0.188-4.011)

The students who counselled less than ten patients per month agreed that “lack of time” (19%) and “lack of counselling” (13%) are barriers to physical promotion activity, while students who

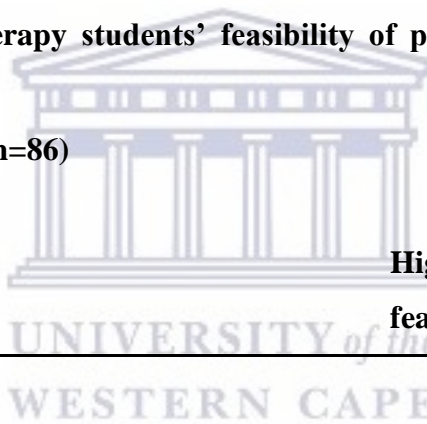
counselled more than ten patients per month agreed to a lesser extent that “lack of time” (8%) and “lack of counselling” (6%) are considered as barriers to physical activity promotion.

4.8 Feasibility of Promotion of Physical Activity

The response to the questions on feasibility of physical activity promotion were dichotomised by combining the “highly feasible” and “somewhat feasible” options and combining the “not sure”, “not really feasible” and “totally unfeasible” options. The responses are summarised in Table 4.10 below.

Table 4.10 **Physiotherapy students’ feasibility of promotion of physical activity**

(percentage) (n=86)



Items	High feasible	Totally unfeasible
Brief counselling integrated into your regular consultation	37.2	62.8
Separate one-on-one consultation	43	59.8
Group sessions	44.2	55.8
(e.g. brochures)	39.6	60.4

Table 4.11 presents the study samples feasibility to physical activity promotion in relation to encouragement of ten or more patients per month to become more active and encouragement fewer than ten patients per month to become more active.

Table 4.11 Physiotherapy students’ feasibility to physical activity promotion by number of patients encouraged (n=86).

Variable	counselled <10 patients/months (n=58),n agree n(%)	counselled>10 patients/month (n=28), n agree n(%)	odds ratio(95%) CI for those who counselled>10 patients/month compared with<10 patient/month
brief counselling integrated into your regular consultation	21(36.2)	11(39.2)	1.127(0.430-2.951)
separate one-on-one consultation	23(39.6)	14(49)	1.113(0.432-2.866)
group sessions	24(41.4)	14(49)	1.110(0.417-2.951)
distribution of resources(e.g brochures)	23(39.6)	11(93.3)	1.036(0.394-2.721)

One-quarter (24%) of the students who counselled less than ten patients per month agreed that “group sessions” are more feasible to physical activity promotion and 14% of those who counselled more than ten patients per months agreed that “group session” and “separate one-on-one consultation” are more feasible to physical activity promotion.

4.9 Self-efficacy to Physical Activity Promotion

The response to the questions on self-efficacy to physical activity promotion were dichotomised to two options: “very sure I could assist” and “very sure I could not assist”.

The responses are summarised in Table 4.12 below.

Table 4.12 **Physiotherapy students’ self-efficacy to physical activity promotion (percentage) (n=86)**

Items	very sure I could assist	very sure I could not assist
when the patient is aware of the problem and/or desires to improve	98.8	1.2
when significant other family is not supportive	79.1	20.9
when you have more time allotted per patients than currently available	93	7
when you are adequately educated to address physical activity promotion	96.5	3.5
when you have observed another physiotherapist promote	89.5	10.5
when you do not have the support	59.3	40.7

of the referring physician		
when you have the proper		
supportive materials to provide for		
the patient	94.2	5.8
when physical activity interfere		
with physical therapy goals	58.1	41.9
when patient is already seeing a		
professional for physical activity		
promotion	66.3	33.7
when you have appropriate source		
to refer the patient to for assistance	94.2	5.8
when the has low socio-economic		
status	88.4	11.6
when there is a language barrier	58.1	41.9

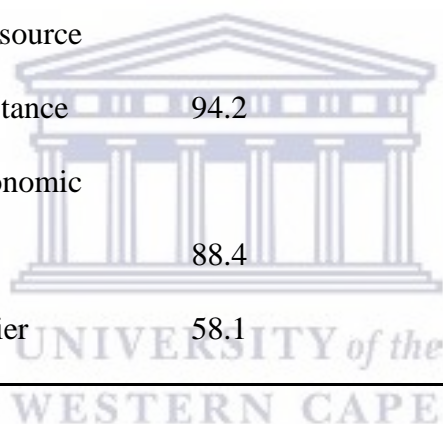
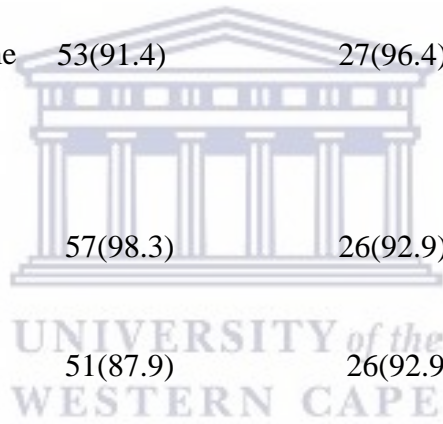


Table 4.13 presents the study samples self-efficacy to physical activity promotion in relation to encouragement of ten or more patients per month to become more active and encouragement fewer than ten patients per month to become more active.

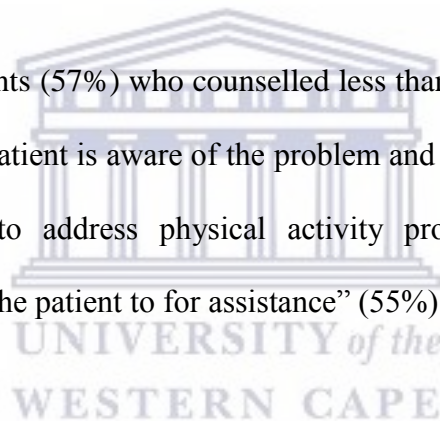
Table 4.13 Physiotherapy students' self-efficacy to physical activity promotion by number of patients encouraged (n=86)

