

**PHYSICAL ACTIVITY LEVELS AND HEALTH PROMOTION STRATEGIES AMONG
PHYSIOTHERAPISTS IN RWANDA**

BY

NGARAMBE ROBERT



A thesis submitted in partial fulfilment of the requirements for the degree of Master of
Science in the Department of Physiotherapy, University of the Western Cape.

Supervisor: Professor Jose Frantz

June 2011

KEYWORDS

Focus group

Physical Activity

Physical Inactivity

Chronic Diseases of Lifestyle

Health promotion strategies

Physiotherapists

Referral Hospital

District Hospitals

Rwanda



ABSTRACT

Physical inactivity has become a global health concern and is among the 10 leading causes of death and disability. This has led to increased concern for chronic diseases of lifestyle (CDL). Studies have revealed that regular physical activity is effective in combating several CDL such as cardiovascular disease, diabetes, cancer, hypertension and obesity. Physiotherapists are in a position to combat inactivity and effectively promote physical activity to their clients. Studies however have shown that participation in physical activity among physiotherapists could have an impact on the promotion of physical activity and their health practices. This study therefore sought to establish the relationship between physical activity levels of physiotherapists and their physical activity promotion strategies and barriers to promoting physical activity. Sequential Mixed Method Design was used in this study. Data was collected by means of a self administered questionnaire and a total of 92 physiotherapists voluntarily answered the questionnaire. A focus group discussion comprising of 10 purposively selected physiotherapists was conducted. The questionnaire assessed physical activity levels and physical activity promoting strategies of the participants while the focus group discussion looked at the barriers to promoting physical activity. The Statistical Packages for Social Sciences (SPSS) version 18 was used for data capturing and analysis. Descriptive statistics were employed to summarize demographic information as means, standard deviation, frequencies and percentages. Inferential statistics (chi-square) was used to test the associations between different categorical variables ($p < 0.05$). For the

qualitative data, focus group discussions were used to collect data. Tape recorded interviews were transcribed verbatim, field notes typed, sorting and arranging data was done and themes were generated. Thematic analysis was then done under the generated themes. Ethical issues pertaining to informed consent, anonymity, confidentiality and the right to withdraw from the study were respected in this current study. The findings in the current study revealed that a big number of the participants were physical active both at work and recreation domains. However, there was no statistically significant association between physical activity and the demographic variables. The results in this study revealed that the majority of participants were good physical activity promoting practices, although there was no significant association between physical activity levels and the physical activity promoting practices. The finding in this study revealed that discussing physical activity and giving out information regarding physical activity to their clients were the most common methods used in promoting physical activity. However, participants also highlighted barriers they face in promotion of physical activity such as policies on physical activity, cultural influence, nature of work, time management as well as environmental barriers. The study demonstrates the need for all stakeholders to come up with solutions to break the barriers to promotion of physical activity. In return it will bring about enormous health benefits to the general population.

DECLARATION

I hereby declare that “**Physical activity levels and health promotion strategies among physiotherapists in Rwanda**” is my own work, that 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.

Robert Ngarambe



Signature.....

June 2011

Witness.....

Prof. Jose Frantz

DEDICATION

I dedicate this thesis to my Mother Ruth MUKAKIGERI for her endless love.



ACKNOWLEDGEMENT

First and foremost, I thank the Almighty God for giving me the power, wisdom, knowledge and the courage to successfully accomplish my mission as a student.

Secondly, I am so grateful to the Rwandan government for providing me with the scholarship and financial contribution towards my studies. Without their support, this study would not have been possible. I would like to extend my sincere gratitude to my supervisor Prof. Jose Frantz who has always been there for me throughout my course of work. My heartfelt thanks go to all the lecturers and staff of the Department of physiotherapy at the University of the Western Cape for their efforts towards the completion of my studies. Thank you Ms. Warner for all the help you gave me throughout this study. I am deeply grateful to Mr Karangwa Innocent for persistent advice and encouragement you always gave me. I am highly indebted to all the physiotherapists who participated in this study, without you this study would not have been possible. I am also thankful to my research assistants for your effort without them this study would not have been possible.

I am also grateful to my colleagues at CHUK Kigali for their constant support and love throughout my two years of study. Special thanks go to Gashugi Phophina and her family for the moral support and words of encouragement they always gave me throughout my studies. My sincere appreciation goes Charity, Lela, Anne, Wallace and the Rwandan community I met at UWC and for the constant love we shared as family.

Lastly, my utmost appreciation goes to my mother Ruth and Colette for their persistent love and care I received from them thousand miles away. Thank you my brother Ronald, I owe you a lot. May the Almighty Lord bless you.



TABLE OF CONTENTS

KEYWORDS.....	ii
ABSTRACT.....	iii
DECLARATION	v
DEDICATION	vi
ACKNOWLEDGEMENT	vii
TABLE OF CONTENTS	ix
LIST OF APPENDICES.....	xiii
LIST OF TABLES	xiv
ABBREVIATIONS.....	xv
CHAPTER ONE: INTRODUCTION	1
1.1 BACKGROUND.....	1
1.2 PROBLEM STATEMENT	6
1.3 AIM OF THE STUDY.....	7
1.4 SPECIFIC OBJECTIVES OF THE STUDY.....	7
1.5 SIGNIFICANCE OF THE STUDY	7
1.6. DEFINITION OF KEY TERMS.....	8
1.7 THESIS OUTLINE	8
CHAPTER TWO: LITERATURE REVIEW	10
2.1 INTRODUCTION.....	10
2.2 PHYSICAL ACTIVITY AND LIFESTYLE.....	10
2.3. RECOMMENDED PHYSICAL ACTIVITY INTENSITY FOR HEALTH BENEFITS	12
2.4. HEALTH BENEFITS OF PHYSICAL ACTIVITY	16
2.4.1. MENTAL HEALTH BENEFITS OF PHYSICAL ACTIVITY.....	18
2.4.2. MUSCULOSKELETAL BENEFITS AND MUSCLE STRENGTHENING	19
2.4.3. SOCIAL BENEFITS.....	20
2.4.4 ECONOMIC BENEFITS	20
2.5. CONCEPT OF PROMOTION OF PHYSICAL ACTIVITY.....	22

2.6 FACTORS INFLUENCING PARTICIPATION IN PHYSICAL ACTIVITY	23
2.7 PROMOTION OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS.....	26
2.8 CHALLENGES IN PROMOTING PHYSICAL ACTIVITY BY PHYSIOTHERAPISTS	28
2.9 HEALTH PROMOTION STRATEGIES IN PROMOTING PHYSICAL ACTIVITY	29
2.10 SUMMARY OF THE LITERATURE REVIEW	30
CHAPTER THREE: METHODOLOGY	31
3.1 INTRODUCTION.....	31
3.2 RESEARCH SETTING.....	31
3.3 STUDY DESIGN	32
3.4 STUDY POPULATION AND SAMPLING.....	33
3.4.1 POPULATION	33
3.4.2 SAMPLE SIZE.....	33
3.5 METHODS OF DATA COLLECTION	34
3.5.1 QUANTITATIVE DATA	34
3.5.2 QUALITATIVE METHOD.....	36
3.6 PILOT STUDY	38
3.7 PROCEDURE.....	39
3.7.1 QUANTITATIVE METHOD	39
3.7.2 QUALITATIVE METHOD.....	40
3.8 DATA ANALYSIS.....	41
3.8.1 QUANTITATIVE DATA	41
3.8.2 QUALITATIVE DATA	41
3.9 ETHICAL CONSIDERATIONS	42
3.10 SUMMARY OF THE CHAPTER.....	43
CHAPTER FOUR: RESULTS.....	44
4.1 INTRODUCTION.....	44
SECTION A: QUANTITATIVE RESULTS.....	44
4.2 DESCRIPTION OF THE STUDY SAMPLE	44
4.3 PHYSICAL ACTIVITY LEVELS	46
4.3.2 PHYSICAL ACTIVITY LEVELS IN RELATION TO PHYSICAL ACTIVITY DOMAINS.....	48

4.3.3 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AT WORK AND SOCIO- DEMOGRAPHIC VARIABLES	50
4.3.4 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AT RECREATIONAL ACTIVITY AND SOCIO-DEMOGRAPHIC CHARACTERISTICS	52
4.3.5 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY IN TRANSPORT AND SOCIO- DEMOGRAPHIC VARIABLES	54
4.4 PHYSICAL ACTIVITY PROMOTING PRACTICES.....	56
4.5 PHYSICAL ACTIVITY PROMOTING STRATEGIES	59
SECTION B: QUALITATIVE RESULTS.....	61
4.6 DESCRIPTION OF THE PARTICIPANTS.....	61
4.7 BARRIERS TO PHYSICAL ACTIVITY HEALTH PROMOTING PRACTICES.....	62
4.7.1 POLICY ON PHYSICAL ACTIVITY	63
4.7.2 TIME MANAGEMENT.....	65
4.7.3 THE ROLE OF CULTURAL INFLUENCE ON PHYSICAL ACTIVITY.....	65
4.7.4 ENVIROMENTAL INFLUENCE ON PHYSICAL ACTIVITY.....	66
4.7.5 NATURE OF WORK	67
4.8 SUMMARY	68
CHAPTER FIVE: DISCUSSION.....	69
5.1 INTRODUCTION.....	69
5.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE QUANTITATIVE PHASE.....	69
5.3. PREVALENCE OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS	70
5.4. HEALTH PROMOTION STRATEGIES AMONG HEALTH PROFESSIONALS	75
5.5. STRATEGIES USED TO PROMOTE PHYSICAL ACTIVITY.....	76
5.6 BARRIERS TO PROMOTION OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS	80
5.6.1 POLICY ON PHYSICAL ACTIVITY	80
5.6.2 TIME MANAGEMENT.....	84
5.6.3 THE ROLE OF CULTURE IN INFLUENCING PHYSICAL ACTIVITY	85
5.6.4. ENVIROMENTAL INFLUENCE ON PHYSICAL ACTIVITY.....	88
5.6.5 NATURE OF WORK	90
5.7 SUMMARY	90

CHAPTER SIX:92
SUMMARY, CONCLUSION AND RECOMMENDATIONS.....92
 6.1 INTRODUCTION.....92
 6.2 SUMMARY92
 6.2 CONCLUSION.....95
 6.3 STRENGTH OF THE STUDY95
 6.4 LIMITATION OF THE STUDY95
 6.5 RECOMMENDATIONS.....96
REFERENCES.....98



LIST OF APPENDICES

Appendix A: Questionnaire in English

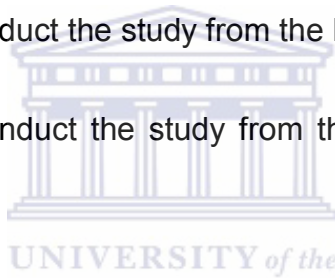
Appendix B: Questionnaire translated in Kinyarwanda

Appendix C: Interview guide

Appendix D: Permission to conduct the study from the Senate Research Grant Study Leave Committee at the University of the Western Cape

Appendix E: Permission to conduct the study from the Ministry of Health of Rwanda

Appendix F: Permission to conduct the study from the National Ethics committee of Rwanda



Appendix G1-30: Permission to conduct the study from the Directors of Hospitals

Appendix H: Information sheet in English

Appendix I: information sheet in Kinyarwanda

Appendix J: Consent form in English

Appendix K: Consent form in Kinyarwanda

LIST OF TABLES

Table 4.1 The percentage distribution of socio-demographic characteristics (N=92).....	45
Table 4.2 Relationship between physical activity levels and demographic variables.....	47
Table 4.3 Mean MET-minutes/week in physical activity domain in relation to the demographic characteristic.....	49
Table 4.4 The significant relationship between physical activity at work and socio – demographic (N=92).....	51
Table 4.5 Relationship between physical activity at recreational activity and socio – demographic characteristics.....	53
Table 4.6 Relationship between physical activity in transport and socio – demographic.....	55
Table 4.7 Physical activity levels in relation to physical activity promoting practices.....	57
Table 4.8 The significant relationship between physical activity promoting practices and socio –demographic (N=92).....	58
Table 4.9 The significance of physical activity levels and Physical activity promoting strategy (N=92).....	60
Table 4.10 Table showing the description of the participants.....	61
Table 4.11 Themes and Sub-Themes	62

ABBREVIATIONS

ACSM: American College of Sports Medicine

CDL: Chronic Diseases of Lifestyle

CDC: Center for Diseases control and prevention

CHUK: Centre Hospitalier Universitaire de Kigali

MET: Metabolic Energy Turnover

NCD: Non Communicable Diseases

PA: Physical Activity

PAEI: Physical Activity Exit Interview

SPSS: Statistical Packages for Social Sciences.

USA: United States of America.

UK: United Kingdom

UWC: University of the Western Cape

WHO: World Health Organization



CHAPTER ONE: INTRODUCTION

This chapter highlights the burden of chronic diseases of lifestyle and the importance of physical activity in addressing this increasing global concern. The chapter also reflects on the need for health professionals, such as physiotherapists, to participate and promote physical activity. The aim, objectives, statement of the problem and the significance of the study are also provided in this chapter.

1.1 BACKGROUND

The World Health Organization has described chronic diseases of lifestyle as the leading cause of mortality in the world, representing 60% of all deaths (WHO 2008a). The World Health Organization (2010a) highlights physical inactivity as the fourth leading risk factor for global mortality and the rate of physical inactivity levels is increasing in both high and low income countries. Furthermore it is estimated that 35 million people died of non-communicable diseases (NCDs) of which close to 80% of the deaths from NCDs happened to be in developing countries (WHO 2010a). It has been highlighted that lack of physical activity, unhealthy diet, tobacco and alcohol use contribute in a large part to chronic diseases of lifestyle (Yach, Hawkes, Gould & Hofman, 2004). Research has clearly shown that the increase in sedentary lifestyles is associated with physical environments, infrastructure development, urbanization and change in individual thinking about lifestyle and the social environment. All this has led to increased sedentary lifestyle (WHO 2008b). Physical inactivity is a serious global public health problem which is associated with numerous preventable diseases. The

World Health Organization estimates that globally the prevalence of physical inactivity among adults is 17%, ranging from 11% to 24% across different regions of the world (WHO 2008a). Although there are those who do some physical activity for 2.5 hours per week, this is classified as moderate activity. These activities are insufficient for health benefits (WHO, 2010a). The global average recommended amount of physical activity for adults between the ages of 18 to 64 years should be at least 2.5 hours of moderate intensity physical activity per week and for older adults at least 2 to 3 days a week of moderate intensity physical activity to enhance to balance and prevent falls (WHO, 2010a).

In response to this public health concern, the World Health Organization moved a motion in 2002 on World Health Day, "Let's move for our Health" (WHO, 2002a). According to the World Health Organization (2008a) there has been strong scientific evidence that inadequate physical activity and unhealthy diet are the major causes of the five major NCDs which are heart diseases, stroke, cancer, chronic respiratory diseases and diabetes. Previously in 2002, the World Health Assembly of which Rwanda is a member state adopted a theme "Move for Health" to promote physical activity as essential to health and well being. This was launched as an annual initiative for all member states (WHO, 2003b).

The World Health Organization (2005) widely reported epidemiological evidence of the positive effects of physical activity on health with evidence that physical activity reduces the cause mortality. Consequently physical activity has been associated with the

reduction of risks for developing diabetes and cardiovascular diseases. It has influence on other chronic disease risk factors such as blood pressure, lipid levels and obesity (WHO, 2005). Health benefits of regular physical activity are widely accepted. Researchers suggest that regular physical activity has a positive effect on physical and mental health as well as improving quality of life (WHO, 2010b). However, according to Grubbs and Carter (2002) most people tend to do less physical activity as they grow older. This is mostly experienced during late adolescence and early adulthood. Bray and Born (2004) revealed that the decline in physical activity during this period may lead to physical inactivity in later years. Faulkner & Biddle (2002) argues that evidence suggests that health promotion interventions that focus on single factors such as physical inactivity are more beneficial than interventions that may include other risk factor such as unhealthy diets, tobacco use, alcohol consumption, psychosocial stress. It was further highlighted that physical activity can be influenced by psychological, social, cultural, and environmental factors. Therefore effective interventions should cater for such factors to have change in behaviour (WHO, 2005). The perceived benefits and perceived barriers of physical activity are the key motivational factors for individuals to participate in physical activity (Grubbs & Carter, 2002).

In 2002, The World Health Organization (WHO) developed an Innovative Care for Chronic Conditions Framework. This framework was centred on collaboration between healthcare professionals, the patient (family) and the community. This framework emphasized putting a preventive model at the centre in which it would focus on the routine advice to the health professionals, patient/family and the community on physical

activity. This should be done in a conducive environment. This model helped to organize the evaluation of the policy on physical activity, health care organization, community and patient /family levels of the health care system (WHO 2002b).

Researchers have stressed that health care professionals are in a good position to promote physical activity within their place of work and the communities (Douglas *et al.*, 2006). According to Douglas *et al.*, (2006) public health care in developed countries is inclusively playing an important part in improving health by promoting physical activity, as a result of involving health professionals. Physiotherapists are in a position to be one of the most effective resources to combat inactivity and effectively promote physical activity to their patients because of the acquired knowledge on disease conditions, medical treatment and the use of exercise for treatment for specific conditions (Gosselink, 2008). It is hypothesized that physiotherapists who participate in physical activity will get more involved in prescribing physical activities as an intervention to their patients due to the knowledge and skills in using exercises treatment in different conditions (Gosselink, 2008). Physiotherapists are thus encouraged to promote physical activity to all their patients rather than only focusing on high risk groups (Shirley, van der Ploeg, and Bauman, 2010). In addition, physiotherapists are also considered to play an important role in health promotion policy initiatives aimed at improving the level of physical activities because much of their education include exercise training but not much is known in relation to their exercise counseling. Therefore it is important to understand the perception of physiotherapists in regard to their physical activity participation and levels of physical activity (Tsavourelou, Rowe, Babatsikou & Koutis,

2009). There is a small number of studies done on physiotherapists promoting physical activity. Those that have been done are in developed countries and have suggested that those physiotherapists who promote physical activity are more likely to be active (Douglas *et al*, 2006).

Researchers clearly state that promotion of physical activity will reduce health care costs, prevent numerous diseases and disability and improve quality of life (Irvine, 2005). The researcher went on to say that these benefits will depend on being active throughout a life span. Health promotion of physical activities serves as an effective intervention. However little is known about health promotion strategies.

South Africa has integrated physical activity in its promotion of both the education and health programs at all levels as an integral part of its constitution towards improving the quality of life of its citizens (Government of South Africa 2009). Furthermore in South Africa a number of researchers have highlighted the health benefits of physical activity in combating CDL as compared to other African countries (Lambert & Kolbe-Alexander, 2005). Karuguti (2010) reported that medical doctors in Tanzania had low levels of physical activity as well as low levels of physical activity counselling practices.

Currently, there are a few studies done focusing on physical activity levels among various population groups in Rwanda. Some of these studies highlighted that women working in offices proved to live a sedentary life which predisposes them to chronic diseases (Kagwiza, Philips and Struthers, 2005). According to Tumusiime and Frantz (2004) a number of tertiary students in Rwanda had the knowledge on the benefits of

physical activity but unfortunately the majority did not participate in physical activity. Currently no studies have been reported focusing on physical activity among health professionals in Rwanda. In Rwanda, the government policy to promote physical activity requires that at least one afternoon of a working day per week, all public institutions should have time set aside for sports or physical activity (Rwanda Government, 2005). However people do not utilize such programs effectively including physiotherapists. This means physiotherapists should be encouraged to do and promote physical activity. Therefore the aim of this study is to describe the physical activity levels of physiotherapists, their health promotion practices and the barriers to promoting physical activity among their patients.



1.2 PROBLEM STATEMENT

It is believed that health professionals/ physiotherapists have the best knowledge on physical activity. With the increase of chronic diseases of lifestyle in Rwanda, there is evidence of research done in the developed world that the level of physical activity among health professionals/ physiotherapists could have an impact on lack of promotion and awareness of physical activity among their clients. Therefore physiotherapists should be involved and participate in physical activity as a preventive measure of the current diseases of lifestyle and stop its progression in patients who already have this problem. There is a need for physiotherapists to promote health through by encouraging physical activities. Currently, there are no studies done on

promotion of physical activity among physiotherapists in Rwanda. Hence there is a need for more research to be done.

1.3 AIM OF THE STUDY

To establish the physical activity levels of physiotherapists in Rwanda and their physical activity health promotion practices.

1.4 SPECIFIC OBJECTIVES OF THE STUDY

1. To determine the physical activity levels among physiotherapists in both referral and district hospitals in Rwanda.
2. To identify the relationship between the levels of physical activity among physiotherapists and their physical activity promotion strategies in both referral and districts hospitals in Rwanda.
3. To determine what strategies are used in physiotherapy management to promote health using physical activity in both referral and district hospitals in Rwanda.
4. To explore the barriers to physical activity health promotion practices among physiotherapists in Rwanda.

1.5 SIGNIFICANCE OF THE STUDY

Worldwide, the World Health Organization is advocating for physical activity as preventive measure to chronic diseases of lifestyle. There has been a lot of research

done in other countries regarding physical activity as one of the health promoting strategies. However, in Rwanda, there is no research done concerning the use of physical activity as a health promoting strategy used by physiotherapists and therefore no information is available on physical activity as a health promoting strategy. The study will highlight the need for physical activity in promoting health among physiotherapists. Therefore, this will show the barriers as well as planning appropriate strategies to promote health using physical activity among physiotherapists.

1.6. DEFINITION OF KEY TERMS

Health promotion: Is the process of enabling people to increase control over, and to improve their health (WHO, 1998)

Physical Activity: Is defined as any body movement that is capable to produce contraction of skeletal muscle that result in energy expenditure (Faulkner & Biddle 2002).

Physical Inactivity: Is defined as absolute rest, or relatively little, light use of muscles (Faulkner & Biddle 2002).

1.7 THESIS OUTLINE

Chapter one explains the basis of the current study. The introduction and the background of the current study explain the burden of physical inactivity worldwide and the importance of physiotherapists in promoting physical activity. The aim, the

objectives and the significance of the study are highlighted. It ends with the definition of terms in the study.

Chapter two presents a review of literature related to the recommended physical activity, health benefits of physical activity, as well as the physical activity promoting strategies and the challenges faced by physiotherapists in promoting physical activity.

Chapter three describes the methodology used in the current study. The study setting is fully described. The study design, study population and sample for both for the quantitative and qualitative phases of the study phases are also explained. Furthermore, the procedure of both the quantitative and qualitative data collection, the instrument for quantitative data collection and analysis of the study are described. Finally, the ethical considerations to be followed in the study are explained.

In chapter four, the results both quantitative and qualitative phases of the study are presented. The quantitative results are presented as descriptive statistics in form of means, frequencies SD and percentages. The chi-square test was used to test the relationships between different variables. The qualitative results were presented in form of themes supported by quotations from the interviews of the respondents.

Chapter five discusses both the quantitative and qualitative findings in reference to the studies done elsewhere hence trying to find the alternative solutions to the problem and trying to identify the gaps for future studies.

Finally chapter six gives the summary and conclusion of the study as well as giving recommendations based on the findings of this study.

