PHYSICAL INACTIVITY: A HEALTH RISK BEHAVIOUR AMONG ADULT WOMEN IN KIGALI, RWANDA

BY

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

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DECLARATION

I hereby declare that **"Physical inactivity: A Health risk behaviour among adult women in Kigali, Rwanda"** is my own work, that it has not been submitted, or part of it, for any degree or examination in any other university, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

Jeanne N. Kagwiza

Signature..... November 2003

Witnesses:

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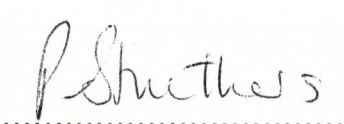
Mrs. Julie Phillips



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Ms Patricia Struthers

DEDICATION

To my husband Kasongo, whom I am eternally grateful for his love, understanding and support through the good and bad times of my study, and to my daughter Malaika and my son Kalala for your patience. May God continue to bless you.

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TO GOD BE THE GLORY BOTH NOW AND FOREVER MORE!

ABSTRACT

There is evidence of the rising incidence and prevalence of chronic diseases of lifestyle in developing countries. It is estimated that by 2020 chronic diseases of lifestyle in Sub-Saharan Africa will be almost 50% of the burden of disease. Rapid urbanization with changes in lifestyle, such as physical activity patterns could explain at least partially the ongoing epidemiological transition. The purpose of this study was to assess levels of participation in physical activity among working Rwandan women in Kigali, in relation to socio-economic demographic characteristics. A cross-sectional study design using both quantitative and qualitative methods was used. Participants' level of participation in physical activity and influence of socio-economic demographic factors on physical activity participation, were measured using a self-administered questionnaire adapted from Sub-Saharan African Questionnaire. A focus group discussion assessed the need for a health promotion program related to physical activity participation among working women. Data analysis, using Statistical analysis version 8e, was used to obtain frequency tables and histograms. Chi-square tests and Fisher's exact tests were utilized to test for association between variables. Focus group discussion data were transcribed and translated into English. Data were then coded and put into themes and categories. There were 352 participants, with a mean age of 33.4 years. 71.9% of the participants were classified as sedentary and only 28.1% of the participants were classified as physically active. Participation in physical activity decreased with age, and there were more participants classified as sedentary people in the married group (77%)

than in non-married group (63.2%). A lower level of education and income of participants, the higher the level of participation in physical activity. Among the reported prevalence of chronic diseases, high blood pressure and diabetes were only reported by participants classified as sedentary. During the focus group discussion, participants reported facilitators and benefits of physical activity including, routine, relaxation, socialization and fitness, managing obesity and health purposes. Barriers limiting the participants' ability to engage in physical activity included lack of time, lack of knowledge, laziness, domestic helper, lack of motivation and culture. The main themes, which were identified as important in the development of a health promotion program were: The education and encouragement of girl children; education of women in the community, finding facilities and appropriate venues, a suitable environment and the contribution of physical activity program towards unity and reconciliation was emphasised. The findings of this study demonstrate a problem concerning sedentary lifestyle among the working women in Kigali/Rwanda. It is alarming that the participants who are already classified as sedentary and who will probably experience the consequences of sedentary lifestyle in the future are already reporting chronic diseases like high blood pressure and diabetes. There is therefore an urgent need to design, implement and evaluate a health promotion intervention aimed at promoting a physically active lifestyle in Rwanda.

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ABBREVIATIONS

AAHPERD	American Alliance for Health, physical Education, Recreation and Dance
AIDS	Acquired Immune Deficiency Syndrome
BANCOR	Banque à la confiance d'or
BCR	Banque Commerciale du Rwanda
BACAR	Banque Continentale Africaine au Rwanda
BCDI	Banque Commerciale de Développement et de l'Industrie
BK	Banque de Kigali
BNR	Banque Nationale du Rwanda
BRD	Banque Rwandaise de Développement
COGEAR	Compagnie Génèrale d'Assurance et de Reassurance
COGEBANQUE	Compagnie Génèrale des Banques
CORAR	Compagnie Rwandaise d'Assurance et de Reassurance
HIV	Human Immuno-deficiency Virus
SONARWA	Societé Nationale d'Assurance du Rwanda
SORAS	Societé Rwandaise d'Assurance
UBPR	Union des Banques Populaires au Rwanda
WHO	World Health Organization
$\chi 2$ –test	Chi-square test

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

In this chapter, the rationale of the study highlights changes in lifestyle and health problems related to women worldwide, and then in Rwanda, particularly in the urban area of Kigali, the capital city of Rwanda. It describes how women are leading sedentary lifestyles, which may, over time, result in the development of chronic diseases of lifestyle (CDL). The outline of the problem, the aims of the study, and the hypothesis are stated. Finally, the significance of the study demonstrates the need for a study on participation in physical activity among female office workers in Rwanda. The chapter ends with the definition of terms used in the study.

1.2 RATIONALE OF THE STUDY

Chronic diseases of lifestyle account for 50% of all deaths in developing economies and 85% of all deaths in developed economies (Booth, 2000). Overall, ischaemic heart disease and cerebro-vascular disease were, respectively, the first and second leading causes of death throughout the world. Physical inactivity is an established risk factor for cardiovascular disease, colon

cancer and possibly other cancers, non-insulin-dependent diabetes, overweight, hypertension, anxiety and depression (Booth, 2000).

In the United States (USA), heart disease, one of the major non-communicable diseases, remains the leading cause of death in women. Sedentary lifestyle and poor nutrition are major risk factors for heart disease and stroke in women (Slevin, 2002). The majority of men and women in the USA, in spite of this country's abundance of health and fitness resources, have chosen inactive lifestyles that directly contribute to the decline in their own health and, in so doing, place a burden on their families and the country's health-care systems. Unfortunately, this situation is not confined to the USA, in that women are also at risk of developing similar conditions in other developed and developing countries (Karch, 2000).

Traditionally, major causes of illness and death in developing countries, in particular sub-Saharan Africa, have been linked to infectious diseases and under-nutrition, and these are still major public health problems in those countries (Caballero, 2001). However, these days the situation is alarming in those countries where an existing burden of infectious disease is compounded by the HIV/AIDS epidemic (WHO, 2000). In addition, there is clear evidence of the rising incidence and prevalence of CDL in the developing countries (Nissinen, Berrios & Pekka, 2001; Sobngwi, Mbanya, Unwin, Aspray & Alberti, 2001; Torun et al., 2002; WHO, 2000). In sub-Saharan Africa, life expectancy at

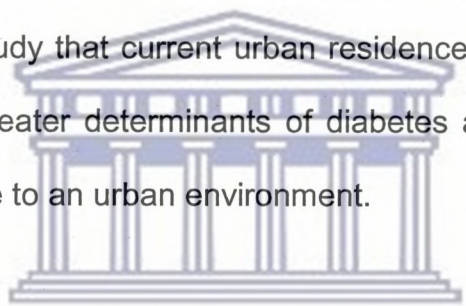
birth rose to 59 years in the early 1990s, but recently it was found out that it is set to drop to 45 years between 2005 and 2010 (WHO, 2000).

It was reported by the World Health Organization that 77% of the total number of deaths caused by CDL occur in developing countries (WHO, 2002 b). People in developing regions experience 90% of the world's disease burden but have only 10% of global health-care funds at their disposal (Deen, Vos, Huttly & Tulloch, 1999). This will have an increasingly severe effect on the health-care systems, resources, and economies of these countries, while they are still struggling to manage the impact of infectious diseases (WHO, 2002 b).

The World Health Report (2001) ranked cardiovascular disease at 9.27% (higher than malaria at 9.1%) as one of the leading causes of mortality in Africa (WHO, 2002 a). It is estimated that by 2020 CDL in sub-Saharan Africa will constitute almost 50% of the burden of disease. Rapid urbanization with changes in lifestyle in Africa and other developing countries, especially dietary habits and physical activity patterns, could partially explain the ongoing epidemiological transition (Sobngwi et al, 2001 & Doll, Paccaud, Bovet, Burnier & Wietlisbach, 2002). The urban growth rate in Africa is estimated at 4.3% annually, compared to 0.5% in Europe (Sobngwi et al., 2002). In parallel, in many African countries, prevalence of hypertension, diabetes mellitus, and other CDL rises more rapidly, particularly with increasing age, than in Western countries (Doll et al., 2002).

These diseases occur predominantly in urban populations as compared to rural populations (Sobngwi et al., 2002; Unwin, 2001 a).

Torun et al. (2002) indicate that rural to urban migration in developing countries leads to changes in lifestyle. Living or working in an urban environment increases sedentarism. Additionally, improvement in socio-economic standards with urbanization is also associated with the development of CDL's ; specifically Type 2 diabetes mellitus (Quinn, 2003 & Doll et al., 2002). Sobngwi et al. (2002) also showed in their study that current urban residence or recent migrations to an urban area were greater determinants of diabetes and cardiovascular risk, than a lifetime exposure to an urban environment.



In Tanzania, demographic data shows that age-specific death rates from CDL 's are higher than in wealthier countries. Mortality rates for some CDL's, such as strokes, are particularly high (Unwin, 2001 a). Zadegan & Nik (1997), in their study on blood pressure (BP) patterns in urban and rural areas in Isfahan, Iran (one of the developing countries), found that hypertension, diabetes and hypercholesterolaemia were more prevalent among urban populations. Increase in age was associated with a higher BP in both populations, but the female sex was associated with higher BP only in urban older people.

The life expectancy of women currently exceeds that of men by almost seven years, yet women spend approximately twice as many years as their male

counterparts disabled due to ill health prior to death (Hoffman, 1998; La Croix, Newton, Leiveille & Wallace, 1997). This increased female life expectancy, accompanied by changes in lifestyle and advances in technology (especially in urban areas), has led to an increase in certain CDL's such as cancer, cardiovascular diseases, osteoporosis, and other chronic and degenerative diseases, particularly among older women. There is also growing recognition that women represent a large proportion of the estimated 400 million people with anxiety disorders, and 340 million with mood disorders, worldwide (United Nations, 2000).

Women's rights to the highest standard of physical and mental health were recognized by the Fourth World Conference on Women, held in Beijing in 1995. The platform for action adopted by the conference highlighted the need to ensure universal access to appropriate and affordable services for women and girls as one of the twelve critical areas of concern requiring urgent attention by governments and the international community (United Nations, 2000). During its 43rd session, in 1999, the United Nations' Commission on the status of women proposed that further action be taken to improve the quality of women's health, including the mainstreaming of a gender perspective in all policies and programmes in the health sector. Among the agreed conclusions of the session were recommendations related to women and infectious diseases, mental health, and occupational and environmental health--all areas that had received little attention at the Beijing conference (United Nations, 2000).

Population studies on other continents have demonstrated the protective effect of a physically active lifestyle in the primary prevention of diabetes, cardiovascular risk factors, and other CDL's (Sobngwi et al., 2001). The emphasis is beginning to shift from catching the disease early (secondary prevention) to stopping it before it starts (primary prevention). That means paying attention to environmental and lifestyle factors like physical activity, diet, smoking, alcohol, and obesity. Appropriate policy changes are supported by findings that primary health education directed at healthy people has been shown to help prevent health problems from arising (Carter & O'Driscoll, 2000). According to WHO (2003 e), regular physical activity and good eating habits can improve women's health and help prevent many of the diseases and conditions that are major causes of death and disability for women around the world. However, although improvement in physical activity is needed among all women, particular attention should be focused on women of Asian and African countries (Suminski, Petosa, Utter & Zhang, 2002).

Until the 1990's, Rwanda was characterized by a low level of urbanization. The urban population was estimated, at the most, as 10% of the total population. After the mid-1990's war, urban areas experienced very rapid growth. In Kigali, the population shifted from 235 664 in 1991 to 358 200 in 1996 and to 600 000 inhabitants in 2000 (Rwandan Ministry of Finance, 2001). Some people migrated to urban areas from rural areas, in order to feel more secure after the war.

In addition, people who returned from exile did not have land or jobs and, for that reason, many decided to settle in urban areas, especially in Kigali.

Today, Rwandans are trying to rebuild their country. It is now commonly acknowledged at national, regional and international levels that one cannot conceive of development as separate from women's advancement. In Rwanda, for example, one cannot address issues of development without addressing the issue of female education (Wibabara, Murebwayire & Oduol, 2000). Women in Rwanda now have a Ministry of Gender and Women in Development (MIGEPROFE). With the support of the government and certain NGOs, they have formed many associations all over the country, including credit societies where they can take out loans and start their own businesses. Women have made significant progress in education and training, and have much easier access to employment now, compared to earlier days when they were primarily responsible for domestic chores. Women are now involved in political decision-making positions and in social-regulation organs. The civil society also accounts for more women in the liberal occupations, for example medicine. There are now a good number of women in government, even at the rank of ministers, and they also serve as Directors-General in different companies.

In addition, advances and rapid shifts in technology have modernized the working environment for these women. Unfortunately, these advances have also contributed to making them more physically inactive. As a result, many women

spend most of their working days in activities that require little energy, like sitting in front of computer screens or sitting in a shop selling things. Kennon (1999) states that the decrease in energy expenditure from physical activity, noted in all spheres of social endeavours including work, transportation, and home maintenance, is mostly the result of the increased availability of labour-saving technologies and equipment. The availability of a wide range of technological developments in the entertainment area, such as television or videos, has also created powerful inducements to remain sedentary in leisure time.

The majority of Rwanda women have domestic help. A study done by Forrest, Bunker, Kriska, Ukoli, Huston & Markovic (2001) in Nigeria found that women's physical activity (especially for the women of higher socio-economic status) related to household chores and childcare, tends to be poorly estimated. This was because Nigerian women of higher socio-economic status usually have domestic help with childcare, cooking, and housework. In contrast, Nies, Vollman & Cook (1999), in their study on African-American women, found that lack of childcare (i.e. lack of baby sitters) was the major barrier to exercise among those women.

Many urban Rwandan women have thus developed sedentary lifestyles. Several studies have demonstrated an association between a sedentary lifestyle and an increased risk of CDL. (Lee, Rippe, & Wilkinson, 1995; Unwin, 2001a). Significant improvements in women's health can be achieved, both in the short

term and in the long term, if more women decide to adopt and maintain physically active lifestyles. It is imperative that women in African countries like Rwanda, especially in the urban areas, be involved in a physically active life in order to prevent various CDL and promote their health.

1.3 STATEMENT OF THE PROBLEM

In Rwanda the migration to urban areas from rural areas in the aftermath of the mid-1990s war, in addition to advancement and rapid shifts in technology, have contributed to a sedentary lifestyle. This may lead to an increase of different sorts of CDL diseases among women in Rwanda, and therefore in Kigali.

1.4 AIM OF THE STUDY

The overall aim of this study was to determine levels of participation in physical activity among working Rwandan women in Kigali, in relation to socio-economic demographic characteristics.

1.5 OBJECTIVES

1. To identify the level of participation in physical activity among adult working women.

2 To investigate the influence of socio-economic demographic status such as age, marital status, education, and income on physical activity.

3 To identify the need for a health-promotion programme related to physical activity among working women.

1.6 HYPOTHESIS

It was hypothesized that working Rwandan women in Kigali were developing sedentary lifestyles and that their socio-economic demographic status influenced their level of participation in physical activity.

1.7 SIGNIFICANCE OF THE STUDY

This study was undertaken to explore working Rwandan women's experiences of physical activity in their everyday lives and to assess the influence of socio-economic demographic factors on their level of physical activity. Prior to this study, no study on physical activity/physical inactivity among Rwandan women had been done. This information was needed to help prevent an increase in CDL among working Rwandan women. Prevention is especially worthwhile in

developing nations, where medication and operations for CDL are not possible for financial reasons (Friedrich, 2002). Transforming a sedentary lifestyle to a more active lifestyle through the promotion of health will be beneficial, not only for the women, but also for the whole of Rwanda.

The findings of this study can be used by the health sector in Kigali/ Rwanda, in order to support physical-activity programmes among working women. They will also challenge Rwandan physiotherapists to play their role in the promotion of health and the prevention of disease, and not simply in the treatment of disease. Regardless of their area of practice, all physiotherapy practitioners need a thorough knowledge of current women's health-care issues and management (Copeland, 1999).

The results of this study may facilitate the development of partnerships and networks for increasing physical activity among Rwandan women, with particular focus on working women. In addition, the results may motivate the Rwandan women to be role models within their own families and in their neighbourhood. They will also support the development of multi-sectoral national policies and planning, and intervention programmes related to physical activity within the country.

1.8 DEFINITION OF TERMS

Physical activity: This means body movement that is produced by the contraction of skeletal muscles, which substantially increases energy expenditure (Grundy, Black Burn, Higgins, Lauer, Perri & Ryan, 1999) and produces progressive health benefits (Prochaska, Sallis, Sarkin & Calfas, 2000).

Physical inactivity: This is a state in which bodily movement is minimal. Referring to energy expenditure, inactivity represents a state in which energy expenditure approximates resting metabolic rate (Dietz, 1996).

Exercise: Physical activity that is planned, structured, repetitive, and has purpose in that improvement or maintenance of physical fitness is the intent. Exercise is a subset of physical activity (Pescatello, 2001).

Lifestyle physical activity: The daily accumulation of at least 30 minutes of self-selected activities, which includes all leisure, occupational, or household activities that are at least moderate in their intensity and could be planned or unplanned activities that are part of everyday life (Pescatello, 2001).

Physical fitness: The ability to perform prolonged work that is classically measured by maximum oxygen consumption ([vo.sub.2] max). Physical fitness is a state that people strive to attain, and is divided into two components: health

and skill. The health-related components include cardio-respiratory endurance, muscular endurance and strength, body composition, and flexibility (Pescatello, 2001).

Chronic diseases of lifestyle (CDL): This is a group of diseases that share similar risk factors as a result of exposure over many decades to unhealthy diets, smoking, physical inactivity, and possibly stress. The major risk factors include high blood pressure, tobacco addiction, high blood cholesterol, and diabetes. These result in various disease processes such as strokes, heart attacks, diseases of bones and joints, mental illness, tobacco- and nutrition-induced cancers, chronic bronchitis, emphysema and many others that culminate in high mortality and morbidity rates. These diseases are also called non-communicable diseases or degenerative diseases (Fourie, 2001; Unwin, 2001 a). In this study the term CDL will be used.

Chapter one describes the rationale of the study; this includes a general picture of the leading factors of sedentary life and the repercussions of sedentary life as a global public-health burden. Furthermore, it shows the effects of consequences of the 1994 civil war, such as migration to urban areas from rural areas; return of people from exile; in addition to a rapid shift in technology on the lifestyle of Rwandan working women. The aim and objectives and the significance of the study are indicated. A definition of key terms used in the current study concludes the chapter.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter discusses the health-promotion concept, the importance of physical activity in the promotion of health, and the role of physiotherapy in health promotion. It critiques some studies that reviewed the burden of health risks behaviour related to physical inactivity on the public health sector in developed countries and developing countries. The recommended quality and quantity of physical activity for health are described. Finally, factors that can hinder women's participation in or promote physical activity are described.

2.2 HEALTH PROMOTION AND PHYSIOTHERAPY

The Ottawa Charter defines health as a resource for everyday life, not the objective of living. It adds that health is a positive concept, and emphasizes social and personal resources, as well as physical capabilities. "The Ottawa Charter defines health promotion as the process of enabling people to increase control over, and improve their health" (Kickbusch, 2003). The Ottawa Charter describes actions for health promotion which include:

- Building healthy public policy
- Creating supportive environments

- Strengthening community action
- Developing personal skills
- Reorienting health services

2.2.1 Building healthy public policy

Health promotion goes beyond health care. It puts health on the agenda of policy-makers in all sectors and at all levels; then helps the policy-makers to identify health consequences that result from their decisions and to accept and recognize their responsibilities for health. However health-promotion policy needs to identify obstacles to the adoption of healthy public policies in non-health sectors, and find ways to overcome those obstacles. Therefore, the aim must be to make the healthier choice the easier choice (WHO, 2002 c). Compared to many other countries in the world, the number of physically active people in Denmark is high. However there are several reasons that explain this high level of activity. One of these is a tradition national policy of having facilities free of charge and this applies for all sports clubs (Karch, 2000).

2.2.2 Creating supportive environments

Health promotion generates living and working conditions that are safe. Systematic evaluation of the impact on health of a rapidly changing environment, particularly in areas of technology, work, energy production, and urbanization is crucial and must be followed by immediate intervention and action to ensure positive benefit to the health of the public (WHO, 2002 c). The Danish

government is aware of consequences of physical inactivity. It is in fact the country with the most sports facilities per capital in the world. Approximately 1 300 general sports facilities and 5 400 playing fields exist for the five million citizens. (Karch, 2000).

2.2.3 Strengthening community action

The WHO emphasizes the importance of community action:

> "At the heart of this process is the empowerment of communities, their ownership and control of their own destinies. Community development draws on existing human and material resources in the community to enhance self-help and social support, and to develop flexible systems for strengthening public participation and direction of health matters" (WHO, 2002 c).

Programmes to improve physical activity in Denmark are also supported by the community with most of the instructors in the sports clubs being volunteers (Karch, 2000).

2.2.4 Developing personal skills

The WHO supports the development of personal skills:

> "Health promotion supports personal and social development through providing information, education for health and enhancing life skills. By so doing, it increases the options available to people to exercise more control over their own health and over their environments, and to make choices conducive to health. Enabling people to learn throughout life, to prepare themselves for all of its stages, and to cope with chronic illness and injuries, is essential. This has to be facilitated in school, home, work and community settings. Action is required through educational, professional,

commercial, and voluntary bodies, and within the institutions themselves" (WHO, 2002 c).

The Danish federation of company sports organizes sports activities for company teams. And recently, in co-operation with one University, it has created a special unit called "Active living at the workplace" with the objective to support public and private corporations in creating more comprehensive health promotion programmes at the work place (Karch, 2000).

2.2.5 Reorient health services

The WHO emphasizes the need for the health services to be reoriented towards health promotion:

> "The responsibility for health promotion in health services is shared among individuals, community groups, health professionals, health service institutions and governments. They must work together towards a health-care system that contributes to the pursuit of health. Reorienting health services also requires stronger attention to health research as well as changes in professional education and training. This must lead to a change of attitude and organization of health services, which refocuses on the total needs of the individual as a whole person" (WHO, 2002 c).

Naidoo & Wills (1998 a) report that health promotion represents a mediating strategy between people and their environments, synthesizing personal choice and social responsibility in health to create a healthier future. Thus, health promotion is recognized as an essential element of health development. Health promotion, through investments and actions, has an impact on the determinants of health to create the greatest health gain for people. In addition, health

promotion can contribute significantly to the reduction of inequities in health, can ensure human rights, and build social capital. The ultimate goal is to increase health expectancy, and to narrow the gap in expectancy between countries and groups (Coulson, Goldstein & Ntuli, 1998). Therefore, health promotion is generally taken to be an umbrella term that includes all those activities intended to prevent disease, improve health, and enhance well-being (Naidoo & Wills, 1998 b). At the level of primary prevention, health promotion aims to persuade individuals to adopt behaviours believed to reduce the risk of disease by adopting healthy lifestyles, and to utilize preventive health services appropriately (Tones & Tilford, 2001).

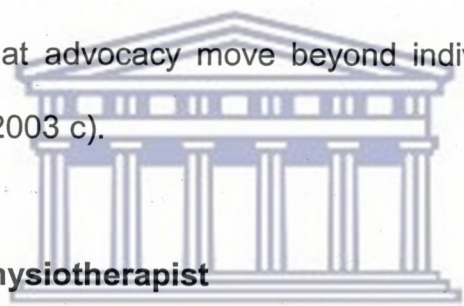
2.2.6 Physical activity

Physical activity is an effective method for individuals to help prevent serious disease, and a cost-effective way for societies to improve public health (WHO, 2003 a). Currently, throughout the world, the practices of health and health care are changing dramatically. There is a major shift away from focusing on the cure of individuals presenting at health services towards the prevention of illness in population, and the strengthening of the community's capacity to deal with its own health. It is fundamental to involve and mobilize the community to create an environment that will support the adoption and maintenance of positive health behaviour (Sawatzky & Naimark, 2002). However, apart from the prevention of diseases, physical activity or exercise particularly has an important role in

improving function in some chronic diseases such as heart failure or chronic obstructive pulmonary disease (Woo, 2000).

Therefore, strategies for promoting physical activity should be developed in the context of the population's health, and could use a framework like the population-health-promotion model. The population-health-promotion model combines the philosophies of health promotion and population health into a powerful and pragmatic alliance. This three-dimensional model includes the comprehensive strategies for health promotion described in the Ottawa Charter for health promotion, the broad determinants of population health, and the various levels in society where the action can be taken. This model demonstrates how a population-health approach can be implemented through action on a full range of health determinants by means of health-promotion strategies. In addition, it also shows the importance of evidence–based decision making as a foundation for the development of population health-promotion activities (Sawatzky & Naimark, 2002). The WHO's Ottawa Charter emphasized the need to develop strategies to bring about changes in the physical, social and economic environment in which people live. One such strategy is to increase the focus on community and environmental health, with a greater emphasis on the prevention of disease and the promotion of good health, as well as the provision of quality health care (Higgs, Refshange & Ellis, 2001).