Variable	counselled <10 patients/months (n=58), n agree n(%)	counselled >10 patients/month (n=28), n agree n(%)	odds ratio(95%) CI for those who counselled > 10 patients/month compared with <10 patient/month
When the patient is aware of the problem and / or desires to improve	57(98.3)	28(100)	0
When significant other family is not supportive	48(82.8)	20(71.4)	2.667(0.379-18.754)
When you have more time allotted per patient than currently available	53(91.4)	27(96.4)	0.542(0.012-24.027)
When you are adequately educated to address physical activity promotion	57(98.3)	26(92.9)	0
When you have observed another physical therapist promote	51(87.9)	26(92.9)	0.693(0.029-16.817)
When you do not have the support of the referring physician	35(60.3)	16(57.1)	2.827(0.421-19.002)
When you have the proper supportive materials to provide for the patient	54(93.1)	27(96.4)	3.404(0.028-411.907)
When physical activity interfere with physical therapy goals	32(55.2)	18(64.3)	0.690(0.090-5.287)
When patient is already			



seeing a professional for physical activity promotion	34(58.6)	23(82.1)	0.134(0.012-1.446)
When you have appropriate source to refer the patient to for assistance	55(94.8)	26(92.9)	4.291(0.066-278.232)
When the patient has low socio-economic status	54(93.1)	22(78.6)	4.302(0.370-49.962)
When there is a language barrier	32(55.2)	18(64.3)	0.287(0.042-1.942)

More than half of the students (57%) who counselled less than ten patients per month agreed to the statements: “when the patient is aware of the problem and /or desire to improve” “when you are adequately educated to address physical activity promotion” and “when you have appropriate source to refer the patient to for assistance” (55%).



4.10 Summary of the Chapter

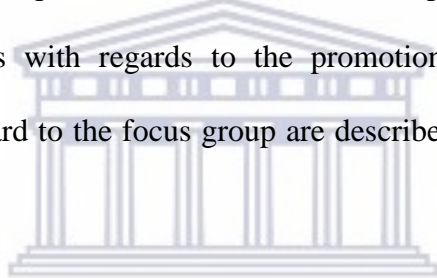
This chapter presented the results of quantitative data analysis. The socio-demographic information of the study sample was provided. The final study sample showed 67.4% of the participants encouraged less than ten patients in one month. Their knowledge, perception, barriers, feasibility and confidence related to physical activity promotion was outlined and summarised in table format. The next chapter will provide a description of the results of the qualitative data analysis in attempt to answer the last objective of the study, namely to explore the experiences of physiotherapy students with regard promoting physical activity in their daily practices.

CHAPTER FIVE

QUALITATIVE RESULTS

5.1 Introduction

This chapter presents the results of the thematic analysis as part of the qualitative phase of the study that attempted to answer the objective as stated in Chapter One: to explore the experiences of physiotherapy students with regard to the promotion of physical activity in their practices. A focus group discussion was held to explore the views of students regarding their experiences with regards to the promotion of physical activity. The methods followed with regard to the focus group are described in detail in Chapter Three of this thesis.



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5.2 Focus Group Discussion

The focus group discussion was facilitated by the researcher and a research assistant. Students who participated in the first phase of the study were invited to participate in the qualitative phase of the study. Only fourth year students indicated their willingness to participate. Eight students agreed to participate in the focus group discussion, who were all in their fourth year of study with a minimum age of 21 years old and maximum age of 25 years old. The characteristics of the participants are summarised in Table 5.1.

Table 5.1 Participant's Information (n=8).

Age	Gender	Level of year	Resident
P1 25	Female	4 th year	Western cape
P2 23	Female	4 th year	Western cape
P3 22	Female	4 th year	Western cape
P4 24	Female	4 th year	Western cape
P5 21	Female	4 th year	Western cape
P6 22	Female	4 th year	Western cape
P7 23	Female	4 th year	Western cape
P8 22	Female	4 th year	Western cape

5.3 Emerging Themes

Three main themes emerged during the thematic analysis. These themes, together with the sub-themes are summarised and outlined in Table 5.2. Verbatim quotes are used to illustrate the themes.

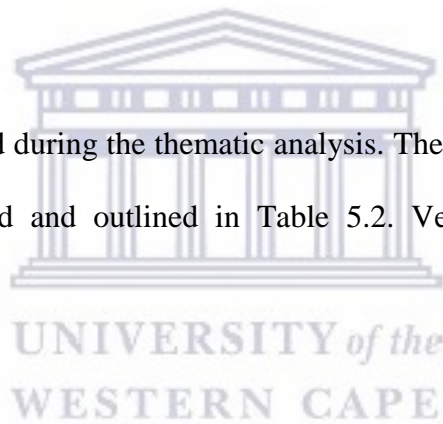
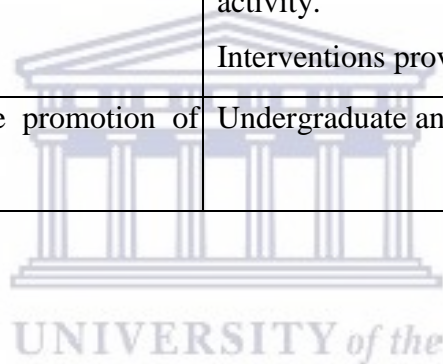


Table 5.2 Emerging themes

Theme	Sub-theme
Physiotherapy student's experiences with inclusion of physical activity in their management approaches.	Identification of the importance of exercise or physical activity in their treatment plans. Knowledge of the use of physical activity to decrease other risk behaviors. Type of patients that physical activity can be promoted to.
Experiences with barriers to physical activity.	Counselling offered with regard to physical activity. Interventions provided.
Training with regard to the promotion of physical activity.	Undergraduate and clinical training.



5.3.1. Physiotherapy Students' Experiences with Inclusion of Physical Activity in their Management Approaches

Three sub-themes emerged under this main theme and are outlined below.

5.3.1.1 Sub-theme 1: Identification of the importance of exercise or physical activity in their treatment plans.

From the discussion, it was clear that students were well aware of the importance of including physical activity in their treatment regimes. Participants highlighted the importance of physical activity, especially to increase body awareness and improve health.