CHAPTER TWO: LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter relevant literature is reviewed to get a clear understanding on physical activity. It clearly illustrates the benefits of physical activity in combating chronic diseases of lifestyle. Furthermore in this chapter the level of participation in physical activity is described clearly and the concept of promotion of physical activity by physiotherapists is also discussed. This chapter ends with looking at the challenges in promoting physical activity by physiotherapists and the health promotion strategies in promoting physical.

2.2 PHYSICAL ACTIVITY AND LIFESTYLE

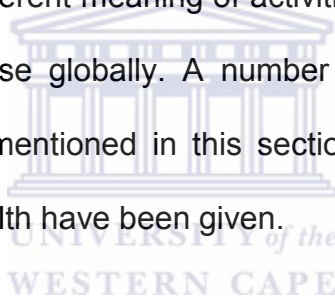
Faulkner & Biddle (2002) defines physical activity as any movement of the body that is capable to produce contraction of skeletal muscle that result in energy expenditure. They further describe physical inactivity as absolute rest, or relatively little, light use of muscles. According to Vuori (2007) insufficient or lack of physical activity refers to the minimal activity, that is short lived or insufficient to give a stimulus for health-related effects. Exercise has been described as a planned session of physical activity usually done for personal fitness or health goals (Delisle, Werch, Wong, Bian, & Weiler, 2010). Therefore exercise training is planned, structured and this is a repetitive way of practicing physical activities. These researchers go on to describe lifestyle physical activity as the daily accumulation of at least 30 minutes of activities, such as activities of

daily living, leisure, occupational and household chores which are planned or unplanned. According to Plonczynski, Wilbur, Larson and Keith (2008) lifestyle physical activities are not structured type of exercises, usually these activities involves a number of activities such as walking, gardening, doing chores, or playing with children. Lifestyle physical activity differ from traditional exercise since lifestyle physical activity does not require the use of gyms, pools, tracks, or special clothing (Plonczynski, *et al.*, 2008). Plonczynski, *et al.*, (2008) concurred with Dunn *et al.*, (1999) that lifestyle physical activity may be considered by many people who would not want to be involved in traditional exercises and this may be a great achievement for the public health efforts to get more people active. These authors highlighted that lifestyle physical activity have been potentially valuable to traditional approaches to promote physical activity. Pratt (1999) highlighted that lifestyle physical activity may be a new choice that can complement the traditional exercise prescription and can as act an alternative for the sedentary individual who do not find time for a traditional exercise program.

It has been noted that both physical activity and inactivity have an impact on health and this gives room to assess the effect of their influence on the health outcomes (WHO, 2002a). The World Health Report 2002 estimates that globally the prevalence of physical inactivity among adults is 17%. This is a clear example that lack of physical activity is on an increase and a global challenge. The World Health Organisation, (2003a) noted that physical activity at work, in transportation and in domestic chores is decreasing in most countries. This has been more evident in countries where

occupational, transport and domestic physical activity is rapidly decreasing, For some reasons such as cultural beliefs and economical factors, leisure time physical activity is practiced, but only to a limited extent and mainly by the most advantageous population groups. Consequently this led to the increasing prevalence of activity-related diseases in the developing world (Vuori 2007). Delisle, Werch, Wong, Bian, & Weiler, (2010) further suggest that for physical activity to have an effect it will depend on the type, intensity, frequency, duration and the amount of physical activity to have a health outcome.

This section has highlighted different meaning of activities and it has been reported that physical inactivity is on increase globally. A number of reasons for the increase in physical inactivity have been mentioned in this section and suggestions for physical activity to have an effect on health have been given.



2.3. RECOMMENDED PHYSICAL ACTIVITY INTENSITY FOR HEALTH BENEFITS

The World Health Organization has developed recommendations on Physical Activity for Health. These provide guidelines to policy makers at national and regional level on the dose-response relationship between the frequency, duration, intensity, type and total amount of physical activity needed for the prevention of NCDs (WHO, 2010a).

According to the World Health Organization the physical activity for children and young people between the age of 5-17, should include play, games, sports, transportation, chores, recreation, physical education, or other planned exercise. For adults between

the age of 18-64 and 65 and above it should include leisure time physical activity such as walking, dancing, gardening, hiking, swimming, occupational (i.e. work) in the context of family, school, and community activities. Gill and Cooper, (2008); O'Donovan *et al.*, (2010) further suggest that such activities help individuals improve their cardio respiratory and muscular fitness, bone health, and cardiovascular and metabolic health biomarkers but can also to reduce the risk of NCDs, depression and cognitive decline in older adults of 65years and above. It is further stated that children and youth between the ages of 5-17 should accumulate at least 60 minutes of moderate-to vigorous intensity physical activity daily. This amount of physical activity provides additional health benefits (WHO, 2010a). Adults and those above 65 years should accumulate at least 2.5 hours of moderate-intensity aerobic physical activity throughout the week or do at least 75 minutes of vigorous-intensity aerobic physical activity throughout the week or an equivalent combination of moderate and vigorous-intensity activity (US Department of Health and Human Services, 2008). Moreover, US Department of Health and Human Services, (2008) further highlighted that physical activity should be aerobic, vigorous intensity activities should be incorporated, including those that strengthen muscles and bones at least three times per week. Muscle-strengthening activities should be done involving major muscle groups on two or more days a week. But also it is recommended that older adults with poor mobility should engage in physical activity for at least three or more days to enhance balance and prevent falls (Chodzko-Zajko & Schwingel, 2009).

The World Health Organization stresses that these recommendations are relevant to all healthy individuals unless specific medical conditions indicate a contradiction but also

can apply to individuals with chronic non communicable conditions not related to mobility such as hypertension or diabetes (WHO, 2010a). It further says youth and adults with disabilities should also meet these recommendations. However health care providers should guide them to understand the types and amounts of physical activity appropriate for them considering their disability, their exercise capacity and specific health risks (WHO, 2010a).

Furthermore Janssen (2007) suggested that inactive children and youth can progressively increase in their activity to achieve the recommended benefits. The author further highlighted that it is appropriate to start with smaller amounts of physical activity and gradually increase duration, frequency and intensity over time. It is also noted that doing amounts physical activity below the recommended levels brings more benefits than doing none at all (Ready *et al.*, 2009). The World Health Organization (2010a) suggests that pregnant, postpartum women and persons with cardiac problems should be cautious and seek medical advice before they embark on achieving the recommended levels of physical activity for this age group.

Furthermore the Centre for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) have stressed that the public should increasingly focus on the improvement of their healthy life expectancy without disease or disability, alleviation of inequality in physical activity, maintaining the level of physical activity is recommended and critical. Regular physical activity of moderate to vigorous intensity is essential to achieve health benefits (Ready *et al* (2009). However, according to

Warburton, Nicol, and Bredin, (2006) it is still debatable what amount of physical activity is necessary to achieve health benefits. It still remains a problem to determine the minimum physical activity dose, frequency, intensity, and duration of exercise.

A decade ago, the pertinent issue had been the dose– response relationship between physical activity and health (Blair, Cheng, & Holder, 2001). A number of questions were raised, such as: what is the minimum dose of activity associated with health and well-being? What doses of activity offer greater health benefits? US Department of Health and Human Services, (2008) encouraged that aerobic activity is the basis of most guidelines and physical activity goals are usually expressed as minutes per day calories per week , or minutes per week. US Department of Health and Human Services further stresses that doses recommended in the ABC of Physical Activity for Health are associated with substantial health benefits. It is also noted that depending on body weight, 2.5 hours of moderate intensity aerobic activity per week or 75 min of vigorous-intensity aerobic activity per week expends around 800–1200 kcal (3349–5023 kJ). None the less any activity is better than none (Ready *et al.*, 2009). However different authors recommend various times to do physical activity, for example Canada's Physical Activity Guide to Healthy Active Living (CPAG) recommends 60 min of light activity daily, 30 to 60 min of moderate activity four days a week, or 20 to 30 min of vigorous activity 4 days a week. Currently there is no uniformly accepted method of measuring the level of physical activity but these are largely classified as vigorous, moderate and light. Vigorous physical activity may be defined as activities requiring moderate to strenuous effort that are sustained long enough to cause one to break a

sweat or breathe heavily e.g. running, aerobics etc (Blair, LaMonte, & Nichaman, 2004). Blair et al. (2004) revealed that moderate physical activity is deemed to be broadly accessible and safe. For sedentary adults, 30 min or more of moderate exercise on most days of the week will provide a number of related health benefits, and the progress to vigorous activity will even produce additional benefits (Ready et al., 2009). A number of studies have suggested that the dose of activity is associated with favourable changes in blood pressure, insulin sensitivity, lipid and lipoprotein profiles and other risk factors for chronic diseases (Cornelissen & Fagard 2005; Kodama et al., 2007; O'Donovan et al., 2010). It has therefore been agreed by a number of authors that moderate intensity activities are most preferred for health benefits.

This section gives a summary on the recommended dose and type of physical activity for different age groups. It gives precaution for some individuals before doing physical activity. For health benefits 30 -60 minutes of moderate activity for 4 days is widely accepted. Finally, in this section the importance of the recommended dosage is highlighted.

2.4. HEALTH BENEFITS OF PHYSICAL ACTIVITY

The health benefits of regular physical activity are widely accepted. According to the World Health Organization, regular physical activity provides the young and the old people with physical, social, economic, and mental health as well as enhancing quality of life throughout their life span (WHO, 2010b).

According to Douglas, *et al.*, (2006) argue that a sedentary lifestyle has been associated with unhealthy lifestyle of which is associated with chronic diseases such as obesity, cardiovascular disease, stroke, diabetes type 2, depression and cancers are main contributors to the global burden of disease. This burden has been a result of increased physical inactivity around the world and this burden is projected to rise further from 47% in 2002 to 60% by 2020 (Murray & Lopez 1996). The increase of non-communicable diseases has led to poor mental health. Therefore, promotion of a more active lifestyle can be an effective way of combating this burden of non-communicable diseases (Murray & Lopez 1996).

Researchers have revealed that the physiological benefits of physical activity are directly influenced by the frequency, intensity, and duration of the physical activity performed (Delisle, Werch, Wong, Bian & Weiler 2010). Chronic diseases of lifestyle like the cardiovascular diseases, hypertension and type 2 diabetes mellitus can be reduced by physical activity, for example type 2 diabetes can be managed through inducing weight loss and changes in glucose metabolisms (Vogel *et al.*, 2009). Cornelissen and Fagard, (2005) have shown that there is enough evidence suggesting that regular resistance training for all healthy adults can lower blood pressure.

Researchers have argued that physical activity is associated with psychological well-being. Physical activities can play an important role in lowering the levels of anxiety, depression, stress and negative mood and improve on the level of a positive mood as well as numerous indices of cognitive functioning (Biddle & Mutrie, 2001). Bray and Born (2004) noted that students who were sufficiently physically active reported more

positive well-being than insufficiently active students. Bray and Born (2004) went on to say that students who had not engaged in vigorous physical activity to the level of not becoming accustomed to physical activity increased levels of depression, anxiety, stress and tension.

2.4.1. MENTAL HEALTH BENEFITS OF PHYSICAL ACTIVITY

Saxena, Van Ommeren, Tang and Armstrong, (2005) said that regular physical activity aims at prevention and reducing the incidence of mental disorders, while promotion of physical activity attempts to maximize mental health and wellbeing of an individual. It is stressed that those people who are physically active are less likely to develop mental disorders. According to Murray and Lopez (1996) physical activity may be used in promotion of mental health and emotional well-being of individuals. The study further says that the individuals who had regular physical activity and had become physically active had positive changes in emotional well-being while those who were less active had negative changes in their emotional well-being. Studies have also shown that physical activity make children feel good and improve their mental health and enhance their sense of self-esteem (Saxena, *et al.*, (2005). Research suggests that physical activity has been increasingly effective in treatment of depression and these studies have provided a strong argument that physical activity is potentially an effective treatment for depression (Stathi, Fox & McKenna, 2002). Saxena, *et al.*, (2005) reported that physical activity have a positive effect on the psychosocial well-being of people with severe chronic mental disorders but it was argued that though physical

activity would not change diagnostic status, physical activity may be a component of rehabilitation to prevent or reduce long-term hospitalization.

2.4.2. MUSCULOSKELETAL BENEFITS AND MUSCLE STRENGTHENING

Research has proven that regular physical activity increases muscle strength through, strong bones and endurance resistance training. This will reduce and prevent injuries as well as weight control, especially in children and youth which will improve body function as well as prevent obesity (Sothorn, Loftin, Suskind, Udall & Blecker, 1999). However Tanasescu *et al.*, (2002) suggest that muscle strengthening activity should not replace aerobic activity and 30 minutes of muscle strengthening is recommended per week for a healthy adult. Muscle strengthening has been proven to be of high benefit most especially in older adults because it reduces muscle wasting and strength and improves the loss of independence that is associated with age, hence reduce the risk of falls (Vogel *et al.*, 2009). According to Vogel *et al.*, (2009) physical activity has a positive effect on bone mineral density especially on the weight bearing bones hence reducing risk of fractures and this has been proven by reduced numbers of osteoporosis in individual who participate in physical activity. Vogel *et al.*, (2009) further goes on to highlight that specific exercises have shown evidence on the effect fat and lipid parameters in elderly people and have shown a decrease fat mass in those individuals who live an active life compared to those who have a sedentary life.

2.4.3. SOCIAL BENEFITS

Furthermore Huddleston, Mertesdorf, and Araki (2002), emphasized that through participation in physical activity, people of all ages get the opportunity to make new friends, interact with others and maintain social networks which provides a spirit of teamwork. Through games, physical activities promote integration like social interactions, enjoyment and relaxation, improve self esteem and self-efficacy and facilitate development of a new culture and social skills among youth (Verhagen, Marijke, Collard, & van Mechelen 2008). Taliaferro, Rienzo and Donovan,(2010) highlighted that physical activity through sport participation increases youth problem-solving skills, locus of control, academic achievement, self-expression, building self-confidence and school attendance, it also reduced juvenile arrests, teen pregnancy and school dropout. It was further stressed that sports create important opportunities for students to contribute to the school community, which may cultivate a sense of responsibility, commitment to, or identification with, community (school) and community values.

2.4.4 ECONOMIC BENEFITS

There is substantial epidemiological evidence to indicate that physical inactivity is a risk factor for cardiovascular disease, colon cancer, non-insulin dependent diabetes mellitus, osteoporosis, and mental illness (Vuori, 2007). Concurrently physical activity has an economic benefit especially in terms of reduced health care costs, increased

productivity as well as healthier physical and social environment (Hagberg & Lindholm, 2006). Previous studies have only considered health care costs for certain diseases estimating them to be responsible for approximately 2.5% of all health care costs. On the contrary, physical inactivity affects individuals' business and the nation. In fact, data from the developed countries indicate that direct costs of inactivity are enormous (CDC, 2009). According to Vanness and Tosteson (2005) Opportunity costs do not only count to medical costs of treating of diseases like osteoporosis but also costs of screening and prevention, informal care giving and related research and development. Such diseases impose a large economic burden in developed countries like United States and Europe today, and that burden will likely increase substantially.

Promotion of physical activity will have a great impact for improving a nation's overall public health. From a public health perspective, physical activity has the potential to improve the nation's health. From the perspective of those paying for healthcare, there are possible monetary savings (Hagberg & Lindholm, 2006)

This section summarizes the benefits of physical activity in combating unhealthy lifestyles which are associated with a number of chronic diseases of lifestyle which are on an increase. It also highlights the psychological and physiological impact of physical activity to the individual. After reviewing relevant literature it has been highlighted that regular physical activity prevents mental disorders and maximizes mental health wellbeing of individuals and also physical activity have been seen to be effective in treatment of depression. Furthermore physical activity may help in rehabilitation and reduce long term hospitalization. In this section it highlights the effects of physical

activity on the musculoskeletal system in all ages but it is also advised that muscle strengthening should not replace aerobics. The importance of physical activity to musculoskeletal system is well indicated. Lastly, physical activity is seen as to maintain social network to all ages and encourages a spirit of togetherness and enhances a skill of problem solving among youth and other social skills among young people. Participating in physical activity would prevent a number of diseases. In return this will save the individuals and countries at large big costs of treatment and increase productivity among individuals.

2.5. CONCEPT OF PROMOTION OF PHYSICAL ACTIVITY

Health promotion is a multi-dimensional concept that applies to all individuals, regardless of age. It is of recent, that people changed their beliefs that global improvement of health was directly as a result of medical intervention due to technological innovations of medical and diagnostic procedures (Ehiri & Prowse, 1999). It is widely recognized that health promotion has become an increasingly important part of health care and medical care (Whitehead, 2005). Tannahil (1984) defines Health promotion as “activities directed towards increasing the level of wellbeing and actualizing the health potential of individuals, families and communities”. The concept of health promotion emphasizes self care rather than expert care and promotes an active, independent attitude towards health care (Breslow, 1999). Health promotion is thus a practical approach aimed at achieving greater equity in health; its strategies develop and change peoples’ lives and bring about change in the social, economic and

environment conditions that will influence health (Frantz, 2008). The emergence of AIDS and the increase of chronic diseases of lifestyle have highlighted the importance of being alert in our public health and health promotion efforts relating to the wellbeing of our population. Therefore there is a need for effective implementation and evaluation of health promotion programs (Frantz, 2008).

In developed countries as well as developing countries, there is an increase of physical inactivity which has led to chronic diseases of lifestyle like obesity, cardiovascular diseases, hypertension and many others, becoming a public health concern (Gunnevi, 2005). Researchers have revealed that increasing the level of physical activity across communities represent the most promising strategies for improving population health and reducing the chronic diseases of lifestyle (Morimoto *et al.*, 2006).

This section highlights the need and importance of health promotion and defines the aim of health promotion in improving health of individuals. It is stressed that promoting health through physical activity can prevent chronic diseases of lifestyle such as like obesity, cardiovascular disease, and hypertension.

2.6 FACTORS INFLUENCING PARTICIPATION IN PHYSICAL ACTIVITY

Robbins, Sikorskii, Hamel, Wu and Wilbur (2009) revealed that health promotion model can be used to explore the bio-psychosocial processes that motivate and improve an individual's response to engage in behaviours directed toward the enhancement of health and this has been proven ideal for Physical activity. According to the health

promotion model, which is derived from social cognitive theory, provides an important framework to guide behaviour change interventions for reducing high-risk health behaviours, such as physical inactivity (Robbins, *et al.*, 2009). Behaviour-specific cognitions identified in the health promotion model, such as the perceived benefits of the action, the perceived barriers to the action, self-efficacy, and interpersonal influences (social support, norms, and models), as well as affect (enjoyment), represent critical areas to assess and target as means to motivate individuals to engage in health-promoting behaviours (Pender, Bar-Or, Wilk, & Mitchell, 2002). The health promotion model supported instrument development for measuring perceived benefits of and perceived barriers to physical activity, two determinants identified consistently in the literature as being related to individuals' physical activity (Pender, *et al.*, 2002). This model gives an individual's personal factors and prior physical activity-related behaviour, which may include selection of an active versus sedentary pursuit or sports team participation, can have a direct effect on physical activity, as well as on perceived benefits of and barriers to physical activity. Perceived benefits and barriers can, in turn, influence engagement in physical activity. Perceived benefits include personal reasons for being physically active (e.g., expected positive outcomes of being active). Perceived barriers have been described as personal hindrances or obstacles faced by individuals that prevents or stop them from physical activity participation (Robbins, *et al.*, 2009). Age- and gender-related perceived benefits of and barriers to physical activity have been identified as important mediators of physical activity participation (Nahas, Goldfine & Collins, 2003).

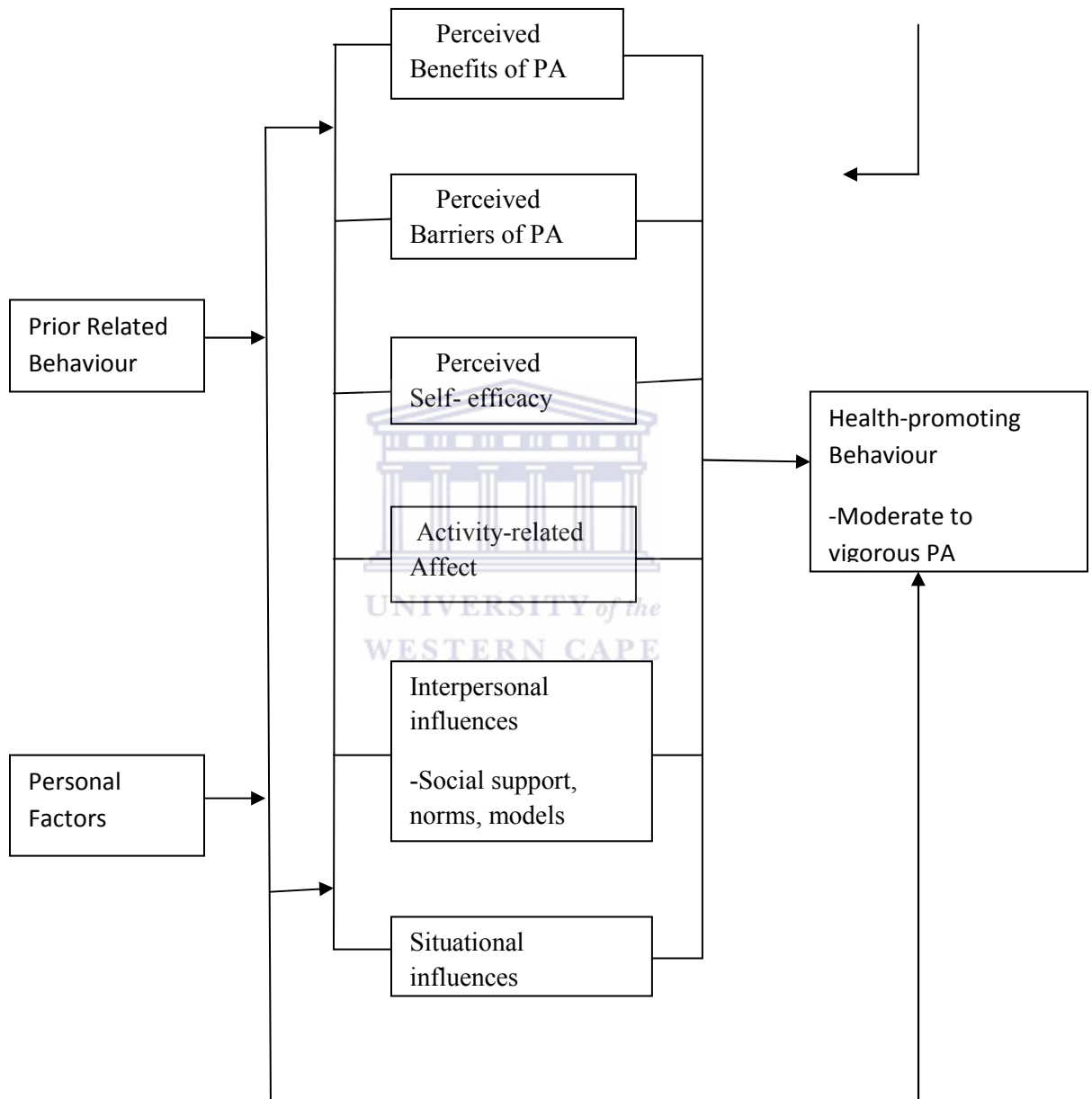
Individual

Behaviour-Specific

Behaviour Outcome

Characteristics and experiences

Cognitions and Affect



Health promotion model from Robbins, *et al.*, (2009)

Literature in this section reveals the models that can be used in health promotion and how these models can be applied in the promotion of physical activity. It also highlights the determinants and factors related to participating in physical activity.