Lack of physical activity is not merely as a result of individual behaviour or individual responsibility. Crowding, traffic, crime, poor air quality, a lack of parks, sports and recreational facilities, and sidewalks make physical activity a difficult choice for many people. The challenge of prevention is therefore as much the responsibility of governments as it is of the people (WHO, 2003 c). However prevention and health-promotion activities are seldom a priority for policy makers and the government in general, when they are at the policy level, rather than in the realm of medical care, where most decisions about prevention are made. Thus, it is important that advocacy move beyond individuals to reach policy-makers as well (WHO, 2003 c).



2.2.7 The role of the physiotherapist

Health professionals generally focus primarily on change processes that affect general well-being. Health specialists (e.g. physiotherapists) are involved in teaching or educating, advocating, and administering health-change programs at the individual, organizational, or community level (Huddleston, Mertesdorf & Araki, 2002). The role of physiotherapy should be broader than the provision of treatment to women with health problems. Physiotherapists are well placed to play a vital role in health promotion, by accepting the challenge identified in the Ottawa Charter in 1986, beyond the physiotherapist/patient partnership and, in turn, to address issues pertinent to groups, communities and societies (Copeland, 1999). Physiotherapists can assist the public by promoting physical activity and describing the type, quantity, and quality of activity that confers

health benefits (Kennon, 1996). Physiotherapists are appropriately skilled and ideally suited to promote physical activity. They recognize the physical and psychological benefits of exercise/physical activity and are well versed in the art of motivating people (Carter & O'Driscoll, 2000).

Physiotherapists are experts in exercise prescription for both the fit, healthy person who requires specific fitness and injury-prevention advice, and the injured or disabled person who has specific needs and considerations (Australian Physiotherapy Association, 2002). People who have not exercised on a regular basis can put themselves at risk of injury by starting a program without professional advice. Physiotherapists, with their expertise in body mechanics, anatomy, and physiology can play a vital role in helping people develop appropriate and safe exercise programmes (Wilson, 2002). To ensure appropriate, effective, and safe exercise, it is important that exercise prescription is supervised by a physiotherapist, used appropriately, performed with adequate initial assessment to identify the main problem and its cause in the case of an injured person, and undertaken with ongoing reassessment and modification as appropriate (Australian Physiotherapy Association, 2002).

Nevertheless, in whichever programme of physical activity/exercise campaign, it is recognized that long-term success will depend on a wide, coordinated multi-level approach. Therefore, the physiotherapist will need to be part of a team of players to include dieticians, occupational therapists, physicians, psychologists

and so forth. Members of a team may support each other in providing measurements of health improvement which are valid and objective (Carter & O'Driscoll, 2000).

2.3 BENEFITS OF PHYSICAL ACTIVITY TO HEALTH

Regular physical activity provides important health benefits for women including lower risks of coronary heart disease and some cancers (Centers for Disease Control and Prevention, 1995; Eyler, Brownson, Backar, Housemann, 2003; Norman, Bellocco, Vaida & Wolk, 2003). It also reduces cholesterol levels and obesity (Carter & O'Driscoll, 2000). Apart from reducing the risk of chronic diseases of lifestyle, physical activity improves muscle endurance and flexibility, and preserves function and mobility (Carter & O'Driscoll, 2000). In addition, physical activity preserves reaction times and neurological functioning, improves self-esteem (Carter & O'Driscoll, 2000), and reduces depression and stress (WHO, 2003 e). This needs to be recognized by all those involved in health care (Fentem, 1994).

2.3.1 Muscular- skeletal benefits

Developing muscle strength and flexibility is important to improve one's ability to perform tasks and to reduce the potential of injury (Pollock et al., 1998). Strength training is particularly important for improving and maintaining bone density, muscle strength, joint stability, balance and flexibility (Di Brezzo, Fort & Hoyt III,

2002). Strength activities also help to maintain lean and flaccid muscle mass, which is often lost with dieting programmes alone (Lee et al., 1995). Physical activity can also help people with chronic disabling conditions to improve their stamina and muscle strength, and can improve their psychological well-being and quality of life by increasing the ability to perform activities in daily life (Manley, 1996). Physical activity can contribute in treatment of stress incontinence (Bouchard Shephard & Stephens, 1993).

Physical activity improves tendon- and connective-tissue functions (Fentem, 1994). Physical activity improves range of motion (ROM), increases lubrication of the joints surface, and limits the effects of degenerative arthritis (Pollock et al., 1998 & Fentem, 1994). In patients with arthritis, regular physical activity can help to control joint swelling and pain caused by the disease.

Regular physical activity is likely to boost peak bone mass in young women, probably slows the decline in bone-mineral density in middle–aged and older women, and may increase bone-mineral density in patients with established osteoporosis (Blair, Kohl & Gordon, 1992; McCord, 1993; Marble, 1996; WHO, 2003 d). Regular physical activity may provide benefits beyond a direct impact on bone-mineral density. Active individuals have greater muscle mass and are stronger, which might reduce the risk of falling and protect against fractures when falls occur (Friis, Nomura, Ma & Swan, 2003; La Croix et al., 1997; Smith & Gilligan, 1991; Van Rooijen, Rheeder, Eales & Molatoli, 2002).

2.3.2 Cardiovascular and lipid –lipoprotein metabolism

There is convincing evidence from several studies that physical activity is associated with protective effects and decreased risk of cardiovascular disease and coronary heart disease mortality (Stofan, Dipietro, Davis, Kohl & Blair, 1998). Physical activity has a significant effect on the prevention of sudden death in coronary heart disease, and stroke (Fentem, 1994). Physical activity also improves myocardial function and reduces the risk of mortality following an acute myocardial infarction (Blair et al., 1992). Physical activity may enhance myocardial oxygen delivery and utilization (Blair et al., 1992; Pollock et al., 1998).

In cardiac rehabilitation, patients are advised to do physical activities in order to reach the following objectives: to control cardio-respiratory symptoms, to limit the physiological and psychological impact of cardiovascular diseases, to optimise functional capacity, and to reduce the risk of subsequent cardiovascular-disease events by stabilising or partially reversing the underlying atherosclerotic process through risk-factor modification (Arthur, 2000). Cardiac rehabilitation also protects against mortality incidences that are mostly related to lethal ventricular arrhythmias (Blair et al., 1992). Manson et al. (2002), in their study, have shown that even moderate exercise such as walking, reduces a postmenopausal woman's risk of developing coronary heart disease or having a heart attack or stroke.

Physical activity has an effect on the lipid and lipoprotein metabolism. It contributes to the increase in high-density lipoproteins-cholesterol (Blair et al., 1992; Fentem, 1994). As a result, coronary heart disease and, possibly, strokes are prevented. It can also inhibit blood-clotting processes which counters acute precipitants of cardiac arrest (Fentem, 1994).

Hypertension is a risk factor for heart disease and stroke, and a major public health problem (Bouchard et al., 1993; Chobanian et al., 2003). Moderate intensity of regular physical activity reduces both systolic and diastolic arterial blood pressure and, because of that, may be effective in controlling hypertension (Fentem, 1994; Gordon, Scoot, Wilkinson, Duncan & Blair, 1999). Some studies revealed that, in the first instance, non-pharmacological measures are advised for those patients with mild hypertension and no evidence of cardiovascular complications, or target-organ damage. In this case comprehensive measures include weight reduction, reduced salt intake, limitation of alcohol intake, regular dynamic physical exercise and a healthy diet (Lobo, 2002). In severe hypertension, evidence from some studies has shown that moderate physical activities can be used as an adjunct to drug therapy to foster additional reductions in blood pressure. Patients who are moderately active may be able to reduce medication dosages, thereby saving money, eliminating side effects, and enhancing their quality of life (Lee et al., 1995 & WHO, 1991). Physical activity may also alter the risk of haemorrhagic strokes. Such alteration may be based on blood-pressure effects and the intensity of physical activity. Moderate

exercise lowers resting blood pressure and may thus lower the risk of hemorrhagic strokes (Bouchard et al., 1993).

Some studies have documented that regular exercise increases physical performance capacity in patients with peripheral vascular disease of the lower extremities. There is evidence to support the development of collateral vessels, an increase in maximum blood flow, a redistribution of flow within the ischemic leg and an increase in blood fluidity (Bouchard et al., 1993).

2.3.3 Hormonal metabolism

Non-insulin-dependent diabetes mellitus (NIDDM) leads to increased risk of mortality from coronary heart disease (CHD) and to other vascular complications, such as peripheral vascular disease. Physical activity lowers the risk of NIDDM. Regular endurance exercise induces weight loss and positive changes in glucose metabolism (Blair et al., 1992). Several studies have shown a consistent beneficial effect of regular physical activity on carbohydrate metabolism and insulin sensitivity. Physically active behaviour contributes to glucose control, lowers adiposity, and reduces free fatty acid levels. It improves insulin sensitivity and glucose tolerance as well as increasing skeletal muscle mass, muscle blood flow, insulin-receptor density, glucose-transporter protein levels, skeletal muscle glucose disposal, and improving muscle fibre type and capillary density (Pigman, Gan & Krousel-Wood, 2002). Exercise improves glucose tolerance by increasing insulin sensitivity and may reduce the insulin

requirement in insulin-treated diabetics (Birrer & Sedaghat, 2003; Bouchard et al., 1993). Thus, physical activity is recommended as part of the management regimen for subjects with Type 2 Diabetes Mellitus (Van Rooijen et al., 2002).

Breast cancer is an important health concern for women of all ages, all over the world. Current estimates in the USA are that one in every eight women will eventually be diagnosed with breast cancer (Dorn, Vena, Brasure, Freudenheim & Graham, 2002). However, there is convincing evidence that women who have been active throughout their lives decrease their risk of breast cancer by 42%, as well as their risk of endometrial cancer (Bahr, 2001; Gilliland, Li, Baumgartner, Crumley & Samet, 2001; Littman, Voigt, Beresford & Weiss, 2001; Mackinnon, 2002; Steindorf, Schmidt, Kropp & Chang-Claude, 2003). Physical activity appears to alter the gonadal hormone milieu in women, and this altered profile may reduce the risk of cancers of the breast and reproductive system (Bouchard et al., 1993). Physical activity can also reduce the risk of developing colon cancer (Manley, 1996, Slevin, 2002 & WHO, 2003d). Physical activity appears to stimulate colonic peristalsis, but to decrease segmentation. This may reduce contact between the colonic mucosa and potential carcinogens in the faecal stream, both because of the shortened transit time and because of the decrease in mixing that occurs during segmentation (Bouchard et al., 1993).

2.3.4 The effects of physical activity on weight control and body composition

Regular physical activity improves control of body weight, and regulates energy balance, thereby preventing obesity-related disease and excessive weight gain (Fentem, 1994). Obesity is a condition characterized by an excessive percentage of body fat, resulting from an energy-intake that exceeds the habitual energy expenditure (Martinez, 2000; Abdel-Hamid, 2002). Physical activity can modify both energy-intake and body composition. Regular exercise can alter fuel oxidation, and exercise has been suggested to modify the composition of the weight loss produced by food restriction alone. Various studies suggest that exercise may increase fat loss and decrease the loss of fat–free mass (Bouchard et al., 1993) and is essential for long-term weight maintenance (Serdula, Khan & Dietz, 2003). Several studies show a greater total fat loss with exercise and food restriction than with food restriction alone, despite similar changes of body weight ((Bouchard et al., 1993; Pollock et al., 1998; Roberts, 2002; Pescatello, 2001).

Obese people who are active have lower mortality and morbidity than people whose weight is normal but who are sedentary. This means that for overweight or obese people, starting and maintaining a regular exercise programmes yields important health benefits, even in the absence of substantial weight loss (Bahr, 2001).

Some studies have shown that many of the adverse consequences of obesity may be more closely coupled to the distribution of body fat than to the amount of body fat. Indeed, individuals with more fat on the trunk, especially intra-abdominal fat, are at increased risk of death when compared with those who are equally fat, but whose fat is predominantly on the extremities. Regular exercise appears capable of effecting favourable changes in body-fat distribution (Blair et al., 1992). Some studies found that pre-menopausal women with high levels of physical activity have lower body fat and less abdominal fat during the menopause than do those with low levels of physical activity (Grundy et al., 1999).

Pregnant women require about 300 additional kilocalories per day, and a physically active life will further increase their caloric needs (Lee et al., 1995). Development of physical activity interventions in pregnant women represents potentially fruitful avenues for the prevention of overweight and obesity in women (Grundy et al., 1999).

2.3.5 Psychological, mental and behavioural change benefits

Some studies have stressed the beneficial effect of exercise on mental health or psychological well–being (Droomers, Schrijvers, Van De Mheen & Mackenbach, 1998). Physical activity can be effective in reducing depression, improving mood state, and enhancing self-perceptions of well-being (Manley, 1996; Stathi, Fox & McKenna, 2002). It can also reduce feelings of isolation and loneliness among

older adults and improve their physical and mental agility (Ojukwu & Onah, 2002; Stathi et al., 2002). Some researchers have shown that physical activity can lower anxiety, decrease tension, relieve stress (Rippe, 1995) and influence sleep (Hong & Dimsdale, 2003). Women who are physically active feel better about themselves and their lives in general (Sawatzky & Naimark, 2002). In addition physical activity can also improve memory span (Friis et al., 2003) particular in elderly people (Fentem, 1994). Furthermore, in England, a prospective 21-year study has demonstrated a significant association between a higher level of participation in leisure activities at base line and a decreased risk of dementia in elderly people (Verghese et al.,2003).

2.3.6 Economic benefits of physical activity

Physical activity also has economic benefits, especially in terms of reduced health-care costs, increased productivity, and healthier physical and social environments. In the USA, physically active individuals save an estimated $500 per year in health-care costs, according to 1998 data. In addition, workplace physical-activity programmes in the USA can reduce short-term sick leave (by 6-32%), reduce health-care costs (by 20-55%) and increase productivity (by 2-52%). In Canada, in companies with employee physical-activity programmes/initiatives, the benefit of $531 per worker, per year can be reached (from changes in productivity, absenteeism, turnover and injury). No data are available from the developing world. Reduction of this kind of avoidable cost is,

however, potentially important, especially in the developing world with its great scarcity of resources (WHO, 2003 f).

2.4 HEALTH RISKS RELATED TO PHYSICAL INACTIVITY

Despite the well-known health benefits of physical activity, the majority of midlife and older adults, all over the world, lead sedentary lifestyles. This physically inactive lifestyle places these individuals at risk of premature decline in health, plus the early onset and progression of chronic illnesses (Berg & Cromwell, 2002). According to current World Health Organization estimates, lack of physical activity leads to more than two million premature deaths annually, worldwide (WHO, 2002 a). Thus physical inactivity is a major public health concern around the world (Taylor et al., 1999). A sedentary lifestyle increases many causes of mortality. It doubles the risk of cardiovascular diseases, diabetes, and obesity. It increases the risks of colon cancer, high blood pressure, osteoporosis, depression and anxiety (WHO, 2002 a).

The Center for Disease Control and Prevention, based in the USA, estimates that 250 000 people a year, in America, suffer premature death due to a sedentary lifestyle. This is approximately the same number as those who will die prematurely from smoking a pack of cigarettes a day. There is a clear message here: living without exercise is like smoking a pack of cigarettes a day (Frazee, 1996). In 1990, poor dietary factors, combined with physical inactivity, ranked

second among the top nine non-genetic factors contributing to death in the United States (Kennon, 1999).

Cardiovascular disease and other CDL are already major health problems for adults in developing countries of the world (Yu et al., 2000). Several studies from developing countries show increased levels of high blood pressure and other CDL risk factors in urban compared to rural populations (Unwin, 2001 a). A cross-sectional population-based survey done in Cameroon, shows that obesity, diabetes and hypertension prevalence is higher in urban compared to rural dwellers in the populations studied (Sobngwi et al., 2002).

In South Africa, in 1995, 48% of reported mortality was due to chronic diseases. Seven million people have hypertension; four million, diabetes; seven million, smoke; and four million have hyperlipidaemia. At least one of these risk factors is present in about 56% of the population and about 20% are at high risk of chronic diseases (Fourie, 2001).

In developing countries, rural to urban migration is thought to accelerate the development of adult high-risk lifestyles. Urban environments are usually associated with increased opportunities for mechanization or sedentary employment, consumption of energy-dense processed foods, and other lifestyle characteristics associated with development of coronary vascular disease and other CDL (Torun et al., 2002).

As a result of the change in occupational structure in developing countries, a large number of people who would otherwise be engaged in labour-intensive farming activities are now engaged in sedentary or occupational activities that demand less physical activity. Migration to the towns has also led to a dramatic change in diet and lifestyle of such people within a very short period of time, increasing their vulnerability to non-communicable diseases (Blair et al., 1992; Damayanthi, 2002). Whilst the energy spent on occupational activities has been reduced as a result of the technological revolution, modernization, and improvement of transportation etc, the energy spent on leisure activities are reduced drastically due to the revolution in electronics. The villager who walked to the village coffee shop now watches the television at home or at a neighbor's house close by. Computers and the Internet are contributing further to the already very low physical activity levels of the urban populations (Damayanthi, 2002).

Ecological trends in populations provide evidence that declining amounts of physical activity have made an important contribution to a rising prevalence of overweight people and obesity. Some studies have reported secular decreases in energy intake concurrently with increases in body weight, both in children and adults. These increases infer a corresponding, even greater, decrease in energy expenditure, which would be a requirement for weight gain (Grundy et al., 1999).

Puoane et al. (2002), in a national cross-sectional study, found that there is a trend towards higher levels of obesity in urban settings compared to non-urban settings, particularly for the African population in South Africa. Strong epidemiological and metabolic data demonstrates that obesity contributes to a number of medical conditions: insulin resistance, glucose intolerance, diabetes mellitus, hypertension, dyslipidaemia, sleep apnoea, arthritis, hyperuricaemia, and certain types of cancer (Grundy et al., 1999). Various studies have shown that obese women face great risks during pregnancy. They are more prone to suffer from gestational diabetes, pre-eclampsia, high blood pressure, thrombophlebitis, and to deliver babies by Caesarean section (Buffalo, 1997; Goldenberg & Tamura, 1996; Sebire et al., 2001). Several studies have shown a significant association between maternal obesity and neural tube defects in newborn infants and maternal obesity and increased foetal mortality (Goldenberg & Tamura, 1996; Sebire et al., 2001).

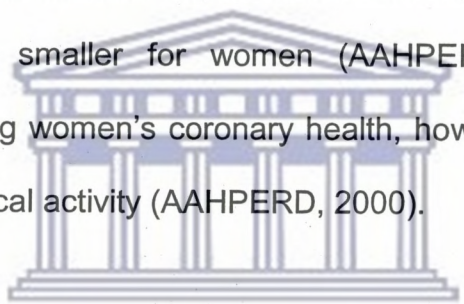
The global prevalence of Type 2 diabetes (diabetes mellitus) has increased exponentially over the last few decades. In 1995, prevalence was estimated at 135 million; and it is expected to increase to 3 00 million by the year 2025. In the United States alone there are an estimated 15.6 million individuals with Type 2 diabetes (Quinn, 2003). Ninety percent of all diabetics have Type 2 diabetes. Genetics, aging, and some medications can cause diabetes, but the main non-genetic factors are overweight and lack of exercise. Several studies have shown that women with diabetes are seven times more likely to die of heart disease

than non-diabetic women (Robb-Nicholson, 2001 & Despres, 2000). The poor dietary habits and sedentary lifestyles that contribute to such diseases are environmentally influenced, and they must change if health risks are to be reduced (Miller, Schlundt, Pichert & Ahmed, 2002).

It has been estimated that there are about six million persons with hypertension in the South African adult population (Steyn, 1998). Cross-sectional studies in Sub-Saharan Africa have consistently found higher blood pressure in studies of urban populations compared to rural populations. Within urban populations, higher blood pressure is observed among those of higher socio-economic status compared with those of lower socio-economic status (Forrest et al., 2001).

Cardiovascular disease causes half of all deaths in women over 50 years in developing countries (WHO, 2003 e). These diseases are emerging rapidly as a major public-health concern in most developing countries, particularly in urban populations. Once, these diseases were regarded as affecting exclusively industrialized nations, but this is no longer true. This is partly because of the adoption of lifestyles similar to those in industrialized countries, and the accompanying risk factors like high blood pressure, smoking, high blood cholesterol levels, unhealthy diet, physical inactivity and obesity (Forrest et al., 2001; Ncube, 2002; WHO, 1997).

Lack of physical activity is the most prevalent, modifiable risk factor for heart disease in many industrialized countries. Similar levels of inactivity are becoming more common in newly-industrialized countries (WHO, 1997). It is in itself a significant risk factor for the development of coronary heart disease and cardiovascular disease (Ncube, 2002; Kennon, 1996; La Croix et al., 1999). More women than men die each year of CHD, and women are 28 percent more likely to die of CHD than they are of breast cancer. In America over the past 20 years, the overall number of CHD deaths has declined, but the rate of decline has been significantly smaller for women (AAHPERD, 2000). The most important factor affecting women's coronary health, however, has been proven to be their level of physical activity (AAHPERD, 2000).



Osteoporosis affects 20 to 25 million people over 45 years of age, especially women (Wardlaw, 1993). A gradual decline in bone-mineral density occurs throughout middle-age and is markedly accelerated in women after menopause, especially during the first five postmenopausal years (Blair et al., 1992; McCord, 1993 & Marble, 1996). It increases the risk of fractures. Common sites of fractures are the spine, hip, wrist, and ribs (Larsen, 1999). Smith & Gilligan (1991) stated that extreme inactivity causes rapid bone-density loss of up to 40%, while athletic activity results in bone hypertrophy of up to 40%.

It has been suggested that motivating people to make a substantial investment of personal time in increased physical activity may be America's best

investment. It could mean a significant reduction in the risk of coronary heart diseases, a decrease in demand for medical services, and a reduction of health-care costs (Kennon, 1996).

2.5 RECOMMENDED QUALITY AND QUANTITY OF PHYSICAL ACTIVITY FOR HEALTH

Lifestyle physical activity has deviated from the traditional methods of exercise prescription by advocating accumulated, unstructured activities of daily living, according to individual preference and convenience (Pescatello, 2001). Lee et al. (1995) state that a lower risk of chronic disease can be achieved by incorporating moderately-intense physical activities, which do not require a formal exercise programme, into everyday life. Therefore, physical activity need not be strenuous to promote health, neither should it be seen as a new action but as part of a people's daily life settings and activities (WHO, 2002 a).

Although physical activity does not need to be vigorous to provide health benefits, the amount of health benefits is directly related to the amount of regular physical activity (i.e. the amount of physical activity is more important than the type or intensity). The more activity performed, measured as energy expenditure or accrued minutes of activity, the greater the gains. When long-term exercise is performed, the benefits start to accumulate (Lee et al., 1995; U.S. Surgeon General, 1996). The dose-response curve shows that the greatest health

benefits are gained by people who are inactive and introduce some physical activity into their daily lives (Lee et al., 1995). Those who already perform low or moderate levels of activity can derive additional health benefits from increasing their level of physical activity. Even the active segment of the population will most likely gain health and fitness benefits from becoming more active, but a plateau probably exists beyond which additional activity does not contribute to improved health (Lee et al., 1995 & Rippe, 1995).

Therefore, the quantity and quality of exercise needed to attain health-related benefits may differ from what is recommended for physical-fitness benefits. Exercise requiring moderate endurance and performed on an almost daily basis is more likely to be adopted and maintained than vigorous physical activity. Regular activity requiring moderate endurance is probably the most feasible exercise prescription, with considerable potential to reduce coronary heart disease while increasing the likelihood of long-term compliance in individuals who are completely sedentary (Kennon, 1996).

For an average sedentary adult, engaging in at least 30 minutes of physical activity of moderate intensity, every day, or on most days of the week, will be sufficient to obtain health benefits. Moreover, those 30 minutes can be accumulated throughout the day in small bouts of activity or exercise (Lakka et al., 2003; WHO, 2003 h). It is not necessary to practice vigorous sports, join costly fitness clubs, or purchase special equipment to achieve health benefits

(WHO, 2003 h). This was also in the American Public Health recommendations which state that every US adult should engage in 30 minutes or more of moderate-intensity physical activity on most, or preferably all, days of the week in order to gain some important health benefits (Blair et al., 1992; Rippe, 1995; Stofan et al., 1998). The American Public Health recommendations for physical activity have been expanded to a broader spectrum of activity including: gardening, walking, swimming and housework, in addition to more vigorous aerobic exercise such as jogging, to derive health benefits (Centers for Disease and Prevention, 1995). The recent guidelines emphasize formal physical activity to achieve a defined level of cardio-respiratory fitness and better overall health, whereas the previous guidelines were based on dose-response studies that determined the optimal level of exercise needed to improve physical fitness (Lee et al., 1995).