This is illustrated by the following quotes:

“I also think it is part of you pushing the patient by showing the patient that they can do those exercises at home, so you not only help yourself as a practicing physiotherapist, but also you helping the patient to recover better and faster.” (P1)

“What I am thinking is that when you introduce exercising into the programme so some of your shift depending on the physiotherapist to the patient so, they actively involved in their recovery as well, rather than just passively depending on the physiotherapist.” (P8)

The students also indicated that physical activity or exercise should not be included in the treatment of patients in formal rehabilitation settings only. They drew attention to the use of physical activity even in the Intensive Care Unit (ICU) environment, as illustrated below:

“...but physical exercise doesn't necessary... like I said, have to be rehabilitation. I said it may be more focused, but also with ICU it is very important. Some ICU, you know, some to speaking... like reducing hospital stay and improve breathing which is the biggest things in ICU.” (P4)

Another student had this to say about body awareness:

“When you do exercise become more aware of your body and then also become more aware, like your problems.” (P2)

“So just like what everyone was saying... so, for instance, if is the patient and like just incorporating physical activity into treatment programme.” (P7)

In addition to body awareness and physical health, some of the participants were of the opinion that physical activity or exercise can also improve the psychological health of patients, as illustrated below:

“I think the exercises improve psychological status and wellbeing so, you do better with stress and you do better with every pressure.” (P8)

The majority of the students agreed that non-communicable diseases could be as a result of a sedentary or inactive lifestyle, hence the importance of promoting physical activity to treat and/or prevent non-communicable diseases as shown:

“...definitely because non-communicable like hypertension and cholesterol also diabetes it is caused or it can be caused by poor lifestyle or not enough exercise. Things like that I would definitely say exercise is important to help prevent that.” (P3)

“...when I’ve come to non-communicable diseases, physical activity is not just important to prevent it and so on... but on it is there I think is an important part of control. What is already there so, if somebody is diabetic or has hypertension, exercise is so important because they can help control. They can become healthier and fit and be still living with it but will be manageable and controlled” (P5)

5.3.1.2 Sub-theme 2: Knowledge of the use of physical activity to decrease other risk behaviour

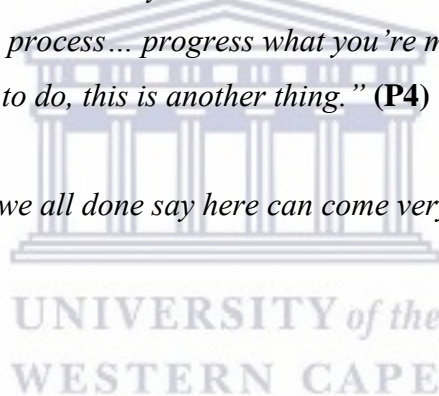
The students showed that they were aware of the use of physical activity in the reduction of other risky behaviour such as alcohol use and smoking, for example. They were of the

opinion that physical activity could be used as a protective factor for these behaviours as illustrated by the following quotes:

“I think physical exercise can be... sort of means to distract them or I mean, underlying reason for whether patient is an alcoholic or smoker so, physical exercise can take that, take over that the smoking is given, the alcohol is given, so can be something positive that they can rather focus on and they can help with that underlying reason so, maybe depression... maybe it is something else... stress I think it's very important.” (P5)

“I think it makes you aware of your body and the impact that all other things such as smoking and alcohol does to you, and almost like once you start exercising... become proud of the process... progress what you're making and your body is doing that you want to do, this is another thing.” (P4)

“So, basically what we all done say here can come very therapeutic who has the bad habits.” (P5)



5.3.1.3 Sub-theme 3: Type of patients that physical activity can be promoted to

The students were in agreement that no specific patient can be isolated with regard to the promotion of physical activity. They agreed that all patients can benefit from including physical activity as shown below:

“I think is for me no specific type of patient, just generally it is application over all the patients.” (P8)

“...in general I give exercise to all my patients because that is the way to treat patients without giving medicine.” (P3)

“...all mostly maybe exercise programme to chronic patients like low back pain patient, to give them an exercise programme and may be run groups classes like classes in group for that patient.” (P8)

The students again referred to the benefits of promoting physical activity to those patients who might benefit from it from a psychological point of view as illustrated below:

“...I will encourage patients that have psychological issues, or if they are not motivated enough.” (P1)

5.3.2 Experiences with Barriers to Physical Activity

The participants were fully aware of the barriers to physical activity. Some of the examples they highlighted included a lack of time to exercise, psychological wellbeing, economic status and poor understanding of the importance of exercise. The following are examples of the participants' opinions:

“A lot of times you get the patient who... they are demotivated and we had a case, this... the patient was diagnosed with HIV and ...like said, no she gonna die, she didn't do anything, but then when we initially, like... educated on physical activity, she is able to walk by self.... I think so, one of your barriers with when repeat that they don't comply or perception of they can't do it.” (P2)

“I think it is the barrier is definitely ... the patient psychological wellbeing state ... and other one doesn't do exercise... and I've met someone like this... generally

think they don't need exercise, so it is definitely the person's psychological state that will influence how complaint they are with exercises.” (P5)

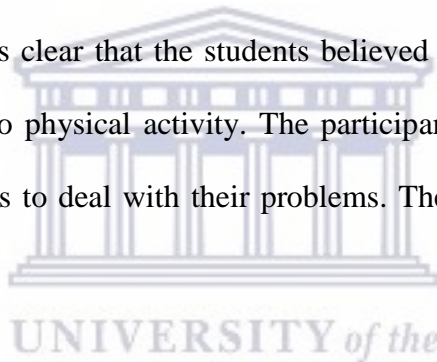
“... actually, show the patient the exercise and then come as a barrier times is that most of the patient that have had interaction with the problem... they don't really consider about exercise and everything, but rather than the socio-social issue, than economic status which mixed barriers as well.” (P8)

5.3.2.1 Sub-Themes

Two sub-themes emerged from the discussion and these are described below:

Sub-theme 1: Counseling offered with regard to physical activity

From their responses, it was clear that the students believed that they could counsel and motivate their patients to do physical activity. The participants were of the opinion that they can guide their patients to deal with their problems. The following are examples of what participants said:



“I think I do... so I try to really understand what they are going through and then I know is it important to counsel so, I give myself to certain do it every practicing so often you know I can do it.” (P5)

“...I also think I do have it, I really enjoy motivating people and helping them understand why it is important to them and how fit to their situation.” (P3)

“...I think I do as well because I consider the counselling part of education.” (P8)

Sub-theme 2: Interventions provided

The participants expressed their satisfaction with information provided to their patients on health promotion. They incorporated exercise into their treatments, and supported patients to become more active and change their lifestyles as illustrated below:

“... We have to do health promotion so, as long as it is to promote a healthy lifestyle, it is important just in times of getting patient to be conscious of the diseases they may get and second complication when they don't have an active lifestyle.” (P8)