2.7 PROMOTION OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS

Chevan and Haskvitz (2010) highlighted that physical activity is an important component of a healthy lifestyle and reduces the person's risk of developing disease and subsequent disability. Health professionals generally focus primarily on change processes that affect the wellbeing of the population. With limited budgets and an increase in the incidence of HIV/AIDS in many African countries non-communicable diseases has not received much attention (Frantz, 2008). On the same note, Whitehead (2003) said that "many health professionals including physiotherapists take health promotion as an integral part of their role". However, this refers to traditional preventive health promotion which could be health education. It is further indicated that physiotherapists should prioritize and organize their efforts based on their skills and knowledge of physical activity and guided by community preventive evidence based recommendations for promotion of physical activity (Simon, Gonzalez, Ginsburg, Abrams & Fielding, 2009). Physiotherapists are in a position to promote physical activity and describing the type, quantity and quality of activity that suits and gives health benefits as well as motivating and knowing the physical and psychological benefits (Gunnevi, 2005). It is anticipated that physiotherapists should become the leaders in advocating and promotion of physical activity since they have the knowledge and skill

through their education to independently address the problem of physical inactivity and promote the importance of physical activity (Simon *et al.*, 2009). Therefore, the role of physiotherapists should not be only providing treatment to their clients but to give a wider approach to health care for which the patients' health needs are addressed. Like any other profession, physiotherapists should educate and advocate for health change through promotion of physical activity (Frantz, 2008). According to Kamwendo (2000) advocating for physical activity may not be very convincing when physiotherapists do not participate in physical activity and it has been proven that those who engage in regular physical activity are more likely to encourage and promote physical activity.

Furthermore physiotherapists are best placed to play a very important role in health promotion, by facing the challenges identified in the Ottawa charter 1986 to go beyond the physiotherapist/client partnership to address issues pertinent to groups, communities and societies (Copeland, 1999). As stated by Nicolaas (2009), physical activity brings enormous results in improving health among employees, reduce absenteeism and sick leave thereby creating a positive financial return to institutions.

This section highlights the role of health professionals in promoting health through physical activity. It emphasizes the role of physiotherapists in promoting physical activity. It is also stressed that physiotherapists should live by example in participating in physical activity. Finally the importance of physical activity is also highlighted.

2.8 CHALLENGES IN PROMOTING PHYSICAL ACTIVITY BY PHYSIOTHERAPISTS

A number of studies on the benefits of health promotion have identified that one of the major challenges in the promotion of physical activity and the prevention of non-communicable diseases is communicating the role and the benefits of physical activity to health (Tannahil, 1984). According to Johnson and Nies (2005), Pender's 1987 health promoting model encompasses classification factors for example cognitive-perceptual factors, modifying factors and likely-hood of implementing health promotion behaviors. Cognitive-perceptual factors have a direct effect on the likely hood of implementing health promoting behavior whereas modifying factors have indirect effect. Barriers to health promotion are cognitive-perceptual factors which have a direct impact on health behavior. Pender (1996) says that the cognitive-perceptual factors include personal factors, behavior-specific cognitions and behavior outcomes. Structural and personal barriers to health promotion include personal barriers like lack of energy, motivation and health reasons. Structure barriers include time, conducive environment to carry out physical activity for example unsafe environment, lack of equipments to facilitate physical activity, insufficient infrastructure like sports centers, gyms, and recreation centers. Also, in some cultures groups of people, like women and girls, are not allowed to participate in physical activities.

The challenges of promoting physical activity among individuals are highlighted in this section. Such challenges are indicated as factors and barriers to participate in physical activity.

2.9 HEALTH PROMOTION STRATEGIES IN PROMOTING PHYSICAL ACTIVITY

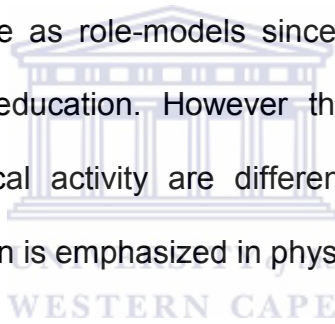
According to Perreault (2008) the conceptualization of health promotion in physiotherapy is different from other fields of health promotion which emphasize empowerment as the central concept of health promotion but instead Health education is the most emphasized health promotion strategy in physiotherapy.

The World Health Organization campaigns to promote physically active lifestyles among its member states. Four major strategies were introduced which are, building a consensus among health professionals, including physiotherapists, educating the public and building consumer demand, developing an active Aging public policy framework and refining, expanding and evolving the model. With such an approach, the World Health Organization was systematically building a consensus with regard to the benefit of physical activity (Chodzko-Zajko & Schwingel, 2009). Chodzko-Zajko and Schwingel (2009) further stressed that reaching effective health promotion strategies cannot be achieved without or in isolation but rather must be reflective of the economic, political, and cultural realities of the societies in which they are to be implemented.

Health promotion strategies are highlighted in this section. It is stressed that promotion of physical activity can be emphasized through education and this should be reflective of the economic, political and cultural realities of the society.

2.10 SUMMARY OF THE LITERATURE REVIEW

In conclusion the literature highlights the increase in physical inactivity in the world. Therefore, it elaborates the role of physical activity in combating CDL and improving health among all categories of people. Recommended dosage and type of physical activity for different ages are mentioned. This literature highlights the benefits of physical activity in improving quality of life for individuals as well as challenges faced by physiotherapists in promoting physical activity. Through the literature review it is clear that promotion of physical activity should be a priority to all health professionals. Physiotherapists should behave as role-models since they have the knowledge and skills acquired through their education. However the review indicates that health promotion strategies of physical activity are different from other health promotion strategies since health education is emphasized in physical activity.



CHAPTER THREE: METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research setting in which the study was carried. It further explores the methods and procedures used in this study that is study design, study population, sampling method and the instruments used to obtain data are also described. This chapter also explains in detail the pilot study, data collection procedure and method of data analysis. Finally, the ethical issues relating to the study are discussed.

3.2 RESEARCH SETTING



The study was conducted in Rwanda. Rwanda is situated in central Africa also known as the great lakes region; it is a landlocked country bordered in the north by Uganda, east by Tanzania, south by Burundi and the west by the Democratic Republic of Congo. It has a surface area of 26,340 square kilometres (Geography of Rwanda 2011). The medical care facilities in Rwanda are classified into primary, secondary and tertiary. The study was conducted in referral and district hospitals. Referral hospitals are under the tertiary hospitals while district hospitals are under secondary hospitals. There are three referral hospitals in the city of Kigali namely, The University Teaching Hospital of Kigali, King Faisal hospital Kigali and Kanombe Military Hospital. The University Teaching Hospital of Butare is the only referral hospital in the southern province. Referral

hospitals have specialised departments and receive patients from all district hospitals in the country. There are thirty districts in Rwanda in which every district has a district hospital. Each district hospital has a catchment area of between 4 to 8 community health centres and clinics which refer to the district hospital. The district hospitals refer to the referral hospitals for more specialised services (Minisante 2009). Referral hospitals have around 4 to 9 physiotherapists in each hospital while district hospitals have an average of 2 physiotherapists. In Rwanda there are 160 registered physiotherapists. These physiotherapists work in government hospitals, private clinics and tertiary institutes of learning.

3.3 STUDY DESIGN



The study design was a sequential mixed method design in which one type of data e.g quantitative provides a basis for the collection of another type of data that is qualitative data. According to Tashakkori and Teddlie (2003) mixed-methods have shown that integration of both qualitative and quantitative in the same study can be complementary to each other and cannot represent radical shifts in the short run. The Quantitative method was a descriptive cross section survey allowing several variables to be analyzed simultaneously. According to this study the quantitative method was found to be more useful in analyzing variables such as physical activity levels strategies to promote physical activity and the relationship between physical activity level and health promotion strategies. The qualitative method was used in this study to allow the participants to express their feelings beyond the structured questionnaires hence giving

a detailed description and clarify on the situation as regards to the barriers of promoting physical activity.

3.4 STUDY POPULATION AND SAMPLING

3.4.1 POPULATION

The study population included all registered physiotherapists in Rwanda. There are 142 registered physiotherapists working in public and private Hospitals, clinics and high Institutions of learning. Referral and district hospitals have a total of 104 which represent 73.2% of the total population of physiotherapists.

3.4.2 SAMPLE SIZE

3.4.2.1 QUANTITATIVE SAMPLING

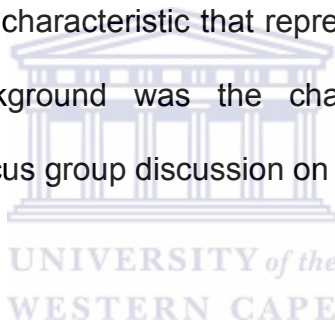
All the physiotherapists working in referral and district hospitals were approached to participate in the study due to the small number of the population. However, 92 out of the 104 physiotherapists participated in the study. This was due to hospitals contacted, refusing permission to the researcher to conduct the study at their institutions. Thus the overall participation rate was 88.5%.

3.4.2.2 QUALITATIVE SAMPLING

For the qualitative section, the researcher used two focus groups discussion of five physiotherapists each and they were purposively selected based on the outcomes of the Physical Activity Exit Interview (PAEI) questionnaire completed by participants in the

quantitative component. Purposive sampling was used in this study for participants who had answered in the questionnaire that they did not promote physical activity and those who promoted physical activity. According to Silverman (2000) purposive sampling demonstrates some features or processes that are of interest in a particular study. Its main aim is to gather wide and sufficient information regarding the participant's views on the topic of promoting physical activity.

Patton (1990) highlighted that purposive sampling is based on the researcher's judgment. This researcher further indicates that the sample should be composed of elements that contain the most characteristic that represents a given population. In this sample the participants background was the characteristic considered for the purposively selection for this focus group discussion on physical activity.



3.5 METHODS OF DATA COLLECTION

3.5.1 QUANTITATIVE DATA

3.5.1.1 THE INSTRUMENT

The self-administered questionnaires consisted of 3 sections (Appendix A). The first section requested for demographic information such as gender, marital status, age, level of education and for long how they have practiced as physiotherapists. A section on physical activity from the World Health Organization Steps framework instrument for non-communicable diseases risk factors was adopted (WHO, 2003c). Participants were asked how long they participated in physical activity in terms of days, hours and minutes

and asked on their sedentary behaviour. Therefore, when calculating a person's overall energy expenditure using the stepwise instruments data, Metabolic Equivalent Tasks (METs) 4 and 8 was used to calculate the time on both moderate and vigorous activities. The WHO STEPS surveillance instrument has been tested for reliability and validity in 9 countries by Armstrong and Bull (2006). The study by Armstrong and Bull (2006) showed the reliability of the WHO STEPS surveillance instrument to be between 0.67 and 0.81 and the validity to be $P = 65$. It has been used in various African countries such as South Africa, (Frantz, 2009) and Kenya (Tawa, 2009).

Another section of the questionnaire was the Physical Activity Exit Interview (PAEI). This measured the content of physical activity promoting practices by physiotherapists. This instrument consisted of 12 questions for health care providers on health promotion practices concerning physical activities (Sciamanna, Goldstein, Marcus, Lawrence & Pinto, 2004). The instrument had a yes/no response format with the scores ranging from 0 to 12 where by a score of 0 to 4 reflected a poor quality of physical activity promotion content, while 5 to 8 showed a moderate quality content while 9 to 12 indicated a high quality content of physical activity promoting practices. Sciamanna *et al.*, (2004) determined the reliability of The Physical Activity Exit Interview (PAEI) instrument ($p=0.866$). The Physical Activity Exit interview was tested for validity as a scale for establishing the content of physical activity counselling practice in a hospital setting (Sciamanna *et al.*, 2004). Karuguti (2010) report the validity and also mentioned that it has been used in the African context.

3.5.1.2 TRANSLATION OF THE INSTRUMENT

The questionnaire, the consent form and the information sheet was translated by a professional translator, from the original version of English to Kinyarwanda and was again translated back into English by an independent translator; this was to establish that the Kinyarwanda version carried the intended meaning as the English version. Therefore the participants were given the opportunity to answer the questionnaire in the language of their choice that is in English or Kinyarwanda (Appendix B).

3.5.2 QUALITATIVE METHOD

The focus group discussion was used to explore the barriers to health promotion practices among physiotherapists. The researcher opened the discussion with an opening question “What are the barriers you face when promoting physical activity?” and used prompts as the discussion developed. The researcher obtained permission to use a tape recorder to capture audio data during the focus groups discussion. Notes were also kept of the comments made by participants.

3.5.2.1 FOCUS GROUP DISCUSSIONS

Morgan (1997) describes a focus group as a research technique that collects data on people’s experiences through group interaction on a specific topic identified by the researcher. Focus groups are determined by the researcher, the participants who are selected have a similar background or common characteristics that relate to the topic to be discussed (Neuman, 2000). Krueger and Casey (2000) highlighted that the

researcher should be able to compare similar experiences that are raised by the participants during the discussions. Furthermore, Krueger and Casey (2000) emphasizes that the interview guide (Appendix C) of the focus group discussion should be developed based on the objectives of the study and literature. The interview guide with the probes for the discussions was developed. In this study the focus group participants consisted of physiotherapist working in the described research setting above. According to Neuman (2000) further states that the researcher creates a conducive environment for the participants to air out their views on the agreed, in the focus group the research opens the session with brief comments then the introduction of the topic and then the participants freely discuss the issue.



3.5.2.2 TRUSTWORTHINESS

The trustworthiness of a research can be evaluated by observing its credibility, transferability, dependability and conformability in the data collected in any qualitative research (Shenton, 2004).

Credibility: The chosen methods and procedure of identifying participants is described. Based on the notes kept during the focus group discussion, a summary of the discussion was presented to the participants to clarify whether the summary is accurate and a true reflection of the original data

Transferability: This was ensured through seeing whether the findings can be applied in other contexts or setting, selection and characteristics of the participants, data

collection and analysis. To maintain the similarities between the context of sending and receiving, the researcher used extensive thick descriptive words of the findings and back up with verbatim (word for word) quotations with sufficient details and precision (Mays & Pope, 2000).

Dependability: The researcher ensured dependability through making inquiries with the same evidence that if the same study was to be repeated with the same participants in the same setting it would give the same results (Lincoln & Guba, 1985).

Confirmability: Raw data, tape recorded interviews and its analysis was subjected to peer examination by colleagues who have a better understanding in qualitative research. The study supervisor had to go through the field notes and transcriptions, data reduction and analysis, data reconstruction and synthesis (themes, categories, interpretation) to ensure that the findings are not biased of the researcher. This is referred to as confirmability (Lincoln & Guba, 1985).

3.6 PILOT STUDY

The pilot study was conducted to test the questionnaire for the face validity. Five physiotherapists were used to assess whether they clearly understood the questions and terminology used in the study. No changes were needed following the pilot study.

3.7 PROCEDURE

After seeking and obtaining the permission to conduct the study from relevant authorities data was collected; first the quantitative data and then qualitative data.

3.7.1 QUANTITATIVE METHOD

Ethical clearance (Appendix D) was obtained from University of the Western Cape Senate, Research Grant and Study Leave Committee to carry out the study. Permission was also obtained from the Ministry of Health (Appendix E), the Rwanda national ethical committee (Appendix F), and the directors of these Hospitals (Appendix G1-30), that the study was to be conducted. The researcher recruited and trained two research assistants who were physiotherapy students and had good knowledge of both good at English and Kinyarwanda. The researcher and research assistants then met the participants in their various hospitals to clearly explain the purpose and the aim of the study and instructions on how to complete the questionnaire. The questionnaires were then distributed to the participants in their respective hospitals after signing the informed consent to participate in the study. A period of five days was allocated to allow participants to complete the questionnaires. The participants were reminded through a text message or calling them on their mobile phones to fill in the questionnaires individually and honestly. After the agreed date the researcher and research assistants collected the questionnaires after checking if the questionnaire was completed correctly.

3.7.2 QUALITATIVE METHOD

The researcher arranged appointments with the participants for the interviews after the researcher and the participants had agreed to conduct the interviews in one of the hospital conference rooms. The conference room in which the focus group interviews were to be conducted was assessed prior to commencing to ensure that there are no possible interruptions and distractions to the quality of recordings. The researcher purposively selected 10 physiotherapists and grouped them in 2 focus groups of five each. Each group was interviewed on a different day. The interviews took an average of forty five minutes each. The interviews were conducted in English since it was the preferred language by the participants, it being the language commonly used at work. Due to the fact that the participants come from different backgrounds they were not familiar to the local language Kinyarwanda or English. The interviews were guided after developing an interview guide. After clearly explaining the procedure, purpose and ensuring the participants their ethical values and anonymity, the researcher also asked for permission from the participants to use a tape recorder while conducting the interview. The interview begun by the researcher explaining some of terminologies that were to be used, eg moderate intensity, vigorous intensity and their differences they were then asked a question to open the discussion.

3.8 DATA ANALYSIS

3.8.1 QUANTITATIVE DATA

For the quantitative Data, analysis was done using the Statistical Package for Social Science (SPSS) version 18.0 used for data capturing and analysis. Descriptive statistics was employed to summarize the demographic data and was presented as frequency distribution tables, range, means percentages and standard deviation. A continuous indicator of Metabolic Equivalent Task (MET) was used to estimate the samples mean of physical activity levels, the total time spent in physical activity in a typical week, the number of days as well as the intensity of physical activity. Inferential statistics using the chi-square was employed to compare association between physical activity levels and other variables like physical activity promoting strategies and barriers to promoting health using physical activity. Alpha level will be set at 0.05 for all tests.

3.8.2 QUALITATIVE DATA

For the qualitative data the researcher was involved transcribing interviews, typing field notes, sorting and arranging data, making sense and overall meaning of information and coding information into categories. This process involved familiarization with the material on several readings. Common concepts were generated and coded then themes were produced. Later they were classified into broader categories. The researcher again did another coding to generate themes and categories and the comparison was made to the previous coding. Mays and Pope, (1995) suggests that in

qualitative data the use of code-recode procedure increases the trustworthiness. The generated themes then were ready for analysis, general description and qualitative narratives. The narrative data was subjected to the process of interpretation and analysis.

3.9 ETHICAL CONSIDERATIONS

Ethical permission was granted by the University of the Western Cape Senate, Research Grant and Study Leave Committee, the Ministry of Health, Rwanda National Ethical Committee and the Directors of these hospitals. An information sheet (Appendix H) explaining the purpose and aim of the study to the participants was given to the authorities. The information sheet (Appendix I) and the consent form (Appendix K) were translated in Kinyarwanda in case any participant wanted it.

A written informed consent (Appendix J) was given to each participant giving him/her assurance to confidentiality of information given. Participants in the Focus Group were made aware of the ethical responsibilities in advance by asking them to sign a consent form in the presence of a witness, who also signed for the purpose of confidentiality. Participants were informed that participation was voluntary and they could withdraw from the study at any time without any consequences. All participants were treated with respect and dignity and they remained anonymous throughout the study.

The participants were informed that findings will be made available to both referral and district hospitals for the physiotherapists and the Ministry of Health. The Ministry of Health agreed to make available the final version to all district hospitals.

3.10 SUMMARY OF THE CHAPTER

In this chapter, the study setting which are the referral and district hospitals is fully described. The researcher also describes the two methods of data collection that were used in this study. The quantitative method consisted of a survey using a questionnaire given to all physiotherapists working in both referral and district hospitals. This questionnaire was adapted from the WHO STEP surveillance instrument and The Physical Activity Exit Interview (PAEI) instrument, to find out the physical activity levels and promotion strategies of physiotherapists. The quantitative results were analyzed using descriptive and inferential statistics. For the qualitative data a focus group interviews were done to explore the barriers to promoting physical activity among physiotherapists. A thematic analysis was done after data collection. This chapter includes the study design, procedure, pilot study, sampling methods used and the ethical considerations followed in this study.

CHAPTER FOUR: RESULTS

4.1 INTRODUCTION

This chapter comprises of two sections: section A presents the quantitative data that correspond to the first three objectives while section B presents the qualitative data that correspond to the fourth objective. The results of the quantitative data in section A are presented in the form of descriptive and inferential statistics. The variables of the respondents are presented as descriptive results, whereas inferential statistic results highlight the associations between different variables in the study. The results are presented in tables.

The qualitative results are presented in section B. This section describes the focus group participants and the emergent themes. In the presentation of the findings, verbatim quotations from interviews were used to illustrate response themes and sub-themes. For anonymity and confidentiality of the participants, the participants were given cryptogram as P1 to P10. Finally the chapter ends by presenting the summary of the results.

SECTION A: QUANTITATIVE RESULTS

4.2 DESCRIPTION OF THE STUDY SAMPLE

A total of 104 questionnaires were distributed among physiotherapists from both referral and district hospitals in Rwanda to participate in the study. Of those, a total of 92 physiotherapists voluntarily participated in the study giving a response rate of 88.5%. A larger number of males 70% (n= 64) compared to females 30% (n=28) formed part of

the study. The participants' age ranged from 26- 60 years, with a mean age of 32.49 years (SD= 6.56). The socio-demographic data of the participants are presented in Table 4.1.

Table: 4.1 Showing the percentage distribution of socio-demographic characteristics (N=92)

Variables	frequency	%
Gender		
Male	64	70
Female	28	30
Age		
26-30	42	46
31-35	31	34
36-40	9	10
41-45	5	5
46-50	1	1
51-55	3	3
56-60	1	1
Marital status		
Single	37	40
Married	54	59
Divorced	1	1
Level of education		
Diploma	65	70
BSc degree	20	21
Masters	7	8
Type of practice for the past 12 months		
Private	9	10
Public	83	90
Work experience		
0-4years	52	57
5-9 years	32	35
10-14 years	3	3
15-19 years	2	2
20-24 years	1	1
25-29 years	1	1
30-34 years	1	1
Mean age 32.49 (SD= 6.56)		



4.3 PHYSICAL ACTIVITY LEVELS

The level of physical activity was a dependent variable in the current study. Physical activity levels were measured by the WHO Stepwise Questionnaire then categorized into sedentary, moderate and vigorous physical activity. Physical activity levels were estimated from the physical activity domains and the duration in minutes per week and this gives physical activity levels in MET minutes/week. Participants who accumulated MET-minutes/week of 0-599 were considered sedentary, 600- 2999 MET-minutes/week were considered to be moderately active while those who accumulated above 3000 MET-minutes/week were considered to be vigorously active (WHO, 2003).