American College of Sports Medicine/Centers for Disease Control and Prevention recommendations suggest that individuals who can expend approximately 200 calories per day or 1000-1400 kcal per week can expect many of the health benefits associated with physical activity (Stofan et al., 1998). An important point is that it does not matter what type of physical activity is performed: sports, planned exercise, household or yard work, or occupational tasks; they are all beneficial. The key factor is total energy expenditure; if that is constant, improvements in fitness and health will be comparable (Blair et al., 1992).

Rippe (1995) reported that moderately brisk walking seems to fit into all the research criteria. Walking has no adverse health effects, little risk of injury, and requires no health-club membership or special equipment except for a good pair of walking shoes (Friis et al., 2003 & Lee et al., 1995). Therefore, although walking is not without risks, the main reasons for its popularity are that it requires little skill and training and the cost is minimal (Sawatzky & Naimark, 2002).

Thus, most men and women in a wide age range and at a wide range of fitness levels have to walk approximately four miles an hour to do what is regarded as moderately brisk walking (Rippe, 1995). A cross-sectional study done by Beling (2000), on patterns and correlates of physical activity among US women 40 years and older, shows that walking was the most common type of physical activity for all groups. This was also found by Swatzky & Naimark (2002) in another cross-sectional comparative survey about physical activity and cardiovascular health in aging women (aged between 35 – 74 years). Heath & Smith (1994) in a telephone survey using multistage-cluster, in Georgia, on patterns of physical activity among adults (both sex), also found walking was the most common type of leisure time reported by the subjects. Men were more likely to select sports and conditioning activities, whereas women were more likely to select group activities such as aerobics and video/television-led home exercise (Heath & Smith 1994).

A cross-sectional study, done in Nigeria among adults on their experience in physical activity, demonstrated that although the study population has begun to adopt a generally more sedentary lifestyle, as observed in westernized settings, more occupational activity than leisure activity was observed for all age groups and for both genders (Forrest et al., 2001). The leisure activity observed in the study population was not the type of recreational activity commonly seen in developed countries but, rather, was subsistence farming. Walking was also common, and dancing was another popular leisure activity, especially among women (Forrest et al., 2001).

2.6 FACTORS INFLUENCING WOMEN'S PARTICIPATION IN PHYSICAL ACTIVITIES

Extensive documentation of the numerous important health benefits of physical activity has created a need to understand the factors that influence physical activity habits (Sallis, Marilyn, Calfas, Caparosa & Nichols, 1997). Constraints to participation in physical-activity behaviour are both universal and unique. It appears that although some constraints are shared by many (e.g. time), they mean different things to different individuals (Whaley & Ebbeck, 1997). Various studies reported several common barriers: lack of access to facilities, lack of time, lack of interest or desire, and lack of self-motivation (King et al., 1992; Nies et al., 1999).

2.6.1 Environmental factors

Physical environments have the capacity to facilitate or hinder physical activity. Environments rich in resources relevant to physical activity, such as sidewalks, parks, exercise classes, and health clubs, may make it easier for people to be physically active. Environments that lack relevant resources or pose barriers, such as inclement weather or high crime rates, may act to reduce the probability that residents will be physically active (Sallis et al., 1997 WHO, 2003 g).

The concept of 'behaviour settings' may be useful for understanding the effects of physical environments on physical activity. The behaviour setting is the physical and social context within which behaviour occurs. Physical activity can occur in a wide range of behaviour settings, such as homes, fitness facilities, public roads, parks and worksites (Sallis et al., 1997). Carnegie et al. (2002) in their study on Australian adults, found that urban design features, including the availability of footpaths, traffic-control measures, walking paths, and access to local shops and aesthetic features of the physical environment, have been shown to influence walking.

Government policies should control some relevant environmental characteristics, and these policies would represent an avenue towards changing aspects of physical environments (Sallis et al., 1997). Additionally, Government policies and programmes can have a great impact on people's ability to influence their own health. In order to promote physical activity, a community

should prioritize issues like developing parks and open spaces, clean air and water, safe and attractive streets, and a vibrant public life. This requires the commitment, action and cooperation of the health sector as well as other sectors: transport, environment, urban planning, and law enforcement (WHO, 2003 a).

2.6.2 Support network

Women may lack support from others to be physically active, and as a consequence, they may not develop positive beliefs concerning exercise, or have the confidence to engage in physical activity (Suminski, Petosa, Utter & Zhang, 2002). There is evidence which indicates that social factors influence the level of people's participation in physical activity. The evidence further suggests that social support can emanate from a variety of sources, for example: programme staff, family or friends, as well as through a number of channels, for example: via the telephone (King et al., 1992). A study done by Nies et al. (1999) on African-American women has shown that support provided by family and friends of those women has assisted in creating a safe environment for walking and a supportive social structure that facilitated exercise, as well as providing opportunities for socialization. Berg & Cromwell (2002), in a qualitative study about physical activity on the perspective of Mexican-American and Anglo-American midlife women, using a focus group discussion, reported that the women needed the approval of members of their family, particularly their

husband, in order to engage in a physical activity programme, and it needed to fit into their usual family life pattern. Several women suggest the importance of having a physical activity programme that they could share with other family members.

Eyler et al., (2002 b) indicate in their study that family priorities are a major barrier to physical activity among women. A woman's multiple roles as wife, mother, and active community member are mentioned as being time-consuming and difficult, leaving little time for exercise. Friis et al. (2003) found in their study that marital status was related to frequent walking, with the highest level occurring among unmarried people and the lowest in widowed and married ones. In addition, Malina (2001) also reported that genetic and/or cultural factors transmitted across generations might predispose an individual to be more, or less, active.

2.6.3 Socio-economic demographics and psychological factors

Gender

There are many morphological and physiological differences between men and women which are important, relative to fitness and exercise performance (Pollock et al., 1998). Males are generally more active than females (Brownson, Baker, Housemann, Brennan & Bacak, 2001, Cooper et al., 2000; Eyler & Vest, 2002 a; WHO, 2002 a) and the sex difference is greater for high-intensity activities than for activities of low and moderate intensity (Malina, 2001). Men

usually report greater levels of total and vigorous activity, whereas women tend to report participating in low-to-moderate activities (Martin, Morrow, Jackson, Dunn & Andrea, 2000).

Age

Surveys of adults are consistent in reporting that time spent in physical activity declines with age (Malina, 2001; Sawatzky & Naimark, 2002 & Koffman, Bazzarre, Mosca, Redberg, Schmid & Wattingney, 2001). The prevalence of physical-activity decline in American women is 25.6% among those aged 18-34 and 42.1% among those 65 and older (Centers for Disease Control and Prevention, 1995; Lee et al., 1995). However evidence has proven that adults who are regularly involved in intense leisure-time physical activity do not change their level of participation dramatically over the age strata (Heath & Smith, 1994).

Occupation

A few studies have reported that workers with heavy occupation levels of physical activity are less likely to participate in leisure-time physical activity than those with less or moderate physical occupation, but may have equivalent or greater physical-activity levels when it comes to total activity, rather than just leisure-time activity being considered (King et al., 1992).

Level of education and income

A study on physical-activity patterns among adult women in Georgia has found that socio-economic status, as defined by educational attainment and household income, influences their level of participation in physical activity (Heath & Smith, 1994). Women with less than a high-school education or lower income are the most physically inactive (Koffman et al., 2001). A modest relationship has been found between leisure-time physical activity and income in several surveys (King et al., 1992). Some studies have shown remarkable consistency in revealing that there is a positive association between level of education and leisure-time physical activity, but a negative association between level of education and work-related levels of physical activity. Lower educational attainment is consistently related to the lowest levels of reported leisure time physical activity. Level of income demonstrated a similar pattern (Droomers et al., 1998; Heath & Smith, 1994), mainly because those with lower incomes live in environments which are not conducive to engaging in physical activity (WHO, 2002 a). In addition, women belonging to minority groups in countries like the USA or Canada might be less informed about the importance of physical activity, and this may stem from insufficient education or role modeling during these women's childhood and adolescence (Suminski et al, 2002).

Knowledge, attitudes, and culture/beliefs

Malina (2001) & Henderson & Ainsworth (2003) report that both personal and cultural values transmitted across generations may influence women's physical

activity. Attitudes and beliefs have been associated with lack of physical activity. Some people perceive physical activity as a potential health risk instead of a health benefit. For example, some individuals associate physical activity with joint problems, fatigue, and/or injury. An individual's beliefs about physical activity may need to be recognized and discussed, to help them maintain and adopt a healthier lifestyle (Martin et al., 2000).

Attitudes are widely believed to be related to human behaviour in general and in sport- and exercise-involvement in particular. Studies emphasize cognitive and emotional determinants of behavior, such as affective orientation towards the behavior, beliefs about the consequences of behaviour, evaluations of behavioural outcomes, and behavioural intentions (Vilhjalmsson & Thorlindsson, 1998). Studies of adults show that exercise involvement is associated with a positive attitude towards exercise, normative beliefs and exercise intentions (Vilhjalmsson & Thorlindsson, 1998). Furthermore, people's behaviour is negatively influenced by insufficient knowledge about physical activity and its benefits (WHO, 2003 a).

Physical activity is a behaviour. Any kind of behaviour is learned, not only by direct experience but also through observation of others (modelling). Several studies have looked at sports participation from a socialization perspective (Vilhjalmsson & Thorlindsson, 1998). In a study about physical-activity behaviour in American adults, it was shown that there was an association between

decreased physical fitness/body mass and watching television (TV) in women and not in men (Prochaska et al., 2000). In contrast, the possibility of promoting physical activity on TV also exists, given the opportunity for advertisement placement (Suminski et al, 2002).

Knowledge of, and belief in, the health benefits of physical activity have been associated with initial adoption of an exercise programme in both men and women and this correlated with current levels of physical activity (King et al., 1992). On the other hand people with beliefs that exercise has little value for health and fitness or that health outcomes from exercise are outside one's personal control, have been found to exercise less frequently and drop out sooner than peers holding opposite views (King et al., 1992). Self–efficacy or one's confidence in being able to successfully perform a specific activity or behaviour has been associated with the adoption and maintenance of vigorous or moderate physical activity (King et al., 1992). Droomers et al. (1998) also reported that personality and coping-style influence adult participation in leisure-time physical activity.

Body image

Women often report that they are motivated to be physically active for self-presentational reasons, including weight management, body tone, and general physical appearance. This motivation is most likely due to the socio-cultural pressures on women to maintain the ideal thin and physically fit body and the

high social acceptability of using physical activity as a means to deal with weight concerns. Alternatively, self-presentational concerns about one's physique may also serve to deter women from engaging in physical activity. "Self-presentational" refers to how people attempt to monitor and control the impressions other people form of them. It is an essential aspect of social interaction, because the impressions people convey influence how they are perceived, evaluated, and treated by others. When people doubt their abilities for achieving their self-presentational goals, they are likely to experience social anxiety (Kowalski, Crocker & Kowalski, 2001).

Evidence from a few studies suggest that social-physique anxiety may be associated with choice of activities, reasons for participating in physical activity, preferred physical activity settings, and the level of involvement in physical activity (Kowalsk et al., 2001). Diehl, Brewer, Van Raalte, Shaw, Fiero & Sorensen (2001), in their study on exercise settings among women, has proven that women with high social-physique anxiety avoided exercising in certain settings (mostly with a group, or more than one partner) to reduce the opportunity for others to evaluate their physiques. Similarly, women high in social discomfort were also likely to avoid group-exercise settings. Further, there was a significant relation between social-physique anxiety and perceived social discomfort.

Enjoyment and satisfaction have also been shown to predict higher levels of physical activity or adherence during a period of monitored exercise in women (King et al., 1992; Nies et al., 1999).

2.6.4 Biomedical status

Several studies have shown that healthy people are more active than persons with medical problems or conditions (Friis et al., 2003 & King et al., 1992). Having a chronic disease or physical disability may also reduce ability or restrict opportunity to engage in sport or any other type of physical activity (Vilhjalmsson & Thorlindsson, 1998). King et al. (1992) also indicate that overweight and obese people are less likely to participate in physical activity than to individuals of normal weight.

Chapter Two reviewed the literature about issues pertinent to the current study, including health promotion and physiotherapy; benefits of physical activity to health; and health risks related to physical inactivity. Literature on recommendations of quality and quantity of physical activity for health benefits was presented. The chapter concludes by describing the factors influencing women's participation in physical activities.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research setting in which the study was based; it also examines the methods used in the study, in which data collection was done by a self-administered questionnaire survey and a focus-group discussion. The study design, study population, sampling method, and instrumentation are described. The data-collection procedure is explained. Description of the pilot study, and how data analysis was carried out, is given. At the end, the ethical issues relating to the study are given.

3.2 RESEARCH SETTING

The study was carried out in Kigali, the capital city of Rwanda, in commercial institutions such as banks and insurance companies. Kigali is subdivided into eight districts: Nyarugenge, Nyamirambo, Butamwa, Gisozi, Kacyiru, Kanombe, Kicukiro and Gikondo (Rwanda Ministry of Finance, 2003).

The greater number of banks and insurance companies are located in the Nyarugenge district, which is considered a commercial district, while the others are generally residential districts. Kigali has 600 000 inhabitants (Rwanda

Ministry of Finance, 2001). Kigali is home to 45% of the total urban population of Rwanda. It is also worth noting that, apart from the city of Kigali, no other urban area of Rwanda has more than 100,000 inhabitants. Therefore the several commercial, job and training opportunities that Kigali offers have rendered it far more attractive to migrants than the other urban areas (Rwanda Ministry of Finance, 2003).

There are nine banks which fall into the following categories:

Commercial banks: BK, BCR, BANCOR, BCDI, CONGEBANK, and BACAR.

Development bank: BRD.

Cooperatives: Several cooperatives have joined together and formed what we call Popular United Banks of Rwanda (UBPR). Others are independent such as the cooperative Duterimbere.

Central bank: BNR.

All the headquarters of the above banks are found in Kigali. Kigali also has four insurances companies: SONARWA, SORAS, COGEAR and CORAR.

To make the study representative, it was sited at five banks and two insurances companies. A sample is representative to the degree to which it reflects the characteristics of the target population. In addition, the sample needs to be large enough to inspire confidence in the results (Hall & Hall, 1996). The following were the respective institutions: BNR, BK, BCR, UBPR, BANCOR, SONARWA, and SORAS. They were selected through simple random sampling. In simple

random sampling, the researcher develops an accurate sampling frame (Neuman, 2000). Each case has an exact and equal chance of being included (DeVos, 2001). The choice is made objectively by random means (Hall & Hall, 1996).

BNR is the national bank of Rwanda and was created in 1967; from that period, it had an important mission of issuing money all over the country. It has 454 employees of whom 125 are female (BNR, 1999). BCR is one of the commercial banks, and it was created in 1963. It has 190 workers, 79 of them female (Bizimungu, 2002). BK is also among the commercial banks, and was created in 1966. It has 302 employees, of whom 112 are female (Gashema, 2002). BANCOR, also a commercial bank, was created after the 1994 war, that is in 1995. It has 42 employees, of whom 14 are female (Kagaga, 2002). UBPR was formed by several cooperatives; and its creation had the goal of fostering the habit of saving money in a bank, among people in the community, especially those with low income, and to promote cooperative solidarity, thus promoting socio-economic development of the country. It has 152 employees, 55 of whom are female (Rutayisire, 2003).

SONARWA is a national insurance company and was created in 1975. It has 130 employees, 41 of whom are females (Havugimana, 2003). SORAS is also a national insurance company and was created in 1984. It has 137 employees and of these 38 are females (SORAS, 2002).

3.3 RESEARCH DESIGN

This was a cross-sectional, descriptive study, which utilized both quantitative and qualitative methods. The use of multiple methods is called triangulation. De Vos, (2001) stated that in triangulation multiple methods of data collection are used with a view to increase reliability.

The quantitative part examined the level of women's participation in physical activity and factors influencing participation in physical activity. The qualitative part evaluated the need for a health-promotion program related to physical activity through a focus-group discussion. This complementary approach provided an image of the subjects' involvement in physical activity and their suggestions for the promotion of physical activity in their respective environments. This could not be attained when using either quantitative or qualitative methodology alone.

3.4 RESEARCH POPULATION AND SAMPLING

In the quantitative part of the study all working women in the seven selected commercial institutions, who voluntary agreed to participate in the study, were recruited. Four hundred and five (405) were approached to participate in the quantitative part of the study. In the qualitative part, purposive sampling was used to choose four women from the seven commercial institutions and another

three women from the Ministry of Gender and Women in Development. All women selected were seniors in their respective departments. In purposive sampling, the researcher chooses the participants to be included in the sample on the basis of her/his judgment of their typicality, thereby building up a sample that is satisfactory to the researcher's specific needs (Cohen, Manion & Morrison, 2000). This provides participants who are especially informative (Neuman, 2000). Women unwilling to participate in the study were excluded.

3.5 STUDY INSTRUMENT FOR QUANTITATIVE PART

Quantitative data were gathered using a self-administered questionnaire (Appendix E). This type of survey is by far the least expensive; there is no cost except for an interviewer's time and travel, which is particularly significant where informants are widely scattered (Hall & Hall, 1996). It can also be conducted by a single researcher (Neuman, 2000). The respondent can complete the questionnaire when it is convenient and can check personal records if necessary. This type of survey also offers anonymity and avoids interviewer bias. In addition, it is very effective, and response rates may be high for a target population that is well-educated or has a strong interest in the topic or the survey organization (Neuman, 2000).

3.5.1 Questionnaire

The questionnaire comprised of two sections, A and B (Appendix E). On the cover page, an explanation of the purpose of the study and instructions concerning ethical considerations were provided. On the first page of each section, instructions on how to fill in the questionnaire were provided. These instructions were repeated orally to the participants to ensure that they understood what they needed to do.

Section A: The first six questions covered socio-economic and demographic characteristics. The next question requested information on medical status, and reported presence of any chronic disease. Variables evaluated included age, marital status, education level, employment status, average income, the entertainment/communication equipment people may use at home, such as TV, radio etc., and finally, a group of chronic diseases such as high blood pressure, and diabetes mellitus. These variables were described in literature as factors contributing to physical inactivity.

Section B: measured the frequency, intensity, duration, and type of physical activities practiced by the women involved.

The questionnaire was adapted from the sub-Saharan African Questionnaire (SSAAQ). Sobngwi et al., (2001) stated that the question of the most appropriate method for measuring population physical-activity level has been debated, and

questionnaires are seen to be the best consensual method for this purpose. Several questionnaires have been validated in various parts of the world; nevertheless, socio-cultural differences require the development and use of a specific questionnaire in different populations. As Rwandan populations are a sub-Saharan African population, the SSAAQ was the most practical and accurate to use. However, the questionnaire was modified to fit the working Rwandan women in the urban area. Household physical activities were included and activities that were not common for women in general or which were not frequently practiced in Rwandan urban areas, such as fishing, animal rearing, hunting, and horse riding, were eliminated. Activities were grouped or classified in different categories, according to their intensity: vigorous activities, moderate activities, light and sitting activities. This was according to literature from Prochaka et al., (2000); WHO, (2003 h) (See Table 3.1)

Table 3.1 Categories of activities

Activity category	Examples of activities
Vigorous activity	Running, jogging, basketball, soccer, volleyball, aerobic dancing, vigorous traditional dance, chopping wood, digging, carrying water, moving furniture/heavy boxes, heavy lifting
Moderate activity	Brisk walking, swimming, classic dance, moderate gymnastics, table tennis, cleaning house, washing clothes with hands, gardening, sweeping pavement, washing windows
Sitting activity and light activity	Watching TV, listening to radio, playing table game (such cards, scrabble etc.), plaiting hair, chatting with people, helping children to do homework, writing, desk-work, discussion (meeting), carrying light load, climbing stairs, driving car, light walking, dish washing, preparing food, ironing, care for children, personal care.

Section B was comprised of five parts:

The first part assessed physical activities women did in their leisure or spare time. They were requested to think of activities they do in their spare time, then consider a usual/typical week, and state the number of days per week and the average time they spent doing activities in the different categories. A question evaluating barriers to moderate or vigorous leisure physical activities was also asked.

The second part measured women's participation in household activities. The questionnaire was used to record (in a usual/typical week at home) how often the activities were performed each week and the duration of the activity. They were requested to think about their recently past. This was followed by a question evaluating the barriers to moderate household physical activity.

The third part evaluated walking to and from work. It measured the amount of time the subject spent walking to and from work. In addition, it recorded the pace they used.

The fourth part assessed occupation-related physical activity. Participants were requested to think about their usual/typical workday while at work, and then estimate all the activities performed during that usual/typical workday (including the lunch break), and the average duration.

The fifth part was about women's personal evaluation of physical-activity level in relation to the World Health Organization recommendations.

3.6 STUDY INSTRUMENT FOR QUALITATIVE PART

Qualitative data were derived from focus-group discussions. The two major techniques used by researchers to collect qualitative data are participant observation and individual interviews. Focus-group discussions or group

interviews possess elements of both techniques, while maintaining their own uniqueness as a distinctive research method. They are a way of listening to people and learning from them. In addition, focus-group discussions allow access to research participants who may find one-on-one, face-to-face interaction scary or intimidating. Hence, by creating multiple lines of communication, the group interview offers participants a safe environment where they can share ideas, beliefs, and attitudes in the company of people from the same socioeconomic, ethnic, and gender backgrounds. Focus groups also reduce the distance between the researcher and the researched. The multi-vocality of the participants limits the control of the researcher over the research process. The unstructured nature of focus-group conversations also reduces the researcher's control over the interview process (Denzin, 2001). However, the format of this technique provides the facilitator with the flexibility to explore unanticipated issues as they arise in the discussion; in addition, the results of focus-group discussions normally have high face validity (Marshall & Rossman, 1995). Denzin (2001) stated that some of the studies that have been conducted on focus groups show that group participants find the experience more gratifying and stimulating than individual interviews.

3.6.1 Focus group discussion

The focus-group discussion was led by a focus-group moderator and it was based on a clear interview guide (Appendix L). Questions from the guide were open-ended to allow issues to emerge spontaneously. This helped to yield in-

depth information on the opinions of the women regarding physical activity and the need for health promotion related to physical activities was explored.

Secker, Winbush, Watson & Millburn (1995) stated that the role of the researcher in qualitative method is to explore, with the aim of discovering new issues, rather than verifying what is already know by the participants. Thus structured, open questions were used, with further probing to allow the participants to express their views, opinions, and reactions within a group rather than individually.

The collective experience of the focus group empowers participants to take control of the discussion process, moving the conversation towards areas of the topic relevant to them, sometimes encouraging and even compelling the researcher to reconsider her/his views on a certain subject. Focus-group methodology can contribute to correcting the individualistic bias existing in social research by offering a unique opportunity to study individuals in their social contexts, by generating high-quality interactive data, by contributing to the social construction of meaning, and by accessing women's shared, and often ignored, stocks of knowledge (Denzin, 2001). In addition, the open-response format of the focus group provides an opportunity to obtain large and rich amounts of data that is told in the participant's own words (Van Rooijen et al., 2002).

3.7 RELIABILITY AND VALIDITY OF THE STUDY

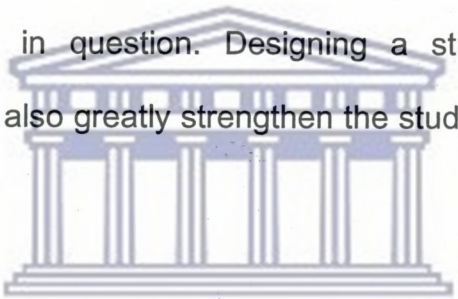
Prior to the fieldwork, the questionnaire was translated from English to French and then, with the focus-group discussion guide, from English to Kinyarwanda, the main indigenous language of Rwanda. This was done by two professional translators; one French and the other Kinyarwanda. To make sure that the translated questionnaires in Kinyarwanda and French expressed what the original in English intended to ask, two independent translators, one French and the other Kinyarwanda, translated the questionnaire and the focus-group discussion guide from Kinyarwanda back into English, and the questionnaire from French back into English. The second version was similar to the original questionnaire set in English. Verification of the translated questionnaires was done to ensure the validity of the instrument.

Triangulation of methods made the results more reliable. Neuman (2000) indicated that the two methods have different complementary strengths, and a study using both methods is fuller or more comprehensive. In addition, triangulation allows researchers to be more confident of their results (De Vos, 2002). Integrating the two methods provides a general picture of the problem; qualitative research may facilitate the interpretation of relationships between variables, whereas quantitative research readily allows the researcher to establish relationships among variables, but is often weak when it comes to exploring the reasons for those relationships (Punch, 1998).

3.8 CREDIBILITY AND TRUSTWORTHINESS

In the qualitative part of the study, to enhance credibility and trustworthiness, the following procedures were followed:

Firstly, involvement of women from Ministry of Gender and Women in Development, together with women in banks and insurances institutions, increased the trustworthiness and credibility of the research. De Vos (2002) stated, data from different sources could be used to corroborate, elaborate, or illuminate the research in question. Designing a study in which multiple informants are used can also greatly strengthen the study's usefulness for other settings.