“Maybe an old person that isn't active or don't know how to be active. I think it is important to be able to show them that a small, simple thing is how health promotion comes as well.” (P7)

“We treat them by giving them by some kind of exercise.” (P3)

5.3.3 Training with Regard to the Promotion of Physical Activity

Under this theme, only one sub-theme emerged, namely undergraduate and clinical training, and is discussed below:

5.3.3.1 Sub-theme 1: Undergraduate and clinical training

The majority of the students agreed that the undergraduate and clinical training was good and equipped them with basic tools to advise the patient and the participants were well aware of the importance of their own experiences to understand themselves as illustrated below:

“I think we have been giving the basic tools to implement the training as to be health promote intend to physical activity.” (P8)

“I think that undergraduate training has been good enough it has provided us with a basic skill... I think when you apply on to own life as well ...so, not just with training people or talking to people it is how you conduct yourself how you guide yourself or your healthy lifestyle or... take care of yourself because the end of the day the patient also looks at you in your face an example... so we have given sufficient knowledge but it is up to us.” (P5)

“...for our clinical experience and we exposed to practicing... so, I do think we've had good enough we have a basic tool that we need.” (P8)

“...so sure, you need training to understand yourself because you cannot promote if you don't see benefit of it, but you need experience from clinical setting, so this is certain amount of training you can get and then it is your responsibility from there.” (P4)

One of students was of the opinion that sufficient undergraduate training does not come directly after training only, sometimes the students need time to learn it through experience, as showed below:

“I think it comes with experience.” (P4)

5.4 Summary of the Chapter

This chapter presented the results of the thematic analysis in an effort to address the qualitative component of the research question. Overall, three main themes emerged and were illustrated with appropriate verbatim quotes. The next chapter presents a discussion of the quantitative and qualitative results.

CHAPTER SIX

DISCUSSION

6.1 Introduction

This chapter discusses the outcomes of the results of the study and compares it with salient literature in the field. The chapter will present a discussion regarding the perceptions of physiotherapy students of their role in the promotion of physical activity. In addition, their experiences with the promotion of physical activity in clinical practice will also be discussed.

6.2 Perceptions of Physiotherapy Students Regarding their Role in the Promotion of Physical Activity and their Experiences

Physical activity has been recognised and accepted as an important public health priority worldwide (Kruk, 2007; WHO, 2004). This is due to the fact that a lifestyle that includes physical activity has been shown to reduce the risk of developing several non-communicable diseases such as cardiovascular disease, obesity and diabetes mellitus (Reiner et al., 2013). The challenge, however, is to reach large numbers of people with well-developed strategies (Van der Ploeg et al., 2007). A decade ago Van der Ploeg et al. (2007) stated that primary healthcare professionals are in the ideal position to promote physical activity, as many of their patients have problems that can be prevented with a physically active lifestyle. Several researchers are of the opinion that physiotherapists are primary healthcare professionals that are ideally situated to promote physical activity to

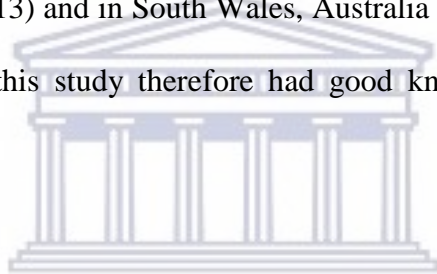
their clients (Leijdon et al., 2008; Van der Ploeg et al., 2007). Physiotherapists have been identified as specialists in the area of clinical exercises because of their unique role in counselling for exercise, nutrition, diet, smoking and stress reduction (Frerichs et al., 2012). This study therefore aimed to determine the perception of physiotherapy students regarding their role in the promotion of physical activity to their clients.

The perception of physiotherapy students regarding their role in the promotion of physical activity will be discussed under the following headings:

6.2.1 Knowledge

Ngarambe (2011) reported that personal behaviour is connected to the physical activity knowledge and awareness. This can help in improving the patient's healthy life style. In other words, a patient with good knowledge of the importance of physical activity is more likely to apply this and adopt a physically active lifestyle. This can be motivated by the role of the physiotherapists when they approach knowledge and skills of physical activity as a priority in their physiotherapy plan. Physiotherapists can thus play a role in improving the knowledge of their patients with regard to physical activity, and therefore physiotherapists themselves need to be knowledgeable about the benefits and role of physical activity. Simons et al. (2009) indicated that physiotherapists should prioritise and organise their efforts based on knowledge and skills of physical activity. This study found that more than half of the participants agreed that taking the stairs at work, and generally being more active each day is enough physical activity to improve health. This finding is similar to the study

Done in Nigeria by Aweto et al. (2013) in which the physiotherapists agreed that taking the stairs at work, and generally being more active each day is enough physical activity to improve health. In another study about physical activity promotion, most of the participants were in agreement about the health benefits of physical activity and its promotion (Stubbs et al., 2007). More than half of the participants in this study were also in agreement with the other variables that tested their knowledge, for example that taking several short walks of ten minutes each on most days is better than one round of golf per week for good health. These findings are similar to the studies conducted in Nigeria by Aweto et al. (2013) and in South Wales, Australia by Shirley et al. (2010). The physiotherapy students in this study therefore had good knowledge to enable them to promote physical activity to their clients.



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Carlson (2006) suggested that when physical activity exceeds the recommended amount, it can cause injuries especially with heart diseases, and that a lower volume of physical activity can benefit health. The study of Haskell et al. (2007) suggested that engaging in regular moderate intense physical activity for at least 30 minutes per week, or vigorous exercise for a minimum 20 minutes, three days a week could promote and maintain health, as well as reduce the risk of chronic diseases. Despite their knowledge, most of the physiotherapy students (67.4%) were counselling less than ten patients in a month with regard to physical activity. This is similar to the findings of the study conducted by Aweto et al. (2013) that also reported that physiotherapists were counselling less than ten patients

despite their high levels of knowledge. Contrary to the current study and another study conducted in Africa,

Shirley et al. (2010) indicated that Australian physiotherapists and physiotherapy students counsel more than ten or more patients in a month. These differences could be due to many reasons, such as the setting, that is, the differences in the environment for the African and Australian context that could be related to safety and health priorities.

Despite the low numbers of patients counselled, the students were acutely aware of the role that physical activity could play in the prevention of other health risk behaviour too, as indicated by this quote: *“I think physical exercise can be sort of means to distract them, or I mean underlying reason for with patient is an alcoholic or smoker so, physical exercise can take that, take over that the smoking is given the alcohol is given so can be something positive that can rather focus on and they can help with that underlying reason. So, maybe depression... maybe it is something else... stress I think is very important”*.