The age group 31-35 years had the highest participants who were vigorously active (23%), followed by the age group 26-30 years (20%). This group had the most moderately active and sedentary participants of 23% and 3.3% respectively. More males were found to be vigorously active (37%) than females (17.4%). Married participants found vigorously active were 32% while 22% of the single participants were vigorously active. Participants with a diploma were considered to be more physically active (39%) as compared to participants holding a BSc degree (12%) as well as those with a master's degree (3%). No statistically significant relationship was found between physical activity and age, gender, marital status and level of education as the results of the chi-square test indicated high p- values associated with those variables. Table 4.2 presents the results of the relationships between the physical activity levels and the demographic variables.

Table: 4.2. Relationship between physical activity levels and demographic variables

Characteristics	Physical activity levels (%)			significance (p-value)
	Sedentary	Moderate	Vigorous	
Gender				0.581**
Male	2	30	37	
female	2	11	17	
Age				0.561**
26-30	3	23	20	
31-35	1	10	23	
36-40	0	3	7	
41-45	0	1	4	
46-50	0	1	0	
51-55	0	2	1	
56-60	0	1	0	
Marital status				0.810**
Single	2	16	22	
Married	2	24	32	
Divorced	0	1	0	
Level of education				0.913**
Diploma	3	28	39	
BSc degree	1	10	12	
Masters	0	4	3	

****Not significant at 5% level**

4.3.2 PHYSICAL ACTIVITY LEVELS IN RELATION TO PHYSICAL ACTIVITY DOMAINS

Participants' physical activity levels were also assessed with regard to the different physical activity domains such as: work, transport and recreational. The highest mean MET- minutes/week (2685.9) was recorded at work, followed by recreational physical activity domain with a mean MET-minutes/ week of 1072.7 and lastly the transport physical activity domain with a mean of 573.6 MET-minutes/ week. The mean MET-minutes/week in the three domains of work, transport and recreation were assessed in relation to gender, marital status and the level of education. Male physiotherapists accumulated a higher mean MET-minutes/week than female physiotherapists both at work (2695.9) and recreation (1102.5). Married physiotherapists accumulated a higher mean MET-minutes/week in recreation (1259.1) and in transport (589.1) than single physiotherapists. The mean MET-minutes/week was higher among Physiotherapists with masters at work and recreation (2688) than those with Diploma and a BSc degree. The results are presented in Table 4.3.

4.3.3 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AT WORK AND SOCIO-DEMOGRAPHIC VARIABLES

The work-related physical activity levels of participants were analyzed with respect to their demographic characteristics (Table 4.4). With respect to gender, the results revealed that males (50%) were more physically active than females (21.8%). More males (27.2%) participated in vigorous activity compared to females (12%). However, these differences did not explain that there was a statistically significant association between physical activity and gender ($p>0.05$). Participants in the age group 31-35 years were found to be more vigorously active (19.6%) than other participants in the age group category. Age group 26-30 had the highest moderately active participants (19.6%) than in any other group category but with the most sedentary participants (16.3%). No statistically significant association was found between physical activity and age ($p>0.05$). Married participants were the most vigorously active participants at work (25%). Participants with diplomas (31%) were vigorously active but also with the highest percentage of sedentary participants (22.8%). Participants with a working experience between 5-9 years had the highest percentage of vigorously active participants (20.9%) followed by 0-4 years (15.4%) but these groups had the highest percentage of sedentary participants 0-4 years (19.8%) and 5-9 years (6.6%). But was not statistically significant ($p>0.05$). The summary of the results are presented in Table 4.4.

Table: 4.4 The significant relationship between physical activity at work and socio-demographic (N=92)

Characteristics	Physical activity levels (%)			Significance (p-value)
	sedentary	moderate	Vigorous	
Gender				0.998**
Male	19.6	22.8	27.2	
female	8.7	9.8	12.0	
Age				0.64**
26-30	16.3	19.6	9.8	
31-35	8.7	5.4	19.6	
36-40	0.0	4.3	5.4	
41-45	1.1	1.1	3.3	
46-50	0.0	1.1	0.0	
51-55	1.1	1.1	1.1	
56-60	1.1	0.0	1.1	
Marital status				0.621**
Single	12.0	14.1	14.1	
Married	16.3	17.4	25.0	
Divorced	0.0	1.1	0.0	
Level of education				0.055**
Diploma	22.8	16.3	31.5	
BSc degree	4.3	12.0	5.4	
Masters	1.1	4.3	2.2	
Work experience				0.093**
0-4years	19.8	22.0	15.4	
5-9 years	6.6	7.7	20.9	
10-14 years	0.0	1.1	2.2	
15-19 years	0.0	1.1	0.0	
20-24 years	1.1	0.0	0.0	
25-29 years	0.0	0.0	1.1	
30-34 years	1.1	0.0	0.0	

****Not significant at 5% level**

4.3.4 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY AT RECREATIONAL ACTIVITY AND SOCIO-DEMOGRAPHIC CHARACTERISTICS

The recreational-related physical activity levels of participants were assessed in relation to socio-demographic variables. The results are presented in Table 4.5. Male physiotherapists were moderately active (39%), vigorously active (9%) compared to female physiotherapists who were moderately active (9%) and vigorously active (2%). Male were more sedentary (24%) than female (20%) A statically significant association was found between recreational activity and gender ($p= 0.027$). But no significant relationship was found between recreation physical activity and age, marital status, education and work experience ($p> 0.05$).



Table 4.5 Relationship between physical activity at recreational activity and socio-demographic characteristics

Characteristics	Physical activity (%)			Significance (p- value)
	sedentary	moderate	Vigorous	
Gender				0.027*
Male	24	39	6	
Female	20	9	2	
Age				0.759**
26-30	19	22	4	
31-35	16	16	1	
36-40	3	16	1	
41-45	3	1	1	
46-50	0	1	0	
51-55	1	1	1	
56-60	1	0	0	
Marital status				0.685**
single	15	21	3	
Married	28	25	5	
Divorced	0	1	0	
Level of education				0.376**
Diploma	34	33	4	
BSc degree	9	10	3	
Masters	1	5	1	
Work experience				0.105**
0-4 years	21	31	4	
5-9 years	20	12	3	
10-14 years	2	1	0	
15-19 years	0	1	0	
20-24 years	0	1	0	
25-29 years	0	0	1	
30-34 years	1	0	0	

***Significant at 5% level, **Not significant at 5% level**

4.3.5 RELATIONSHIP BETWEEN PHYSICAL ACTIVITY IN TRANSPORT AND SOCIO-DEMOGRAPHIC VARIABLES

The transport-related physical activity levels of participants in the transport domain were analyzed in relation to socio- demographic variables. The results indicated that (39%) of male physiotherapists were sedentary, (30%) were moderately active compared to female physiotherapists, where 16% reported to be sedentary and 15% to be moderately active. No statistically significant association was found between transport and all other socio-demographic variables ($p>0.05$). The Table 4.6 presents the results of transport-related activity domain.



Table.4.6 Relationship between physical activity at transport and socio – demographic

Characteristics	Physical activity levels (%)		Significance (P-value)
	Sedentary	Moderate	
Gender			0.812**
Male	39	30	
Female	16	15	
Age			0.520**
26-30	22	2	
31-35	20	14	
36-40	8	2	
41-45	2	3	
46-50	1	0	
51-55	2	1	
56-60	1	0	
Marital status			0.240**
single	19	22	
Married	36	23	
Divorced	1	0	
Level of education			0.289**
Diploma	42	28	
BSc degree	9	13	
Masters	4	3	
Work experience			0.640**
0-4 years	30	28	
5-9 years	21	14	
10-14 years	2	1	
15-19 years	1	0	
20-24 years	0	1	
25-29 years	1	0	
30-34 years	1	0	

****Not significant at 5% level**

4.4 PHYSICAL ACTIVITY PROMOTING PRACTICES

Physical activity promoting practices were analyzed depending on the participant's level of physical activity were high, moderate or poor. Based on the results 65.3% had high promoting practices, 31.5% had moderate promoting practices and 3.3% had poor promoting practices. No statistically significant association was found between physical activity levels and the promoting practices since the chi-square test revealed a high p-value ($p > 0.05$) associated with its statistic. Table 4.7 presents a summary of the physical activity promoting practices.



Table: 4.7 Physical activity levels in relation to physical activity promoting practices

Characteristic	Physical activity (%)			Significance (p-value)
	sedentary	Moderately active	Vigorously active	
Promoting practices				0.983**
Poor	0.0	1.1	2.2	3
Moderate	1.1	13.0	17.4	29
High	3.3	27.2	34.8	60
Total (N)	4	38	50	92

****Not significant at 5% level**

Participants below the age of 35 years were considered to have higher promoting practices (51%) than any other age group. Of those, males (45.7%) had high promoting practices compared to the females (19.6%). No statistically significant association was found between physical activity promoting practices and age, marital status, education and working experience ($p > 0.05$). The Table 4.8 presents the results of the physical activity promoting practices among the respondents.

Table: 4.8 The significant relationship between physical activity promoting practices and socio –demographic (N=92)

Characteristics	Physical activity promoting practices			Significance (p-value)
	(%) Poor promoting practices	Moderate promoting practices	High promoting practices	
Gender				0.989**
Male	2.2	21.7	45.7	
female	1.1	9.8	19.6	
Age				0.996**
26-30	2.2	14.1	29.3	
31-35	1.1	10.9	21.7	
36-40	0.0	4.3	5.4	
41-45	0.0	1.1	4.3	
46-50	0.0	0.0	1.1	
51-55	0.0	1.1	2.2	
56-60	0.0	0.0	1.1	
Marital status				0.120**
Single	3.3	8.7	28.3	
Married	0.0	22.8	35.9	
Divorced	0.0	0.0	1.1	
Level of education				0.972**
Diploma	2.2	22.8	45.7	
BSc degree	1.1	6.5	14.1	
Masters	0.0	2.2	5.4	
Work experience				0.937**
0-4years	2.2	17.6	37.4	
5-9 years	1.1	11.0	23.1	
10-14 years	0.0	0.0	1.1	
15-19 years	0.0	0.0	1.1	
20-24 years	0.0	0.0	1.1	
25-29 years	0.0	1.0	0.0	
30-34 years	0.0	0.0	1.1	

****Not significant at 5% level**

4.5 PHYSICAL ACTIVITY PROMOTING STRATEGIES

The following Table presents results of the physical activity promoting strategies with regard to physiotherapists promoting physical activity through discussing physical activity, giving information on physical activity and use of written material on physical activity. The results indicate that discussing physical activity and giving information on physical activity were the most form of health promoting strategies used by the participants. Among the participants 53.3% of vigorously active, 41.1% of the moderately active, and 3.3% of the sedentary participants, discussed physical activity with their clients. There was a statistically significant association between physical activity levels and discussing physical activity ($p=0.006$). The results indicate that 52.2% vigorously active, 40.2% moderately active and only 4.3% of the sedentary participants gave information related to physical activity to their clients. No statistically significant association was found between physical activity levels and giving information on physical activity ($p>0.05$). The results show a big percentage of the vigorously active participants (50%), 38% of the moderately active and 3.3% of the sedentary participants did not give out written material to their clients. No statically significant association was found between physical activity levels and giving out written material ($p>0.05$). The results of physical activity promoting strategies are presented in Table 4.9.

Table: 4.9 Showing the significance of physical activity levels and Physical activity promoting strategy (N=92)

Promoting strategies	Physical activity levels (%)			Chi-square statistic (p-value)
	Sedentary	Moderately active	Vigorously active	
Discussion of Physical activity				0.006*
Discuss	3.3	41.1	53.3	
Do not discuss	1.1	0.0	1.1	
Information Disseminate				0.874**
Give PA information to clients	4.3	40.2	52.2	
Do not give information	0.0	1.1	2.2	
Use of written material				0.496**
Give written material	1.1	3.3	4.3	
Do not give written material	3.3	38.0	50.0	

***Significant at 5% level, ** Not significant at 5% level**

SECTION B: QUALITATIVE RESULTS

4.6 DESCRIPTION OF THE PARTICIPANTS

A focus group discussion was conducted with 10 participants from those who had answered the questionnaire earlier in this study. Table 4.10 demonstrates the characteristics that were considered in purposive selection of the participants which include Age, gender, work experience and participation in physical activity. 70% were Male participants were while 30% were female. The participants were aged between 27 and 51 years (mean age = 34.3), 70% were married, and 50% of the participants participated in physical activity. The mean work experience among the participants was 5.8 years as shown in Table 4.10 below.

Table: 4.10. Table showing the description of the participants

Participants	characteristics				
	Age	Gender	Marital status	Work experience	Promotion of physical activity (PA)
P1	37	Male	Married	7 years	yes
P2	32	Male	Married	3 years	yes
P3	51	Female	Married	25 years	No
P4	43	Male	Married	6 years	Yes
P5	33	Female	Married	8 years	No
P6	34	Male	Married	6 years	yes
P7	28	Male	Single	3 years	No
P8	30	Male	Single	3 years	No
P9	27	Female	Married	2 years	Yes
P10	28	Male	Single	1 years	No

4.7 BARRIERS TO PHYSICAL ACTIVITY HEALTH PROMOTING PRACTICES

The purpose of the study was to explore the barriers to promoting physical activity. This study describes professional issues that have come to light as physiotherapists reflect on how they promote physical activity to their clients. The physiotherapists highlighted the barriers to promoting physical activity. In the focus group discussions with the participants, five themes emerged as the barriers to promoting physical activity among clients. The themes and subthemes are presented in Table 4.11.

Table: 4.11. Table showing Themes and Sub-Themes

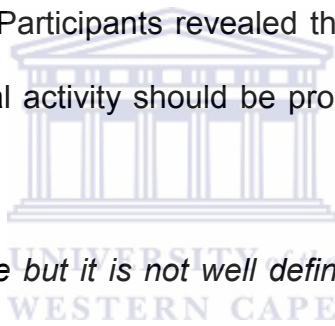
NO	THEMES	SUB-THEMES
1	Policy on physical activity	Government policy on physical activity Institutional policy on physical activity
2	Time management	Time factors
3	Cultural influence on physical activity	The role of culture influence on physical activity
4	Environmental influence on physical activity	physical factors (infrastructure)
5	Workload	Nature of work

4.7.1 POLICY ON PHYSICAL ACTIVITY

The theme relates to policies on physical activity as they were described by big number participants. Policies can favour or discourage the promotion of physical activity. The issues with the policy were presented into two sub-themes:

4.7.1.1 GOVERNMENT POLICY ON PHYSICAL ACTIVITY

The main issues that arose from the participants' expressions under this sub-theme were: poor outcome measures, decreased responsibility and role description and decreased process measures. Participants revealed that the policy does not fulfil their expectations as to how physical activity should be promoted. The following quotations express their views:



“The government policy is there but it is not well defined to give good directions such that institutions know their responsibility in encouraging their employees in engaging in physical activity and sports and also give a universal day for all institutions to allow their employees to participate in physical activity.” (P7).

“The policy is not good enough since it does not have a mechanism for following up on institutions that do not allow their staff to participate in physical activity. For example in our institution we are not allowed to go for sports and we have complained to the ministry responsible but no solution has been given.” (P3)

“The policy only works for a few government institutions yet it is meant to be national policy for all government and private institutions and these institutions are not penalized

for not allowing their staff to participate in physical activities and this makes the implementation poor from the government.” (P10).

Other respondents had this to say on the government policy as quoted below:-

“Although the policy is there, the government does not allocate a budget for physical activity to institutions and this makes it a problem for institutions to buy equipments for sports and promote physical activity.” (P8)...

“In this policy the role of institutions is not clearly defined since these institutions always say they do not have money to promote physical activity and also pay for their employees for sports such as swimming, gym, tennis and many more.” (P1)

4.7.1.2 INSTITUTIONAL POLICY ON PHYSICAL ACTIVITY

In this sub-theme there were responses to the lack of institutional policies on physical activity. Some participants expressed their concern on the lack of institutional policy on physical activity as reflected in the quotes below:

“For example in our institution there is no policy on physical activity so we don’t do any physical activity initiated by the institution we work for...we don’t know the reason for that?!!!” (P9)

“Due to lack of policy from our institution to promote physical activity, this may stop the institution from improving the staff’s knowledge on physical activity for example there is a lack of books or articles on physical activity in the library.” (P6)

“In other institutions there is a specific day to do physical activity for example every Friday afternoon but our institution does not give any day to do sports / recreation physical activity and this is the reason why many people are not motivated to physical activity here.” (P6)

4.7.2 TIME MANAGEMENT

Under this theme participants raised the issue of managing time due to other obligations or working long hours and it was reflected in the following quotes:

“Due to other additional responsibilities we have, for example there are some staff among us who have opted to continue their further studies so when they are not working they go for studies, so time is a barrier.” (P4)

.. “Facilities are there but we don’t have time to do sport. We use the time meant to do sports for other business since life is becoming tougher you can not only survive on the monthly salary so you have to find other means to increase your income and improve your living conditions.” (P3).

“Time may be a factor because we can’t get time during working hours due to the big number of appointments we give to our clients. It’s very hard for us to make a follow up and we can’t go out to their homes.” (P2)

4.7.3 THE ROLE OF CULTURAL INFLUENCE ON PHYSICAL ACTIVITY

Under this theme the cultural barriers highlighted was linked to gender in terms of role identification and dress code. A number of participants reported culture was one of the

important barriers to promote physical activity. This is how they expressed themselves:-

“The Rwandan Culture plays a big role in influencing physical activity. It prevents some groups of people from participating in physical activity for example women were not allowed to participate in physical activity, they were only allowed to do simple tasks like cooking and other tasks that did not require use of energy. It encouraged men because they had games to play and any strong man would be taken to the king’s palace and this inspired every young man.” (P6)

“I would say our culture to some extent promotes physical activity indirectly through work. But if we talk of the advanced physical activity then in our culture it’s a barrier because of how people dressed some time back, women were required to dress in long dresses. This would hinder or discourage doing physical activity. Seeing a woman running on the street would not seem normal to people.” (P2).

“In our culture, a good Rwandan woman is the one who is big /fat. Doing physical activities /sports, a woman would lose weight, this may not make her attractive to men therefore this stops women from doing physical activity.” (P6)

4.7.4 ENVIROMENTAL INFLUENCE ON PHYSICAL ACTIVITY

Most participants expressed concerns over the surrounding environment for not facilitating physical activity. This is what some of the participants had to say as presented below:

“For me the sports centre is a long distance away from where I stay, so I have to walk or pay for transport, therefore financial means also limits me from going there.” (P6)

“In our area where I stay there are no communal sports centres and the nearest sports centre is a private centre which is expensive. This makes participating in physical activity/sports expensive which many people cannot afford.” (P8)

“We also have a problem of sports centres because we don’t have one and the nearest playing field is around 5 kilometres away from my home and prevents me from doing sports/ physical activity.” (P9)

4.7.5 NATURE OF WORK

Some participants reported that the nature of their work prevents them from promoting physical activity and this was how they expressed their concerns as quoted below:

“The nature of our work and the time stops us from doing Physical activity. We work from Monday to Saturday and there is too much work and we are few physiotherapists so we are overloaded.” (P9)

“The nature of our work is much too demanding in terms of the number of clients we receive per day. Therefore we cannot find time for physical activity”. (P9)

“We have a lot of work for instance you can have 15 patients a day, the only time you have is for treatment at work. You cannot get time to follow up patients in their home or design a program even after work or on weekends. This will create a barrier in the promotion of physical activity.” (P2)

4.8 SUMMARY

The aim of the current study was to establish the physical activity levels of physiotherapists in Rwanda and their physical activity health promotion practices. The majority of physiotherapists were physically active, and promoted physical activity. No significant association was found between their physical activity levels and their physical activity promoting practices. Physiotherapists highlighted a number of barriers to physical activity promotion which were presented in five themes and substantiated with verbatim quotations obtained from focus group transcripts. The views on aspect related to barriers to promote physical activity were highlighted in this chapter. The findings are discussed in the next chapter.



CHAPTER FIVE: DISCUSSION

5.1 INTRODUCTION

The aim of this current study was to establish the physical activity levels of physiotherapists in Rwanda and their physical activity health promotion practices. Furthermore, this chapter discusses the results of both the quantitative and qualitative phases of this study in the context of the aim and the objectives of the current study with reference to relevant literature. The findings are discussed in relation to previous similar studies.

5.2 SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE QUANTITATIVE PHASE

The response rate in the study was 88% which indicates a fairly high level of interest in the topic. The participants in the current study indicated a high level of males. This is an issue that is still being debated in the field of medical education. Butler and Mason (2010) concluded that “Greater support from medical institutions and education programs is needed to establish gender equitable environment.” The age ranged from 26 to 60 years, with the average age 32.49 (SD= 6.56) .This sample age made a representation for both young and old adults. However, the majority of participants age was <45. This represented a young working age and this may be due to the fact that the physiotherapy profession is new in Rwanda. It only started after the 1994 genocide and most of the physiotherapists either came from outside of Rwanda or were educated after 1994 when a physiotherapy program was introduced. A large number of

physiotherapists in the current study had a diploma and not a degree. This is because the institute that trained physiotherapists had a mandate to train physiotherapist at a diploma level until 2009 when the first BSc students graduated. As already mentioned physiotherapy services were new in the country compared to other health professions. As students graduated after the war, most physiotherapists had working experience of less than 10 years.

5.3. PREVALENCE OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS

Physical activity has been globally recognized to have the solution and prevention of increasing chronic diseases of lifestyle. Increase in physical inactivity is evidence that the world population is engaging less in physical activity (WHO, 2010a). Gosselink (2008) highlighted that health professionals, especially physiotherapists are in a better position to promote physical activity among their clients. They have the knowledge and skills in physical activity and are therefore suitable for promoting physical activity.

In the current study physiotherapists were categorized into three physical activity levels which were sedentary, moderately active and vigorously active. Physiotherapists who accumulated MET-minutes/week been 0-599 were sedentary, those who accumulated 600-2999 MET-minutes/week were moderately active while who accumulated above 3000 MET-minutes/week were regarded as vigorously physically active (WHO, 2003c). The moderately and vigorously physically active were regarded as active while the

sedentary are inactive. Physical activity participation was then assessed in three different domains: physical activity participation at work, leisure time/recreational activities and transport. According to the findings in the current study physiotherapists were most active at work followed by recreational domain and then transport domain. These findings are different from other studies conducted in other populations. Studies conducted by Kabanda (2008); Baharn, Abbas, Kamal, and Fakhro, (2003); Mukaruzima (2010); Karuguti (2010) reported in their respective studies that physical activity was mostly done in the work domain followed by transport domain and then the recreation domain. The difference between physiotherapists and the other sample population may be due to their knowledge of physical activity acquired during their training when still in school compared to other populations. Although, globally people are becoming less active, among various populations it seems different among physiotherapists. A study conducted in Sweden by Kamwendo (2000) comparing nursing students, occupational therapy students and physiotherapy students, indicated that physiotherapy students were more active than other students. These findings give support to the current study that indicated that the majority of physiotherapists are active. The results of the current study were compared to other health professionals since few studies were found that were conducted on physiotherapists. The findings of the current study were different from Naidoo and Coopoo (2007) in South Africa who found that most nurses working in public hospitals were considered to be sedentary.