Secondly, the focus-group discussion was conducted in Kinyarwanda, notes were taken, and, during that process, the researcher ensured that what was observed provided a detailed description of what really happened. A meticulously detailed description of participants and settings was provided, and, as Creswell (1998) indicated, with such detailed description, the researcher enables the readers to transfer information to other settings and to determine whether the findings can be transferred. In addition, the discussions were audio-recorded to ensure accuracy in data collection.

Thirdly, by using a moderator, the possibility of researcher bias was greatly minimized. Furthermore, the researcher made use of external checks of the

research process by peer review/debriefing after data collection and during later stages of analysis. Flick (1998) stated that regular meetings with other people, who are not involved in the study, in order to disclose one's own blind spots and to discuss working hypotheses and results with them, increases the trustworthiness and credibility of the study.

Fourthly, the researcher solicited the participants' views of the credibility of findings. Therefore, each transcription was sent to them with the request that they make amendments. Member checks allowed research participants to review research materials in order to verify the researcher's credibility and interpretation of the findings (Creswell, 1998 & Mellion &Tovin, 2002).

3.9 PILOT STUDIES

The questionnaire was pre-tested in an institution which was not included in the study, but which had the same characteristics as those institutions in the main study. The participants were all women who voluntarily agreed to participate in the study. The aim of the pilot study was to assess the questionnaire for clarity and to ensure a logical flow of questions. It also assessed how long it took to complete a questionnaire.

The bank involved in the project was selected by convenience sampling, and the questionnaire was pre-tested for three days on ten women. On the first day

questionnaires were administered to the women, and oral explanations were given on how to complete them. Participants were allowed to ask questions concerning filling of the questionnaire. They were requested to complete the questionnaire in their own time. On the second day the research assistants went back to the bank, to make sure there was no question that needed explanation, and on the third day, the questionnaires were collected from the participants by the research assistants. Changes were made according to the responses of the participants. Some participants complained that they would prefer a questionnaire in French instead of in Kinyarwandan, so the questionnaire was translated into French.

3.10 PROCEDURE

Field-work began by training four research assistants and the moderator. The four research assistants could speak and write English, French, and Kinyarwandan fluently. The moderator could speak and write English and Kinyarwandan fluently. The researcher did the training over a period of five days. The training covered the assistant's and moderator's roles in the study, their understanding of the research topic, as well as their understanding of the aims and ethical considerations of the study. The moderator was a female physiotherapist working under the Ministry of Education at the School of Physiotherapy, and she was a skilled and expert facilitator. Five newly-qualified physiotherapists were recruited as field-research assistants.

Permission was sought from the Ministry of Gender and Women in Development and from the heads of the different institutions included in the study (Appendix A & B). In addition, informed consent was requested from the participants before the completion of questionnaires and focus-group discussion. The consent form explained the purpose of the study and the ethical issues taken into consideration (Appendix D).

3.10.1 Questionnaire procedure

Contrary to the researcher's plan, the completion of questionnaires by the participants took 16 days. The researcher's plan (with the participants' agreement) was for all participants to have completed the questionnaires in 12 days, but since only 252 questionnaires had been returned by this time, the time was extended. The research assistants used the 12th day to remind all participants about the remaining questionnaires. The research assistants returned to the institutions two days later to give the second reminder to the participants. After four days, another 100 questionnaires were collected. Sarantakos (2000) indicated that sending reminders to those who did not return the questionnaire or to all respondents, depending on the research design, is the right step towards improving the response rate

The first day in those institutions was for administration of questionnaires. In addition to the written explanation of the purpose of the study and the instructions that were on the first page of the questionnaire, oral instructions on

how to fill in the questionnaire, and an explanation of the purpose of the study, were also provided.

At each daily session the questionnaires were distributed to the participants, who were required to complete them when it was convenient to them. For section B, they highlighted the different types of physical activities: leisure, household, occupational, and walking. Categories within those types of activities were also explained. Emphasis was placed on the choice of appropriate category in each type of activity, the frequency, and the duration.

The following day the research assistants went back to the institution to check if there were any problems or any difficulties encountered by the participants, in which case they had the right to ask for clarity.

3.10.2 Focus-group discussion procedure

The focus-group discussion took place one week after the completion of the questionnaire. All participants were contacted in writing (Appendix J & K) and asked to participate in a discussion about promoting physical activity among working women. The researcher met each participant, and informed consent was obtained from each one after the purpose, procedures, and possible benefits of the study were explained to them. Participants had the opportunity to ask questions, or to withdraw from the project, before the consent form was signed. In addition, permission for note-taking during discussion, and for the use

of audiotape record, was requested. The participants were assured that the recording and the notes would only be listened to, or looked at, by the researcher, and that the participants would stay anonymous. Participants were reminded one day before the focus-group discussion about the time and place of the interview.

An experienced moderator, who used a focus-group guide so that questions were focused, facilitated the discussion. The guide was developed by the researcher, and based on the aim and objectives of the study, and from the review of the literature. Discussion was conducted in Kinyarwanda, and audio-recorded to ensure accuracy in data collection.

The participants reported at 04:00pm, after work on the day of their appointment, to the gymnasium of the physiotherapy department at the Kigali Health Institute. The participants were welcomed, introduced to each other, and to the moderator. Participants were sitting in a circle; as Holloway & Wheeler (1997) indicated, a spatial arrangement of a circle, or semi-circle, seems to be the most successful sitting arrangement. They were also given nametags to provide a basis for building greater rapport between them and the moderator. It also enabled the moderator to direct questions at the participant by name, and to achieve simultaneous eye contact.

The rules and the role of the moderator for the group discussion were explained. The importance of each participant's contribution was explained and the moderator addressed questions to the group as a whole. She gave every participant the opportunity to respond, to prevent domination of the discussion by one or two members. The participants shared their views with each other and built ideas on each other's ideas, and with the moderator, in an open manner. Further probing questions were used to follow up the information offered. The researcher, as a note-taker, documented the order in which participants spoke; she also noted the non-verbal behaviour such as eye contact, and gestures between group members.

The discussion took about two hours. At the end, participants were thanked and acknowledged for the useful information. Transport was arranged for each of them. Thereafter, the audiotape was transcribed and, before translation into English, each transcription was sent to the participant with the request that they come up with amendments.

3.11 DATA ANALYSIS

Quantitative and qualitative data were analysed separately. However, both findings complement each other, thus producing a deeper understanding of the study out-come.

3.11.1 Analysis of questionnaire

Data were first coded manually. Statistical analysis system version 8e (SAS) was used to obtain a profile of the study population. Participant's level of physical activity, age, marital status, education level, income, and medical status were presented using frequency tables, cross-tabulations, tables, histograms, and pie-charts.

The relationship between various variables, such as level of participation in physical activity and the participants income, level of education, age etc., were analysed using inferential statistics such as the chi-square test and Fischer's exact test.

3.11.2 Analysis of focus-group discussion

The analysis of the focus-group discussion started with transcription of information from the audiotape recording in Kinyarwanda. Then a comparison was made with the notes taken during the discussion, to verify accuracy. Elements such as gesture, body language, and order in which participants spoke, were added to the information recorded. To maintain anonymity, participants' names were changed to pseudonyms.

A trained, multilingual translator translated the transcriptions and field notes into English. The translator carefully attempted to keep the original words throughout the process of translation, to ensure validity. The researcher role was then to

focus on extracting meaningful ideas from the different participants opinions. Afterwards, transcripts were read through several times by the researcher, and emphasis was put on the emergence from the ideas of themes.

Notes were made throughout the reading of the transcripts. Thus, data was coded in themes, followed by the creation of broad categories (according to the research questions) of emerging themes, which fit in together.

The analysis was done by reading through the transcripts, again and again, making as many headings as necessary to describe all aspects of the content. In addition, grouping of the themes into broader categories was done in order to reduce the number of themes or small categories; for instance, very similar headings were conflated to come up with one. However, the researcher emphasized searching for categories that have internal convergence and external divergence, which means that the categories must be internally consistent but distinct from one another (Marshall & Rossman, 1995).

NB: afterwards, an independent researcher was also asked to read through the transcripts and to generate themes, then categories without seeing the researcher's list of categories; this increased the validity and reliability of categorizing. Lists were compared, and adjustments were made. The last step was for the researcher to focus on searching for plausible explanations for the data in the categories, and the linkage among categories.

3.12. ETHICAL CONSIDERATIONS

After approval of the research project by the Senate of the University of the Western Cape, further permission was requested from the Ministry of Gender and Women in Development and from the heads of the different institutions included in the study (Appendix A & B). In addition, written consent was sought from the participants for the questionnaire and the focus-group discussion (Appendix D, J & K). In each case, informed consent was obtained either orally or in writing, before carrying out the study (Appendix C). The researcher's letter seeking consent included the aim of the study and stated that the participants would be assured of anonymity and of their right to withdraw from the study at any time, without prejudice, and also that the data obtained would be treated with respect and confidentiality.

During the research process, the participants were introduced to the research assistants and the moderator, prior to the distribution of questionnaires and the commencement of the focus-group discussion. The researcher assured the participants that the results of the study would be made available to the participants, the heads of institutions, and all other stakeholders.

In Chapter Three, the study environment, study design, study population, and sampling are described. In addition, the chapter also explains relevant methodological issues, such as methods of data collection, reliability, and the

validity of the study and study procedure. A self-administered questionnaire survey and a focus-group discussion guide were used in data collection. Descriptive and inferential statistics were used in analysis of the questionnaire. Focus-group discussion data were coded into themes and categories. Ethical considerations conclude the chapter.

CHAPTER FOUR

RESULTS

4.1 INTRODUCTION

In this chapter, a summary of the characteristics of the participants' physical-activity levels is given. The socio-demographic and socio-economic characteristics of the study population are described. These comprise age, marital status, education, and income. The relationship between the socio-demographic characteristics, socio-economic characteristics and participants' level of participation in physical activity is also described. In addition, participants' self-evaluation of their level of participation in physical activity is presented.

4.2 SOCIO-DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF THE PARTICIPANTS

Four hundred and five questionnaires were distributed. Fifty questionnaires were not returned, three were not completed; therefore, the response rate was 86.9% (n=352). The participants' mean age was 33.4 years, with a standard deviation of 6.9 years.

Table 4.1 presents the socio-demographic and socio-economic characteristics of the participants. The majority, 58.5% (n=206) of the participants, were married. With regards to education, the majority of the participants, 42.9% (n=151), had secondary education. However only 9.9% (n=35) had primary education. Concerning income, a greater percentage of participants, 37.7% (n=133), earned more than 150.000 Rwandan francs (Frw) which is equivalent to R2250, and above.

Table 4.1: Socio-demographic and economic characteristics of the participants

Variables	Characteristics	Number	%
Age	19-30	135	38.3
	31-40	165	46.9
	41-50	48	13.6
	51-56	4	1.1
Marital status	Single	90	25.6
	Married	206	58.5
	Separated	14	4.0
	Divorced	9	2.6
	Widowed	31	8.8
Education	Never went to school	0	0
	Primary, 1-6	35	9.9
	Secondary, 1-3	40	11.4
	Secondary, 4-6	151	42.9
	Tertiary	126	35.8
Income	Less than 50.000frw	75	21.3
	51.000-100.000frw	57	16.2
	101.000-150.000frw	87	24.7
	More than 150.000frw	133	37.7

4.3 LEVEL OF PARTICIPATION IN PHYSICAL ACTIVITY.

Participants' level of participation in physical activity was categorized according to the criteria described by the WHO recommendations for health-related physical activity (WHO, 2003h), which recommended that, for an average adult, engaging in at least 30 minutes of physical activity of moderate intensity every day, or on most days of the week, would be sufficient to gain health benefits. Moreover, those 30 minutes can be accumulated throughout the day in small bouts of activity or exercise.

Therefore, applying the above criteria within the overall sample, 71.9% (n=253) participants were classified as "sedentary" and only 28.1% (n=99) participants were classified as "physically active".

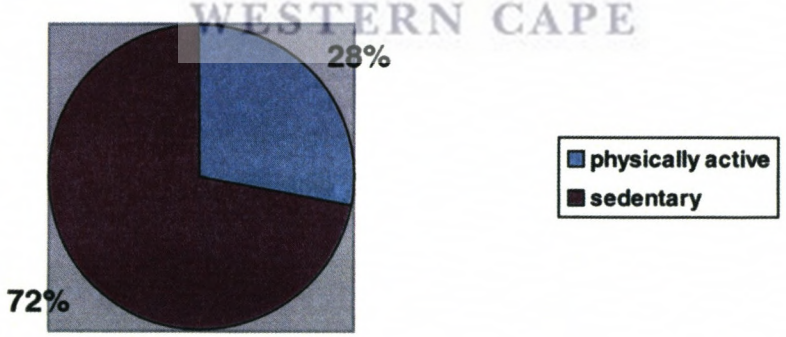


Figure 4.1: Participation in physical activity

4.4 FACTORS INFLUENCING THE LEVEL OF PARTICIPATION IN PHYSICAL ACTIVITY

4.4.1 Relationship between physical activity and age, marital status, education, and income

Figure 4.2 illustrates the participant's ages relative to their level of participation in physical-activity behaviour. It was shown that physical activity decreases with increasing age; 100% of people who were aged 51 years and above were classified as sedentary. Significance tests using chi-square tests could not be carried out between level of participation in physical activity and age groups of participants. This was due to the smallness of cell sizes (more than 20% of the cells had expected counts of less than 5.).

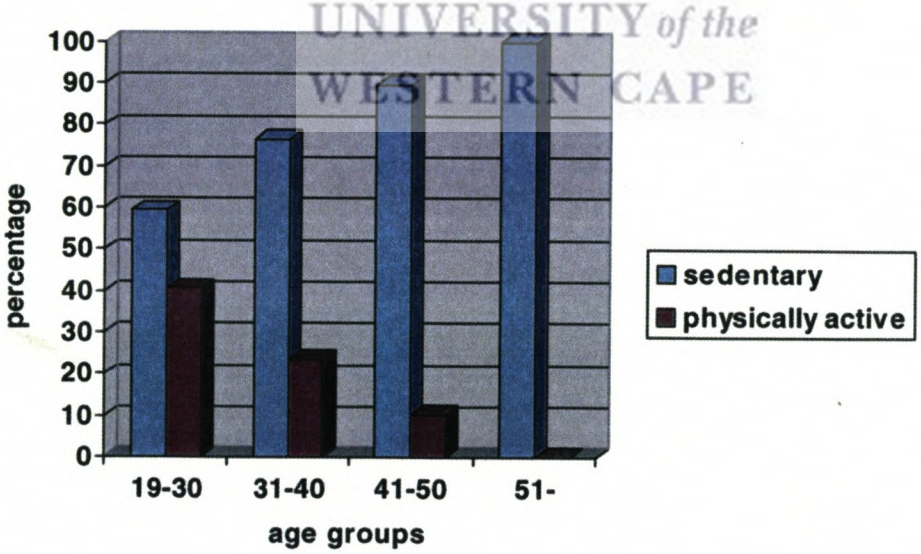


Figure 4.2: Age group versus participation in physical activity

Figure 4.3 illustrates the participant's marital status in association with their level of participation in physical-activity behaviour (marital status was split into married and unmarried people). There were more classified as sedentary people in the married group (77%) than in the non-married group (63.2%).

Although significance tests using chi-square tests could not be carried out due to the smallness of cells, after splitting marital status into two groups, small or no values such as 'separated' or 'divorced' were categorized together with 'single' and 'widowed'. In addition, the observed frequency cells were collapsed to increase the frequency of expected values to a value of more than five. Therefore significance tests using Fisher's Exact Test were the most accurate methods to use. There was significant association between level of participation in physical activity and marital status (p=0.0038).

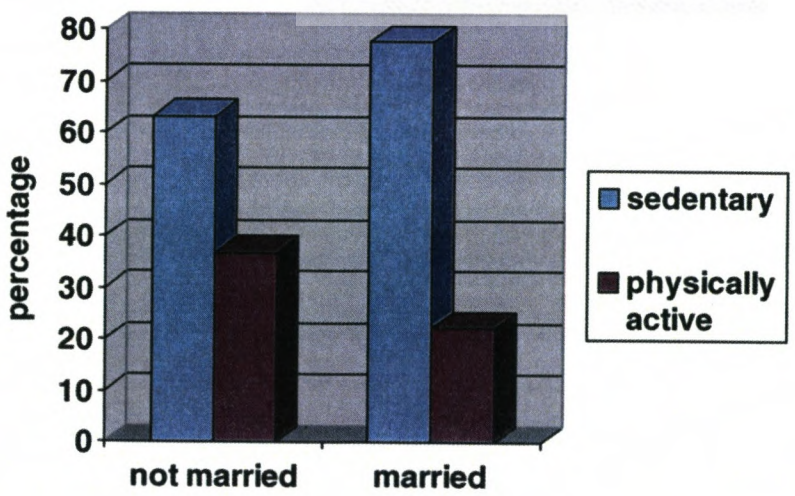


Figure 4.3: Marital status versus participation in physical activity

A lower level of education corresponded with a higher level of physical activity. Among people with a primary level of education (grades1-6), 100% were classified as physically active. Among those with tertiary education, 84.9% were classified as sedentary and only 15.1% were classified as physically active. The χ^2 test indicated that there was a significant association between education (p=0.0001), in relation to the level of participation in physical activity.

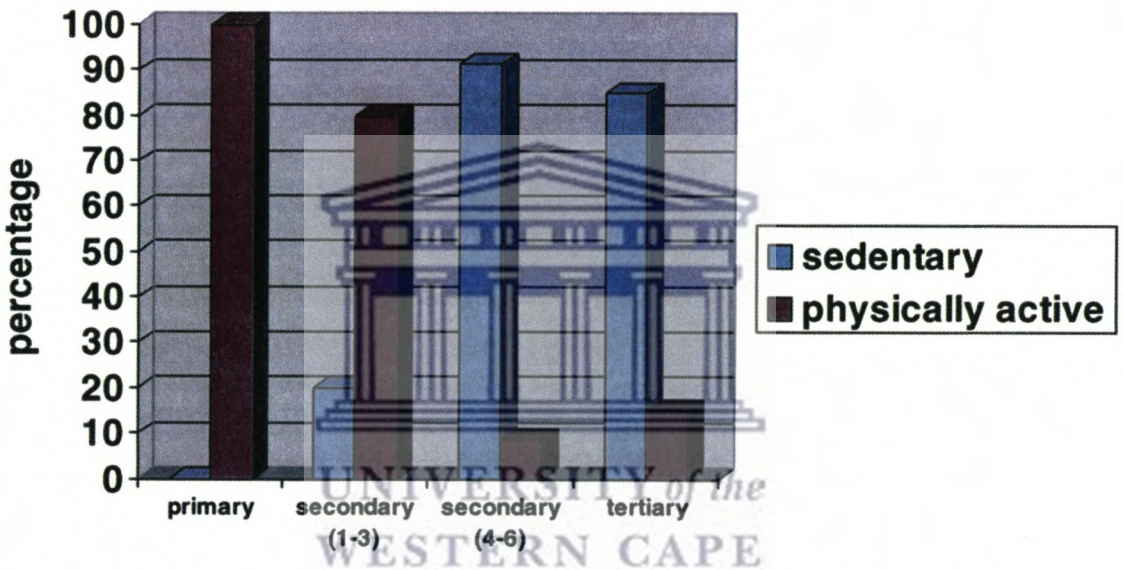


Figure 4.4: Education level versus participation in physical activity

The lower the income of the participants, the higher the level of physical activity was (Figure 4.5). Among people who earned 50,000Frw or less, 78.7% were classified as physically active, and only 21.3% were classified as sedentary; whereas, among people who earned more than 150.000Frw, 85.7% were classified as sedentary, and only 14.3% were classified as physically active. The

χ^2 test indicated that there was a significant association between income (p=0.0001) and the level of participation in physical activity.

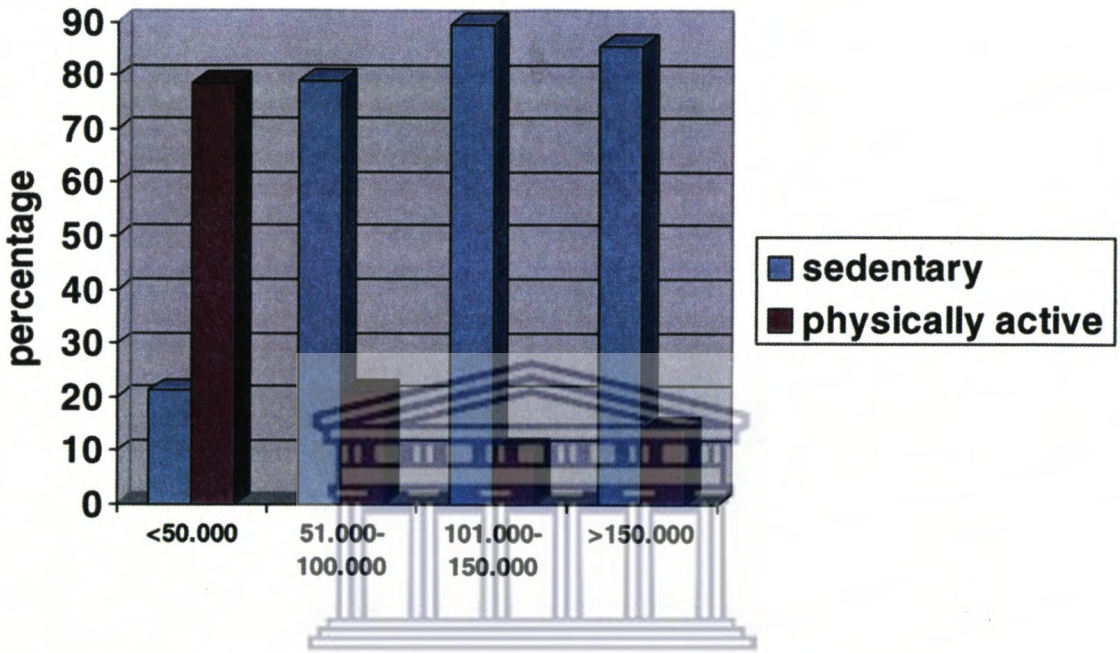


Figure 4.5: Income versus participation in physical activity

4.4.2 Relationship between participation in physical activity and use of entertainment/communication technology

Within the overall sample of participants who watched television for at least 30 minutes or more per day, 86.0% were classified as sedentary and 14.0% were classified as physically active (Figure 4.6). Among the participants who said that they listen to radio almost every day for at least 30 minutes a day, 73.7% were classified as sedentary and 26.3% were classified as physically active. Among

participants who reported using cell-phones for more than 30 minutes per day, 82.4% were classified as sedentary and only 17.6% were classified as physically active.

The respondents who watched TV, listened to radio, and used cell phones were divided into three groups, which were then each subdivided into two groups: those who watched TV For <30minutes/day and those who watched TV for >30minutes/day; those who listened to the radio <30 minutes/day and those who listened to the radio >30 minutes/day; those who used a cell phone <30 minutes/day and those who used it >30 minutes/day. Significance tests using Fisher's Exact Test (2x2 combination) were used to explore the association between the use of this technology and physical activity. There was a significant association between the use of TV (P=3.588 E-24)*, use of the radio (P=0.0023), and use of the cell-phone (P=1.255 E-11)* in relation to the level of participation in physical activity.

*E-24=$10^{-24;}$ E-11=10^{-11}

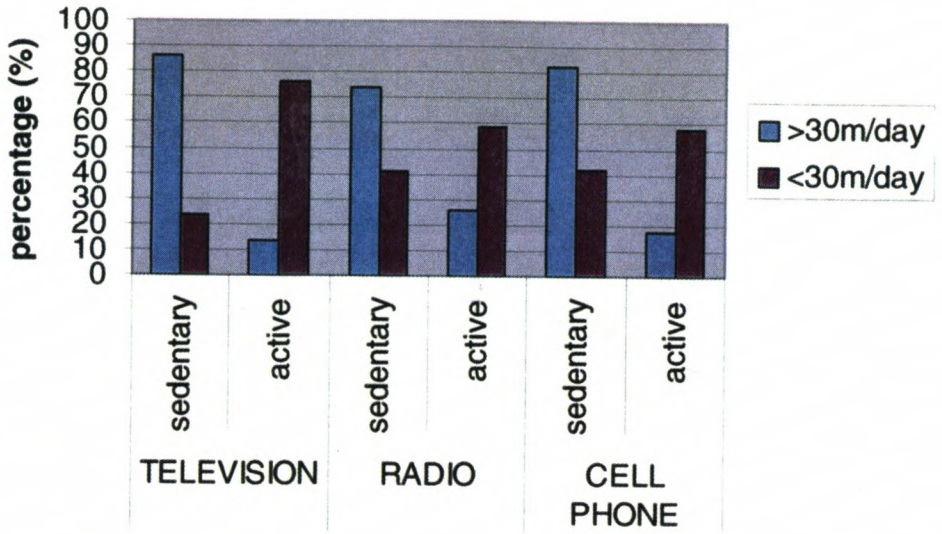


Figure 4.6: Use of entertainment /communication equipment vs participation in physical activity

4.4.3 Relationship between participation in physical activity and reported prevalence of chronic diseases

Within the overall sample (n=352), high blood pressure and diabetes were only reported among the participants classified as sedentary (n=253) (Table 4.2). High blood pressure was reported by 7.5% participants (n=19) and diabetes was reported by 4.7% participants (n=12). Fisher's exact test showed a significant association between the level of participation in physical activity and reported high blood pressure (p=0.0027), and reported diabetes (p=0.0230). There was no significant association between reported chronic back pain (p=0.3799), reported anxiety disorder (p=0.2106), reported arthritis (p=0.1921), reported

asthma (p=0.4542), reported chronic bronchitis (p=0.6229), reported sinusitis (p=1.0000), and reported haemorroids (p=1.0000) and reported level of participation in physical activity.