This is important as it was recently reported health-related behaviour, such as smoking cessation, physical inactivity, and an unhealthy diet are considered to be a high-risk factor to health and causes non-communicable diseases. The students in the current study are therefore aware of the role that they can play in the prevention of these diseases.

Participants were also in agreement that all patients could benefit from physical activity. *“I think is for me no specific type of patient just generally it is application over, all the patients”*. Engaging the patient in regular physical activity is important for both the physical and psychological well-being of people of all ages (Banbury et al., 2010).

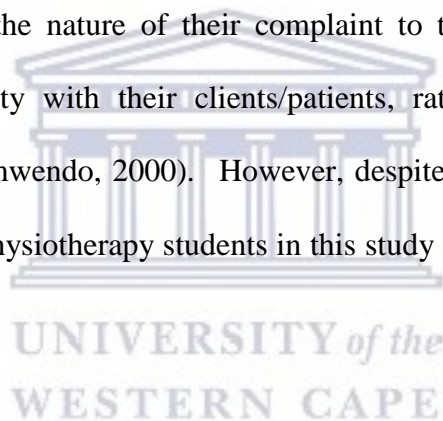
Furthermore, physiotherapists encouraged promoting physical activity to all their patients, rather than only focusing on high-risk patients (Shirley et al., 2010).

6.2.2 Perceived Role

Some researchers highlighted that role modelling is dominant in healthy lifestyle. Physiotherapists who are role models are in a position to explain more to patients and share the benefits of physical activity with patients. The current study found that the majority of the physiotherapy students' perceived that their role is to promote the benefits of physical activity and healthy lifestyle to their patients. Shirley et al. (2010) agreed that physiotherapists and physiotherapy students in South Wales, Australia recognised that promoting a healthy lifestyle and physical activity, as well as providing non-treatment advice are one of the physiotherapist's roles towards their patients. Physiotherapists in Nigeria also stressed that discussing the benefits of a physically active lifestyle to their patients is part of their role (Aweto et al., 2013). Rea et al. (2004) reported that the greatest role received from physiotherapists is to promote their patient/clients was physical activity. Van der Ploeg et al. (2007) indicated that role of the physiotherapists as primary health care practitioners are well placed in promoting physically active lifestyle. Black et al. (2012) indicated that physiotherapists are ideally suited to engage in discussions with their patients about the benefits of engaging in regular physical activity.

More than half of physiotherapy students in this study agreed that they should be physically active in order for them to act as role models for their patients, which is similar to the findings of Shirley et al. (2010) in Australia and Aweto et al. (2013) in Nigeria.

Chevan et al. (2010) suggested that physiotherapists, as health professionals need to be physically active not only for them to benefit, but also for their position as role models. Literature further suggests that observing a model is part of a learning process, which involves sharing of information and experience. Kamwendo (2000) reported that when physiotherapists do not participate in physical activity, promoting physical activity is not very convincing and it has been proven that physiotherapists who engage in regular physical activity are more likely to encourage and promote physical activity. In addition, this will enable physiotherapists to engage more with the patient in explaining and sharing the benefit of physical activities. Moreover, physiotherapists who are role models are in a better position to explain the nature of their complaint to the client, and to share the benefits of physical activity with their clients/patients, rather than only sharing the theoretical knowledge (Kamwendo, 2000). However, despite their perceptions regarding their role, the majority of physiotherapy students in this study are counselling less than ten patients per a month.



From the qualitative data it seems that the participants do make an attempt though to counsel their clients regarding physical activity: *“I think I do... so I try to really understand what they are going through and then I know is it important to counsel so, I give myself to certain do it every practicing so often you know I can do it”*. So the small number of patients counselled could be linked to how confident they feel about counselling their patients.

6.2.3 Confidence

More than three-quarters of the physiotherapy students in this study reported that they were confident in giving both general advice and specific physical activity programmes to their patients.

These findings were similar to Aweto et al. (2013) who identified that Nigerian physiotherapists were also very good confident to physical activity promotion.

Yet, despite their confidence, not a big percentage of participants counselled their patients regarding physical activity participation. From the qualitative data, however, it seems that experience plays a role in counselling, as one student highlighted when discussing the undergraduate training and the link with counselling and promotion of physical activity:

“I think it comes with experience”.

Therefore, it is expected that the physiotherapy students will gain more confidence as they progress in their careers, as they clearly felt that their undergraduate training was good enough and provided them with the basic tools to promote physical activity to their clients:

“I think we have been giving the basic tools to implement the training as to be health promote intend to physical activity”. Maruthur et al., (2009) stated that if physical activity

in clinical practice is addressed and small changes in exercise and physical activity level can be possible, then it can result in substantial improvements in preventing diseases as cardiovascular diseases and improve cardio-metabolic health. Moreover, physical activity could be incorporated into clinical practice guidelines for the management and prevention of cardiovascular diseases, heart diseases, hypertension, and musculoskeletal disorders

such as osteoporosis and osteoarthritis (Loew et al., 2012; Papaioannou et al., 2010). Other researchers have also shown that some physiotherapists incorporate health promotion into their clinical practices by discussing physical activity, nutrition, healthy weight management, and smoking cessation (Healey et al., 2012).

In addition to confidence and knowledge, a careful look at the barriers that could prevent the promotion of physical activity is needed.

6.2.4 Barriers

Ngarambe (2011) believed that all the barriers should be identified to achieve good outcomes from health promotion. In this study, the physiotherapy students highlighted barriers to promoting physical activity, which can discourage engaging in this type of activity. These barriers confirmed by the participants were lack of time and lack of counselling skills as common barriers encountered with regard to physical activity promotion. These findings concur with a study conducted in New South Wales, Australia by Shirley et al. (2010), which showed that physiotherapists and physiotherapy students identified a few barriers to physically active lifestyle promotion, such as lack of time, absence of reimbursement, and limited counselling skills. Another study similar to this current study done by Aweto et al. (2013) reported that more than half of the Nigerian physiotherapists identified lack of time and lack of counselling skills as a barrier to the promotion of physical activity among patients. Furthermore, in the study done in Tanzania by Karaguti (2010) showed similar results, as participants in that study reported time as one of the barriers to physical activity promotion among the patients/client. Physiotherapy

students should thus be given the skills to deal with these barriers that they face with regard to the incorporation of physical activity promotion in their daily practice.