Literature indicates that physical activity participation declines with the increase in age. According to a study by Trost Bauman, Sallis and Brown (2002) physical activity is

influenced by age and gender citing that older people, especially females engage in less physical activity. In the current study it was interesting to find that there were no older physiotherapists who were categorized as sedentary compared to young physiotherapists. These findings are contrary to the findings in the general population where research has proved that individuals are less active as they grow older (Caspersen, Pereira & curan, 2000). Although this may be true to other populations, further studies have to be conducted in other countries with much older physiotherapists. However these findings are supported by Bahram *et al.*, (2003) in Bahrain older doctors were found to be more active than their younger counterparts. Some physiotherapy treatment techniques involve exercises. This may be the reason why most physiotherapists reported high levels of activity. In the current study no older physiotherapists were reported as sedentary compared to the younger physiotherapists. Working experience as a physiotherapist may have had an influence on participating in physical activity. Through experience one acquires more knowledge and since physiotherapists are at the centre of managing some of the CDL, this cautions them to maintain their health.

According to the finding in the current study, female physiotherapists were found to be more active than other females in other population samples. These findings are supported by Kagwiza *et al.*, (2005) that in Rwanda, a large number of women working in offices lived a sedentary lifestyle. Furthermore, the findings of the current study are supported by Karuguti (2010) finding that in Tanzania female doctors were physically less active. This gives an impression that female physiotherapists adhere to the

knowledge and skills about physical activity they acquire during their physiotherapy training. This may not be the only reason why female physiotherapists are more active than other females in the various population samples. Behaviour influence may also contribute to females being physically active as reported by Robbins, *et al.*, 2009. Although some physiotherapists in Rwanda reported that the policy on physical activity was not suitable for the promotion of physical activity, the mere fact that it exists to might have to some extent encouraged some physiotherapists to participate in physical activity. Therefore, it should not be taken as a total barrier to promoting physical activity.

The results of the current study indicate that married people were more active than those not married. These findings are similar to the study conducted in Rwanda by Kabanda (2008) who also revealed that married individuals were more active than single individuals. These findings are also supported by Mukaruzima (2010) who stated that 97.8% of married individuals were active. Although little literature exists on the role of a family in physical activity participation, Katzmarzyk *et al.*, (2007) highlighted that physical activity levels may be affected by family norms and habits. Married couples may be motivated by their spouses or their children in physical activity participation.

Physiotherapy treatment techniques include exercises as treatment technique and sometimes involve demonstrating to the patient/client how these particular exercises should be done. The working environment might also include climbing up and down stairs in some hospital buildings. Involvement in ward rounds, which are far apart, encourages physiotherapists to indirectly engage in physical activity at work. Most

physiotherapists complained of too much work. These may be some of the reasons why most physiotherapists were accumulating more MET-minutes/week at work than recreation and transport, therefore becoming highly active at work.

In various sample populations, physical activity in the recreational domain is less than in any other physical activity domain. In the current study, findings indicated that physiotherapists were active in this domain. These results differ from other sample populations; Mukaruzima (2010) found out that the majority of nurses did not participate in recreational activity and Karuguti (2010) also found that most medical doctors in Tanzania did not engage in recreational activity. The reason why physiotherapists may be engaged in recreational activity may be a result of the acquired knowledge they get from their career training. Some physiotherapists may also be influenced by behaviour influence towards physical activity as highlighted by Robbins, *et al.*, (2009).

Transport has been considered to be the domain in which most individuals accumulate MET-minutes/week through walking to and from work, shopping, and going to church. In the current study it was different because transport was the domain physiotherapists scored the lowest mean MET-minutes/week. The reasons may be health professionals are underpaid in Rwanda which makes it difficult to afford the cost of public transportation. They then find housing near to their place of work and since most district hospitals are in the rural area, staff quarters are within the hospital premises.

5.4. HEALTH PROMOTION STRATEGIES AMONG HEALTH PROFESSIONALS

Physiotherapists are perceived as experts in physical activity. It is in this regard that their clients/patients and other health professionals respect their advice concerning health matters. This puts physiotherapists in the best position to advocate and influence their clients' participation in physical activity (Gosselink, 2008). The majority of physiotherapists in the current study were active. It is also indicated that the majority of physiotherapists were good promoters of physical activity but there were no statistical significance between the physical activity levels of physiotherapists and their promoting practices. In the current study discussing physical activity, giving information on physical activity and the use of written materials on physical activity were the strategies used in promoting physical activity to clients/ patients. These strategies are similar to Shirley *et al.*, (2010) in a study conducted in New South Wales Australia reported that physiotherapists used some of these strategies to promote physical activity.

The most common forms of health promoting strategies were giving patients verbal information and discussing the importance of physical activity. The findings in the current study are similar to Shirley *et al.*, (2010) finding that most physiotherapists discussed and gave more information of physical activity than any other strategy in that study. The high levels of discussing and giving information may be adopted by physiotherapists to promote physical activity since it does not require any planned time. It can be done either during consultations or during treatment session. However, the current study reveals that only a small percentage of physiotherapists made use of written materials pertaining to physical activity. Most physiotherapists may attribute this

to a lack of time and limited resources to print and make copies of material. This was similar to findings in other health professions like doctors, Sciamana *et al.*, (2004) findings indicated that the majority of doctors in USA did not use written materials or give written exercise plans to their patients. It was also revealed by McKenna, Henderson, and Baic, (2004) in the UK that it was easier for dietitians to discuss physical activity than giving written material since it's time consuming and costly. We can argue that although physiotherapists seem to be good physical activity promoters, they only use methods that are convenient for them. Methods like, discussing physical activity and giving out information on physical activity and not using written materials, arguing that it's time consuming and costly. We may say physiotherapists are not living up to expectations in promoting physical activity. As health professionals we need to realise that both written and oral communication is important in patient-service provider relationships. According to Givaudan, Pick, de Venguer and Xolocotzin (2002), the interaction between oral and written language is decisive to health care promotion and enabling patients to become effective health care partners.”

5.5. STRATEGIES USED TO PROMOTE PHYSICAL ACTIVITY

The ability to promote physical activity to a patient/client that enhances healthy lifestyle behaviour is strongly based on personal behaviour and to some extent acquired knowledge and skills. This has been evident to physiotherapists since most physiotherapists acquired knowledge on physical activity. In the current study the

majority of physiotherapists were active and in return a large number of physiotherapists had good physical activity promoting practices. This is in agreement with Shirley *et al.*, (2010) that physiotherapists in New South Wales, Australia because of their acquired knowledge, promoted physical activity. These findings were also similar to other studies in other health professions who had less knowledge on physical activity which in turn led to low levels of physical activity promoting practices. The results of the current study concur with the finding by McKenna, et al., (2004) in the UK on dietitians who had improved knowledge on physical activity through training and that led to their improved physical activity promoting practices. A decade ago McDowell, McKenna and Naylor (1997) found that 80% of practicing nurses who were investigated in England and had attained training on physical activity, promoted physical activity to their patients. There is evidence that health professions who had improved knowledge on physical activity would in turn promote physical activity. Furthermore, Perreault (2008) highlighted that the conceptualization of health promotion in physiotherapy is different from other fields of health promotion which emphasize empowerment as the central concept of health promotion. Health education is the most emphasized health promotion strategy in physiotherapy. Therefore physiotherapists should be encouraged and facilitated to improve their knowledge on physical activity and how to promote physical activity to their clients/patients. Simon *et al.*, (2009) further stressed that physiotherapists should prioritize and organize their efforts based on their skills and knowledge of physical activity and be guided by community preventive evidence based recommendations for promotion of physical activity.

In the current study, gender did not influence health promoting practices. The findings of the current study differ from Karuguti (2010) who reported that female doctors were better counsellors than their male counterparts. The reason for this trend in the current study may be that female physiotherapists are equally active as their male counterparts as this might influence their promoting practices.

It is believed that physiotherapists who were physically active during leisure time/ recreation activities, stood a better chance to promote physical activity because they already had a personal initiative to participate in physical activity (Douglas *et al*, 2006). The current study findings confirmed this assumption since the majority of physiotherapists who were active in the recreational domain also had good physical activity promoting practices. The current study findings revealed that married participants were better physical activity promoters than single participants although no statically significant association was found between physical activity promoting practices and marital status. Since the findings in the current study indicated that married physiotherapists had higher physical activity levels than the singles as highlighted by Douglas *et al.*, (2006) that when health professionals (physiotherapists) are active, in turn they will be good physical activity promoters. The current study is a confirmation of this literature. There was no literature found backing working experience and promoting of physical activity but the current study results indicated that physiotherapists with a higher working experience were better at promoting physical activity than those with less working experience. We may argue that working experience may influence physical activity promoting practices. Since experience may influence behaviour change in

individuals and literature highlights that behaviour influences physical activity participation, we can say it can also have influence on promoting practices. Further research needs to be done on this assumption. Karuguti (2010) highlighted that there is a strong relationship that exist between physical activity participation and counselling practices and this seems to be true of the current study.

There are few studies on the promoting practices of physical activity among physiotherapists. Less literature was found and those found were mainly on other health professions. This has been the first study to be conducted in Rwanda but its findings have been compared to other studies in Europe and U.S.A, although the setting and the sample population was different. The findings from this study have been different from other studies done elsewhere in different sample populations probably because of the knowledge, skills and the nature of this profession.

Literature says little is known about the effect of physiotherapists as role models from a patient perspective (Verhagen & Engbers 2009). However some researchers have highlighted that role modelling is paramount in healthy lifestyle. Literature further suggests that observing a model is part of a learning process which involves sharing of information and experience. Physiotherapists who are role models may be in a position to explain more to a client about his/her complaints and share the benefits of physical activity with their clients/ patients rather than only sharing the theoretical knowledge (Kamwendo 2000).

5.6 BARRIERS TO PROMOTION OF PHYSICAL ACTIVITY AMONG PHYSIOTHERAPISTS

The current study describes professional issues that have come to light as physiotherapists reflect on how to promote physical activity to their clients. The physiotherapists highlighted the barriers to promoting physical activity.

Physical activity promotion can be affected by individual or collective factors or barriers that can discourage an individual or a population sharing similar characteristics in promoting or engaging in physical activity. Allison *et al.*, (2005) highlighted that a number of barriers prevent people from participating in physical activity and it is believed that to achieve good results from health promotion all the barriers should be identified and cleared. The current study highlights some of the barriers to physical activity promotion and participation presented by the participants.

In the focus group discussions with the participants, five themes emerged about the barriers to promote physical activity among physiotherapists.

5.6.1 POLICY ON PHYSICAL ACTIVITY

Participant views on physical activity policies were discussed and these included government policy and institutional policy on physical activity.

5.6.1.1 GOVERNMENT POLICY ON PHYSICAL ACTIVITY

Most participants revealed that the policy is in place but it does not fulfil their expectations as to how physical activity should be promoted. As highlighted by the participants that the policy is in place but it's not enough. The findings in the current study concur with the WHO, (2008c) which highlights that policies should be designed to address physical activity deficit. Such health policies have enormous opportunity in advancing a healthy population and this can be realized through policy that fosters change in the society through cultural change. The results of this study were in agreement with Katzmarzyk *et al.*, (2007) who acknowledged that policies are some of the barriers to participating and promotion of physical activity although the study was done on different samples and settings.

The participants in the current study expressed the lack of provision of incentives by the policy. The findings in the current study concur with Shirley *et al.*, (2010) that lack of incentives for physiotherapists was one of the barriers in promoting physical activity in New South Wales, Australia. Similarly the World Health Organization (2008c) agrees that in most governments there is no policy on incentives for health professionals who promote physical activity. Therefore government's policies on physical activity should put in place incentives to encourage health professionals to engage in preventive services, dedicating more time to promoting physical activity. With more health professionals especially physiotherapists engaging in the promotion of physical activity this can increasingly save the burden of increasing CDL in the population. Physiotherapists having the knowledge on physical activity are in the best position of

any other health profession to promote physical activity. The policies put in place by the government should have an upper hand in facilitating the promotion of physical activity.

As expressed by the physiotherapists in the current study, the policy on physical activity is not well designed. This implies to some countries that their policies on physical activity are not well designed to really promote physical activity. It is with this regard that the WHO (2008c) recommended that policies on promoting physical activity should involve all the stakeholders, political will and key elements such as top management support, effective communication, forming employee advisory boards, supportive environment and use of incentive setting goals. It should be fully funded to achieve its intended goal. For the policy to be effective it should be well understood by every stakeholder who should take responsibility in implementing it. There were complaints from the World Health Organization (2007) highlighting that national goals and objectives should be set according to the type of physical activity promotion issues to be addressed in any given country. There was evidence from participants in the study that the policy may not be inclusive and does not in part address the issues as set by the WHO, hence becoming a barrier to promoting physical activity. Proper and Van Mechelen (2007) further emphasized that the policies aimed at preventing NCDs through promoting Physical activity in the work place can be strengthened through the institutional's objectives with respect to both organizational-wide financial impact, and the individual- level benefits to health and well-being of the employees. Notwithstanding the burden of budget deficits in most developing countries, including Rwanda government should increase spending on programs meant to promote physical activity

which in turn will reduce the burden of CDL diseases. This can be done through improving infrastructure. Furthermore, funding to implement physical activity policies and plans is the basis for any action to promote physical activity. It is therefore emphasized that government, non-government organizations and the private sector should provide the funds and they should be sufficient and sustainable for the type and scale policy to be implemented (WHO, 2007).

Some of the participants expressed lack of infrastructure such as sports centres and playing fields and those available are not accessible to all. It was interesting that physiotherapists took this as an excuse as physical activity for health benefits can even be done in homes, streets and on the roads. Most physiotherapists did not indicate security as a barrier. This brings us to believe that some physiotherapists in the current study may not have adequate knowledge to which physical activity can bring health benefits. Furthermore, research as to be done in this field.

5.6.1.2 INSTITUTIONAL POLICY ON PHYSICAL ACTIVITY

Some participants in the current study expressed their concerns at lack of institutional policy and those physiotherapists not improving their knowledge on physical activity. Improving knowledge includes reading, thus libraries should have enough materials on physical activity. With no policy on physical activity it becomes difficult for institutional managers to have the zeal to find funds to equip libraries. Also, physiotherapists being the experts in this field should fight for their right to improve their knowledge through

constantly reminding their managers and other non-government organizations in their line of practices for training on physical activity.

Participants in the current study reported that the policy was not well defined and institutions did not know which were their responsibilities and those of the government. World Health Organization (2007) highlights that for national policy to be implemented effectively all stakeholders should comply and develop institutional policies that work hand in hand with the national policy and have effective collaboration in all physical activity programs. Therefore responsibility should be defined at every level so that activities should not overlap.

The study findings have observed that the policy on physical activity in Rwanda does not have a mechanism for monitoring and evaluation. Therefore most institution managers are not bothered in promoting physical activities and improving the well-being of their employees. As already mentioned above, all stakeholders should take responsibility for promoting physical activity and therefore the policy should include a mechanism for evaluation and monitoring as cited by WHO (2007). The blame should not only be put on the institutions. Physiotherapists should find time and not wait for their institutions. It's to the benefit of their health, institution policies to emphasize good implementation; in return this can facilitate promoting physical activity.

5.6.2 TIME MANAGEMENT

In the current study most participants raised the issue of time due to other obligations or long working hours. These results concur with most studies done in Europe and

America in other health professions. The findings of the current study concur with Shirley et al., (2010) finding that physiotherapists and physiotherapy students in New South Wales, Australia reported time as a barrier to promoting physical activity. Furthermore, in a study done in Tanzania by Karuguti (2010) results were similar to the current study where medical doctors reported time as one of the barriers to promoting physical activity among their clients. As mentioned by the participants, increased cost of living in most developing and developed countries make people work extra time to improve their income, hence not finding time for physical activity. According to some participants a number of physiotherapists are upgrading from an advanced diploma to a BSc degree. Therefore except for time at usual work, the rest of the time is put into their study programs. This has not only affected physiotherapists but also the whole of the health profession. Most medical staff opt for further studies, leaving no time for physical activity. Similarly Douglas *et al.*, (2005) highlighted that nurses reported that a lack of time prevented them from promoting physical activity. Physiotherapists in Rwanda are no exception, since they also reported a lack of time due to other responsibilities.

5.6.3 THE ROLE OF CULTURE IN INFLUENCING PHYSICAL ACTIVITY

A number of participants reported that culture was one of the important barriers to promote physical activity. A comparison was made in the findings of the current study and the one carried out in USA by Henderson and Ainsworth (2001) a decade ago on the Native American Indian women on barriers to participate in physical activity. This comparison was done with caution since it was in a different setting and sample. Since culture and physical activity were constant to both studies a comparison was made.

Cultural barriers were similar to the current study and highlighted that cultural values sometimes give people an identity which in turn has a great impact on participating and promoting physical activity. In the current study finding men and women were not given equal chances in participating in physical activity, hence becoming a big problem for whoever had to promote physical activity. These findings are in total agreement with Henderson et al., (2001). However there are some studies that have shown that personal and cultural values intersect. For example people who are motivated and love sports/ physical activity would not be hindered by their cultural taboos (Henderson et al., 2001). This means extra effort is required in addressing the cultural barriers. As in most African societies, cultural beliefs are important for most people, therefore the issue of culture should first be addressed. However a study conducted by Murrock and Madigan, (2008) in the USA contradicts the finding of the current study, saying that culture in one way or another emphasizes and promotes physical activity. In every culture traditional dances and lifestyle activities are encouraged. No culture promotes laziness amongst it's people and this was a way of promoting physical activity. It seems interesting that physiotherapists in Rwanda viewed physical activity as only organized activity. They did not consider lifestyle activities as part of physical activity. Though women were not allowed to participate in games they had other activities to do like traditional dancing, cultivating, carrying food and water and many other duties. All these activities were indirectly part of physical activity.

In the study findings, some participants reported a number of cultural beliefs amongst the Rwandan population that stopped women from participating in physical activity and hindered the promotion of physical activity. It has been difficult to find similar studies on cultural barriers influencing participation and promotion of physical activity amongst physiotherapists. However comparisons were made with caution to other studies due to the difference in the samples. It is true that the culture has influence on physical activity, though some people have interpreted it as both positive and negative influence but researchers have not exclusively explored the positive aspects of culture into physical activity (Murrock *et al.*, 2008). In a number of cultures physical activities are viewed as lifestyle activities. With such activity one can gain health benefits but due to the modernizing world people tend to move away from doing things in the traditional way. Using modern technology reduces their lifestyle and occupational activities (Murrock *et al.*, 2008). The findings in the current study are similar to Walseth and Fasting (2004) who highlights that women in most African cultures were left out of recreational activities and it was only left to men and boys. Women had other tasks (activities) to fulfil in their daily lives and these contributed to their health benefits. To improve such cultural beliefs as mentioned by the participants in the current study, the World Health Organization highlighted that for national policies and plans on physical activity to be implemented and be successful, they should be socially inclusive and participatory. Therefore cultural ties and influence should be considered. According to the World Health Organization (2005) a study carried out in Singapore revealed that for physical activity promotion to be effective, all the ethnic groups in Singapore had to be included. It was also noted by

the participants in the current study that their culture is a barrier to the promotion of physical activity; therefore the policy should be designed to break down such barriers.

5.6.4. ENVIRONMENTAL INFLUENCE ON PHYSICAL ACTIVITY

Most participants in this study expressed concern over the surrounding environment for not facilitating promote physical activity. This was similar what to the WHO (2005) highlighted, that environments should not be barriers to the promotion of physical activity. Instead, environments that promote and facilitate physical activity should be created and supportive infrastructures should be developed by governments and local authorities. Access to such facilities should be increased. Furthermore, the WHO highlights that in most developing countries there are minimal resources and sporting facilities are not prioritized. Even where there is political will there are minimal resources. Therefore governments should encourage non-government organization and the public sector to be part of the solution in increasing sports infrastructures. Where they cannot afford expensive complexes they should encourage people not to wait for these facilities but find other alternatives like mass walking or road running. This can be done by improving security in areas with no security.

Participants in the study raised a lack of resources as one of the barriers to promote physical activity among physiotherapists. Since there are no community centres and playing fields around their communities, it is expensive to engage in physical activity in privately owned centres. These finding are similar to Douglas *et al.*, (2005) finding that

resources may be one of the barriers to promote physical activity. Participants in the study also raised an issue of lack of basic infrastructure in their communities. This was also highlighted by Gallardo, Burillo, Garcí'a-Tasco'n, and Salinero, (2009) that in most of the developing countries there is lack of infrastructure in peri-urban and urban communities that may be a barrier to promote physical activity. Physiotherapists should keep in mind that for one to benefit from physical activity, it is not required to have complex infrastructure and equipment. Physiotherapists should be educated on physical activity that can give health benefits even when done in our homes at no extra cost.

Some participants in the current study blamed their lack of physical activity on their colleagues and families for not encouraging them to participate or promote physical activity. Family members, colleagues and friends can be influential in one being physically active. The finding in the current study were supported by Katzmarzyk *et al.*, (2007) saying colleagues, friends or family members who do not want to take part in physical activity are obviously barriers to promotion of physical activity. Otherwise hand those who participate in physical activity would support and encourage others to participate in physical activity. This was also highlighted by Tergerson and King (2002) that peer motivation was a key factor contributing to physical activity participation among various populations. Even in the current study, colleagues, friends or family members are key factors in promoting physical activity.

5.6.5 NATURE OF WORK

Some participants in the current study reported that the nature of their work prevents them from promoting physical activity. Similarly Douglas *et al.*, (2005) found that most nurses reported that “*I’m busy..., I have a lot of workI am tired...*” were complemented by other studies carried out in other groups of people. Furthermore, Rogers *et al.*, (2005) in Georgia USA highlighted that doctors were prevented from engaging in physical activity due to their work schedules which involves shifts. Allison *et al.*, (2005) reported that work related barriers such as under employment and working shifts among health professionals were common barriers to promote physical activity and participating in physical activity. Like many developing countries medical personnel immigrate to developed countries where there are better working conditions, Rwanda is no exception. It is faced with the problem of having few physiotherapists who are overwhelmed by the number of clients to attend to. In the district hospitals you would find an average of 2 physiotherapists and this means they have to attend to a large number of patients which is a barrier to the promotion of physical activity.

There were few studies done about physiotherapists, but comparisons to other studies has been made to explore the barriers to promote physical activity in other health professions, as expressed by the participants in the study.

5.7 SUMMARY

This chapter discussed the levels of physical activity and their association with various socio-demographic characteristics and findings were in accordance with the objectives.

The results revealed that physiotherapists in this study were physically active compared to other various populations. The current findings also revealed that physiotherapists had good physical activity promoting practices. However the findings also revealed that physiotherapists are faced with challenges/ barriers in promoting physical activity and these barriers were also discussed in this chapter. The discussion further involved comparing results of the current study with other relevant studies that were conducted elsewhere.



CHAPTER SIX: SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 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.

6.2 SUMMARY

The overall aim of the current study was to establish the physical activity levels of physiotherapists in Rwanda and their physical activity health promotion practices. Furthermore, the study explored the barriers to participation and promotion of physical activity. Finally to investigate whether socio-demographic characteristics and physical activity levels have an influence on the physical activity promoting practices among physiotherapists in Rwanda.

Health experts and researchers have highlighted that physical inactivity is becoming a serious global public health problem which is associated with numerous preventable diseases. According to the World Health Organization there has been strong scientific evidence that inadequate physical activity and an unhealthy diet are the major causes of NCDs. Consequently participation in physical activity has been associated with the

reduction of risks of NCDs. Researchers suggest that regular physical activity has positive health benefits.