Note: The participants could indicate the prevalence of more than one chronic disease.

Table 4.2 Relationship between participation in physical activity and reported prevalence of chronic diseases.

Chronic diseases	Sedentary		Physically active	
	N	%	N	%
High blood pressure	19	7.5	0	0
Diabetes	12	4.7	0	0
Chronic back pain	36	14.2	10	10.1
Anxiety disorder	17	6.7	3	3.0
Arthritis	10	4.0	1	1.0
Asthma	8	3.2	1	1.0
Chronic bronchitis	3	1.19	2	2.02
Sinusitis	5	1.98	1	1.01
Haemorrhoids	5	1.98	1	1.01
Osteoporosis	0	0	0	0

4.5 BARRIERS TO PARTICIPATION IN PHYSICAL ACTIVITY

4.5.1 Barriers to participation in moderate or vigorous leisure-time physical activity

Table 4.3 illustrates the barriers to participation in moderate or vigorous leisure-time physical activity. The participants reported lack of motivation as the greatest barrier, with 83.2% of participants finding it a barrier (n=293), followed by lack of time, with 78.7% of participants finding it a barrier (n=277).

Note: Participants could indicate more than one barrier to participation in leisure-time physical activity.

Table 4.3 Barriers to participation in leisure physical activity

Barriers to leisure time physical activity	N	%
Lack of motivation	293	83.2
Lack of time	277	78.7
Lack of knowledge	269	76.4
Culture barrier	253	71.9
Lack and cost of sport equipment	235	66.8
Lack of family support	201	57.1
Cost of transport	166	47.2
Studying	73	20.7
Health problem	57	16.2

4.5.2 Relationship between participation in physical activity, and barriers to moderate or vigorous leisure-time physical activity.

Within the total sample (n=352), lack of motivation (87.4%) and lack of time (82.2%) were the greatest barriers to participation in moderate or vigorous physical activity reported by those classified as sedentary (Table 4.4). Whereas, among those classified as physically active, lack of facilities (75.8%) was the most frequently reported barrier. The cost of transport was reported as a barrier by 74.7% of those classified as physically active and only 36.4% of those classified as sedentary.

Chi-square tests were used to demonstrate the association between the barriers to participation in physical activity and the level of participation in physical activity. There was a significant association between the lack of time (p=0.0099), the lack of motivation (p=0.0010), the cost of transport (p=0.0001), having a health problems (p=0.0012), and studying (p=0.00007) in relation to level of participation in physical activity. There was no significant association between the lack of facilities (p=0.9587), cultural beliefs (p=0.8239), lack of knowledge (p=0.6437), lack of or cost of sport equipment (p=0.0466), and lack of family support (p=0.1213) in relation to level of participation in physical activity.

Table 4.4 Relationship between participation in physical activity and barriers to moderate or vigorous leisure-time physical activity.

Barriers	Sedentary		Physically active	
	N	%	N	%
Lack of facilities	191	75.5	75	75.8
Lack of time	208	82.2	69	69.7
Lack of motivation	221	87.4	72	72.7
Cost of transport	92	36.4	74	74.7
Culture	181	71.5	72	72.7
Lack of family support	138	54.5	63	63.6
Have health problem	51	6	6.1	20.2
Study barrier	64	9	9.1	25.3
Lack of knowledge	195	77.1	74	74.7
Lack and cost of sport equipment	161	63.6	74	74.7

4.5.3 Barriers to participation in moderate household physical activity.

Table 4.5 illustrates different barriers to participation in moderate household physical activity. Over 80% of participants (n=282) have a domestic helper who acts as a barrier to moderate household physical activity. Lack of time was reported by 79.5% (n=280) as a barrier to moderate household physical activity. Having children who could do the housework was the least-reported barrier, reported by only 8.0% (n=28) of participants.

Note: Participants could indicate more than one barrier to participation in moderate household physical activity.

Table 4.5 Barriers to participation in moderate household physical activity.

Barriers to participation in moderate household physical activity	N	%
Have domestic helper	282	80.1
Do not have time	280	79.5
Tired after work	217	61.6
Studies after work	70	19.9
Have relatives who can do the house work	49	13.9
Have children who can do the housework	28	8.0

4.5.4 Relationship between participation in physical activity and barriers to participation in moderate household physical activity

Within the overall sample, the barrier which was reported most frequently in those classified as sedentary, was having a domestic helper (87.7%) (Table 4.6). Of those classified as physically active, 65.6% reported being tired after work as the greatest barrier. Lack of time was reported in both groups: 86.9% in those classified as sedentary, 60.6% in those classified as physically active participants.

Chi-square tests were used to demonstrate the association between the barriers to participation and moderate household physical activity. Lack of time (p=0.0001), having a domestic helper (p=0.0001), and studying (p=0.0015) influenced the level of participation in household physical activity significantly. There was no significant association between being tired after work (p=0.3332), having children who can do the work (p=0.6221) or having relatives who can do the work (p=0.4473) and the level of participation in household physical activity.

Table 4.6 Relationship between participation in physical activity and barriers to moderate household physical activity.

Barriers	Sedentary		Physically active	
	N	%	N	%
Lack of time	220	86.9	60	60.6
Tired after work	152	60.1	65	65.6
Have domestic helper	222	87.7	60	60.6
Studies after work	61	24.1	9	9.1
Have relatives who can do the housework	33	13.0	16	16.2
Have children who can do the housework	19	7.5	9	9.1

4.6 Self-evaluation of participation in physical activity, following WHO recommendations

4.6.1 Participants views and perceptions about meeting WHO guidelines

Over 90% (n=97) of those classified as physically active felt they met the WHO guidelines about the amount of physical activity needed in order to obtain health benefits. Among those classified as sedentary, only 7.1% (18) felt they met the guidelines.

Chi-square tests indicated a significant association between participants' views on meeting the guidelines (p=0.0001) in relation to actual reported participation in physical activity.

Table 4.7 Participants views about meeting the WHO guidelines

	Meeting WHO guidelines	
	N	%
Physically active	97	98.0
Sedentary	18	7.1

4.6.2 Participants views and opinions about following WHO physical activity guidelines

In the overall sample, among those classified as sedentary, 55.7% (n=141) reported that they would like to do more physical activity than the amount recommended by WHO. Only one participant (0.4%) indicated that she would like to do less than that recommended by WHO. Among those classified as physically active, 50.5% (n=50) declared that they would like to do more than what is recommended by WHO.

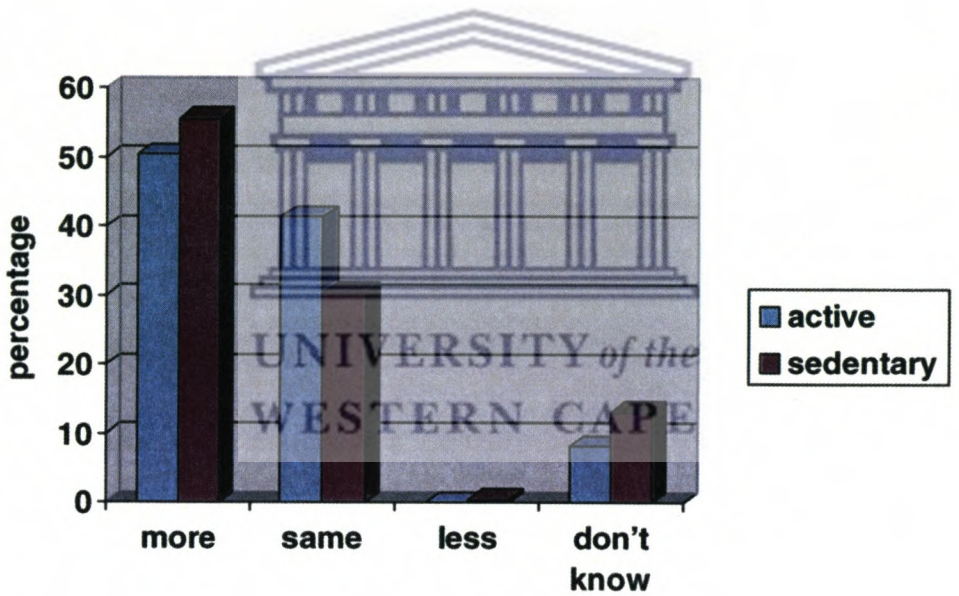


Figure 4.7: Self-evaluation of participation in physical activity

This chapter presents the results of the questionnaire. The majority of participants were classified as sedentary. The findings of the study indicated that physical activity decreases with advancing age, and that more participants were classified as sedentary in the married group than in the non-married group. A

low level of education corresponded with a high level of physical activity, and the lower the income of the participants, the higher the level of physical activity was. The majority of participants who were classified as sedentary watched TV, listened to the radio, and used a cell phone at least 30 minutes or more per day.

Within the total sample, high blood pressure and diabetes were only reported among participants classified as sedentary. A number of barriers influenced participants' level of participation in physical activity. In the overall sample, over 50% of those classified as sedentary reported that they would like to do more physical activity than the amount recommended by WHO.

CHAPTER FIVE

QUANTITATIVE DISCUSSION

5.1 INTRODUCTION

The first objective of this study was to assess the level of participation in physical activity of working women in Kigali, the capital city of Rwanda. The second objective was to ascertain the influence of socio-economic demographic characteristics on the level of participation in physical activity. This chapter discusses the findings of the current study, and compares them with similar studies. Finally, the limitations and strengths of the study are discussed.

5.2 LEVEL OF PARTICIPATION IN PHYSICAL ACTIVITY

Much of the health gain of physical activity is obtained through at least 30 minutes of cumulative, moderate physical activity every day. This was proclaimed by WHO, the American College of Sports Medicine, and the Centers for Disease Control and Prevention. They reported that for an average sedentary adult, engaging in at least 30 minutes of physical activity of moderate intensity every day, or on most days of the week, will be sufficient to obtain health benefits. It is also possible for those 30 minutes to be accumulated throughout the day in small bouts of activity or exercise (Blair et. al., 1992; Lakka et al.,

2003; Rippe, 1995; Stofan et al., 1998 & WHO, 2003h). However, this level of activity can be reached through a broad range of appropriate and enjoyable physical activities in people's daily lives such as walking to work, climbing stairs, leisure sport, gardening, dancing, washing clothes, cleaning house, and swimming. Therefore physical activity need not be strenuous to promote health; but what is needed is exercise of a moderate intensity which is performed regularly in whatever type of activity, including moderate physical activity in leisure time, household chores, and occupational tasks. The frequency of these activities is the key factor to achieving the health benefits of physical activity.

All types of physical activities (leisure-time, household, walking, and occupational) were measured in the current study. Participants' levels of participation in physical activity were categorized according to the WHO guidelines, which stated that 30 minutes of physical activity could be accumulated throughout the day in small bouts of activity. Over 70% of the participants were classified as sedentary, thus supporting the hypothesis that working women in Kigali were developing sedentary lifestyles.

Regulations regarding working hours in governmental institutions in Rwanda require that people work at least eight hours per day, from Monday to Friday. However, in private institutions like the majority of banks and insurance companies, people might sometimes go beyond the required eight hours. This explains why participants later declared in the focus-group discussion that their work does not leave them much time for other activities outside the work place.

Traditionally, a Rwandan woman used to do work that was relatively moderate and, at times, perform vigorous physical activities. Their activities included housework activities. Usually the husbands worked outside the home, leaving the women at home. This assumed that most of the work at home would be done by the women. The housework activities included looking for food from the garden or walking to the market; preparing the food, like grinding and mingling millet; cooking; caring for children; fetching water from a distant place and collecting firewood; cleaning the house and compound; and many other activities at home like washing dishes, etc. This routine kept the woman physically active at all the times. In addition to the housework, the Rwandan woman had to do gardening/cultivating, which was one of the most strenuous activities and may be considered as vigorous. This had to be done almost five to six days a week.

Occupational and household activities were also common among the population used for the current study. However, the frequency and the intensity of these activities were very low compared to what is recommended in order to obtain health benefits from physical activity. The majority of participants reported doing household activities only on Saturdays or Sundays, and these were mostly sitting, or light activities such as washing dishes, cooking, and helping children to do home work. This could explain why the majority of participants fall into the group classified as sedentary.

Limited research exists about the physical-activity habits of other people living in developing countries. However, Forrest et al. (2001), in a study on physical activity and cardiovascular risk factors in a developing population (in Nigeria), found that, although the study population has commenced to adopt a more sedentary lifestyle, as has also been observed in Westernized countries, more occupational activities than leisure activities were observed for all age groups and for both genders. Unfortunately, the majority of the civil servants did not engage in heavy occupational activities; rather, they were spending most of their time in sitting activities.

Traditionally socialization also formed an important part of women's activities. Traditional dancing and visiting used to form part of the socialization of Rwanda women. The dancing used to be heavy and vigorous, but is rarely practiced currently. Rwandan woman also used to walk for long distances to visit relatives and friends who lived in distant areas. Such long-distance walking has now been minimized by road transport. In the present study, only a small percentage of participants engaged in walking enough for it to be beneficial for their health.

Basing our conclusion on the above information, as they fail to make up with leisure-time physical activities we would expect participants to spend more energy in household activities while they are at home as, culturally, these seem to be habitual activities for them.

Women form the largest percentage of the population in Rwanda. A general census of population and housing of Rwanda, carried out in August, 2002, revealed a total resident population of 8, 126, 715 inhabitants, composed of 3, 894, 732 males and 4, 267, 983 females (Finance Rwanda Ministry, 2003). Considering their sedentary lifestyle and the serious health problems that can occur from inactivity, methods for increasing physical activity should be explored and interventions based on their awareness of the consequences of leading sedentary lifestyle should commence as soon as possible. It is important that Rwandan women become aware of the benefits of physical activity.

5.2.1 Self-evaluation of levels participation in physical activity

The majority of those classified as physically-active participants in this study felt they met the WHO guidelines, which classified them as physically active, whereas among those classified as sedentary, only a small proportion reported meeting the recommended activity level when, in fact, they were not, according to the assessment. It is interesting to note that more than half of the participants classified as sedentary were willing to do more physical activity than the amount recommended by WHO.

Participants who met the guidelines stipulated by WHO must be encouraged to continue doing what, or even do more than, they are already doing. However, those who felt that they met the guidelines but were classified as sedentary need to be targeted when planning for health-promotion education directed at creating awareness and promoting physical activity among working women in Kigali.

It was very encouraging to note that among those classified as sedentary, there were those who were ready for change. Apparently they are more likely to take responsibility for effecting change, as they already show motivation to do so. However, they will need a lot of support from their social and physical environment to accomplish their goal. These results suggest that a beginning might be made to try to promote physical activity among working women in Kigali. It may be speculated that the questionnaire stimulated the participants to start questioning their level of participation in physical activity and evaluating themselves. As a result of these findings, a qualitative focus-group discussion followed this questionnaire to determine the need for a programme promoting physical activity among working women in Kigali.

5.3 FACTORS INFLUENCING LEVELS OF PHYSICAL ACTIVITY

5.3.1 Age

The participants' mean age was 33.4 with a range of between 19 and 51 years, which is to be expected for adult women of an economically active age. The present study showed that there was a decrease in participation in physical activity as age increases. Therefore, by the age of 51 years, 100% of women were classified as physically inactive.

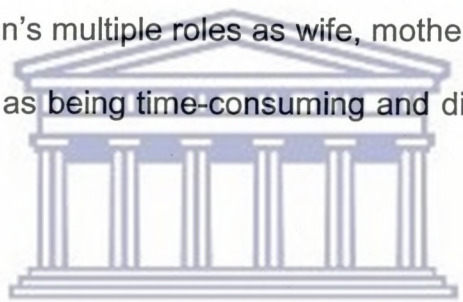
Literature has consistently reported a decline in physical activity with advancing age (Malina, 2001; Sawatzky &Naimark, 2002; Koffman et al., 2001). Even when controlling for health status, various studies have found that physical activity

declines with increasing age. For instance, among American women the prevalence of physical-activity decline is 25.6% for those aged 18-34, while it is 42.1% among those 65 years and older (Centers for Disease Control and Prevention, 1995; Lee et al., 1995). In addition, Heath & Smith (1994), in their survey of physical-activity patterns among adults in Georgia, found that the proportion of Georgians who reported a sedentary life increased with increasing age.

Physical activity has been recommended as a means of limiting aging-associated impairments (Friis et al., 2003). Whaley & Ebbeck (1997) suggested that physical activity may slow the aging process. Other studies indicate that it is rare to see adults who are regularly involved in intense leisure-time physical activity change their level of participation dramatically over the age strata (Heath & Smith, 1994). Therefore, physical activity may have significant continuity in an individual, or a group, from one age period to another. It is therefore commonly suggested that physical activity in childhood and in adolescence is an important prerequisite for physical activity in adulthood (Yang, Telama, Leino & Viikari, 1999). Hence, it will be worthwhile to encourage physical activity and to create awareness about the benefits of physical activity from as early as childhood among Rwandan women.

5.3.2 Marital status

Despite having more married women than non-married women in the overall sample, a greater number of non-married women participated in physical activity. These findings were supported by Friis et al. (2003), who found that unmarried people were more likely to be involved in "frequent walking" than women who were married or widowed. This may be because married women lack time because of multiple family responsibilities. As Eyler et al. (2002b) indicated in their study, family priorities are a major barrier to physical activity among women. A woman's multiple roles as wife, mother, and active community member are mentioned as being time-consuming and difficult, leaving little time for exercise.



In contrast to the findings of the present study, Sawatzky & Naimark (2002) noted that the more active women were more likely to be married. They suggested that it could be explained by the age factor, because the older women in their study, who were reportedly less active, were less likely to be married, and reported significantly less social support than their younger counterparts. Therefore, strategies to increase participation in physical activity among women should consider, and include, avenues for increased social support.

Berg & Cromwell (2002) reported that Mexican-American and Anglo-American middle-aged women needed the approval of members of their family, particularly their husband, to engage in a physical-activity program. Several women

recommended having a physical-activity programme that they could share with other family members. This type of program may also be recommended for Rwandan women in order to foster and maintain social support from their family members and to increase their level of participation in physical activity.

5.3.3 Level of education and income

Traditionally, Rwandan women were only involved in household activities and responsibilities. It is only recently that women have made significant progress in education and training, and have easier access to employment. Their advancement is considered to be an element of the development of the country. There were a large number of women with secondary education in this study (42.9%). Women who are employed in banks and insurance companies may be required to have a minimum of secondary level of education.

Additionally, the majority of participants earned more than 150.000 Rwandan francs/month. This is very high compared to the minimum salary of the general Rwanda population, which is around 31.000 francs/month (Rwanda Ministry of Finance, 2001). Thus, most participants were people with high socio-economic status, reflecting their employment in banks and insurance companies. As indicated by several studies, socio-economic status is determined by level of education and level of income. This study suggests that the lower the level of education, the higher the level of physical activity, and the lower the income, the higher the level of physical activity.

However, our findings strongly disagree with what was found in various studies carried out mostly in Western countries such as the USA. In those countries, women with less than a high-school education or with a lower income were reported to be most physically inactive (Koffman et al., 2001); Furthermore, Droomers et al. (1998) & Heath & Smith (1994) revealed that level of education is positively associated with leisure-time physical activity, but negatively associated with work-related levels of physical activity. Levels of income demonstrated a similar pattern. However it may reasonably be speculated that leisure-time physical activity accounts for very small proportion of total activities done by the population sample of this study. Participants with lower education and low income who were the most frequently classified as physically active, were mostly engaged in occupational physical activities and walking to work, and not walking as a leisure-time activity. Working Rwandan women with high socio-economic status seem to be modernized and, because of that, may use their cars to drive to the work place instead of walking like those of lower economic status. They also spend their working time using modernized technology such as computers instead of sweeping the pavements. Perhaps leisure-time physical activity may become more appealing to women in developing countries, particularly in Rwanda, if they are made more aware of the benefits of it, as their counterparts in westernised countries are.

5.3.4 Physical-activity participation in relation to the use of entertainment/communication technology

Use of entertainment technology, such as television and cell phones, shows the greatest barrier to physical activity among people in urban areas of developing countries. Our results demonstrate that the more the participants used television, radios, and cell phones, the more inactive they are. This is similar to other research, mainly with adolescents (Vilhjalmsson & Thorlindsson, 1998; Kennon, 1996; Suminski et al., 2002; Prochaska et al., 2000; Lowry, Wechsler, Galuska, Fulton, & Kann, 2002); which showed that television viewing and other similar entertainment/communication technology were related to doing less physical activity. This supports the view that people who engage in non-physical or sedentary activities are sometimes forced to reduce or discontinue their physical activity, perhaps because of time constraints or lack of motivation. For instance, people may prefer to use a cell phone rather than walking to speak to someone.

However, the possibility of promoting physical activity on television (Suminski et al., 2002), or on radio, also exists if one gets opportunity for advertisement. This needs to be considered by people involved in health promotion directed at changing behaviour.

5.3.5 Barriers to participation in physical activity

5.3.5.1 Barriers to participation in leisure-time physical activity

Barriers or constraints have been identified in the present study as important reasons for lack of participation in physical activity. Lack of motivation and lack of time were indicated as two major barriers to participation in leisure-time physical activity. Over 80% of the participants indicated that lack of motivation and lack of time (over 78%) prevented them from participating in physical activity. Lack of motivation and lack of time have been identified as major barriers to physical activity among adults in more-developed countries, particularly among women.

In a study of older adults, Whaley & Ebbeck (1997), found that lack of time was the most frequently reported barrier to participation in physical activity. This was followed by other barriers such as lack of motivation, health/physical disability, and laziness. Lack of motivation and lack of time have also been reported as barriers to physical activity in other studies (Nies et al., 1999; Berg et al., 2002; Diehl et al., 2001; King et al., 1992; Dowda, Ainsworth, Addy, Saunders & Riner, 2003).

Participants in this study reported various other barriers. These included lack of facilities, lack of knowledge, cultural barriers, the lack or cost of sport equipment, lack of family support, cost of transport, studies, and having a health problem.

These other barriers are commonly reported in other studies on physical-activity levels among adults (Brownson et al., 2001; Carnegie et al., 2002; Diehl et al., 2001; King et al., 1992; Sallis et al., 1997; Vilhjalmsson & Thorlindsson, 1998; Whaley & Ebbeck, 1997).

Studying or evening classes, unlike in other countries, appears to be a constraint among Rwandan women, perhaps due to rapid recent progress and the improvement in the education sector in Rwanda. These days, compared to the past, Rwandan women have easier access to education and employment, which motivates them to make education a priority, but results in them spending a lot of time in more and more sedentary activities such as writing and using a computer.

Various studies have concluded that barriers to physical activity should be viewed in a social-psychological manner to denote internal (intrapersonal) psychological states and external (interpersonal or situational) circumstances (Whaley & Ebbeck, 1997). However, the dominant constraint in this study among those classified as sedentary i.e. lack of motivation, is intrapersonal, rather than interpersonal, whereas among those classified as physically active, the lack of facilities is more an interpersonal factor. Because of these findings, we suggest that the major barrier for those classified as sedentary is within the individual rather than in the environment or as a result of external issues. Therefore, for any intervention promoting physical activity to be effective, it must put more

emphasis on individual change of behaviour before tackling the environment, or have both interventions in parallel so as to motivate those who are already physically active to maintain their level of physical activity.

5.3.5.2 Barriers to participation in moderate household physical activity

The findings of the present study demonstrate that having a domestic helper presents as the greatest barrier to participation in moderate household physical activity. However, as with leisure-time physical activity, lack of time was also ranked as the second most common barrier to participation in physical activity among participants in this study. Furthermore, when looking at the relationship between participation in physical activity and barriers to participation in moderate household physical activity, the barrier that was most frequently reported by those classified as sedentary, was having a domestic worker. Those classified as physically active reported that being tired after work was their major barrier to participation in physical activity.