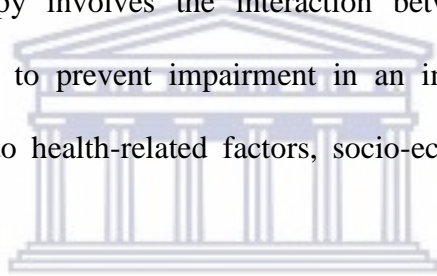
However, the qualitative data also pointed out additional barriers from the patient's perspective encountered by the physiotherapy students in this study: *"I think it is the barrier is definitely ... the patient psychological wellbeing state ... and other one doesn't do exercise... and I've met someone like this generally think they don't need exercise so it is definitely the person psychological state that will influence how complained they are with exercises"*. Lee et al. (2012) reported that when people, and specifically older people, are unaware of the benefits of exercise in later life, it can be deemed a barrier to promote physical activity. Nicholson et al. (2013) reported that lack of motivation or concerns about engaging in physical activity in public are also perceived as psychological barriers. These types of barriers will be more difficult for physiotherapy students to deal with, as negotiation skills will be needed when dealing with their clients/patients.

6.2.5 Self-efficacy

Rea et al. (2004) reported that when confidence in the ability to perform a behaviour (self-efficacy) is high and the outcome of the behaviour is a desired or positive one, then the physiotherapist is more likely to have more self-efficacy associated with perceptions of health promotion practice. McAuley et al. (2011) indicated that self-efficacy is implicated in the long-term maintenance of physical activity, and plays an important role in the process of being physically active. Participation in physical activity can influence self-efficacy by acting as one of the principle sources of efficacy information. Self-efficacy

has been demonstrated to influence a wide array of health behaviour. Stewart et al. (2003) indicated that there is a positive association between self-efficacy and physical function with improvements of health.

For most of the items regarding self-efficacy, the majority of the physiotherapy students agreed with. For example, when the patient is not supported by family (79.1%), and the patient has a low socio-economic status (88.4%), the students indicated that they could assist to promote physical activity. The World Confederation of Physical Therapy, (2007) indicated that physiotherapy involves the interaction between therapists, healthcare professionals, and families to prevent impairment in an individual at risk of altered movement behaviour due to health-related factors, socio-economic, environmental and lifestyle factors.



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More than half of the students (59.3%) indicated that they could assist and counsel their patients to promote a physically active lifestyle when they do not have support of the referring physicians. In Sweden, physiotherapists provided the highest number of physical activity referrals while physicians provided the lowest (Leijon et al., 2008). Furthermore, physicians found barriers to health behaviour change in their patients, for example time, knowledge and education. In contrast, physiotherapists tend to be confident about counselling, particularly in promoting physical activity (Abramson et al., 2000). However, in this study the physiotherapy students (94.2%) confirmed that when they have appropriate source to refer the patient to for assistance and proper supportive material to provide for the patient, they could help their patient and indicate interest in counselling

them. Therefore, to assist health professionals to competently perform, adequate conditions and facilities should be available to be enable them to provide the necessary health services (Henderson et al., 2008).

6.3 Summary of the Chapter

This chapter discussed the perceived role of physiotherapy students' regards physical activity promotion and their experiences. It was clear that the physiotherapy students had adequate knowledge about the inclusion of physical activity in their clinical practice and they were aware of the role they can play in promoting physical activity to their clients/patients. The barriers faced by physiotherapy students in the promotion of physical activity were highlighted.



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CHAPTER SEVEN

SUMMARY, CONCLUSIONS, STRENGTHS, LIMITATIONS, AND RECOMMENDATIONS

7.1 Introduction

This final chapter provides the summary and conclusion of the study. The important findings of this study are outlined in this chapter. Finally, recommendations are provided based on the findings of this study for future actions, including the development of physical activity promotion programmes. The chapter concludes by highlighting the limitations of the study.

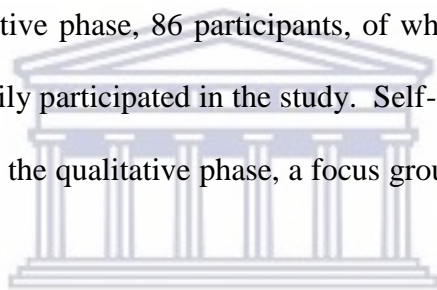


7.2 Summary

The overall aim of the current study was to investigate physiotherapy students' perception of their role in the promotion of physical activity. Researchers have highlighted that physical inactivity is becoming a serious public health problem in world, which is associated with several preventable diseases. According to World Health Organisation, there has been strong evidence that insufficient physical activity and poor diet are the major causes of non-communicable diseases (NCDs). Regular physical activity has been associated with reduction of risk of non-communicable diseases. Moreover, researchers suggest that participation in regular physical activity has significant positive health benefits. Researchers confirm that physiotherapists, as healthcare professionals, are in a position to be one of the most effective resources to combat inactivity or sedentary

behaviour and promote physical activity to their patients/clients. Researchers have demonstrated that promotion of physical activity will reduce healthcare costs, prevent numerous diseases and disabilities, and improve the quality of life. Health promotion of physical activity serves an effective intervention. Furthermore, interventions are most likely to benefit individuals and communities when programmes or interventions are guided by theory of healthy behaviour.

The study setting was at the University of the Western Cape (UWC) and the study sample included all the third and fourth year physiotherapy students at the Physiotherapy Department. In the quantitative phase, 86 participants, of whom 76.7% were female and 23.3% were males, voluntarily participated in the study. Self-administrated questionnaires were used to collect data. In the qualitative phase, a focus group discussion was conducted with eight participants.



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A quantitative phase response rate of 80.4% was obtained. The mean age was 21.81 years old (SD= 1.39). Males represented 23.3% of the sample population, and females, 76.7% of the total participants. The majority of the participants were undergraduate registered as third and fourth year students at the Physiotherapy Department in 2016. Approximately 67.4% of the study sample indicated that they encourage less than ten patients in one month. In the qualitative results, participants report that they were fully aware about the importance of physical activity in their treatment plan, especially to improve health and treat/or prevent non-communicable diseases, and used it in reduction risk behaviour such as smoking and alcohol consumption. There was no specific type of patient, that is, all patients could benefit from physical activity.