Researchers have stressed that physiotherapists are in a position to be one of the most effective resources to combat inactivity and effectively promote physical activity to their patients/clients. Researchers clearly state that promotion of physical activity will reduce health care costs, prevent numerous diseases and disabilities and improve quality of life. Health promotion of physical activities serves as an effective intervention. However, little is known about health promotion strategies.

The study setting was in all referral and district hospitals in Rwanda and the study population included all physiotherapists working in these hospitals. A sequential mixed method design was used. In the quantitative phase ninety-two (92) physiotherapists of whom 70% were male, voluntarily participated in the study. Self administered questionnaires were used to collect data. Descriptive and inferential statistics were used to analyze data using SPSS version 18. Chi-square tests were used to determine the relationship between physical activity levels, demographic variables and the promoting practices. The tests were done at significance level of $P \leq 0.05$.

In the qualitative phase a focus group discussion was conducted on ten (10) participants of whom (5) males participated in the current study. Transcribing interviews were done then information was coded into categories. Themes were generated; the use of code-recode procedure was done to increase the trustworthiness. The generated themes were ready for analysis.

A quantitative phase response rate of 88.2% was obtained. The mean age was 32.49 years (SD= 6.56) Males represented by 70% and females 30% of the total participants. The majority of the physiotherapists had a diploma (70%) %, 22% had a BSc degree and 8% had a Masters degree. The majority had working experience of less than 9 years. In the current study 95.6% of physiotherapists were physically active. It was also observed that most physiotherapists were most physically active at work followed by leisure-time and least physically active in transport. Although there were high levels of physical activity among physiotherapists in Rwanda there was no significance between physical activity levels and the socio-demographic characteristics. Furthermore, in this study findings show 97% of physiotherapists had good physical activity promoting practices. Nevertheless there was no significance between physical activity levels and the promoting practices nor promoting practices with the socio-demographic characteristics. The finding in this study highlighted that discussing and giving information on physical activity was the most used way of promoting physical activity, while the use of written material on physical activity was the least used method of promoting physical activity by physiotherapists. The findings reveal that there was significance between physical activity levels and discussing physical activity to patients (P=0.006)

In the qualitative results, physiotherapists reported that the government and the institution policies, cultural influence, time, environmental factors and workload were among the major barriers to promoting and participating in physical activity. Some of these finding were found in other studies. Finally since the study was carried out on

73.2% of all physiotherapists in Rwanda findings therefore reflect that generally physiotherapists in Rwanda are physically active and have good physical activity promoting practices.

6.2 CONCLUSION

The aim of this study was to establish the physical activity levels of physiotherapists in Rwanda and their physical activity health promotion practices. This aim was achieved. In the current study, finding indicated that physiotherapists are physically active and have good physical activity promoting practices. However physiotherapists were faced with a number of challenges in participation and promotion of physical activity. Such challenges were also highlighted. This gives encouragement that the fight against CDL can be achieved with the help of physiotherapists and health professionals.

6.3 STRENGTH OF THE STUDY

The high response rate of 88.5% in the current study is proof that physiotherapists were willing to contribute to the study.

6.4 LIMITATION OF THE STUDY

A bias may have occurred on physical activity levels of physiotherapists since it was a self report and some physiotherapists may have lied about their physical activity levels.

There are some hospitals that employed non-qualified physiotherapists and who were not included in the study.

In some hospitals directors did not give permission to conduct the study and in other hospitals there was a lot of bureaucracy.

6.5 RECOMMENDATIONS

Recommendations are best on the current study findings

- Government of Rwanda together with the concerned ministries and institution may use the findings to improve and review the existing policies to ensure that they are consistent with best practice for effective implementation in promoting physical activity.
- The hospitals are ideal places for physical activity promotion because health professionals especially physiotherapists are in the best position to combat CDL and have an influence over their clients. Therefore, it is recommended that physical-activity promotion intervention be incorporated into the hospital programs and should eliminate some of the barriers by improving the policy on physical activity and other barriers that were highlighted in the findings
- Hospitals should give leisure-time to their employees so that they can engage in physical activity to promote the benefits of physical activity.
- There is a need to improve on the infrastructure by creating more playing fields and sports centres within the communities.

- The ministry of health should provide incentives to its employees/ physiotherapists in order to promote physical activity to their clients/ patients and the general population.



REFERENCES

- Allison, K. R., Dwyer, J. J. M., Goldenberg, E., Fein, A., Yoshida, K. K. & Boutilier, M. (2005). Male adolescents' reasons for participating in physical activity, barriers to participation, and suggestions for increasing participation. *Journal of Adolescent Health, 40*(157), 155-170.
- Armstrong, T. & Bull, F. (2006). Development of the World Health Organization Global Physical Activity Questionnaire. *Journal of Public Health, 14*(2), 66-70.
- Bahram, S., Abbas, B., Kamal, J. & Fakhro, E. (2003). Leisure time physical activity habits among physicians. *Bahrain Medical Bulletin, 25*(2), 80-82.
- Biddle, S.J. H. & Mutrie, N. (2001). *Psychology of physical activity*: Routledge, London.
- Blair, S.N., LaMonte, M.J. & Nichaman, M.Z. (2004). The evolution of physical activity recommendations: how much is enough? *The American Journal of clinical nutrition, 2*(79), 913-920.
- Blair, S.N., Cheng, Y. & Holder, J.S. (2001). Is Physical Activity or Physical Fitness More Important in Defining Health Benefits? *Medicine and Science in Sports and Exercise, 33*(6)379 – 399.
- Booth, M. (2000). Assessment of physical activity: An international perspective: *Research Quarterly for Exercises and Sports, 71*, 114-120.

Bray, S.R. & Born, H.A. (2004). Transition to University and Vigorous Physical Activity: Implications for Health and Psychological Well-Being. *Journal of American College Health, 52(4), 181-188.*

Breslow, L. (1999). From disease prevention to health promotion. *The Journal of the American Medical Association, 281, 1030-1035.*

Butler, K.M. & Mason, J. (2010). Does gender still matter?; Women physicians' self-reported medical education experiences. Retrieved on May 27, 2011 from, www.scholarworks.gvsu.edu/cgi/viewcontent.cgi.

Calvert, M., Shankar, A., Mcmanus, R. & Freemantle, N. (2008). Achieving glycemic control: Current and future management. *Diabetes and Primary Care, 10, (3), 143.*

Caspersen, C. J., Pereira, M. A. & Curran, K. M. (2000). Changes in physical activity patterns in the United States, by sex and cross-sectional age. *Medicine & Science in Sports & Exercise, 32(9), 1601-1609.*

Centers for disease control and prevention. (2009). Physical activity promotion and obesity prevention in WHO European regions. An intersectoral perspective. Retrieved on March 14, 2010 from <http://www.euro.who.int/document>.

Chevan, J. & Haskvitz, E.M. (2010). Do as I do: exercise habits of physical therapists, physical therapist assistants, and student physical therapists. *Journal of Physical Therapy, 90(5), 726-734.*

Chodzko-Zajko, W. & Schwingel, A. (2009). Transnational Strategies for the Promotion of Physical Activity and Active Aging: The World Health Organization Model of Consensus Building in International Public Health. *Quest Journal* 6(1), 25-38.

Cornelissen, V.A. & Fagard, R.H. (2005). Effects of endurance training on blood pressure, blood pressure-regulating mechanisms, and cardiovascular risk factors. *Journal of the American Heart Association*, 46(4), 667-675.

Copeland, K. (1999). *Women's health and physiotherapist*. In Sapsford, R., Bullock-Saxton J. & Markwell, S. (Eds.) *Women's health. Textbook for physiotherapist*, 1-5.

Delisle, T.T., Werch, C.E., Wong, A.H., Bian, H. & Weiler, R. (2010) .Relationship between frequency and intensity of physical activity and health behaviors of adolescents. *Journal of School Health*, 80(3), 134-140.

Douglas, F., van Teijlingen, E., Torrance, N., Fearn, P., Kerr A. & Meloni, S. (2006). Promoting physical activity in primary care settings: Health visitors and practice nurses' view and experiences. *Journal of Advanced Nursing*, 55, 159-168.

Dunn, A.L., Marcus, B.H., Kampert, J.B., Garcia, M.E., Kohl, H.W III. & Blair S.N. (1999) Comparison of lifestyle and structured interventions to increase physical activity and cardiorespiratory fitness. *Journal of the American Medical Association*, 281, 327-334.

Ehiri, E.J. & Prowse, M.J. (1999). Child health promotion in developing countries. The case for integration of environmental and social interventions. *Health Policy and Planning*, 14(1), 1-10.

Faulkner, G. & Biddle, S. (2002). Mental Health nursing and the promotion of physical activity. *Journal of Psychiatric and Mental Health Nursing*, 9, 659-665.

Frantz, J. M. (2008). Advocating evidence based health promotion in physiotherapy, *South Africa Journal of Physiotherapy*, 64(1), 28-30.

Frantz, J. (2009). The views of learners regarding a school based health education programme. *African Journal of Physical Health, Education Recreation and Dance*, 15(3), 409-416.

Gallardo, L. Burillo, P., Garcí'a-Tasco'n, M. & Salinero, J.J. (2009).The ranking of the regions with regard to their sports facilities to improve their planning in sport: The case of Spain. *Social Indicators Research Journal*, 94, 297–317.

Geography of Rwanda (2011). Map of Rwanda. Retrieved on February 28, 2011 from www.geography.about.com/library/cia/blcrwanda.htm.

Gill, J.M. & Cooper, A.R. (2008). Physical activity and prevention of type 2 diabetes mellitus. *Journal of sports medicine*, 38(10), 807-824.

Givaudan, M., Pick, S., de Venguer, M.T.T. & Xolocotzin, U. (2002). Bridging the communication gap: Provider to patient written communication across language and cultural barrier. Retrieved on May 27, 2011 from www.hablamosjuntos.org/pdf_files

Gosselink, R. (2008). Physiotherapists should be leaders in waging the war against inactivity induced chronic diseases. *New Zealand Journal of Physiotherapy*, 36(2), 78.

Government of South Africa (2009). Charter of Physical Activity, Sport, Play and Well-Being for all Children and Youth in South Africa. Retrieved on March 15, 2011 from www.ssisa.com/YouthFitnessWellnessCharter.pdf

Grubbs, L. & Carter, J. (2002). The relationship of perceived benefits and barriers to reported exercises behaviour in college undergraduates. *Family and Community Health*, 25, 76-85.

Gunnevi, S. (2005). Public Health and challenges for physiotherapy. *Advances in Physiotherapy*, 7 (4), 143.

Hagberg L.A. & Lindholm, L. (2006). Cost effectiveness of healthcare based interventions aimed at improving physical activity. *Scandinavian Journal of Public Health*, 34(6), 641-653.

Henderson, K., & Ainsworth, B. (2001). Researching Leisure and Physical Activity with Women of Color: Issues and Emerging Questions. *Leisure Sciences Journal*, 23, 21–34.

Huddleston, S., Mertesdorf, J. & Araki, K. (2002) physical activity behavior and attitudes toward involvement among physical education, health and leisure services pre-professionals. *College Student Journal*, 36, 555-573.

Irvine, F. (2005). Exploring district nursing competencies in health promotion: the use of Delphi technique. *Journal of Clinical Nursing*, 14, 965-975.

Janssen, I. (2007). Physical activity guidelines for children and youth. *Applied Physiology Nutrition and Metabolism*. 32, 109-121.

Johnson, R.L. & Nies, M. A. (2005). Qualitative perspective of barriers to health promoting behavior in African Americans. *Journal of the Association of Black Nursing Faculty*, 16(2), 39-41.

Kabanda, A.M. (2008) Factors associated with participation in physical activity among adults with diabetes mellitus in Kigali, Rwanda. Unpublished Master's thesis. Physiotherapy department. University of Western Cape.

Kagwiza, J.N., Philips, J.S. & Struthers, P. (2005). Physical activity profile of urbanized Rwandan women. *African Journal for Physical Activity, Health Education, Recreation and Dance*, 11(1), 59-67.

Kamwendo, K. (2000). Adherence to healthy lifestyles: a comparison of occupational therapy students with nursing and physiotherapy students. *Scandinavian Journal of Occupational Therapy*, 7(4), 156-164.

Karuguti, M. W. (2010). Medical doctor's physical activity patterns and their advice about chronic diseases of lifestyle risk reduction in Tanzania. Unpublished Master's thesis. Physiotherapy department. University of Western Cape.

Katzmarzyk, P.T., Baur, L. A., Blair, S. N., Lambert, E, V., Oppert, J. M., & Riddoch, C. (2007). International conference on physical activity and obesity in children: summary statement and Recommendations. *Journal of Applied Physiology, Nutrition, and Metabolism* 33,371-388.

Kodama, S., Tanaka, S., Saito, K., Shu, M., Sone, Y., Onitake, F., Suzuki, E., Shimano, H., Yamamoto, S., Kondo, K., Ohashi, Y., Yamada, N. & Sone, H., (2007). Effect of

aerobic exercise training on serum Levels of high-density lipoprotein cholesterol. *Achieves of internal medicine*, 167(10), 999-1008.

Krueger, R. A. & Casey, M. A. (2009). *Focus groups: A practical guide for applied research* (4th Ed.). Thousand Oaks, CA: Sage.

Lambert, V.E. & Kolbe-Alexander, T. (2005). Physical activity and chronic diseases of lifestyle in South Africa. *Oxford Health Alliance Annual Report*, 23-32.

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publication Inc.

Mays, N. & Pope, C. (2000). Qualitative research in health care: assessing quality in qualitative research, *British Medical Journal*, 320(7226), 50-52.

McDowell, N., McKenna, J. & Naylor, P.J. (1997). Factors that influence practice nurses to promote physical activity. *British Journal of Sports Medicine*, 31(4), 308-313.

McKenna, J., Henderson, L. & Baic, S. (2004). A survey to assess physical activity promotion by Registered Dietitians. *Journal of Human Nutrition Dietitian*, 17, 63-69.

Morgan, D.L. (1997). *Focus groups as qualitative research*. 2nd edition. Thousand Oaks: Sage.

Minisante, (2009). Health facilities in Rwanda. Retrieved on June 14, 2010 from www.moh.go.rw.

Morimoto, T., Oguma, Y., Yamazaki, S., Sokejima, S., Nyakayama, T. & Fukuhara, S. (2006). Gender differences in effect of physical activity on quality of life and resource utilization. *Quality of Life Research*, 15, 537-546.

Mukaruzima, L. (2010). The relationship between physical activity and low back pain among nurses in Kanombe Military Hospital. Unpublished Master's thesis. Physiotherapy department. University of Western Cape.

Murray, C.J & Lopez, A.D. (1996). The Global burden of diseases concept. World Health Organization, School of Public Health, World Bank.

Murrock, C.J. & Madigan, E. (2008). Self-efficacy and social support as mediators between culturally Specific dance and lifestyle physical activity. *Research and Theory for Nursing Practice: An International Journal*, 22(3), 192-204.

Nahas, M.V., Goldfine, B. & Collins, M.A. (2003). Determinants of physical activity in adolescents and young Adults: The basis for high school and college physical education to promote active lifestyles. *Journal of the Physical Educator*. 60(1), 42-52.

Naidoo, R., & Coopoo, Y. (2007). The health and fitness profiles of nurses in Kwa-zulu Natal. *Curationis, Research Magazine*, 30, 1-8.

Neuman, W.L. (2000). *Social research methods: qualitative and quantitative approaches*. 4th edition. Boston: Allyn and Bacon.

Nicolass, P.P. (2009). Physical activity promotion in business and industry. Evidence, context and recommendations for national plan. *Journal of Physical Activity and Health*, 6(2), 220-235.

O'Donovan, G. Blazevich, A. J., Boreham, C., Cooper, A.R., Crack, H., Ekelund, U., Fox, K.R., Gately, P., Giles-Corti, B.Gill, J.M.R., Hamer, M., MCDermott, I., Murphy, M., Mutrie, N., Reilly, J.J., Saxton, J.M. & Stamatakis, E.(2010). The ABC of Physical Activity for Health: A consensus statement from the British Association of Sport and Exercise Sciences. *Journal of Sports Sciences*, 28(6), 573–591.

Patton, M. Q. (1990). *Qualitative evaluation and research methods* (2nd ed.). Newbury Park, CA: Sage.

Pender, N.J., Bar-Or, O., Wilk, B. & Mitchell, S. (2002). Self-efficacy and perceived exertion of girls during exercise. *Journal of Nursing Research*. 51(2), 86-91.

Pender, N. (1996). *The Heath promotion model*. In Pender (Ed), *Heath Promotion in Nursing Practice* 3ed. Norwalk, Appleton Lange, 51-75.

Perreault, K. (2008). Linking health promotion with physiotherapy low back pain. A review. *Journal of Rehabilitation Medicine*, 40(6) 401-409.

Plonczynski, D.J., Wilbur ,J.E., Larson, J.L & Keith, T.K. (2008). Lifestyle Physical Activity of Older Rural Women. *Research in Nursing & Health* 31, 501-513.

Pratt, M. (1999). *Current Treatment Options in Cardiovascular Medicine*. Current Science Inc.

Proper, K.I. & Van Mechelen, W. (2007). Effectiveness and cost-effectiveness of worksite interventions to promote physical activity and healthy diet. *WHO/World Economic Forum joint event on preventing non-communicable diseases in the workplace, Geneva.*

Ready, A. E., Butcher, J.E., Dear, J.B., Fieldhouse, P., Harlos, S., Katz, A., Moffatt, M., Rodrigue, M., Schmalenberg, J. & Gardiner, P. F. (2009) Canada's physical activity guide recommendations are a low benchmark for Manitoba adults. *Applied Physiology, Nutrition & Metabolism, 34(2), 172-181.*

Robbins, L.B., Sikorskii, A. Hamel, L.M., Wu, T. & Wilbur, J. (2009). Gender comparisons of perceived benefits of and barriers to physical activity in middle school youth. *Research in Nursing & Health, 32(2), 163-176.*

Rogers, L. Q., Gutin, B., Humphries, M. C., Lemmon, C. R., Waller, J. L., Baranowski, T. & Saunders, R. (2005). A physician fitness program: Enhancing the physician as an "Exercise" role model for patients. *Teaching and Learning in Medicine, 17(1), 27–35.*

Rwanda government. (2005). Promoting sports for good health in Rwanda. *Official Gazette, 5, 15-16.*

Saxena, S., Van Ommeren, M., Tang, K.C. & Armstrong, T.P. (2005). Mental health benefits of physical activity. *Journal of Mental Health, 14(5), 445-451.*

Sciamanna, C. N., Goldstein, M G., Marcus, B. H., Lawrence, K. & Pinto, B. M. (2004). Accuracy of recall of exercise counselling among primary care patients. *Preventive Medicine, 39, 1063–1067.*

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63–75.

Shirley, D., van der Ploeg, H.P. & Bauman, A.E. (2010). Physical activity promotion in the physical therapy setting: perspectives from practitioners and students. *Journal of Physical Therapy, 90*(9), 1311-1322.

Silverman, D. (2000). *Doing qualitative research: A practical handbook*. Thousand Oaks, CA: Sage.

Simon, P., Gonzalez, E., Ginsburg, D., Abrams, J., & Fielding, J. (2009). Physical activity promotion. A local and state health department perspective. *Preventive Medicine, 49* (4), 297-298.

Sothorn, M.S., Loftin, M., Suskind, R.M., Udall, J.N. & Blecker, U. (1999). The health benefits of physical activity in children and adolescents: implications for chronic disease prevention. *European Journal of Pediatrics, 158*(4), 271-274.

Stathi, A., Fox, K.R. & McKenna, J. (2002). Physical activity and dimensions of subjective well being in older Adults. *Journal of Aging and Physical Activity, 10* 76, 17.

Taliaferro, L.A., Rienzo, B.A. & Donovan, K.A. (2010). Relationships between youth sport participation and selected health risk behaviors from 1999 to 2007. *Journal of School Health, 80*(8), 399-410.

Tanasescu, M., Leitzmann, M.F., Rimm, E.B., Willett, W.C., Stampfer, M.J & Hu, F.B. (2002). Exercise Type and Intensity in Relation to Coronary Heart Disease in Men. *Journal of the American Medical Association, 288*(16), 1994-2000.

Tannahil, A. (1984). Health promotion-caring concern. *Journal of Medical Ethics*, 10, 196-198.

Tashakkori, A. & Teddlie, C. (2003). *Handbook of mixed methods in social and behaviour research*. Sage Publication Inc. 17-21.

Tawa, N. (2009). The prevalence of risk factors for non-communicable diseases among people living in Mombasa, Kenya. Unpublished Master's thesis. Physiotherapy department. University of Western Cape.

Tergerson, J.L. & King, K.A. (2002). Do cues, benefits, and barriers to physical activity differ between male and female adolescents? *Journal of School Health*. 72, 374-381.

Trost, S.G., Owen, N., Bauman, A. E., Sallis, J .F. & Brown, W. (2002). Correlates of adults participation in physical activity: review and updates. *Medical science & Sports Exercises*. 34, 1996 -2001.



Tsavourelou, A., Rowe, P., Babatsikou, F. & Koutis, C. (2009). Validation of the activPAL in health promotion context. *Health Science Journal*, 3(2), 105-114.

Tumusiime, D.K. & Frantz, J.M. (2006). Influence of previous participation in physical activity on its perception among tertiary institution students: Physical activity and health. *African Journal of Physical Health, Education Recreation and Dance*, 12(3), 287-297.

US Department of Health and Human Services, (2008). Physical Activity Guidelines for Americans. Retrieved on 27 October 2010 from

<http://www.health.gov/paguidelines/guidelines/default.aspx>.

Vanness D.J. & Tosteson, A.N.A. (2005). Estimating the opportunity costs of osteoporosis in the United States. *Topics in Geriatric Rehabilitation, 21(1), 4-16.*

Verhagen L. & Engbers, L. (2009). The physical therapist's role in physical activity promotion. *British Journal of Sports Medicine. 43(2), 99-101.*

Verhagen, E. A.L.M., Chin A., Paw, M.J.M., van Mechelen, W. & Collard, D.C.M. (2008). Acute physical activity and sports injuries in children. *Applied Physiology, Nutrition & Metabolism, 33(2), 393-401.*

Vogel, T., Brechat, P.H., Lepre^ˆtre, P.M., Kaltenbach, G., Berthel, M. & Lonsdorfer, J. (2009). Health benefits of physical activity in older patients: a review. *The International Journal of Clinical Practice, 63(2), 303-320.*

Vuori, I. (2007) Physical activity and health: metabolic and cardiovascular issues. *Advances in Physiotherapy, 9(2), 50-64.*

Walseth, K. & Fasting, K. (2004). Sport as a means of integrating minority women. *Journal of Sport in Society: Cultures, Commerce, Media, Politics, 7, (1) 109-129.*

Warburton, D.E.R., Nicol, C.W. & Bredin, S.S.D. (2006) Health benefits of physical activity: The evidence. *Canadian Medical Association Journal, 174 (6), 801-809.*

Whitehead, D. (2005). Health promoting hospitals: The role and function of nursing. *Journal of Clinical Nursing, 14 (1), 20-27.*

Whitehead, D. (2004). Health promotion and health education: advancing the concepts. *Journal of Advanced Nursing, 45, 159-168.*

Whitehead, D. (2003). Evaluating health promotion: a model for nursing practice. *Journal of Advanced Nursing*, 41 (5), 490-498.