As discussed previously, participants classified as physically active were mostly women of lower socio-economic status, and mostly engaged in occupational physical activities. This could explain the relationship between being tired after work and participation in household physical activities. They arrive at home when they are already exhausted by other forms of day-long occupational activities at work, and sometimes they have to walk back to their home due to

lack of transport. On the other hand, the majority of participants classified as sedentary were women with higher socio-economic status, who had the help of a domestic helper to do household chores.

These findings support the findings in the study done in Nigeria among civil servants. This indicated that women's physical activity related to household chores and childcare, tends to be low for those with higher socio-economic status because they have domestic help with childcare, housework and cooking (Forrest et al., 2001).

In both traditional and modern Rwandan society, the education provided to children is based on roles that children have to play in the society and the family. Culturally, girls are trained to do housework (Ministry of Gender and Women in Development, 2002). As discussed before, in reference to the Rwandan society, household chores such as cleaning house, cooking, washing clothes, and childcare, are thought to be for women and girls. Based on the findings of the current study, it appears that working Rwandan women, particularly those of high socio-economic status, perform fewer household activities, as this is what is expected by society. This could be due to the fact that they are more educated and have a higher position in the Rwanda society.

Not surprisingly, having domestic help has allowed the majority of participants in this study to be free from housework activities. This seems to leave them much more time for leisure-time physical activity if opportunities are offered. The

question is why they are not using the extra time for leisure-time physical activity. This needs to be examined critically and determined how having a domestic help can facilitate urban working women to be physically active, rather than limiting them.

In order to facilitate working women in Kigali to participate in physical-activity programmes, ways to eliminate such barriers need to be found. It would make sense to have accurate information regarding what those barriers are, and why a particular situation is a constraint and not a facilitator. In addition, strategies derived by the individuals themselves to overcome those barriers seem to have the best chance of success, particularly if the individuals are provided opportunities to address their concerns. Barriers will be discussed again in focus-group discussion.

5.4 REPORTED PREVALENCE OF CHRONIC DISEASES OF LIFESTYLE

CDL already account for 60% of the global burden of disease, and this will increase to 80% by 2020. However the probability of a person dying from a CDL is already higher in developing countries than in developed countries (WHO, 2000). High blood pressure and diabetes are two major CDL; in the current study, these two CDL were only reported among participants classified as sedentary. Chronic diseases such as asthma, arthritis, and chronic back pain were found in both groups. It is alarming that the participants who are already classified as sedentary, and who will probably experience the consequences of

sedentary lifestyle in the future, are already reporting CDL like high blood pressure and diabetes, though in small proportions.

Epidemiological data from two African countries demonstrate that the prevalence of diabetes and hypertension has markedly increased among the African population, predominantly in urban areas, over the past five to ten years. Recent estimates show that five to eight percent of urban adult populations in Dar es Salaam, Tanzania and in South Africa, particularly in townships, are affected with diabetes, and 20-33% suffer from hypertension (Unwin et al., 2001b). These conditions tend to affect economically active adults, on whom younger and older members of the population are often dependent (Unwin et al., 2001b).

CDL are expensive to manage, and will definitely have a negative impact on the health sector and on the economy of the country, with demands to spend money on expensive equipment for surgery and drugs. Therefore, if no effective measures are taken, consequences of CDL will result in increased morbidity and mortality rates. This will have an impact on women's life expectancy. The situation may be worse in those developing countries, like Rwanda, which are most severely affected by the HIV/AIDS epidemic and poverty, and where an existing burden of communicable diseases, such as tuberculosis, is compounded by increased CDL.

Poverty has always been closely related to health. People living in absolute poverty have a five times higher probability of dying between birth and the age of five years, and a 2.5 times higher probability of dying between the ages of 15 and 59 years (WHO, 2000). There is not much that can be done to prevent poverty, apart from having healthy people working hard for the development of the country. However cost-effective, evidence-based interventions to prevent CDL do exist; but the reality is that many are unable to benefit from them. Regular physical activity has been shown to be one of the most effective means of preventing and controlling major CDL such as high blood pressure and diabetes among women (WHO, 2003 e).

In the USA, research has demonstrated that adherence to a healthy lifestyle including physical activity, is associated with a very low risk of coronary heart disease in women. In addition, even moderate-intensity exercise such as walking, is associated with a lower risk of stroke in women (Slevin, 2002). Furthermore, Sawatzky & Naimark (2002) found in their study that physically active, aging women, especially those who exercise regularly, have healthier cardiovascular profiles than their less active counterparts. La Croix et al. (1997) stated that epidemiological follow-up studies found the incidence of stroke was significantly lower in white women who reported high levels of leisure time and of physical activity. The same findings were observed for other CDL such as diabetes mellitus, hypertension, selected cancers, osteoporosis, and depression.

However, evidence to support or disprove this assumption is lacking in African populations.

It is important to intervene soon, before CDL have become a major problem for Rwandan working women. There is a need to recognize the responsibility of the individuals, health-care professionals, employers in different institutions, and policy makers to become involved in cost-effective, evidence-based interventions. A key business issue for most employers today is maximizing productivity and competitiveness. One aspect of being competitive is controlling benefits' costs, with special emphasis on the growing segment of health benefits (Kennon, 1999). In Canada, in companies with employee physical-activity programmes/initiatives, the benefits of $ 513 per worker, per year can be reached from changes in productivity, absenteeism, turnover, and injury (WHO, 2003 f). Employers in different institutions in Kigali need to know that healthy workers may cost less in terms of absence due to illness if they are provided with health-promotion activities and wellness programs at work.

Although there are other factors contributing to high blood pressure and diabetes such as genetic factors, evidence has proved that rapid urbanization with changes in lifestyle such as physical activity patterns, could partially explain the rising incidence and prevalence of CDL in developing countries, particularly in Sub-Saharan Africa (Sobngwi et al., 2001). Perhaps the presence of high blood pressure and diabetes only in participants classified as sedentary could also be

explained by the sedentary state of those participants. However, there is a need to do longitudinal studies on the same cohort to support the above statement.

5.5 LIMITATIONS AND STRENGTHS OF THE STUDY

It is important to note the limitations of this part of the study. Firstly, the working women in banks and insurance companies were a unique population, with most subjects having a higher income than general working women in Kigali or in other urban areas in Rwanda. Consequently the results of this study cannot be generalized to other women in Rwanda.

The results presented here might be biased by non-responses, but since a high percentage of responses were obtained, a response bias appears unlikely. In addition, the non-respondents did not differ substantially from the respondents on socio-economic and demographic characteristics such as income, level of education, age, and marital status.

This study used a cross-sectional design and may not provide definite evidence of the relationship between CDL, use of entertainment/ communication-technology equipment, and the participants' reported level of participation in physical activity. Longitudinal research is needed to establish the direction and dimension of this relationship.

Despite the limitations, the study had several strengths. The questionnaire used in this study was adapted from a developed and validated questionnaire for measuring physical activity within Sub-Saharan Africa, which allowed for the inclusion of a wide variety of activities. Detailed information on the type, frequency, and duration of each activity was recorded. The sample was randomly drawn, the response rate was high, and the study questionnaire included variables which correlated with physical activity in previous studies. In addition, the analysis considered numerous interactive relationships between variables.

Chapter Five interprets the results of the survey questionnaire, compares and contrasts the findings of the current study with similar studies, and presents both the immediate and long-term impact of the findings. Finally, limitations and strengths of the study are highlighted.

CHAPTER SIX

FOCUS-GROUP RESULTS AND DISCUSSION

6.1 INTRODUCTION

The reason of the focus-group discussion was to assess the need for a health-promotion programme for increasing physical activity (by using a bottom-up approach). This was after finding out that the majority of participants were classified in the sedentary group but, interestingly, that they were willing to change their level of participation in physical activity. Seven participants, four from insurance companies and banks, and three from the Ministry of Gender and Women in Development, attended one focus-group discussion. The researcher approached ten participants, six from the insurance companies and four from the Ministry of Women and Gender in Development. Therefore, the response rate was 70%. The participants' ages ranged between 28-45 years old, and they were all educated, and seniors in their institutions. The participants were relaxed, they laughed when they felt they wanted to, and they used a lot of body language during talking. Five main themes emerged from the analysis of the focus group: description of physical activity, their level of participation in physical activity, the facilitators of physical activity and benefits of physical activity; the barriers to physical activity, and the need for a health-promotion programme.

6.2 DESCRIPTION OF PHYSICAL ACTIVITY

In the group discussion, when the participants were asked to define/describe physical activity, the word most commonly used in describing what was meant by physical activity was "energy". For example, **Christu** called it "*an activity requiring a lot of energy*" and, similarly, **Eumu** defined it as "*an activity requiring a lot of energy, which involves our whole body*". The other participants nodded their heads in support of that definition and said, "*Yes, we do agree with that.*"

The majority of the participants reported that physical activity is an activity that requires energy. It appeared participants understood the meaning of physical activity to be body movement that is produced by the contraction of skeletal muscle, which substantially increases energy expenditure (Grundy et al., 1999 & Malina, 2001). However knowing what physical activity is may not always be sufficient to stimulate appropriate physical-activity health behaviour or changes to improve health behaviours.

Footnote: All names appearing in bold print are pseudonyms

6.3 LEVEL OF PARTICIPATION IN PHYSICAL ACTIVITY

When participants were asked to name the type and kinds of physical activity they were engaged in, the majority of them named physical activity associated with three categories of activities. However, those activities were mostly related

to what are traditionally women's activities and seemed to vary from low to moderate intensity. Household activities were mentioned nine times; walking and climbing were mentioned five times and driving was reported once.

The majority of activities mentioned by participants varied from low to moderate intensity. Martin et al. (2000) found that women usually report participating in low to moderate activities whereas men report greater levels of total, and vigorous activities, and these findings are consistent with earlier research on physical inactivity and gender differences. The majority of women in their study did not meet the CDC/ACSM recommended guidelines for health benefits from physical activity. Furthermore, Martin et al. (2000) suggest that brisk walking, and other forms of moderate activity, might be more acceptable to women. Interventions for women that assist in initiating and maintaining a physically active lifestyle-behaviour change include recognizing that physical activity comes in many possible activities rather than just high-intensity physical activity and involves learning behaviour-change skills. Walking and some moderate household activities such as cleaning the house were mentioned by the participants in this study, but not done on a regular basis. However, as Lee et al. (1995) & U.S. Surgeon General, (1996) state, though physical activity does not need to be vigorous to provide health benefits, the amount of health benefit is directly related to the amount of regular physical activity (i.e. the amount of physical activity is more important than the type or intensity). The more an activity is performed (measured as energy expenditure or accrued minutes of activity) the

greater the gains. An intervention in Kigali may need to put the emphasis on frequent physical activity, on most days of a week.

6.4 FACILITATORS OF PHYSICAL ACTIVITY AND BENEFITS OF PHYSICAL ACTIVITY

The main facilitators of physical activity, and knowledge of benefits of physical activity, that emerged included routine, experiencing positive feelings, relaxation, socialization and fitness, managing obesity, and other health-directed activities.

Routine: Participants thought that developing a routine was an important facilitator of physical activity. For example, **Alirwi** described household physical activity as being less tiresome when it is performed as a routine. She said, *"if performing household activity is a habit for you, you will not be too tired."*

Participants thought that routine was an important facilitator of physical activity in their lives. This was in agreement with a study done by Nies et al. (1999) on African-American women's experiences of physical activity in their daily lives. They also indicated routine as a dominant factor that influenced the role of physical activity in their lives. Although the participants in this study gave the example of routine in household activities, they spend most of their time at work. Identifying creative ways to incorporate physical activity into their workday's routine activities may provide a better motivation.

Positive feelings: Participants in the discussion described the relationship between physical activity and experiencing positive feelings. However, this was specifically for activities which demand less energy, like light physical activity. For instance **Jobi** said, "*You feel better after an activity like light walking; you sleep well at night*".

Relaxation, socialization and fitness: During the discussion more than half of participants associated the benefit of physical activity with relaxation, socialization and fitness. Comments by these participants identified a general belief that physical activity was a method of mind relaxation, bringing people together, and making people feel different from a sedentary person. For instance, **Alirwi** said, *"One of the benefits of physical activity is diversion",* and **Christu** supported **Alirwi**, saying, *"Physical activity brings relaxation*". Then **Namu** agreed strongly with **Alirwi**, and added, "*Yes, it relaxes!"* Furthermore, the participants viewed physical activity as a promoter of socialization. For example, **Canshi** reported, *"physical activity is also a social activity. It helps me to socialize."* Then **Cimu**, satisfied with **Canshi's** idea, commented, *"It helps people to come together, to create good relationships. You are also fit when you are involved in a physical activity; you feel different from a sedentary person."*

Health purposes and managing obesity: Participants noted that the positive effects of physical activity included losing weight and the prevention of diseases

such as arthritis, high blood pressure, and diabetes. However, some of these beliefs are not correct, as physical activity does not prevent arthritis.

For instance, **Jobi** said, "*I think that physical activity is important for health purposes. It helps to prevent diseases such as arthritis. When you are involved in a physical activity, you do not feel pain in your knees or any other joints.*" **Eumu** supplemented this, by saying, *"It helps in preventing high blood pressure and diabetes."* Then **Christu** added, "*It helps in managing obesity*."

The participants in the focus group provided different responses from those provided in the questionnaire, including an interesting response that identified physical activity as a means to promote health, evinced by better sleep and feeling better. They also valued the benefits of physical activity in relation to the prevention of diseases as well as obesity management. More than half of participants regarded physical activity facilitators and benefits in their daily lives as relaxation, socialization and fitness.

These findings showed similarities with previous qualitative research done by Berg et al. (2002) using a focus-group discussion with Mexican-American and Anglo-American women in midlife, on their perspective of physical activity. But our results concurred only with the findings concerning Anglo-American women, who noted a number of positive outcomes to participating in individual or organized physical-activity programmes that promote health, with results such us "increased flexibility", "better sleep", "weight loss", "better muscle movement", "relaxation", and "alleviation of depression". However, in contrast to our findings,

Mexican-American women valued physical activity as a prescriptive therapy for a specific illness or condition. They focused on restoration or improvement of health rather than promotion of health, or disease prevention. For instance, one Mexican-American woman equated physical activity with "physical therapy"; another one said she does it "due to her heart condition".

It appears that participants in this study expressed the need for a physical-activity programme which was health-promoting and enjoyable, rather than a therapy. Therefore an intervention that includes entertainment and the enjoyable aspects of physical activity, coupled with its health-promotion and disease-prevention benefits, might be more suitable for the participants in this study. However, these findings cannot be generalized to all working, Rwandan women. As was indicated earlier, all participants were seniors in their respective institutions, and therefore would have higher socio-economic status; but women with lower socio-economic characteristics may think differently and come up with ideas which will suggest another picture of intervention. This needs to be looked at critically so that an adaptable intervention will need to be developed.

6. 5 BARRIERS TO PHYSICAL ACTIVITY

Barriers are things that inhibit a person's ability to participate in activities or spend more time doing so. The constraints to participation in physical activity that many of these participants described were found in other qualitative and quantitative studies.

The following barriers limited the participant's ability to engage in physical activity: lack of time, tiredness, laziness and lack of motivation, illness, having a domestic helper, cultural restrictions, lack of knowledge, lack of facilities, means and equipment, and concern about appearance.

Lack of time: The first major theme identified by the participants as a barrier to participation in physical activity was lack of time. For instance, when participants were asked to mention the types of physical activities in which they were involved and their schedule for physical activity, all of them expressed the problem of lack of time to do physical activity, as they laughed and commented, "*Do we get time*?" For instance, **Canshi** said, "*I don't know what others would say, but I think it is very difficult to say how many times or how often I participate, only because I don't plan for it, and that is because I don't have much time!*"

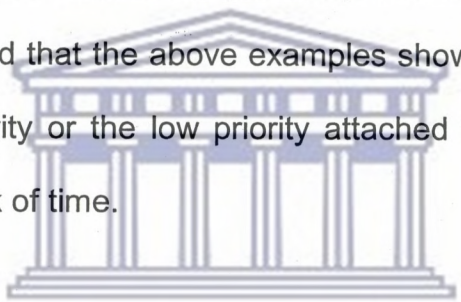
Eumu said, *"We really don't do any physical activity*!", and **Canshi** complemented **Eumu's** idea by saying, *"even in the household, really we don't have time, and we are always tired after work*". Other participants supported **Canshi,** nodding their heads, and saying, "*Really, to find time is a big problem*!" A comment from **Cimu** seemed to sum up the feelings of these women about the effect of not having time. She said, "*I am telling you, it is time! Time is critical".*

Some of the activities named were rarely performed because of lack of time. **Canshi** reported that she does household work "*only during the weekend.*" **Namu** also reported that she does "*some household activities, but only on Saturday, and very little*". However, **Jobi** walks *"at least once in two weeks*". **Cimu** said she used to walk because she wanted to lose weight, but she stopped since there was no time and no more need for it. This amused **Jobi**, who laughed and commented, *"but, you will gain weight again".* **Canshi** also commented, *"Ha! Myself, I really don't know about walking; only sometimes, when I don't have transportation, I can walk. But it is rare."*

Participants reported 'lack of time' with great emotion. It was one of the biggest barriers for all participants. Time was a constraint to planning for a physical-activity schedule, to getting involved in physical activity, to the continuation of physical activity, and to the frequency of physical activity once someone was involved. Henderson & Ainsworth (2003) & Stutts (2002) also found that time was the greatest perceived barrier in their study on adults' experiences of physical activity. Similarly, Nies et al. (1999) identified time as a perceived barrier, and it was ranked the third most important after lack of childcare and having a person to exercise with.

However King et al. (1992), when describing the determinants of physical activity and interventions in adults, stated that lack of time is the principal and most prevalent self-reported reason for dropping a physical-activity programme, but

they felt that, for many people, this may have reflected a lack of interest or commitment to physical activity. One participant interviewed by Henderson & Ainsworth (2003) supported this statement when she said, "I talk about lack of time as a barrier but, you know, time is the sort of thing you can make available when you want to." In addition, Whaley & Ebbeck (1997) said time was mentioned by the majority of participants as a barrier, and when participants were asked to explain what time as a constraint meant to them, they indicated, "Its a question of priorities" and "I am too busy with other things." Whaley & Ebbeck (1997) concluded that the above examples showed participants' lack of interest in physical activity or the low priority attached to exercise or physical activity, and not only lack of time.



In the quantitative part of this study, in both leisure and household activities, time was also identified as a serious barrier to participation in physical activity, and it was ranked second after motivation and having a domestic helper as a barrier to doing household activities. Perhaps participants lacked interest in physical activity as they also reported lack of motivation as a barrier, and it may be the reason why participants have a domestic helper to free them from household activities because they are not really interested in doing it Consequently, they felt they could not integrate physical activity into their schedule. Perhaps effective education on the benefits of physical activity, time management, or how to utilize the available time in order to integrate physical activity in the schedule, may be needed.

Tiredness: The participants expressed a general feeling that tiredness was a limiting factor to participation in physical activity. However, participants associated the fatigue barrier with moderate or vigorous activities. **Alirwi** explained that *"if you are doing normal walking you do not feel really tired, but when it is for sport purposes, you are mentally tired (tired in your head)".* That amused other participants; they laughed, but contradicted **Alirwi** by saying, "*Not only mentally (in your head) but also your whole body is exhausted.*" **Christu** then added, *"Sometimes after vigorous activity you do not see properly."* Other participants laughed, and commented, *"You feel that it is not your body".*

In addition, participants indicated that it was also the energy the activity requires that matters. For example, **Alirwi** reported that, *"To plan for a physical activity schedule depends a lot on the time, yes, but also the kind of activity. Like some activities require a lot of energy. If you are sick or tired, you will not be able to do much physical activity",* to which **Eumu** agreed, and explained, *"I think the kind of activity really matters, like aerobics require about 45 minutes, and football 90 minutes including break time in between. But most of those activities require less than an hour depending on the energy they require."* Then she added, *"You cannot participate in them often, otherwise you become exhausted. In contrast, household activities require less energy, but demand more time, and they are easy to do".*

Participants also thought fatigue limited their participation in physical activity. Underlying tiredness, however, was only one amongst a myriad of other issues that influenced fatigue. Participants linked tiredness with type of activity, level of activity, and energy. Tiredness was also found to be a barrier in other studies on women and men's experiences with physical activity (Nies et al., 1999, Henderson & Ainsworth, 2003 & Van Rooijen et al. 2002). However, it seems participants in this study may be less responsive to a physical-activity programme involving a high level of intensity or vigorous physical activity as they related it to fatigue. A moderate level of physical activity that is performed frequently may be preferable in designing a health-promotion intervention.

Laziness and lack of motivation: Participants reported laziness as a factor preventing participation in physical activity. For example, **Christu** said, *"Sometimes you feel lazy to do physical activity".* **Eumu** supported her by saying, *"Also Rwandan young girls tend to be lazy in performing physical activity".* Some comments made by the participants demonstrated insufficient motivation to do physical activity. For instance, **Namu** reported, *"We don't participate because we lack motivation and we don't understand the benefits we might gain from it".* **Alirwi** added, *"I am telling you Rwandan women lack willingness to participate in physical activity".*

Lack of motivation and laziness are two variables that influence each other. Interestingly, one participant associated lack of motivation with lack of

awareness about the benefits of physical activity. Similarly African-American women associated lack of motivation with a lack of understanding of the benefit of exercise (Nies et al. 1999). Lack of motivation was ranked the top barrier to participation in leisure-time physical activity by the participants in their responses to the questionnaire used in this study (see chapter 4). An education programme about the benefits of physical activity may encourage participants to take a step towards a physically active life, and this needs to be taken into account in the planning of a health-promotion programme.

Illness: Participants thought that illness could prevent them from participating in physical activity. **Jobi** indicated that, *"When you are sick or very tired, you will not be able to do much physical activity."*

Perceptions of being in poor health are always associated with reduced physical-activity participation, both in the community and in certain rehabilitation programs such as cardiac-rehabilitation programmes (King et al., 1992). Illness has been identified as a barrier in various studies on participation in physical activity. Henderson & Ainsworth (2003) reported women as saying, "Physical illness, even an ailment, prevents you from doing physical activity." However participants in this study have recognized that physical activity may prevent disease.

Domestic helper: Participants associated having a domestic helper for household activities with poor participation in household physical activity. **Cimu**

said, "*I can't remember the last time I washed clothes, only because I finish my work always at 5pm, very tired, and over weekend I have to visit people and of course I know the domestic helper will then do it.*"

Furthermore, **Cimu** said, "*Believe me, parents in town do not encourage their daughters to do household chores because they have domestic help.*"

Domestic help was reported by participants in the focus group as a barrier. However, it appeared that having a domestic helper is a relief to participants' responsibilities in their everyday routines. A programme with strategies to incorporate physical activity in the participants' daily schedule is needed. Furthermore participants in the focus group revealed that even girl children are not encouraged by parents to do household activities because of the presence of a domestic helper. It was indicated by Malina (2001) that physical activity might have significant continuity in an individual or a group from one age period to another. An early education programme (including mothers and daughters) on the benefits of physical activity and how to use free time provided by the use of domestic help, will be required.

Culture: Another important theme identified by participants as a barrier, was culture. When **Jobi** mentioned culture, other participants were stimulated and excited to talk about it. She said: *"Culture is also a barrier*", in response to which other participants nodded their heads and commented seriously, *"Yes Culture is really a very important barrier."* **Alirwi** revealed how culture prevents her from swimming when it is a very appropriate physical activity. She said, *"For instance it is considered shameful to wear a swimsuit. My children often invite me for*

swimming, but I decline the offer just for the above reason." Then **Namu,** in support of **Alirwi,** laughed and commented*: "Like wearing shorts when jogging; people might say that you are a mad and strange person".* **Canshi** concluded by saying*: "culture is a big impediment."*

Culture was identified as a barrier in the focus group. This is similar to the results of the questionnaire used in this study. Participants described their experience with culture with excitement. Malina (2001) argued that cultural values transmitted across generations might predispose an individual to be more or less active. Participants in the focus group related cultural difficulties to style of dressing during physical activity. Participants may not be responsive to strategies to eradicate cultural values, which may have been transmitted from generation to generation. Perhaps the participants will respond more readily to a physical activity such as walking, which does not demand particular clothing.

In a study done by Henderson & Ainsworth (2003) among African-American and American-Indian women (women from different cultural backgrounds), it was noted in both groups that walking was the most important activity in their lives, because of the conditions that enabled it to happen, and the negotiability of many of the constraints. In addition, choice was only involved as to where, how often, and with whom walking was undertaken.

Lack of knowledge: Participants expressed the view that lack of personal knowledge about the benefits of physical activity may hinder their involvement in

physical activity. **Eumu** indicated, *"Lack of knowledge is an obstacle also"*. **Jobi** elaborated, *"I think girls tend to choose dieting by eating little food to avoid obesity, rather than physical activity, only because they ignore the benefits of it"*. **Christus** endorsed **Jobi**'s idea by saying, *"Yes you are right; although they have physical education at school, they don't know the benefits of it"*.