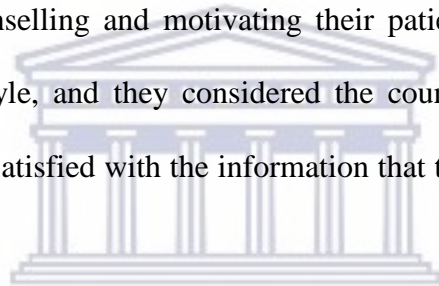
The findings showed that, in general, physiotherapy students are physically active and they have good enough knowledge with regard to physical activity promotion practices.

7.3 Conclusion

The aim of the current study was to investigate the physiotherapy students' perception of their role in the promotion of physical activity. This aim was achieved in the current findings, which indicated that physiotherapy students are physically active and that they have sufficient knowledge of physical activity promotion, are confident to discuss ways of improving physical activity to patients and to provide information about physical activity. They indicated a good role perception of promotion of physical activity and they act as role models for their patients. Participants have high self-efficacy about physical activity promotion, and they can assist their patients. Findings revealed that there are barriers to physical activity promotion, such as lack of time and lack of counselling. The participants revealed that psychological status, a poor understanding of exercise, and economic status could be considered as barriers to the promotion of physical activity as well. In the current study, the participants were well aware of the importance of physical activity in a treatment plan, and how patients benefit from the regular engagement in physical activity to improve health. Participants treat the patients by providing them with an exercise regime, and they push or motivate their patients to do exercises at home, also to recover better and faster. Participants believed that they could use physical activity in the ICU to reduce long stays at hospitals, and prevent other injuries after being attached to machines such as ventilators to improve breathing. Engaging in regular physical activity promotes

psychological well-being and lowers the risk of non-communicable diseases. This increases the ability of the healthcare profession to address risk factors associated with non-communicable diseases, which can be achieved with the contribution of physiotherapists and other health professionals. Findings revealed that the undergraduate and clinical training was good

enough to equip physiotherapy students with the basic tools to promote health, and they confirmed that they required additional clinical training to understand themselves and that they could better advise and promote an active lifestyle to the patient, if they themselves had a good understanding and experience of the benefits of physical activity. Participants indicated that they are counselling and motivating their patients to incorporate physical activity in their daily lifestyle, and they considered the counselling as the part of their education. Finally, they are satisfied with the information that they provide to their patients on health promotion.



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7.4 Strength of the Study

The combined use of quantitative and qualitative data to answer the research question is a strength of the study

7.5 Limitation of the study

- The questionnaire was self-administered, thus vulnerable to misinterpretation through errors in simplification or exaggeration.
- The data of focus group discussion to explore the experience regard to physical activity promotion should also be interpreted with caution, as only

one group agreed to participate, and all the students in this group were in their final year of study.

- Few studies were done on physiotherapy students alone and comparisons to other studies were made to explore the experiences to promote physical activity in the other health professions too.

7.6 Recommendations

The following recommendations are offered to physiotherapy students interested in increasing physical activity levels among their clients/patients:

- The findings suggest that education regarding physical activity can lead to participation in physical activity and to health benefits.
- Physiotherapy students should be encouraged to participate in moderate to vigorous intensities of physical activity at least 30 minutes per day to enable them to act as role-models to their patients.
- Physiotherapy students and physiotherapists should work with other healthcare professionals such as physicians, general practitioners, and nurses to make the practice of physical activity a reality.
- More studies with regard to ways to eliminate barriers to physical activity promotion are recommended, in order to suggest appropriate physical activity interventions.
- More studies in this area is recommended to include other health students/professionals to gain more information on other health students/professionals' perceptions regarding physical activity promotion.

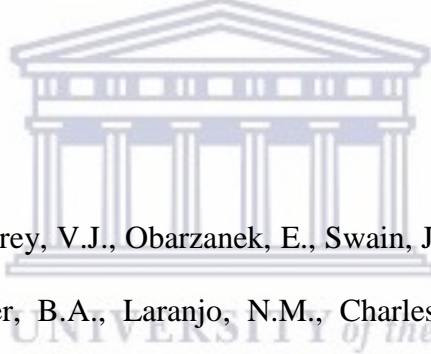
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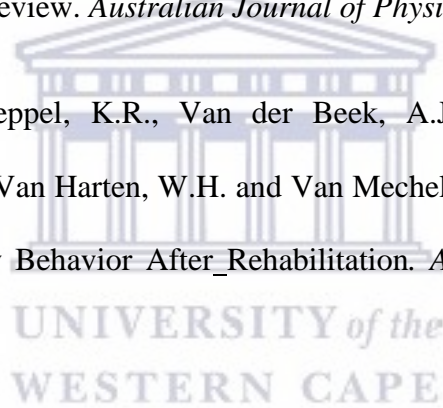
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APPENDICES



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INFORMATION SHEET

Project Title: The perceived role of physiotherapists in the promotion of physical activity

What is this study about?

This is a research project being conducted by _Khawla Krayem_ at the University of the Western Cape. We are inviting you to participate in this research project because you are a physiotherapist and physiotherapy students ***[describe why the person reading the consent form is a possible research subject for your project]*** The purpose of this research project is to investigate the role of physiotherapy in the promotion of physical activity. ***[describe why the knowledge or information is being sought]***

What will I be asked to do if I agree to participate?

You will be asked to questionnaire will be used to determine the knowledge , confidence, role perception, barriers ,feasibility and counselling practices of physiotherapists and physiotherapy students regarding the promotion of physical activity for better health after completion the interview will be used to explore the experiences of physiotherapists with regarding to health promotion in their practice . ***[Describe the procedure(s) chronologically using lay language and short sentences. State the location where the study will be conducted. Explain medical and other technical terminology using simple language. State the overall duration for the subject's participation and, if appropriate, how long each procedure will take. If the research involves surveys or interviews, include a summary of the questions that will be asked.]***

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. To ensure your anonymity ***the surveys are anonymous and will not contain information that may personally identify you (1) your name will not be included on the surveys and other collected data***

To ensure your confidentiality ***Include a description of the procedures to maintain the confidentiality of the data, e.g. having locked filing cabinets and storage areas, using identification codes only on data forms, and using password-protected computer files.***

What are the risks of this research?