World Health Organization. (2010a). Global Recommendations on Physical activity for Health. Retrieved on March 2, 2011 from

www.who.int/dietphysicalactivity/factsheet_recommendations/en/index.html

World Health Organization. (2010b). Physical activity and health in Europe: evidence for action. Retrieved on March 2, 2011 from

<http://www.euro.who.int/InformationSources/Publications/>

World Health Organization.(2008a). *Chronic diseases*. Retrieved on October 17, 2010 from www.who.int/topics/chronic_diseases/en/.

World Health Organization / World Economic Forum (2008b). Preventing Non communicable diseases in the workplace through diet and physical activity. Retrieved on November 11, 2010 from www.weforum.org/pdf/Wellness/WHOWEF_report.pdf

World Health Organization, (2008c). Global recommendation on physical activity for health. Retrieved on March 26, 2011 from [www.who.int/publication](http://www.who.int/publication/whqlibdoc.who.int/publication).

World Health Organization. (2007). A guide for population-based approaches to increasing level of physical activity: implementation of the WHO Global strategy on diet, physical activity and health. Retrieved on March 28, 2011 from

www.who.int/dietphysicalactivity/physical-activity-promotion

World Health Organization. (2005). Review of best practice in interventions to promote physical activity in developing countries. Retrieved on April 23, 2011 from

www.who.int/dietphysicalactivity/bestpracticePA

World Health Organization. (2003a). Sedentary lifestyle: A global public Health problem. Physical activity non-communicable diseases prevention and health promotion. Retrieved on March 19, 2010 from

http://www.who.int/dietphysicalactivity/factsheet_inactivity/en/index.

World Health Organization. (2003b). World Health Organization launches annual move for health day as a global initiative to promote benefits of physical activity. Media centre online. Retrieved on March 19, 2010 from <http://www.who.int/moveforhealth/en/>

World Health Organization. (2003c). The WHO STEPwise approach. Retrieved on April 16, 2010 from http://www.afro.who.int/cdp/documents/steps_tools

World Health Organization. (2002a). Let's move for our Health. Press release [online]: Retrieved on March 18, 2010 from <http://www.afro.who.int/en/media-centre>.

World Health Organization. (2002b) Innovative Care for Chronic Conditions: Building Blocks for Action. Retrieved on 29/10/2010 from www.who.int/diabetesactiononline/about/iccreport/en/

World Health Organization. (1998) Health promotion glossary. Retrieved on February 5, 2011 on www.who.int/hpr/NPH/docs/hp_glossary_en.pdf

Yach, D., Hawkes, C., Gould, C.L. & Hofman, K.J. (2004). The Global burden of chronic diseases: overcoming impediments to prevention and control. *Journal of the American Medical Association*, 291(21), 2616-2622.

APPENDICES



Appendix A

PHYSICAL ACTIVITY AND HEALTH PROMOTION PRACTICES AMONG PHYSIOTHERAPISTS

QUESTIONNAIRE FOR PHYSIOTHERAPISTS

Dear Participants,

Please answer all the questions as instructed in every section. Please do not write your name on the questionnaire. Select your response by using (✓) or in the boxes or space provided respectively.

SECTION A: CORE DEMOGRAPHIC INFORMATION.

	M	F	CODE	
1. Sex (<i>Male / Female</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox" value="C1"/>	
2. What is your date of birth? <i>Don't Know 77 77 7777</i>	<input type="text" value="ddmmyy"/>		<input type="checkbox" value="C2"/>	
3. How old are you?	<input type="text" value="Years"/>		<input type="checkbox" value="C3"/>	
4. How long have you practiced as physiotherapist	<input type="text" value="years"/>		<input type="checkbox" value="C4"/>	
5. What level of education do you have?	Diploma <input type="checkbox"/>	Bsc degree <input type="checkbox"/>	Masters <input type="checkbox"/>	<input type="checkbox" value="C5"/>
6. Marital status	Single <input type="checkbox"/>	Married <input type="checkbox"/>	Divorced <input type="checkbox"/>	<input type="checkbox" value="C6"/>
7. For the past 12 months have worked as	Private practice <input type="text"/>	Public practice <input type="text"/>		

SECTION B: CORE PHYSICAL ACTIVITY INFORMATION.

Next I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed]*. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.

WORK

1	Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking <i>[or carrying light loads]</i> for at least 10 minutes continuously?	Yes 1 <input type="checkbox"/> No 2 <input type="checkbox"/> <i>If No go to P4</i>	P 1
2	In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Number of days <input type="text"/>	P 2
3	How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours : minutes <input type="text"/> <input type="text"/>	P3(ab)
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship			
4	Do you walk or use a bicycle (<i>pedal cycle</i>) for at least 10 minutes continuously to get to and from places?	Yes 1 <input type="checkbox"/> No 2 <input type="checkbox"/> <i>If No go to P7</i>	P 4
5	In a typical week, on how many days do you walk or bicycle for at least 10 minutes continuously to get to and from places?	Number of days <input type="text"/>	P 5
6	How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes <input type="text"/> <input type="text"/>	P 6 (a-b)
Recreational activities			
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure),			
<i>Question</i>		<i>Response</i>	<i>Code</i>
7	Do you do any vigorous-intensity sports,	Yes 1 <input type="checkbox"/>	

	fitness or recreational (<i>leisure</i>) activities that cause large increases in breathing or heart rate like [<i>running or football</i>] for at least 10 minutes continuously?	No 2 <input type="checkbox"/> If No go to p10	P 7
8	In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="checkbox"/>	P 8
9	How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours : minutes <input type="checkbox"/> <input type="checkbox"/>	P 9
10	Do you do any moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities that cause a small increase in breathing or heart rate such as brisk walking, [<i>cycling, swimming, and volleyball</i>] for at least 10 minutes continuously?	Yes 1 <input type="checkbox"/> No 2 <input type="checkbox"/> If No go to p 13.	P 10
11	In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities?	Number of days <input type="checkbox"/>	P 11
12	How much time do you spend doing moderate-intensity sports, fitness or recreational (<i>leisure</i>) activities on a typical day?	Hours : minutes <input type="checkbox"/> <input type="checkbox"/>	P 12
<p>EXPANDED: Physical Activity</p> <p>Sedentary behavior</p> <p>The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping.</p>			
13	How much time do you usually spend sitting or reclining on a typical day?	Hours : minutes <input type="checkbox"/> <input type="checkbox"/>	P13 (a-b)

SECTION C.

Below are some physical activity ideas that can be discussed between you and the patient. Please answer either YES or NO by the indication of a tick. (√)

	QUESTIONS	YES	NO
1	Do you discuss the topic of physical activity with your patients? If NO, give reasons:- - - - -		
2	Do you advise your patients to become more physically active?		
3	Do you discuss the benefits of physical activity with your patients?		
4	Do you discuss with your patients on their past experiences with physical activity?		
5	Do you discuss the difficult situations patients might encounter or problems they might have in trying to become more physically active?		
6	Do you inform your patients on how FREQUENTLY they should exercise?		
7	Do you inform your patients on how LONG they should exercise?		
8	Do you inform your patients on how HARD they should exercise?		
9	Do you inform your patients on the TYPES of exercise they should do?		
10	Do you and your patient put the plan to become more physically active in Writing?		
11	Do you give any written materials about physical activity or exercise during each day's clinic visit?		
12	Do you state to the patients that you are planning to discuss their physical activity on a future visit?		

Appendix B

guhumeke cyane (gusemeka) no gutera cyane k'umutima, Imirimo yohereje ni mirimo isaba imbaraga nke z'umubirigatera kwiyongera guke mu guhumeke no gutera k'umutima.

WORK

1	Akazi kawe ukoresha imirimo yoroheje itera kwiyongera guke mu guhumeke cyangwa gutera k'umutima nka ku genda wihuta	Yego <input type="checkbox"/> oya 2 <input type="checkbox"/> naba oya jya kibazo cya P4	P 1
2	Mu cyumweru gisanzwe ni mu minsi ingahe ukora imirimo yoroheje isaba imbaraga nke n'igice kinini cyakazi kawe	Umubara w'iminsi <input type="checkbox"/>	P 2
3	Nigihe kingana iki ukoresha mu gukora imirimo yoroheje idasaba imbaraga nyishimukazi ku munsu	amasaha : iminota <input type="checkbox"/>	P3(ab)
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example to work, for shopping, to market, to place of worship			
4	Ugeda n'amaguru cyangwa nigare rinyongwa bwibura imito 10 ikuirikirana uva ahantu ujya ahandi?	Yego 1 <input type="checkbox"/> oya 2 <input type="checkbox"/> naba oya jya kibazo cya P7	P 4
5	Mu cyumweru ni mu minsi ingahe uagenda n'amaguru cyangwa nigare nibura imito 10 udahagaze uva ahantu ujya ahandi.	Umubara w'iminsi <input type="checkbox"/>	P 5
6	Ni igihe kingana iki ukoresha uagenda n'amaguru cyangwa igare mu munsu?	amasaha : iminota <input type="checkbox"/>	P 6 (a-b)
Imirimo y' ikiruhuko			
Ibibazo bikurikira ntiharimo imirimo n'urugendo twangize kuvuga. Ubu ndashaka kubaza ibyerekeye siporo, fitness ni mirimo y'ikiruhuko.			
Ikibazo		igisubizo	Code
7	Ujya ukora siporo isaba ingifu, bikorwa, ikiruhuko bituma urushaho guhumeke neza no mutima gutera neza (nko kwiruka, umupira nibindi)	Yego 1 <input type="checkbox"/> Oya 2 <input type="checkbox"/> naba oya jya kibazo cya p10	P 7
8	Mu cyumweru gisanzwe n'iminsi ingahe ukora siporo isaba igufu nyishi cywa ibikorwa by'ikiruhuko?	Umubara w'iminsi <input type="checkbox"/>	P 8
9	Ukoresha umwanya ugana iki ku	amasaha : iminota <input type="checkbox"/>	

	<i>munsi siporo isaba ingifu nyinshi cyangwa ibikorwa byo kuruhuka?</i>	<input type="checkbox"/>	P 9
10	<i>Ese uya ukora siporo isaba ingufu ziri mu rugero cyangwa ibikorwa by, kiruhuko bituma guhumeka n'uko umukima utera byiyongera nko kugeda vuba kunyonga igare nibindi?</i>	Yego 1 <input type="checkbox"/> oya 2 <input type="checkbox"/> <i>naba oya jya kibazo cya p 13.</i>	P 10
11	<i>Mu cyumweru ni mu minsi ingahe ukora siporo isaba ingufu ziri mu gero cyangwa ibikora by'ikiruhuko?i</i>	Umubara w'iminsi <input type="checkbox"/>	P 11
12	<i>Waba ukoresha amasaha angahe muri siporo ku munsi usanzwe?</i>	amasaha : iminota <input type="checkbox"/>	P 12
EXPANDED: Imibero idakora ibikorwa ngorora mubiri			
Ikibazo kikurikira cyerekeye ibyo kiricara hamwe kukazi mu rugo , kujya no ku va ku kazi ,ahantu hamwe n'inshuti u sizemo n'igihe umuntu amara yicaye aho akorera yicaranye n'inshuti..			
13	<i>Umara igihe kingana iki wicaye ku munsi usanzwe?</i>	amasaha : iminota <input type="checkbox"/>	P13 (a-b)

igice cya 3.

Aha hari ibitkererezo bijyanye nikorwa ngorora mubiri bishobora kuganirwa.

	QUESTIONS	Yego	Oya
1	Ujya uganyira n'umurwayi ibyerekeye ibikorwa ngororamubiri?		
2	Ese uya ugira inama kumurayi kwitabira ibikorwa ngorora mubiri?		
3	Ese uya uganyira n'umurwayi akamaro ki ibikorwa ngorora mubiri?		
4	Ese uya ugira inama kumurayi kwitabira ibikorwa ngorora mubiri?		
5	Ese uya uba ganiriza ugorana zo gukora ibikorwa ngorora mubiri?		

6	Ujya ubwira uba bwira ishuro zo gukora imitoto?		
7	Ujya uba bwira igihe bagomba gumara bakora imyitoto?		
8	Waba se uba bwira ibaragaga bogomba gukoresha bakora imyitoto?		
9	Ese waba umubwira imyitoto agomba kukora?		
10	Ese waba mushira munyandiko gahunda yo gutuma murwany yitabira ikikorwa?		
11	Ese waba uha umurwayi ikintu cyanditse kimusoha urira imyitoto agomba gukora igihe cyose aje kwivuza?		
12	Ese uhishurira umurwayi ko afite gahunda yo gutuma yitabira ibikorwa byi myitoto mu gihe azagaruka kwivuza		



Appendix C

INTERVIEW GUIDE

General question

Please tell me about the barriers in your physical activity lifestyle?

Specific question

How often you participate in physical activity?

Probe:

- At work
- At home
- In your leisure time



There are number of things that can stop you from participating in physical activity can you please tell me some of these things?

Do you promote physical activity to your Patients/clients?

Do we have a policy on physical activity? What effect does it have on physical activity?

Probe:

- Government policy
- Institutional policy

What effect does the Rwandan culture has on physical activity?

The Environment is another factor that has an influence on physical activity what impact does the environment has on physical activity? The environment may include sports centres playing fields, roads, streets, place of work, homes family members, colleagues and friends and many more.

What do you have to say about your work in the promotion of physical activity?



Appendix D

**OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH
DEVELOPMENT**

Private Bag X17, Bellville 7535
South Africa
Telegraph: UNIBELL
Telephone: +27 21 959-2948/2949
Fax: +27 21 959-3170
Website: www.uwc.ac.za

5 October 2010

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape has approved the methodology and the ethics of the following research project by:
Mr. R Ngarambe (Physiotherapy)

Research Project: Physical activity levels and health promotion strategies among physiotherapists in Rwanda

Registration no: 10/8/20



Peter Sester
Manager: Research Development Office
University of the Western Cape



UNIVERSITY of the
WESTERN CAPE



UNIVERSITY of the
WESTERN CAPE

A place of quality, a place to grow, from hope to action through knowledge

Appendix E

REPUBLIC OF RWANDA

Kigali, on 06 JAN 2011



N° 20/00457 M&E/2010

MINISTRY OF HEALTH
P.O. BOX: 84 KIGALI
www.moh.gov.rw

Mr. Robert NGARAMBE

Re: Permission to conduct research in referral and District Hospitals

Dear Mr. Robert,

Reference is made to your letter dated on 4th August 2010 and received on October 24th, 2010 asking for permission to conducting a research in all referral and district hospitals **on Physical activity levels and health promotion strategies among physiotherapists in Rwanda;**

Given the approval provided by RNEC in his letter n° 332/RNEC/2010 dated on December 16th, 2010;

I am pleased to inform you that the Ministry of Health has granted permission to you to carry out this study in specified sites. However, your research will be required to share with the Ministry of Health and concerned hospitals findings of the study and you are requested to provide the database and final report to the Ministry of Health.

Sincerely,

A handwritten signature in blue ink over a circular official stamp of the Ministry of Health of Rwanda. The stamp contains the text 'MINISTÈRE DE LA SANTÉ' and 'RÉPUBLIQUE RWANDAISE'.

Dr. Richard SEZIBERA
Ministry of Health

Cc: Permanent Secretary in Ministry of Health

UNIVERSITY of the
WESTERN CAPE

Appendix F

REPUBLIC OF RWANDA/REPUBLIQUE DU RWANDA



NATIONAL ETHICS COMMITTEE / COMITE NATIONAL D'ETHIQUE

Telephone: (250) 55 10 78 84

E-mail: r nec@moh.gov.rw

Web site: www.r nec.moh.gov.rw

Ministry of Health
P.O. Box. 84
Kigali, Rwanda.

FWA Assurance No. 00001973
IRB 00001497 of IORG0001100

December 16, 2010
No. 332/ RNEC /2010

Robert NGARAMBE
Principal Investigator

Your Project title: **PHYSICAL ACTIVITY LEVELS AND HEALTH PROMOTION STRATEGIES AMONG PHYSIOTHERAPISTS IN RWANDA**; has been evaluated by the Rwanda National Ethics Committee.

Name	Institute	Involve in the decision		
		Yes	No (Reason)	
			Absent	Withdrawn from the proceeding
Dr. Justin Wane	King Faisal Hospital, Kigali HOD Laboratory		X	
Prof. Emmanuel Bajyana	Immunologist, faculty of sciences (NUR)		X	
Dr. Emmanuel Nkeramihigo	Senior Lecturer, National University of Rwanda, Faculty of Medicine	X		
Dr. Dariya Mukamusoni	Director of Nyamata Hospital	X		
Dr Juliet Mbabazi	King Faisal Hospital, Kigali Ag. Chief Executive Officer	X		

Appendix G1

REPUBLIC OF RWANDA



MINISTRY OF HEALTH
WESTERN PROVINCE
NYAMASHEKE DISTRICT
KIBOGORA DISTRICT HOSPITAL

December the 24th, 2010

Dear Robert Ngarambe,

Re: Offering the permission to conduct a research study

This letter is to inform you that after analyzing your letter requesting the permission to conduct a research study entitled **“Physical activity levels and Health promotion strategies among Physiotherapists in Rwanda”**, the Permission to carry out this study at Kibogora Hospital is granted and you can do it during January and February 2011 as requested.

Be informed that on completion of this study, the feedback will be needed at Kibogora hospital.

Yours,

Dr NSABIMANA Damien
Director of Kibogora Hospital



Appendix G2

REPUBLIC OF RWANDA

Date : 12/01/2011



SOUTHERN PROVINCE
NYANZA DISTRICT
HVP GATAGARA
B.P. : 1134 KIGALI

Dear Robert Ngarambe,

RE. Permission to conduct Research study

In reference to letter dated on 2/12/2010 requesting to carry out a research study in HVP Gatagara on *Physical activity levels and health promotion strategies among Physiotherapists in Rwanda*. You have been granted permission to carry out the study.

Regards



Brother Bizimana Simon
Director HVP Gatagara centre/ Nyanza



Appendix G3

Republic of Rwanda
Eastern Province
Nyamata district

Centre de Chirurgie Orthopédique Pédiatrique et de
Réhabilitation Sainte Marie de Rilima

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
University of Western Cape, South Africa

Dear Ngarambe,

RE. Permission to conduct Research study

In reference to letter dated on 2/12/2010 requesting to carry out a research study in Rilima hospital on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. I hereby grant you permission to carry out the study. The information given should respect the Health ethical norms. You are required to submit a copy of your findings.

I wish you the best in your Research

CENTRE DE CHIRURGIE ORTHOPÉDIQUE
PÉDIATRIQUE ET DE RÉHABILITATION
Sainte Marie - Rilima
B.P. 1949 KIGALI Rwanda - tel. 568042 - 561014

Dr. NSENGIYUMVA Emmanuel
Director of Rilima Hospital



UNIVERSITY of the
WESTERN CAPE

Appendix G4

REPUBLIC OF RWANDA
NORTHERN PROVINCE
BURERA DISTRICT
BUTARO HOSPITAL

10 January 2011

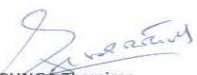
To : Robert NGARAMBE

RE, Permission to conduct Research study

In reference to letter dated on 10/01/2011 requesting to carry out a research study in BUTARO hospital on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. I hereby grant you permission to carry out the study.

The information given should respect the Health ethical norms. You are required to submit a copy of your findings to the BUTARO Leadership.

In additional, BUTARO Hospital is available should have any question.


Dr MPUNGA Tharcisse
Medical Director of BUTARO Hospital



Appendix G5

REPUBLIC OF RWANDA



NORTHERN PROVINCE
MUSANZE DISTRICT
RUHENGERI HOSPITAL

Musanze, 5th January 2011
N/Ref. *249*/HDR/HR/2011

To Mr. NGARAMBE Robert
Postgraduate student in Physiotherapy
University of Western Cape, South Africa

Re: Permission to conduct Research study

Dear NGARAMBE Robert;

In reference to your letter dated 12th/Dec/2010 requesting to carry out a research study in Ruhengeri hospital on entitled: **"Physical activity levels and health promotion strategies among Physiotherapists in Rwanda"**. After thorough check up of all your research documents including the National Research Ethics Committee, I hereby grant you permission to carry out the study.

We expect you to follow the research ethical values and to abide by the laws governing researches, work with the head of department of physiotherapy; we also expect you to submit a copy of your final results to our hospital.

I wish you the best in your Research.

Sincerely,


Dr KALACH John
Director of Ruhengeri
Hospital



Cc. Head of Administration & Finance
Cc. Head of Clinical Services
Cc. Human Resource Officer
Cc. Chief Nurse
Cc. Head of Department of Physiotherapy
RUHENGERI HOSPITAL

Appendix G6

REPUBLIC OF RWANDA



MINISTRY OF HEALTH
ANGLICAN CHURCH OF RWANDA KIVU DIOCESE
SHYIRA HOSPITAL,

"Izere Umwami Yesu, urakira ubwawe n'abo mu rugo rwawe." (Ibyakozwe 16 :31)

Shyira, le 29/12/2010

No Ref 211/A.J.P/C.K/N.C/12/2010.

A Monsieur NGARAMBE Robert

Objet : Votre Demande.



Monsieur,

Suite à votre lettre du 2 Décembre 2010 demandant l'autorisation de faire une recherche au sein de notre hôpital SHYIRA dans le service de Physiothérapie, nous avons le plaisir de vous annoncer que votre requête est positive.

UNIVERSITY of the
WESTERN CAPE

Franche collaboration.

Dr Caleb K.King

Médecin Directeur de l'Hôpital Shyira

Nyabihu District P.O Box 56 Musanze, Tel 0782569952
e-mail:shyirahospital@yahoo.com



Appendix G7

RWANDA PRESBYTERIAN CHURCH

REMERA RUKOMA HOSPITAL

BP 56 KIGALI

30/ 12/2010

Robert NGARAMBE
PYSIOTHERAPY DEPARTEMENT

RE : Approval of conducting research

Dear,

From your letter on 23 December 2010 requesting permission of conducting research in our institution, the hospital is officially notifying you the approval of your study entitled **“Physical activity level and health promotion strategies among physiotherapist in Rwanda”**.

We wish you a success:

Done at Remera Rukoma hospital

Medical Director

Dr BWITO Paul



Appendix G8

REPUBLIC OF RWANDA



MINISTRY OF HEALTH

RULI HOSPITAL

January 3, 2011

To NGARAMBE Robert

Dear Sir,

Re: Permission to conduct a research.

I hereby allow you to carry out a research project '*Physical activity levels and health promotion strategies among physiotherapists in Rwanda*' in our hospital, Physiotherapy department.

Sincerely

Dr NGIRABEGA Jean de Dieu
Director of RULI Hospital



Appendix G9

REPUBLIQUE DU RWANDA

Kigali, le 28/12/2010



VILLE DE KIGALI
DISTRICT DE NYARUGENGE
HOPITAL MUHIMA
B.P 2456 KIGALI
TEL : 503771/572537
FAX : 503771
Réf n°20/1187/2010

Robert NGARAMBE
University of the Western Cape
South Africa.