Lack of knowledge was reported in the results of the questionnaire in this study as a barrier. In the focus group, participants also mentioned lack of knowledge about the benefits of physical activity as a barrier.

Knowledge about the benefits of physical activity and the health risks of sedentary life seem very stimulating and may have a big influence on behaviour change. Martin et al. (2000) reported that people at various physical-activity levels have different perceptions about the significant influence of physical inactivity as a health risk. Therefore it has been shown that physical activity is more prevalent among those people who perceive physical activity as important for their health. For instance, individuals who join a gymnasium to lose weight will need additional information about benefits other than weight loss to maintain their motivation.

Participants also said that, although girl children have physical education at school, they still do not have knowledge of the benefits of physical activity. A sensitization programme about benefits of physical activity for participants, and

further effective teacher-learner training from primary school about the benefits of physical activity, will be of value.

Lack of facilities, means and equipment: Participants mentioned a lack of facilities in their neighbourhood, a lack of equipment, and insufficient transportation to reach facilities which are very far from their homes, as barriers. **Eumu** and **Jobi** reported: *"Lack of transport to go to gymnasium is a leading factor in lower motivation."* On the other hand, **Canshi** said that she thought means and lack of facilities was not as important as cultural barriers.

Lack of facilities, means, and equipment are physical environment barriers which were also reported in the results of the questionnaire in this study. Browson et al. (2001) reported that both cross-sectional and longitudinal studies have shown that access to facilities such as walking trails and gymnasiums, has a positive correlation with physical-activity behaviour patterns in adults. Sallis et al. (1997) supported these findings by saying physical environments have the capacity to facilitate or hinder physical activity. Environments rich in resources relevant for physical activity, such as sidewalks, parks, and exercise classes, make it easier for people to be physically active.

Furthermore, Sallis et al. (1997) continued by saying that it is possible that changing one influential environmental characteristic may be more effective in changing activity levels in a population than more expensive education

programmes. Although one of the participants reported environmental barriers to be less important than cultural values, it still appears to be important to recognize the value of environmental factors during an intervention process, as another participant revealed that, without a suitable environment, motivation may be low.

Appearance: Participants reported that young girls feared and disliked showing their breasts when exercising. **Eumu** said: *"Rwandan young girls are embarrassed when they begin to have breasts and this may prevent them from exercising."*

Participants revealed that physical activity was perceived as a barrier among girl children when they start developing breasts. In contrast to these findings, Taylor et al. (1999) found African-American and Latino middle-school girls perceived physical activity as a barrier to maintaining an attractive appearance but did not fear displaying their physical appearance. For instance: "The girls expressed strong concerns about activity spoiling their hairstyle and make-up." However Diehl et al. (2001) stated that for some women the potential benefits of exercise participation are outweighed by the anxiety they feel when exercising in a public setting, even if they overcome barriers such as lack of time, and lack of facilities. Individuals with high social and physical anxiety levels might avoid exercising in certain settings to reduce the opportunity for others to evaluate their physiques. Perhaps identifying opportunities for exercise classes, specifically for girls, will

help solve the issue of them fearing to show their breasts. Additionally, the whole issue of physical anxiety among Rwandan women, which may be influenced by cultural beliefs and values, needs to be examined further.

6.6 HEALTH PROMOTION PROGRAMME

The discussion on the need for a health promotion programme was animated and vibrant. As was explained in the introduction, the purpose of this focus group was to get the views and perceptions about participants' experience with physical activity on how to promote physical activity in their community. However, participants went beyond giving their views and demonstrated how they were ready to take responsibility for the development of a physical activity programme.

Participants emphasized the need for sensitisation of women everywhere in their communities including the work place, at home, and on television. For instance **Jobi** said, *"Sensitisation is very important. Education of people about physical activities, gets them involved. Poor people should know that physical activities are not only for rich people, they are for everybody."* **Alirwi** also said, "*Sensitisation is the best. Educating people at their work place is capital."* And a comment from **Canshi** was, *"Rwandan women really need sensitisation about physical activities."*

The following major themes were identified as important health-promotion issues: Education and encouragement of girl children; Education of women in the community; Health promotion programme; Finance, Advocacy and lobbying; Unity and reconciliation; Facilities/Venue/environment; and Responsibility for the programme.

Education and encouragement of girl children: When participants were asked to elaborate on issues of promoting physical activity, nearly all of them focused on education and encouraging girl children to be involved in physical activity. **Jobi** said: *"We should start by educating our girl children."* **Eumu** felt, that girl children might relate physical activity to good appearance. She said: *"Young girls may like physical activity, because they like good appearance."* **Cimu** similarly advised starting education about the benefits of physical activity from childhood. She said, *"It's good to foster good behaviour from early childhood."* However, **Alirwi** expressed the view that male parents should also take responsibility to educate their girl children about physical activity. She said," *Male parents should also help and encourage their daughters."* Furthermore, **Namu** thought primary school should also take responsibility, by integrating benefits of physical activity in their programme and not only physical education. She reported, *"Young girls need to have a course of physical education and its benefits in primary school,"* and commented, *"Really, school should help parents."*

Lifestyle habits such as physical activity that persist into adulthood are frequently established during childhood and adolescence (Kennon, 1996). However, the first and major theme which arose from the discussion about promoting physical activity was education and encouragement of physical activity among girl children. The participants recognized their responsibility as mothers, the responsibility of fathers and the responsibility of the school to influence girl children to get involved in physical activity. It seems parents, particularly female parents, can help their girl children maintain a physically active lifestyle by providing encouragement and opportunities for physical activity. This is supported by Davison, Cutting & Birch (2003) who state that parents are important teachers and social referents for children throughout childhood and adolescence. They serve as role models for physical activity, and organize and fund children's involvement in physical activities. Additionally, parental participation in physical activity, encouragement of activity, and provision of transportation to sporting events have been linked to higher levels of activity among children and adolescents. Parental involvement may be particularly relevant for girls because parents' activity and encouragement have been shown to influence activity patterns of girls to a greater extent than of boys.

Perhaps a programme involving mothers and girl children will be cost-effective and beneficial for both mothers and girl children. Ransdell, Taylor, Oakland, Schmidt, Moyer-Mileur & Shultz (2003) reported that there is a possibility that combining mothers and daughters in a structured programme will facilitate participation in activities that are preferred by girls and women, and it would help

them gain confidence in their physical abilities Together they can solve various problems such as barriers to physical activity, and they can set goals together to enhance some of the bio-psychosocial benefits of exercise. Participants also thought male parents should be part of the team in the education of children about physical activity and its benefits. Davison, Cutting & Birch (2003) found that although mothers and fathers tended to report different forms of support for activity, both were associated with higher levels of physical activity among their daughters. In their study, mothers who provided logistical support were more likely to enroll their daughters in sports, and to support them at sporting events. Fathers were more likely to use their own behaviour to encourage activity, for example by leading a family outing involving activity. In Rwanda a family-based program would most probably be very beneficial for both parents and girl children.

These findings support Vilhjalmsson & Thorlindssoon (1998) regarding school responsibility. They maintain that "schools play an important role in the enhancement of physical activity in adolescence. By taking individual preference and abilities into account and providing opportunities for individual success, physical-education teachers can help create positive gym-class experiences among their students. It also appears that the schools can influence physical activity through their curriculum, particularly when it emphasizes the value and importance of sport and exercise." If the same strategies are applied in Rwandan girl's schools, it might enhance their level of participation in physical activity.

Participants thought girl children might relate physical activity to good appearance, and self-presentational concerns may be a major source of motivation for participating in physical activity. Women often report they are motivated to be physically active for self-presentational reasons, including weight management (Kowalski et al., 2001). A programme with a major goal like weight-loss concerns or maintaining the "ideal thinness" might influence girl children to be involved in physical activity in Rwanda.

Education of women in the community: Participants expressed their will to motivate and to educate other women from their communities. **Christu** said; *"I think from our community we should motivate other women like us."* Similarly **Jobi** reported; *"We should be the first to sensitise other women."* However **Eumu** expressed the need to learn about a sensitisation approach. She said: "*But we need to know the approach of sensitisation.*" Furthermore, **Eumu** thought of women working as a team. She commented, *"Women should put their hands together in support of each other."*

Interestingly, participants volunteered as educators for other women in their own community. The participants expressed the need to be empowered, and all they thought was lacking was knowledge of approaches and methods of accomplishing their mission. As Tones & Tilford (2001) explained, a healthy nation is not only one which has an equitable distribution of resources but one which also has an active community which is powerfully involved in creating the

conditions necessary for a healthy population. Supporting this, the proposal is made that one of the key principles and a major driving force in health promotion is the notion of voluntarism, meaning people should be encouraged to make free choices and should be trusted to act independently and make efforts to create a sense of responsibility among their fellow human beings.

Health promotion programmes: Although participants said that they were involved in little physical activity, they came up with ideas and interesting examples of physical activity programmes. For instance, **Namu** thought about the women having similar discussions at their own institutions, which must be followed by education. She said, *"I think we need to have this kind of discussion in our own institutions, which might be followed by more structured education like other institutions do about HIV"*. **Alirwi** elaborated further, *"We need also to identify key people in our communities and government"*. **Eumu** commented, *"Those key people in the community may help us to create exercise classes".*

Participants suggested some examples of physical activity programmes in one government ministry and in their institution. Women from both insurance companies and banks were already making efforts to promote physical activity at their institutions, but the majority of workers did not take up that opportunity, especially women. **Namu** said, *"Our institution had negotiated a reasonable application fee to a swimming clubhouse; but our colleagues were not interested, especially women"*. **Jobi** concurred, *"Oh! Yes it was the same situation at our institution. The bank had accepted to pay the application fees for*

us, but people were not really motivated, especially women here, too!" Other participants, feeling ashamed of a missed opportunity, laughed.

Participants gave an example of the establishment of a policy of doing physical activity at the workplace. **Christu** explained, *"The Ministry of Sport had organized a physical activity at the workplace for 15 minutes everyday before leaving work. I think here the Ministry played the role of a good model".*

In Rwanda the goal for a health promotion programme will be to enable people to cooperate with them rather than to make them feel obliged to join and to impose a programme on them. Empowerment gives a sense of personal control, and helps to develop the feeling of self-efficacy which counteracts the feeling of despair (King et al., 1992). Women need to be included from the beginning of the planning of the programme, and their views, contributions, and resources need to be considered. Their participation in the decision-making process is desirable, not only from the ethical point of view, but mostly to guarantee the effectiveness of the programme.

Participants also offered examples of a physical activity programme, which included the following: an education campaign, exercise classes, swimming, and physical activity at the workplace. It appeared that education would be the starting point, as participants thought from the beginning that the issue of providing knowledge about physical activity and benefits of physical activity is very critical and needs major attention; moreover they pointed out that the other

forms of physical-activity programmes, such as swimming, had already occurred in some of the institutions, but were poorly attended.

Naidoo & Wills (1998 a) indicated that the purpose of the educational approach is to provide knowledge and to develop skills so that a person can make an informed choice about his or her health behaviour. Health education has shown success in increasing information about awareness of the risks factors for a disease. This may be carried out through group discussion, one-to-one education, and a mass-media campaign in a classroom-based or workplace-based situation. In Rwanda peer education could be used as a method for carrying out an education programme, because peer education seems to be more cost-effective than other methods (Tones & Tilford, 2001). It empowers those who are involved, utilizes an already-existing source of information; and peers are often more successful than professionals in passing on information because people identify with their peers as peers educators act as positive role models. Additionally, peer education can be used to educate those who are hard to reach through traditional methods, and peers can reinforce learning through ongoing contact

Finance, Advocacy and lobbing: The participants raised the issue of finding funds for health-promotion projects*: "We need to know whether you will have funds to sensitize women and whether you will do your best to acquire the*

necessary funds in order to achieve this programme." **Christu** suggested funds could come from the government.

Participants expressed their willingness to lobby for the programme, and thought about some ministries that could advocate for the development of the program including the Ministry of Gender and Women in Development where some of the participants worked. **Christu** said,

"I think funds are not a big problem, what we need is to make plans for physical education programmes and then contact some ministries such as Ministry of Health, Ministry of Education, Ministry of Gender and Women in Development, Ministry of Sports. I am sure they will support the idea. I myself come from the Ministry of Gender and Women in Development."

Canshi added:

"I am telling you, this is a real challenge for our ministry (Ministry of Gender and Women in Development). Because we do focus on other matters like culture, and neglect physical activity and its benefits."

Jobi, in support, added, *"I think people will like it."* Furthermore, **Namu** recognized that advocacy for physical activity is necessary, in the same way as it is for HIV in the country. She explained, *"It is very important to advocate for a physical-activity programme. The government should take the lead as it does in planning and strategizing to overcome chronic diseases of lifestyle such as HIV. It is just as important to focus on physical activity."*

Regarding finance for supporting the programmes, participants suggested getting funds from the government. Interestingly, they volunteered to lobby and, with the support of their Ministry (Ministry of Gender and Women in Development), to advocate for the programme. Coulson, Goldstein & Ntuli (1998) indicated that advocacy is the process used to overcome barriers to public-health goals. Such barriers are either structural or physical. For example, legislation and policy are pure structural barriers whereas lack of water in a certain community is a physical barrier. Furthermore, Coulson, Goldstein & Ntuli (1998) clarified that physical and structural barriers differ from the individual or behavioural barriers that stop an individual changing his or her behaviour. Changing people's behaviour needs effective education planning and provision of a physical-activity programme at a local level. In Rwanda physical activity at the workplace before leaving work every day may be a good start for advocacy. However this needs to come after education has taken place.

Unity and reconciliation: Participants revealed a very important issue which is the relation between physical activity, unity, and reconciliation. **Alirwi** said, "*We forget a very important benefit, my friends; bear in mind that programmes of physical activity foster reconciliation.*" **Eumu** showed how that is a very important issue. She commented, *"Can you imagine! When that is our big political slogan now! Unity and reconciliation!* Other participants, feeling very happy, laughed and strongly agreed; *"You are so right!"* they said.

Unity and reconciliation are an important issue in Rwanda after the 1994 war. The Rwandan population views this concept as the only one that can overcome all social barriers and can bring people together as in traditional times. As participants pointed out, this can be facilitated through physical activity, particularly group exercise, as it increases socialization among people. During exercise classes, opportunities are offered to meet people from different areas, in addition to the opportunity to avoid isolation. There is also the possibility of expanding the social relationship/network, developing new friends with whom you share the same goal, and "fighting against sedentary life". We suggest unity and reconciliation should be included as one of the specific objectives in a physical-activity programme in Rwanda.

Venue/Environment/Facilities: When participants were asked where physical activities were carried out, they said they do these activities in the gymnasium, the playground, or the swimming pool at home. But the other venues mentioned for physical activity were inappropriate, for example the car. Moreover, participants indicated that in their areas they have playgrounds, a basketball court, aerobics clubs, and sidewalks. However, these are not well-managed like those in Europe.

Appropriate facilities were also reported as being necessary for physical-activity programmes. **Jobi** pointed out that, *"Creation of more facilities in poor areas would motivate people to be involved in physical activities".*

Lifestyle change can be facilitated through a combination of efforts to enhance awareness, change behaviour, and create environments that support good health practices. The majority of participants showed knowledge of the venues for physical activity and were aware these venues existed in their communities. However this cannot be generalized for all working women in Rwanda, and participants recommended the creation of more facilities in poorer areas. The majority of participants appeared to stay in well-resourced areas. Achieving equity and redressing health inequality have been put forward as important goals in the WHO agenda.

Various studies, cross-sectional and longitudinal, have shown that access to facilities such as a gymnasium or swimming pools has a positive correlation with physical-activity behavioural patterns in adults (Brownson et al., 2001). The creation of a supportive environment is one of the elements of the Ottawa Charter (WHO, 2002c). Building more facilities, particularly in poorer areas in Rwanda, and renovating the existing ones in some areas together with using education, may stimulate women to become involved in physical activity and improve their motivation.

Responsibility for the programme: Participants discussed which people or institutions should take responsibility for the programme. Curiously, but very encouragingly, participants suggested themselves as the people who could initially take responsibility for the programme, as well as the government. For

instance, **Jobi** sai," *We Rwandan women should be the first responsible for promoting physical activity programmes in our community. It should start with our own family."* **Alirwi** added, *"We need also to identify key people in our communities and government".*

Canshi highlighted that they must be role models and educators for their daughters and for other women in their communities, *"We need to be role models for our daughters and to have self -confidence. Our institutions and our ministries should help and encourage us by establishing peer programmes at work."*

Participants suggested establishing a policy of increasing physical activity at work. **Christu** said, *"The Ministry of Gender and Women in Development and the Ministry of Public Function should take responsibility. The latter should allocate a specific time during the day only for physical education".* In addition, **Eumu** brought in the mass media as a motivator; she indicated, *"Mass media such as radio, television etc. can be used to motivate people".*

Participants emphasized the responsibility of the government. **Cimu** said, *"We need government contribution, specifically from the Ministry of Sport, Ministry of Health, Ministry of Gender and Women in Development, Ministry of Transport, Ministry of Public Function."* Then **Christu** suggested the Ministry of Education, *"Don't forget the Ministry of Education."* to which **Cimu** responded, *"Yes! You are very right; Ministry of Education should be on top!"*

In addition, **Christu** and **Namu** named the Ministry of Health as needing to take responsibility for the physical-activity program. **Christu** said, *"the Ministry of Health should take responsibility"*, **Namu** emphasized the seriousness of the Ministry of Health's responsibility for educating people about the benefits of physical activity just as they take responsibility for running the AIDS campaign in the whole country. **Namu** said:

> *"The Ministry of Health should take responsibility for educating people about the benefits of physical activity, and the danger of chronic diseases due to a poor lifestyle. The public awareness and the education of people sponsored by this Ministry of Health about AIDS is an excellent model to be emulated for behaviour change in different lifestyles in our country."*

Canshi, an employee of the Ministry of Women and Gender in Development, suggested having the women's cultural-training framework as a model for physical activity programme, as it was already implemented in that ministry. She said, "*The government should spread information about physical-activity education and chronics diseases. In the Ministry of Gender, where I work, we offer some training to women about culture. We can take advantage of the same framework to achieve this important endeavour.*"

Alirwi then suggested that government leaders could be models for their workers on physical activity, saying, *"Government leaders and authorities should be good role models. It is very common to see people emulating what their leaders are doing."* Finally, **Christu,** like others, continued emphasizing the

government's responsibility. She said, *"The government needs to take more responsibility; it is the one to sensitise women".*

Finally, participants thought that, in order to develop physical-activity programmes, effective alliance building will be needed. Alliances would involve people from more than one sector working together and aiming at the same goal. Thus inter-sectoral collaboration is necessary to achieve effective coalitions between different sectors. This will be a necessary precursor to other strategies, and be at the first stage of planning a programme. Participants suggested they themselves would be part of the programme, which would include the Ministry of Gender and Women in Development, the Ministry of Education, the Ministry of Health, the Ministry of Transport, the Ministry of Public Function, the Ministry of Sport, and the mass media.

Inter-sectoral action is necessary if health promotion goals are to be met. Health is the outcome of multiple influences operating at various levels. This can be overlooked when the limitations and strengths of modern medicine, as determinants of health, are assessed critically (Tones & Tilford, 2001). Inter-sectoral collaboration supports health promotion and helps reorient health services and, as Naidoo & Wills (1998 a) indicated, "Inter-sectoral collaboration is one of the key principles outlined by the WHO if health for all is to be achieved."

The following are some of the advantages of working together, described by Naidoo & Wills (1998 a): "It brings organizations and groups who would not

normally see themselves as having a role in promoting health, and thus means that health is addressed holistically and not solely in a treatment-oriented setting; it increases these organizations knowledge and understanding of each other, helping to clarify roles and overcome rivalry; Collaborative service planning is based on a more comprehensive picture of local needs; this will help to eliminate gaps; it may also lead to more effective use of resources by, for example, joint purchasing of services. It can also avoid administrative duplication by partners working together on service specifications etc."

After critically reviewing the need for promoting physical activity among working women in Kigali, strategies for promoting physical activity have been suggested. These should be developed in the context of the population's health and a population-health promotion-model framework. The population-health promotion model focuses on the following elements of health promotion, discussed and established in the Ottawa Charter: building healthy public policy, creating supportive environment, and partially reorienting health services (WHO, 2002c).

However, as we know physical activity is a behaviour, the population-health promotion model will need to be coupled with the trans-theoretical model, also called the 'stages of change' model, which has been recognized as an effective model for behavioural change. Nahas, Goldfine & Collins (2003) stated that the trans-theoretical model suggests that individuals change behaviours, such as smoking or sedentary lifestyle, by moving through a series of stages that represent their readiness to change. It includes a five-stage process of

behavioural change: pre-contemplation, contemplation, preparation, action, and maintenance. This model has been used in several interventions to promote physical activity, and it is based on the theory that people must move through the early stages where motivation and commitment are developed before taking action and changing the behaviour (Nahas et al., 2003).

Koffman et al. (2001), in their study on an evaluation of an American Heart Association physical-activity programme for women called "Choose to move 1999", indicated that it has been shown that by incorporating the principles of the trans-theoretical model, women who completed the "Choose to move" programme evaluation reported that they had significantly increased their levels of physical activity, reduced their consumption of high-fat foods, and increased their knowledge and awareness of cardiovascular disease risk and its symptoms. The trans-theoretical model targets strengthening community action, developing personal skills, and partially reorienting health services: all elements of health promotion regarding individual behaviour.

This chapter began by explaining the reasons for the focus-group discussion, and then presented and interpreted the results of the focus-group discussion.
The following major themes emerged from the focus group discussion: the description of physical activity, the level of participation in physical activity, facilitators and benefits of physical activity, barriers to physical activity, and, finally, the need for a health-promotion programme.

Participants felt that physical activity was an activity-using energy. They said that they engaged in activities of low-to-moderate intensity. The main facilitators and benefits of physical activities experienced by participants were: needing routine, experiencing positive feelings after exercise, relaxation as a result of exercise and socialization, and increased levels of fitness which manage obesity and improve health. The following barriers limited participation in physical activity: lack of time, tiredness, laziness and lack of motivation, illness, having a domestic helper, cultural beliefs, lack of knowledge, lack of facilities, means and equipment, and concern about appearance. Major issues for health promotion were: education and encouragement of girl children, education of women in the community, developing a health-promotion programme, finance, advocacy and lobbying, unity and reconciliation, venue/environment facilities, and responsibility for the programme.

The chapter compared and contrasted the findings of the current study with similar studies, and showed the impact of the findings.

CHAPTER SEVEN

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

7.1 INTRODUCTION

In this chapter a summary of the study is provided. The most important findings of the study are underlined in the conclusion; and, finally, recommendations emerging from the study are given.

7.2 SUMMARY

The purpose of the current study was to determine levels of participation in physical activity among working Rwandan women in Kigali, in relation to socio-economic demographic characteristics. The study specifically investigates the level of participation in physical activity among adult working women, the influence of socio-economic demographic factors on physical activity, and finally the need for a health-promotion programme related to physical activity among working women.

The motivation for the study was that working Rwandan women in Kigali were thought to be developing sedentary lifestyles, as a result of the migration to urban areas from rural areas in the aftermath of the mid-1990s war, a phenomenon which occurred for security reasons, and because of the return of

people from exile. In addition, the advancement and rapid shifts in technology in urban areas of developing countries have also affected urban areas in Rwanda and modernized the working environment of Rwandan working women. Thus a Rwandan woman who traditionally used to do housework is now spending most of her working hours in activities that require little energy, such as deskwork activities. However poor choice of lifestyles, such as sedentary life, can result in an increase in CDL. Although the Rwandan health sector has improved its services in controlling some diseases such as malaria, few or no programmes have addressed issues to prevent CDL.

Banks and insurances companies in Kigali were used as the research setting, and the age range of the sample population was 19-51 years for the questionnaire, and 28-45 years for focus-group discussion. SSAAQ was used to test the frequency, intensity, duration, and type of physical activities practiced by the women involved. The patterns that were assessed included sitting and light activities, and moderate and vigorous activities in the following types of activities: leisure time, household, occupational, and walking. A focus-group discussion guide was used to identify the need for a health promotion programme concerning physical activity. Descriptive and inferential statistical analyses were used for the questionnaire, whereas themes, and then categories, were formed from the views and opinions of participants in focus-group discussion.

Over 70% of working women in the sample were classified as sedentary. Participation in physical activity seemed to decrease with age, and there were more participants classified as sedentary in the married group than in the non-married groups. Education level and income were negatively associated with the level of participation in physical activity. Among the reported prevalence of chronic diseases, high blood pressure and diabetes were only reported among participants classified as sedentary. Lack of motivation was the greatest barrier to moderate or vigorous leisure-time physical activity, whereas having a domestic helper, acts as the greatest barrier to moderate household physical activity. Over 50% of participants, classified as sedentary, reported that they would like to do more physical activity than the amount recommended by WHO.