There may be some risks from participating in this research study
All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any

discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

The benefits to you include *that the barriers to physical activity promotion will be highlighted the research will further provide information to assist physiotherapy students and physiotherapists to promotion physical activity in their practice*

This research is not designed to help you personally, but the results may help the investigator learn more about physical activity promotion . We hope that, in the future, other people might benefit from this study through improved understanding of barriers to patient promotion.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

What if I have questions?

This research is being conducted by [**Khawla Krayem and department of physiotherapy**] at the University of the Western Cape. If you have any questions about the research study itself, please contact : Khawla Krayem at cell no : 0619520960 *email address:khawala.201412@gmail.com*

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Head of Department:

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Prof José Frantz

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This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

APPENDIX
UNIVERSITY OF THE WESTERN CAPE
INFORMATION SHEET TEMPLATE
ADDITIONAL GUIDANCE FOR SPECIFIC ISSUES

Informed Consent

Informed consent is a process, not just a form. Information must be presented to enable persons to voluntarily decide whether or not to participate as a research subject. Therefore, informed consent language and its documentation must be written in language that is understandable to the people being asked to participate.

Research Involving Minors

For research involving individuals under the age of 18, include a Parental Permission Form to ask parents for consent to the participation of their child and an Assent Form to ask the minors if they agree to participate in the research, depending on whether the children are capable of assenting. The Parental Permission form should contain all of the elements of the sample consent form. However, the parental permission form should be written in language appropriate for parents granting permission for their child's involvement rather than as though they themselves will be participating (e.g. we are inviting your child to participate the risks to your child's participation include). When determining whether the children are capable of assenting, take into account the ages, maturity, and psychological state of the children involved. Assent forms should be written in age-appropriate language.

Research Involving Individuals with Impaired Decision-making Capacity

Using the Informed Consent Form Template, prepare a consent form to ask the research subject's authorized representative for consent to the participation of the research subject. Prepare an assent form to ask the research subjects if they agree to participate in the research, depending on whether the subjects are capable of assenting. When determining whether the subjects are capable of assenting, take into account the decision-making capacity of the research participants.

SUGGESTED WORDING

Instructions: You should cut and paste these paragraphs, where applicable, into the appropriate area of the Informed Consent Form. However, the suggested wording below should be modified appropriately for the specifics of your study.

Audio taping/Videotaping/Photographs/Digital Recordings

[Include the following information in the What about confidentiality? section]

This research project involves making [*audiotapes/videtapes/photographs*] of you. [Then explain why the tapes/photos are being made, who will have access to them, where they will be stored, and when (or if) they will be destroyed]

- I agree to be [videotaped/audiotaped/photographed] during my participation in this study.
 I do not agree to be [videotaped/audiotaped/photographed] during my participation in this study.

Research Projects Involving Data Collection in a Classroom

[Include the following information in the Do I have to be in this research? Can I stop participating at any time? Section]

Participation in the research is not a course requirement.

Research Projects Involving Prisoners

[Include the following information in the Do I have to be in this research? Can I stop participating at any time? Section]

Your decision to participate or not participate in this research project will not affect or influence the length of your sentence, your parole, or any other aspect of your incarceration. Also, if you decide to participate and then leave the study before it is over, that will not affect or influence the length of your sentence, your parole, or any other aspect of your incarceration.



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CONSENT FORM

Title of Research Project: the perceived role of physiotherapists in the promotion of physical activity

The study has been described to me in language that I understand. My questions about the study have been answered. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name.....

Participant's signature.....

Date.....

APPENDIX 5



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FOCUS GROUP CONFIDENTIALITY BINDING FORM

Title of Research Project: The perceived role of physiotherapists in the promotion of physical activity

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I agree to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group.

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Participant's name.....

Participant's signature.....

Date.....

Physical activity: includes any activity from a low intensity level, such as walking, to a high intensity level, such as playing a competitive sport

Please tick only one answer

- How often did you encourage your patients to have a more physically active lifestyle (beyond therapeutic exercise) in the last month?

Never	often, perhaps 6-9 patients
Rarely, only 1 or 2 patients	more often, 10 or more patients
Sometimes, perhaps 3-5 patients	

Section 2. knowledge about the physical activity promotion

- To what extent do you agree or disagree with the following statements: (take only one for each statement).

	Strongly Agree	Agree	Not sure	Strongly disagree	Disagree
taking the stairs at work and generally being more active each day is enough physical activity to improve health					
half an hour of walking on most days is all the exercise that is needed for good health					
exercise that is good for health must make you puff an pant					

several short walks of 10 minutes each on most days is better than one round of golf per week for good health					
discussing the benefits of a physically active lifestyle with patients is part of the physical therapist's role					
Suggesting to patients ways to increase daily physical activity is part of the physical therapist's role.					
I feel confident in giving general advice to patients on a physically active lifestyle					
I feel confident in suggesting specific physical activity programs					

for my patients					
Physical therapists should be physically active to act as a role model for their patients					

Section 3. Barrier to physical activity promotion

Pleas tick only one answer.

3. How often does the following prevent you from promoting a physical active lifestyle in your patients (beyond therapeutic exercise)?

	Never	Rarely	Sometimes	Often	Very often
Lack of time					
Lack of counselling					
Lack of remuneration for promotion physical activity					
Lack of interest in promoting physical activity					
Feeling it would not change the patients behavior					

Feelings it would not be beneficial for the patient					

Section 4. feasibility of different physical activity promotion.

Please tick only one answer.

4. What kinds of physical activity promotion (beyond therapeutic exercise) would be feasible for you to deliver to your patients?

	High Feasible	somewhat feasible	Not Sure	not really feasible	totally unfeasible
Brief counseling integrated into your regular consultation					
Separate one-on-one consultation					
Group sessions					
Distribution of resources (e.g. brochures)					

Section 5. self-efficacy to health promotion.

Please tick only one answer

5. How sure are you that you could assist your patients in making healthier choice to promote a physically active life

	Very sure I could Assist	very sure I could not assist
when the patient is aware of the problem and / or desires to improve		
when significant other family is not supportive		
when you have more time allotted per patient than currently available		
when you are adequately educated to address physical activity promotion		
when you have observed another physical therapist promote		
when you do not have the support of the referring physician		
when you have the proper supportive materials to provide for the patient		
when physical activity interfere with physical therapy goals		
when patient is already seeing a professional for physical activity promotion		
when you have		

appropriate source to refer the patient to for assistance		
When the patient has low socio- economic status.		
when there is a language barrier		

THANK YOU VERY MUCH FOR YOUR CO-OPERATION