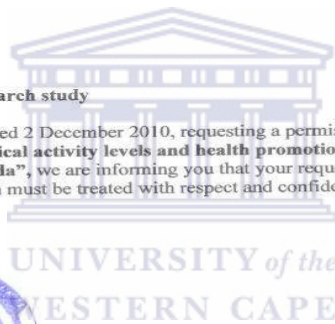
RE: Permission to conduct a research study

Reference is made to your letter dated 2 December 2010, requesting a permission to conduct a research study on “ **Physical activity levels and health promotion strategies among physiotherapists in Rwanda**”, we are informing you that your request is accepted, and the information given must be treated with respect and confidentiality.

Thank you.

Sincerely,

Dr. MUSHINGANTAHE Jules
Acting Director of Muhima Hospital



Appendix G10

REPUBLIC OF RWANDA

Gihundwe, 23/12/2010
N° 20/285/MG.D.S.R.G./2010



WESTERN PROVINCE
RUSIZI DISTRICT
GIHUNDWE HOSPITAL

Dr Théophile DUSHIME
The Acting Director of
Gihundwe Hospital
Po.Box 87 Rusizi
Rusizi


Robert NGARAMBE
University of the Western Cape
South Africa.

RE: **Permission to conduct a research study**

Reference is made to your letter dated 2nd December 2010, requesting a permission to conduct a research study on "**Physical activity levels and health promotion strategies among physiotherapists in Rwanda**", we are informing you that your request is accepted, and the information given must be treated with respect and confidentiality.

Thank you.

Sincerely,


Dr Théophile DUSHIME
Acting Director of Gihundwe Hospital



UNIVERSITY of the
WESTERN CAPE

Appendix G11

Rwamagana Hospital
P.O.Box 06 Rwamagana
Eastern Province
December 27th 2010

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
Faculty of community and Health Sciences
University of Western Cape, South Africa

Dear Ngarambe,

RE. Permission to conduct Research study

I acknowledge receipt of your letter requesting to carry out a research study on Physical activity levels and health promotion strategies among Physiotherapists in Rwanda. After reading through your abstract, we grant you permission to carry out the study. The information given should be treated with respect and confidentiality.

Thank you


Dr NDAGIJIMANA JEAN CLAUDE
Director of Rwamagana Hospital


UNIVERSITY of the
WESTERN CAPE

Appendix G12

REPUBLIQUE DU RWANDA



MINISTERE DE LA DEFENSE
HOPITAL MILITAIRE DE KANOMBE
REF...../KMH/COMDT/2010/.....

Kanombe, le 7 Décembre 2010

A Monsieur Robert NGARAMBE
Kigali

Objet: REPONSE A VOTRE DEMANDE

Mr,

Nous avons l'honneur de vous informer que nous avons accepté votre demande concernant la recherche au sein du Département de Physiothérapie.

Pour cela, vous êtes prié de vous présenter le 9/12/2010 au Département de Physiothérapie où vous passerez votre stage.

Le responsable de ce département vous accompagnera durant votre stage, et nous vous promettons aussi l'Aide de tout le personnel de l'Hôpital en cas de besoin.

Bon travail.

DR Ben KARENZI
Lt Col
COMMANDANT/KMH

A blue ink signature of DR Ben Karenzi and an official circular seal of the Ministry of Defense of Rwanda, featuring the national emblem and the text 'MINISTRE DE LA DEFENSE'.

C.I
- Responsable de Physiothérapie

Appendix G13

REPUBLIQUE DU RWANDA

BUGESERA DISTRICT
HÔPITAL NYAMATA

BP : 7112 Kigali

Tél : 56 11 01/2

E-Mail : hop.nyamata@rwanda1.com

Ref : 257/HN/2010

Date : 20/13/2010

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
Faculty of community and Health Sciences
University of Western Cape, South Africa

RE: Permission to conduct Research study

Dear Ngarambe,

In reference to letter dated on 22/12/2010 asking for permission to carry out a research study on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. After reading through your abstract, we grant you permission to carry out the study. The information given should be treated with confidentiality.

Wish you all the best in your studies

Dr Dariya MUKAMUSONI
Director of Nyamata Hospital



Appendix G15

REPUBLIC OF RWANDA
SOUTHERN PROVINCE



HUYE DISTRICT
KABUTARE HOSPITAL
B.P. : 621 BUTARE/0252530934
E-mail: hospitalkabutare@yahoo.fr

13 JAN 2011
Re 016/16-01/Hosp-kab/sold

Dear Robert NGARAMBE,

RE : Permission to conduct Research study

In reference to letter dated on 2/12/2010 requesting to carry out a research study in KABUTARE hospital on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. I hereby grant you permission to carry out the study. The information given should respect the ethical Procedures. You are required to submit a copy of your findings to the Kabutare Hospital.

I wish you the best in your research.



Dr NTAGARUKANWA Jean Claude
Medical Director Kabutare Hospital

UNIVERSITY of the
WESTERN CAPE

Appendix G16



CENTRE HOSPITALIER UNIVERSTAIRE
UNIVERSITY TEACHING HOSPITAL

Centre Hospitalier Universitaire de Kigali

Ethics Committee / Comité d'éthique

December 13th, 2010

Ref.: EC/CHUK/022/10

M. Robert Ngarambe,
Principal Investigator
University of Western Cape

Review Approval Notice

Dear Robert Ngarambe,

Your research project: *"Physical activity levels and health promotion strategies among physiotherapists in Rwanda"*

During the meeting of the Ethics Committee of Kigali University Teaching Hospital (KUTH) that was held on 2/12/2010 to evaluate your protocol of the above mentioned research project, we are pleased to inform you that the Ethics Committee/CHUK has approved your protocol.

PS: Please note that the present approval is valid for 12 months.

Yours sincerely,

P.O.



UNIVERSITY of the
WESTERN CAPE

Dr Stephen Rulisa,
The President, Ethics Committee,
Kigali University Teaching Hospital

E-mail : chuk.hospital@chukigali.org ; Tel. : 00(250)577555 ; Fax : 00(250)576638 ; B.P655 KIGALI

Appendix G17



HOPITAL NEURO-PSYCHIATRIQUE CARAES NDERA
FRERES DE LA CHARITE
B.P.423 Kigali; Tel. : 0255113551 / 0788827364
E - mail : cnkubili@yahoo.fr



Kigali, December 21, 2010

No 162/HNP/DG/2010

To: Mr. Robert NGARAMBE
Department of physiotherapy
Faculty of Community and Health Sciences
University of Western Cape
SOUTH AFRICA

Dear,

RE: PERMISSION TO CONDUCT A RESEARCH

Reference is made to your letter of December 2nd, 2010 requesting a permission to conduct a research in Neuropsychiatric Hospital of Ndera.

I am writing to inform you that your request has been recognized. Therefore you are allowed to conduct a research which title is **“Physical activity levels and promotion strategies among physiotherapists in Rwanda”** in our hospital.

Yours faithfully,

Brother Charles NKUBILI
Director General



Appendix G18

REPUBLIC OF RWANDA



MINISTRY OF HEALTH
GAHINI HOSPITAL/CRF GAHINI
P.O. Box 75 RWAMAGANA
TEL:0788838095

Date: 28th December 2010

N° /Höp.Gah. /D.A. Kay/Pce de l'Est 2010

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
Faculty of community and Health Sciences
University of Western Cape, South Africa

Dear Ngarambe,

RE, Permission to conduct Research study

I acknowledge receipt of your letter requesting to carry out a research study on Physical activity levels and health promotion strategies among Physiotherapists in Rwanda. After reading through your abstract, we grant you permission to carry out the study.

The information given should be treated with respect and confidentiality.

Thank you.


Dr BONANE Emmanuel
Director of Rwamagana Hospital



Appendix G19

Republic of Rwanda
Southern Province
Nyamagabe district
Kigeme Hospital
E-mail: hopkigeme@yahoo.fr

10 January 2011

Ref: 07.02.05/USF/HOPKG /2011

Robert NGARAMBE
Postgraduate student
University of Western Cape, South Africa

Dear Robert,

RE. Permission to conduct Research study

In reference to letter dated on 2/12/2010 requesting to carry out a research study in Kigeme hospital on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. I hereby grant you permission to carry out the study. We expect from you to follow the ethical values of Research and we expect you to submit a copy of your final results to our hospital.

I wish you the best in your Research.

Sincerely,

12-01-2011
Dr. NKULIKIYUMUKIZA Sixbert
Director of Kigeme Hospital



UNIVERSITY of the
WESTERN CAPE

Appendix G20

REPUBLIC OF RWANDA



MINISTRY OF HEALTH
SOUTHERN PROVINCE
GISAGARA DISTRICT
KIBILIZI HOSPITAL

Kibilizi, 06/01/2011
N°001./02.02/HOP/KBLZI/2010

Object: Appointment letter

Dear Robert NGARAMBE,

Reference to your letter of 2nd /12/2010 requesting for a research conduct on “ **physical activity and health promotion practices among physiotherapists in Rwanda**” in Kibilizi hospital, this is to inform you that your request has been accepted and you are therefore requested to present to the hospital in the mentioned dates in your letter to start your study.

Thank You,

Medical Director of Kibilizi Hospital

UNIVERSITY OF
WESTERN CAPE

The logo of the University of Western Cape, featuring a circular emblem with a central figure and text around the perimeter.

Appendix G21

Republic of Rwanda
Eastern Province
Nyagatare district
Nyagatare Hospital
P.o Box 43 Nyagatare

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
Faculty of community and Health Sciences
University of Western Cape, South Africa


Dear Ngarambe,

RE. Permission to conduct Research study

In reference to letter dated on 05/12/2010 to carry out a research study on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. We grant you permission to carry out the study.

The information given should be treated with respect and confidentiality. We ask you to give us a copy of your result since they may be of great benefits to our patients

I wish you the best in your studies


Dr. RUKUNDA K. Bendu
Director of Nyamata Hospital.


UNIVERSITY of the
WESTERN CAPE

Appendix G23

Republic of Rwanda
Southern Province
Nyamagabe district
Kigeme Hospital
E-mail: hopkigeme@yahoo.fr

10 January 2011

Ref: 0013/07.02.05/20/USF/HOPKG/2011

Robert NGARAMBE
Postgraduate student
University of Western Cape, South Africa

Dear Robert,

RE. Permission to conduct Research study

In reference to letter dated on 2/12/2010 requesting to carry out a research study in Kigeme hospital on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. I hereby grant you permission to carry out the study.

We expect from you to follow the ethical values of Research and we expect you to submit a copy of your final results to our hospital.

I wish you the best in your Research

Sincerely,


Dr. NKULIKIYUMUKIZA Sixbert
Director of Kigeme Hospital



Appendix G24

REPUBLIKA Y'U RWANDA

Rubavu, ku wa 04/01/2011
N° 0012/03/0303/USPPDRB/GH/011



MINISITERI Y'UBUZIMA
INTARA Y'IBURENGERAZUBA
AKARERE KA RUBAVU
IBITARO BYA GISENYI
B.P : 175 RUBAVU

Bwana NGARAMBE Robert
C/O: University of the Western Cape
South Africa

Impamvu : Kwemererwa gukora
ubushakashatsi



Bwana, nyuma yo gusuzuma dosiye yawe
tugasanga wiga muri kaminuza ya Western Cape yo muri Afrika y'Epfo, tugasanga
kandi "National Ethics Committee" yarabyemeye:

Tunejewe no kukwandikira iyi baruwa tugira
ngo tukumenyeshe ko wemerewe gukora ubushakashatsi mu Bitaro bya Gisenyi.
Usabwe kuza mu buyobozi bw'ibyo bitaro kugira ngo uhabwe serivisi uzakoreramo
ubwo bushakashatsi.

WESTERN CAPE

Ugire amahoro y'Imana.


Dr Patrice KARUMUGABO
Muganga Uyobora Ibitaro bya Gisenyi

Appendix G25

Republic of Rwanda
Southern Province
Muhanga District
Kabgayi Hospital

6th January 2011

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
University of Western Cape, South Africa

Dear Ngarambe,

RE. Permission to conduct Research study

In reference to letter dated on 2/12/2010 to carry out a research study on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. We grant you permission to carry out the study.

The information given should be treated with respect and confidentiality. We request for a copy of your result.

I wish you the best in your Research


Dr. SEBATUNZI R. Osee
Director of Kabgayi Hospital



Appendix G26

Republic of Rwanda
Eastern Province
Gatsibo District
Kiziguro Hospital

Robert NGARAMBE
Postgraduate student
Department of Physiotherapy
Faculty of community and Health Sciences
University of Western Cape, South Africa

Dear Ngarambe,

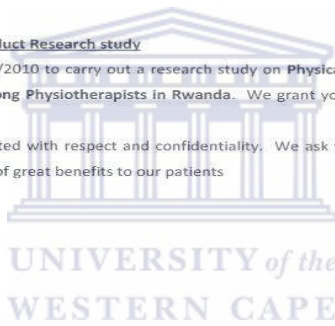
RE. Permission to conduct Research study

In reference to letter dated on 22/12/2010 to carry out a research study on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda**. We grant you permission to carry out the study.

The information given should be treated with respect and confidentiality. We ask you to give us a copy of your result since they may be of great benefits to our patients

I wish you the best in your studies

Dr.TWAGIRAMUNGU M.Diocles
Director of Kiziguro Hospital



Appendix G27

REPUBLIC OF RWANDA

Ngoma, 04.01.2011



MINISTRY OF HEALTH
EASTERN PROVINCE
NGOMA DISTRICT
KIBUNGO HOSPITAL

Robert Ngarambe
Postgraduate student
Department of Physiotherapy
University of Western Cape

Dear Ngarambe,

RE. Permission to conduct Research Study

We acknowledge receiving your letter on 2/12/2010 requesting for permission to carry out a research study on **Physical activity levels and health promotion strategies among Physiotherapists in Rwanda.**

With great pleasure we grant you permission to carry out the study.

The information given should be treated with respect and confidentiality. We ask you to give us a copy of your results after the study.

I wish you the best in your study Research


Dr. Namanya William
Medical Director Kibungo Hospital

Appendix G28



Eglise Presbytérienne au Rwanda - EPR

association sans but lucratif - B.P. 56 Kigali Rwanda - tél: 7 37 89 ou 7 67 94 Fax : 7 69 29
epw@rwandatell.rwanda1.com

HOPITAL KIRINDA

BP : 67 GITARAMA

Robert NGARAMBE
Postgraduate physiotherapist student
Western cape university
28 December 2010

Dear Sir!

Re: response to your letter

We are humbly writing this letter to you, for the response of your request.

Sir, based on your letter wrote on 2 december,2010 which was received on 27 December 2010 that was requesting a permission to carry out a study entitled "**Physical activity levels and health promotion strategies among physiotherapists in Rwanda**" we are happy to inform you that your request was granted but for the next time you have to submit the letter on time.

And if your results will be helpful as you have said in your letter, you are requested to submit at Kirinda hospital, a piece of your work.

For the rest, good luck.

Faithfully

Director of Kirinda hospital



Appendix G29

Kaduha Military Hospital
Direction

29th December 2010

P^o 233/Dir /H-M. K/2010

To ROBERT NGARAMBE

Re: Allowing you a permission to carry out your research

Dear Sir,

This is to allow you to carry out your research in our hospital; you are welcome to collect your data on physiotherapists.

We encourage you in the path you took to promote physical activity.

Best Regards,

Hospital Director,

Dr. KABALISA Thalacisse



Appendix G30

REPUBLIC OF RWANDA



MINISTRY OF HEALTH
KIGALI CITY
GASABO DISTRICT
KIBAGABAGA HOSPITAL

Kibagabaga, 15.12.2010
N° 833/HOP. KBG./2010

Dr NTIZIMIRA Christian
The Acting Director of
Kibagabaga Hospital
P.O.Box 6260 KIGALI
KIGALI.

✓ Robert NGARAMBE
University of the Western Cape
South Africa.

RE: Permission to conduct a research study

Reference is made to your letter dated 2nd December 2010, requesting a permission to conduct a research study on "**Physical activity levels and health promotion strategies among physiotherapists in Rwanda**", we are informing you that your request is accepted, and the information given must be treated with respect and confidentiality.

Thank you.

Sincerely,


Dr. NTIZIMIRA Christian

Acting Director of Kibagabaga Hospital



Appendix H

INFORMATION SHEET

Project Title: Physical activity levels and health promotion strategies among physiotherapists in Rwanda

What is this study about?

This is a research project being conducted by Robert NGARAMBE at the University of the Western Cape. We are inviting you to participate in this research project because you are a very important part of this study as we consider you crucial to the success of this study. The purpose of this research project is to establish the physical activity levels of physiotherapists, their physical activity health promotion practices and barriers to implementation.

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

You will be asked to fill a questionnaire that will be given to you at your hospital. You will be given five days to fill the questionnaire then they will be collected. Appointments will be arranged for participants for the interview at a convenient place. I will ask for your permission to use a tape recorder while doing the interview for proper record keeping of data.

Would my participation in this study be kept confidential?

We will do our best to keep your personal information confidential. To help protect your confidentiality, there will be no individual names on the questionnaire and other information that personally identify you. Participants in the Focus Group will be made aware of the ethical responsibilities in advance and you will sign a disclosure statement for the purpose of confidentiality.

If we write a report or article about this research project, your identity will be protected to the maximum extent possible.

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?

This research is not designed to help you personally, but the results may help the investigator learn more about the need for physical activity in promoting health among physiotherapists. We hope that, in the future, other people might benefit from this study through improved understanding of promoting physical activity in combating chronic diseases of lifestyle.

Describe the anticipated benefits to science or society expected from the research, if any.

The study will help in promotion of physical activity among physiotherapist in Rwanda and incorporating them in their treatment plans.

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 Robert NGARAMBE in the physiotherapy department at the University of the Western Cape. If you have any questions about the research study itself, please contact Robert NGARAMBE at: University of Western Cape, Cape Town, South Africa
+27738576449/+250788592336, ngarambr@yahoo.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 Physiotherapy Department: Prof. Julie Phillips

Dean of the Faculty of Community and Health Sciences: Prof. Mpofu Ratie

University of the Western Cape

Private Bag X17

Bellville 7535

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

Appendix I

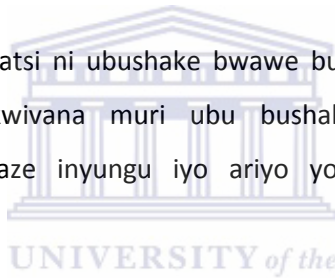
Ubushakashatsi

Ni izihe nyungu se ziri muri ubu bushakashatsi?

Ubu bushakashatsi ntibwagennye gufasha wowe gusa, ibisubizo by'ubu bushakashatsi bizafasha abagenabikorwa hamwe n'umushakashatsi kwiga birushijeho ibyerekeye n'ibijyanye no guteza imbere imyitoto ngororamubiri muri Rwanda. Turizera kandi ko mugihe gitaha abandi bantu bazagira inyungu zivuye kuri ubu bushakashatsi binyuriye ku myumvire iteye imbere ku kamaro k'imirimo ntakazangufu mu kuvura no kwirinda umuvuduko ukabije w'amaraso.

Ese nemeye kubazwa muri ubu bushakashatsi nshobora kwivanamo igihe cyose mbishakiye?

Kwemera kujya muri ubu bushakashatsi ni ubushake bwawe busesuye. Ushobora kwemera cyangwa kutemera kubazwa. Wemerewe kwivana muri ubu bushakashatsi igihe cyose nta nkurikizi, ntuzabihanirwa cyangwa ngo utakaze inyungu iyo ariyo yose wakagombye kubona muri ubu bushakashatsi.



Ndamutse se nshatse kugira icyo nasobanura nyuma y'ubu bushakashatsi nakwiyambaza nde?

Ubu bushakashatsi burimo gukorwa na Robert NGARAMBE wiga muri Kaminuza ya Western Cape muri Africa y'epfo. Hagize ikibazo wakwifuzaga kubaza kirebana n'ubu bushakashatsi, wakwiyambaza Robert NGARAMBE ku numero ya telefoni 0788592336 e-mail: ngarambr@yahoo.com).

Ugize ikibazo kirebana n'ubu bushakashatsi ni uburenganzira bwawe nk'ubazwa, cyangwa ushatse kumenyekanisha ibibazo wagize birebana n'ubu bushakashatsi, wabimenyesha:

Uhagarariye ishamba rya Physiotherapy: Professor Julie Phillips

Umuyobozi wa Faculty of Community and Health Sciences: Professor Ratie Mpofo

Kaminuza ya Western Cape

Private Bag X17

Appendix J

CONSENT FORM

Title of Research Project: Physical activity levels and health promotion strategies among physiotherapists in Rwanda

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name..... Witness's name.....

Participant's signature..... Witness's signature.....

Date..... Date.....

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:

Study Coordinator's Name: NGARAMBE Robert

University of the Western Cape

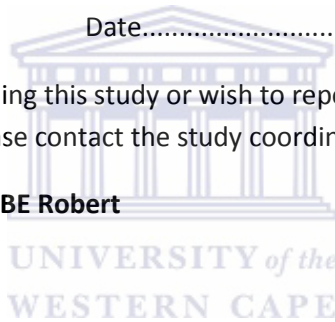
Private Bag X17, Belville 7535

Telephone: (021)959-

Cell: +27738576449

Fax: (021)959-

Email: ngarambr@yahoo.com



Appendix K

KWEMERA KUGIRA URUHARE

Ubushakashatsi: Ibijyanye no Guteza imbere imyitozo ngororamubiri mu mbakora umunga wu mugororangingo Rwanda.

Nyuma yo gusobanukirwa iby'ubu bushakashatsi n'ibijyanye nabwo mu rurimi numva, nemeye ku bushake bwanjye kugira uruhare muri ubu bushakashatsi. Ibibazo mfite kuri ubu bushakashatsi byasubijwe. Ndumva neza ko bazangirira ibanga no kuba nemerewe kwivana muri ubu bushakashatsi igihe cyose mbishatse kandi ko nta nkurikizi byangiraho.

Amazina y'ugira uruhare mu bushakashatsi.....

Umukono/Igikumwe cy'ugira uruhare mu bushakashatsi.....

Italiki.....

Amazina y'umutangabuhamya.....

Umukono/Igikumwe cy'umutangabuhamya.....

Italiki.....

Ugize ikibazo kirebana n'ubu bushakashatsi cyangwa ushatse kumenyekanisha ibibazo wagize birebana n'ubu bushakashatsi, wabimenyesha:



Uwukuriye ishami ry'igihugu rishinzwe ubushakashatsi: Dr Wane Justin kuri 0788500499

Umunyamabanga w'ishami ry'igihugu rishinzwe ubushakashatsi: Dr. Emmanuel Nkeramihigo kuri 0788557273

Umuhuzabikorwa w'ubushakashatsi: Professor Jose Frantz

Kaminuza ya Western Cape, Private Bag X17, Belville 7535

Tell: (021) 959 2542 / Fax: (021) 959 1217

Email: jfrantz@uwc.ac.za