During a focus-group discussion on the need for a health-promotion programme on physical activity, the following major themes emerged: the description of physical activity, the level of participation in physical activity, facilitators and benefits of physical activity, barriers to physical activity, and, finally, the need for a health-promotion programme.

7.3 CONCLUSIONS

The results of this study indicate that the majority of women working in banks and insurances companies in Kigali live sedentary lives as they spend their spare time and working time mostly in sitting and light activities and not in

moderate or vigorous activities. This predisposes them to CDL that are related to sedentary lifestyles, such as cardiovascular diseases, Type 2 diabetes mellitus, osteoporosis, cancer, and osteoarthritis. The impact of increased CDL might result in a future health challenge to Rwandan working women and also to the country which is still struggling with poverty, non-communicable diseases, and HIV/AIDS, similar to other developing countries.

Age influenced the level of participation in physical activity negatively, with 100% of participants who were aged 51 years and above classified as sedentary. Additionally, more participants were classified as sedentary in the married group than in the non-married group. This shows how women's family responsibilities, or maybe lack of support from the family, have impacted on the participant's involvement in physical activity. Participants with higher economic status were more often classified as sedentary than those with lower economic status. Apparently the majority of those with higher economic status have domestic help that frees them from housework leaving them time for leisure time physical activity.

Among the reported prevalence of CDL, high blood pressure and diabetes were exclusively reported among participants classified as sedentary. Although there is not adequate evidence in these findings to support the relationship between a sedentary level and CDL, in the long term the impact of sedentary life will result in an increase of CDL among working women in Kigali. This would increase

morbidity and mortality rates in a country where medication and operations for CDL are not available for financial reasons. Therefore, planning, implementation, and evaluation of a health-promotion programme to curb the potential effects of sedentary life is paramount.

Since over 50% among those classified as sedentary expressed their motivation to do more physical activity than the amount recommended by WHO to obtain health benefits, it is imperative to identify the health-promotion programme needs in relation to physical activity among working women in Kigali.

Therefore, the following are the major needs that arose from the focus-group discussion on a health-promotion programme related to physical activity:

- A bottom-up approach is required if a health-promotion intervention related to physical activity has to take place. Empowerment of Rwandan women will give them opportunities to have control over, and to follow the evolution of, their programme from the needs-assessment process up to the stage of final evaluation. This will increase the likelihood of an effective programme.
- Physical activities need to be incorporated in women's workday routine activities.
- Information on time management and how to utilize the available time in order to incorporate physical activity in daily schedule may be needed. A physical-activity programme at the work place would be preferable.

- An effective health promotion intervention for Rwandan working women needs to include entertainment and enjoyment aspects of physical activity together with information on the disease-prevention benefits aspects.
- A physical-activity programme of moderate intensity that is provided frequently might be more effective among Rwandan working women than a programme of vigorous intensity.
- A sensitisation programme about health risks related to sedentary lifestyle and the benefits of physical activity is required. In addition, effective teacher-learner training about the benefits of physical activity, starting in primary school, may be of value.
- Peer education might be more cost-effective and empower those who are involved.
- A health-promotion intervention including mothers and daughters would be beneficial. In addition male parents should encourage their daughters to be involved in physical activity; therefore a family-based programme would be beneficial for both parents and girl children.
- Exercise classes exclusively for girls may help to solve the difficulty of being afraid to show their breasts. On the other hand, a program emphasizing good appearance might foster adolescent girls' involvement in physical activity.
- Rwandan women may be more responsive to walking as it frees them from the cultural difficulties related to the style of dressing.

- The creation of sports or fitness facilities, particularly in poor areas, might increase Rwandan women's motivation to participate in leisure-time physical activity.
- Ideas of unity and reconciliation could be included in a physical-activity programme.
- Inter-sectoral collaboration is necessary for an effective physical-activity health-promotion programme.

7.4 RECOMMENDATIONS

Based on the findings of the study, the following recommendations are made:

1. The work place seems to be a logical location for health-promotion activities because employees spend more than six hours per day at work. Therefore, it is recommended that physical-activity health-promotion intervention be incorporated at the workplace of working women in Kigali, particular at banks and insurances companies. Workplace programmes should eliminate some of the traditional barriers to physical activity by providing relevant information to women, incentives, flexi-time, and access to programme facilities and equipments. Exercise programmes might include competitive games, such as volleyball and basketball, between different institutions.

2. Employers in the institutions should act as role models and support the employees by being involved in the design and implementation of a physical-activity programme.

3. Professionals such as physiotherapists in the work place should promote a more active lifestyle to those working in a sedentary environment, for instance, head of departments in banks and insurances companies, accountants, cashiers, by using simple strategies like recommending using stairs instead of the elevator, walking from one place to another, and exercise classes in the workplace.

4. Primary-care providers, particularly physiotherapists, have the potential to play an important role in increasing awareness of health-related risk behaviours such as physical inactivity, and in promoting regular physical activity through integrating exercise counselling with regular patient care.

5. It is also important that programmes of physical activity be available to the whole Rwandan women's community. Marketing a leisure-time activities campaign and other physical activities of daily living such as walking and household activities through the media (newspapers and magazines, internet, television and radio) is worthwhile.

6. Educational leaflets and videos should be provided in public places such as hospitals, churches, and markets, in order to increase awareness of the benefits of physical activity.

7. National and local government need to support Rwandan women's physical-activity programs and work together hand in hand for an effective health-promotion intervention. Additionally, the government needs to increase the availability and accessibility of physical-activity and fitness facilities to women, particularly in poor areas.

8. Home and community-based physical-activity interventions that target mothers and daughters are needed. It is also recommended that fathers also play an important role in promoting the physical and emotional well-being of their daughters by encouraging them to be physically active.

9. Health-education programmes should be implemented in schools from primary level to ensure that teachers and learners acquire knowledge about physical activity and its benefits and the related health risk of sedentary lifestyle. Emphasis will also need to be placed on attitudes, motor skills, behavioural skills, and the confidence to adapt and maintain healthy lifestyles, especially among girls.

10. Schools should establish a policy, particularly for girls, that promotes participation in lifelong non-sedentary activities and also which will introduce the teaching of physical education and its benefits into the curriculum.

11. Continuous evaluation of these and other programmes among working Rwandan women in Kigali is essential before it is possible to identify the most successful and cost-effective ways of promoting physical activity and ways of adhering to physical activity in the long term. In addition, cohort studies are needed to determine if physical-activity uptake is being continued in Rwandan women, including elderly women.

12. A longitudinal study using a relatively larger sample should be done on the same cohort to ascertain the influence of certain factors such as socio-economic, demographic factors and some barriers identified in this study, on the level of participation in physical activity. It will also help to establish the relationship between sedentary life and CDL as identified in this study.

13. Levels of participation in physical activity of Rwandan women may differ in different parts of the country and in different settings. More studies in this area should be carried out, to obtain adequate information about Rwandan women's participation in physical activity.

This final chapter summarized, and outlined relevant points of the current study. It made recommendations for future actions, including the development of a health-promotion programme and future research on physical activity.

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UNIVERSITY *of the* WESTERN CAPE

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DEPARTMENT OF PHYSIOTHERAPY

DEPARTMENT OF PHYSIOTHERAPY
THE DIRECTOR,
BANK AND INSURANCE COMPANY
KIGALI

2003-06-9

Dear Madam/Sir

Re: Request to conduct a research study in banks and insurance companies, Rwanda

I am a Rwandan student doing a masters degree program in Physiotherapy. at the University of the Western cape in South Africa. I am expected to do a research project as part of the requirement for a MSc.. (Masters) degree in Physiotherapy. The title of my research thesis is:" **Physical Inactivity: Health risk behavior among working women in Kigali/Rwanda".**

The purpose of this letter is to request for permission to carry out this research study, based at BNR, BK, BCR, SONARWA, SORAS. It hoped that the results of the study would be useful not only for or to the women in the above banks or insurance companies but also the Rwandan community in general. In addition, the study may bring about Health promotion intervention in different work settings aimed at promoting physical activity behavior among working women.

Participation in this study will be anonymous and voluntary, and the information gathered will be treated with respect and confidentiality.

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DEPARTMENT OF PHYSIOTHERAPY

Looking forward to your co-operation,

Jeanne Kagwiza

Mrs. Julie Phillips
Supervisor

Ms. Patricia Struthers
Supervisor

APPENDIX B

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DEPARTMENT OF PHYSIOTHERAPY

DEPARTMENT OF PHYSIOTHERAPY

The Minister of Gender and Women in Development,
Republic of Rwanda,

2003-06-09

Madam,

Re: Research on Physical inactivity: Health risk behavior among working women.

I am a Rwandan student on a postgraduate Masters program in the Physiotherapy Department at the University of the Western Cape in South Africa. I am expected to do a research project as part of the requirement for a MSc. (Masters) degree in Physiotherapy.

The purpose of this letter is to request you to nominate five women preferably in a senior position in your Ministry, to participate in the study. The study will initially have a focus group discussion which will involve women in banks, insurance companies and in Gender and Women in Development Ministry. It is hoped that the results of the study will be useful not only for the women in the banks and insurance companies but also to the Rwandan community in general. In addition the study may bring about Health promotion intervention in different work settings aimed at promoting physical activity behavior among working women.

The study is anonymous and voluntary; the participants should feel free to decide whether to take part or not. The information gathered will be treated with respect and confidentiality.

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DEPARTMENT OF PHYSIOTHERAPY

Looking forward to your co-operation,

Jeanne Kagwiza

Mrs. Julie Phillips
Supervisor

Ms. Patricia Struthers
Supervisor

APPENDIX C

BNR BANQUE NATIONALE DU RWANDA

B.P. 531 KIGALI - Tél. 574282/575249 - Fax (250) 572551 - Télex (909) 22 508/22 509 BNR RW

DEPARTEMENT DES RESSOURCES HUMAINES

Kigali, le 24 juin 2003

Réf : 420/2003-633/RJD/rjd

Madame Jeanne KAGWIZA
C/O UNIVERSITY of the WESTERN CAPE
Private Bag X17 Bellville 7535
South Africa
Telephone: (021) 959-2542/6
Fax: (021) 959-1217
E-mail : mmarais@uwc.ac.za

Objet : Votre demande de conduire
Une étude de recherche à la BNR

Madame,

Faisant suite à votre lettre du 09 juin 2003 dont l'objet est ci-haut émargé, la Banque Nationale du Rwanda a le plaisir de vous informer que votre demande est acceptée.

Dès réception de la présente, vous êtes priée de vous mettre en contact avec la direction des Ressources Humaines pour les formalités d'usage.

Veuillez agréer, Madame, l'expression de notre considération distinguée.

NYIRAHUKU Antoinette
Directrice Adjointe des Ressources Humaines

BANQUE NATIONALE DU RWANDA

MURASIRA Apollinaire
Directeur des Ressources Humaines

APPENDIX D

Dear Respondents,

This questionnaire is a part of a study about **physical inactivity: Health risk behavior among working women in Kigali/Rwanda.** The information you will provide will help us better understands about working women's participation in physical activity. It will help us to come up with a plan for a health promotion program related physical activity.

I request you to respond to the questions frankly and honestly. It will take only 20 to 30 minutes. However, if you do not like to answer these questions, feel free not to participate. Do not write you names on this questionnaire since your response will be anonymous. All information gathered will be kept strictly confidential.

Thank you very much for your time and cooperation.
I greatly appreciate your organisations and your help in furthering this research endeavour.

Jeanne KAGWIZA

Kigali Health Institute
Physiotherapy
BP 3286
Tel: 572172
Cell/Mobile:08410021

Questionnaire

Questionnaire number.....Date.....

SECTION A : SOCIO-DEMOGRAPHIC AND ECONOMIC DATA

Instructions:

- Please answer all questions
- Select one or more responses by using a tick **(V)** where applicable in the boxes given.
- Give written responses in the blank spaces provided

1. How old are you? Years ☐

2. What is your marital status?
   - Single ☐
   - Married ☐
   - Separated ☐
   - Divorced ☐
   - Widowed ☐

3. What is your highest education?
   - Never went to school ☐
   - Primary, 1-6 ☐
   - Secondary, 1-3 ☐
   - Secondary, 4-6 ☐
   - Tertiary education ☐

4. What is your job in this institution?
   - Cleaner ☐
   - Receptionist ☐
   - Secretary ☐
   - Teller/Cashier ☐
   - Head of any Department ☐
   - Other (Specify) .....

5.What is your average monthly income (after deduction)

Less than 50.000frw	☐
51.000-100.000	☐
101.000-150.000	☐
More than 150.000	☐

6. At home, how much time per day do you spend using the following entertainment/communication equipment? (See the list below). If you do not own the equipment, please tick N/A for "not applicable"

	N/A	None	Less than 1 hour	1-3hours	More 3hours
Computer	☐	☐	☐	☐	☐
Television/Video	☐	☐	☐	☐	☐
Radio	☐	☐	☐	☐	☐
Landline telephone	☐	☐	☐	☐	☐
Mobile phone	☐	☐	☐	☐	☐
Table game(cards, Scrabble, Draft, Monopoly etc…)	☐	☐	☐	☐	☐

Other (Specify).....

7. Do you ever suffer from any of the following? (Please tick where applicable)

	No	Yes
High blood pressure	☐	☐
Diabetes mellitus	☐	☐
Chronic bronchitis	☐	☐
Asthma	☐	☐
Athritis	☐	☐
Osteoporis	☐	☐
Chronic back pain	☐	☐
Anxiety disorder	☐	☐

Other disease (specify).....

SECTION B:

Instructions

Section B asks about the time you spend doing different types of physical activity. This includes activities you do at work, walking to and from work, activities you do at home and during your spare time. You are requested to answer all the questions.

Part I LEISURE OR SPARE TIME PHYSICAL ACTIVITY

The questions below ask about activities you do in your leisure or spare time. While answering, think back to your recently days, then consider a usual/typical week.

1. In your leisure time or spare time, do you participate in vigorous physical activities like (running, jogging, basketball, soccer, volleyball, aerobic dancing, vigorous traditional dance etc...)

Yes ☐ No ☐

1a. If yes state the number of days per week.....

1b. The average duration of the session.....Min/Session

2. In your leisure or spare time, do you participate in moderate activities like (brisk walking, swimming, classic dance, moderate gymnastic, table tennis etc...)

Yes ☐ No ☐

2a. If yes states the number of days per week.....

2b. The average duration of the session.....Min/Session

3. In your leisure time or spare time, do you participate mostly in sitting activities like (watching TV, listening to radio, playing table game such as cards, scrabble etc...) or in light activities like (driving car, light walking etc...)

Yes ☐ No ☐

3a. If yes state the number of days per week.....

3b. The average duration of the session.....Min/Session

4. Do any of the following prevent you from participating (on most days of the week) in any kind of leisure time moderate and vigorous physical activity, such as described in (1) and (2) above

(Tick **(V)** one or more answers)

	Yes	No
Lack of facilities (such as sidewalks, playgrounds, Fitness facilities etc...)	☐	☐
Lack of time	☐	☐
Lack of motivation	☐	☐
Cost of transport	☐	☐
Lack and cost of sport equipment	☐	☐
Culture barrier (such as wearing a short)	☐	☐
Lack of family support	☐	☐
Have health problem	☐	☐

Other limitations (please specify).....

PART II HOUSEHOLD ACTIVITIES

The following questions ask about activities you do at home. When answering, think back then consider a usual/typical week.

1. Usually while you are at home, do you participate in vigorous activities like (chopping wood, digging, carrying water etc...)

Yes ☐ No ☐

1a. If yes state the number of days per week.....

1b. The average duration of the session.....Min/Session

2. Usually while you are at home, do you participate in moderate activities like (cleaning house, washing clothes with hands, washing windows/bathrooms, gardening, sweeping pavement etc...)

Yes ☐ No ☐

2a. If yes state the number of days per week.....

2b. The average duration of the session.....Min/Session

3. Usually when you are at home, do you participate mostly in sitting activities like (plaiting hair, chatting with people, helping children doing homework etc...) or in light activities like (dish washing, preparing food, ironing, care for children, personal care etc...)

Yes ☐ No ☐

3a. If yes state the number of days per week.....

3b. The average duration of the session .....Min/Session

4. If you do not participate (on most days of the week) in any kind of moderate household physical activity, what could be the reasons? (Tick **(V)** one or more answers)

Don't have time ☐

Tired after work ☐

Have domestic help ☐

Have children who can do the work ☐

Have relatives who can do the work ☐

Other reasons (specify).....

.....

PART III: <u>WALKING TO AND FROM WORK</u>

1. Do you usually walk to your work place (even for a part of the way)?

Yes ☐ No ☐

1.a. If yes, how many minutes do you take to walk?.....

1.b. How do you normally walk?

Slow pace ☐ Normal or usual pace ☐ Brisk pace ☐

2. Do you usually walk from your work place to your home (even for a part of the way)

Yes ☐ No ☐

2.a. If yes, how many minutes do you take to walk?.....

2.b. How do you normally walk?

Slow pace ☐ Normal or usual pace ☐ Brisk pace ☐

PART IV:<u>OCCUPATION-RELATED PHYSICAL ACTIVITY</u>

1. How many days do you work per week?.....Days

Please when answering the below questions, think about your usual/typical workday, while at work. Estimate all the activities performed during that usual/typical workday (including the lunch break) and the average duration.

2. During your working day, do you participate in vigorous activities, like (moving furniture/heavy boxes, heavy lifting etc...)

Yes ☐ No ☐

2a. If yes, state for how long (Min/Hours).....

3. During your working day, do you participate in moderate activities like (cleaning, sweeping pavement, washing windows, gardening etc...)

Yes ☐ No ☐

3a. If yes, state for how long (Min/Hours).....

4. During your working day, do you participate mostly in sitting activities like (writing, discussion (meeting), desk-work) or light activities like (carrying light load, walking on a level, climbing stairs etc...)

Yes ☐ No ☐

4a. If yes, state for how long (Min/Hours).....

PART V: PERSONAL EVALUATION OF PHYSICAL ACTIVITY

The world health organization, has recommended for every adult to engage in at least 30 minutes of physical activity of moderate intensity, every day or on most days of the week, in order to obtain health benefits.

1. Do you think you meet those guidelines?

Yes ☐ No ☐

2. Would you like to do (more, less, the same, don't know)

More ☐ Less ☐ The same ☐ Don't know ☐

THANK YOU FOR YOUR PARTICIPATION

APPENDIX F

QUESTIONNAIRE SUR L'INACTIVITE PHYSIQUE: RISQUE D'UN STYLE DE VIE SEDENTAIRE DES FEMMES TRAVAILLEUSES DE KIGALI.

INTRODUCTION:

Chère interlocutrice,

Ce questionnaire concerne l'étude sur l'activité physique "Risque d'un style de vie sédentaire des femmes travailleuses de Kigali."

Votre information nous permettra de mieux comprendre le niveau de participation des femmes travailleuses dans les activités physiques habituelles. Ceci, dans le but de concevoir plus tard, un plan sur la promotion de la santé relatif aux activités physiques des femmes travailleuses de Kigali.

Nous vous prions de bien vouloir répondre honnêtement et avec franchise à toutes les questions. Cela ne vous prendra que 20 à 30 minutes. Votre participation reste cependant volontaire. Il n'est pas nécéssaire de mentionner votre nom sur le présent questionnaire. L'information fournie restera confidentielle.

Jeanne Kagwiza

Kigali Health Institute
Physiotherapy Department
BP 3286
Tel: 572172
Cell/Mobile:08410021

APPENDIX G

Questionnaire:

Numéro du questionnaire.....Date.....

SECTION A: Données social- démographiques et économiques

INSTRUCTIONS

Répondez à toutes les questions.

Sélectionner une ou plusieurs réponses en cochant avec un **{v}** à la place appropriée dans les cases prévues.

Donnez les réponses écrites dans la place prévue.

1. Quel est votre âge? ☐

2. Quel est votre état civil?

Célibataire ☐
Mariée ☐
Séparée ☐
Divorcée ☐
Veuve ☐

3. Quel est votre niveau d'études?

Jamais été à l'école ☐
Ecole primaire, 1– 6 ☐
Ecole secondaire, 1 – 3 ☐
Ecole secondaire 4 – 6 ☐
Ecole supérieure ☐

4. Quelle est votre profession dans cette institution?

Nettoyeuse ☐
Réceptionniste ☐
Secrétaire ☐
Caissière ☐
Chef de département ☐
Autre (Spécifier).....

5. Quelle est votre revenue mensuelle (Salaire Net)?

Moins de 50.000 frw ☐

51.000 a 100.000 frw ☐

101.000 a 150.000 frw ☐

Plus de 150.000 frw ☐

6. A la maison, Combien de temps passez–vous par jour aux équipements de divertissement et de communication qui suivent? (Voir liste ci – dessous). Si vous ne disposez pas de ces équipements, Cochez N/A pour dire "Non appliqué", et si vous possédez ces équipements mais vous n'y passez pas votre temps, cochez aucune.

	N/A	Aucune	moins d'1h	1 – 3h	plus de 3h
Ordinateur	☐	☐	☐	☐	☐
Télévision/Vidéo	☐	☐	☐	☐	☐
Radio	☐	☐	☐	☐	☐
Téléphone fixe	☐	☐	☐	☐	☐
Téléphone mobile	☐	☐	☐	☐	☐
Jeux de table (carte, scrabbles, Dammes, monopoly, etc.)	☐	☐	☐	☐	☐

Autre (Spécifier) .....

7. Souffrez-vous d'une ou des maladies suivantes?

	Non	Oui
Hypertension artérielle	☐	☐
Diabète	☐	☐
Bronchite chronique	☐	☐
Asthme	☐	☐
Arthrite	☐	☐
ostéoporose	☐	☐
Lombalgie chronique	☐	☐
Trouble de comportement	☐	☐

Autre maladie (Spécifiez) .....

SECTION B

Instructions

Cette section concerne le temps que vous passez dans différentes sortes d'activités physiques. Il s'agit d'activités physiques relatives à votre travail, la marche faite en allant et en revenant du travail, ainsi que celles exercées à la maison et pendant votre temps libre. Nous vous prions de répondre à toutes les questions.

PARTIE I: Les activités physiques exercées pendant le temps libre et le temps de loisir.

Les questions ci – dessous concernent vos activités pendant votre temps libre ou temps de loisir. En répondant, référez – vous a votre récente activité physique en considérant seulement une semaine habituelle.

1. pendant votre temps de loisir ou temps libre, participez – vous dans les activités physiques énergiques comme le basket-ball, Football, volley-ball, aérobics, jogging, danse traditionnelle etc.

OUI ☐ NON ☐

1.a. Si oui, précisez le nombre de jours par semaine .....

1.b. La durée moyenne de la séance .....minutes/séance

2. Pendant votre temps de loisir ou temps libre, participez – vous dans les activités physiques modérées comme la marche rapide, natation, danse classique, gymnastique modérée, tennis de table etc.

OUI ☐ NON ☐

2.a. Si oui, précisez le nombre des jours par semaine .....

2.b. La durée moyenne de la séance .....minutes/séance

3. Pendant votre temps de loisir ou temps libre, participez-vous fréquemment dans les activités physiques exercées étant assise (regarder la télévision, écouter la radio, jouer les jeux de table comme carte, scrabbles etc.) ou activités légères (conduire une automobile, simple marche, etc.)

OUI ☐ NON☐

3.a. Si oui, précisez le nombre des jours par semaine.....

3.b. La durée moyenne de la séance.....minutes/séance

4. Parmis les éléments ci dessous, ya-t-il ceux qui vous empêchent de participer à une activité physique de loisir modérée ou énergique comme le basket-ball, le volley-ball, natation, marche libre, tennis de table etc....

(Cochez par **(V)** sur une ou plusieurs réponses.

	OUI	**NON**
Absence d'infrastructures (comme terrains de Sport salle de gymnastique etc.)	☐	☐
Manque de temps	☐	☐
Manque de motivation	☐	☐
Coût de transport	☐	☐
Manque d 'équipement de sport	☐	☐
Barrière culturelle (accoutrement de sport)	☐	☐
Manque de soutien familial	☐	☐
Avoir un problème de santé	☐	☐
Autres limitations (spécifiez).....	☐	☐

PARTIE II: <u>ACTIVITES FAMILIALES</u>

Les questions suivantes concernent les activités que vous exercez à la maison. En répondant, référez-vous à votre semaine habituelle.

1. Généralement quant vous êtes à la maison, participez-vous dans les activités énergiques comme: couper des bois, cultiver, puiser de l'eau, etc.

OUI ☐ NON ☐

1.a. Si oui, précisez le nombre des jours par semaine.....

1.b. La durée moyenne de la séance.....minutes/séance

2. Généralement quand vous êtes à la maison, participez-vous dans les activités modérées comme: nettoyer la maison, laver les habits avec les mains, laver les fenêtres et douches, jardiner, balayer la cour etc.

OUI ☐ NON ☐

2.a. Si oui, préciser le nombre des jours par semaine.....

2.b. La durée moyenne de la séance.....Minutes /séance.

3.Généralement quand vous êtes à la maison, participer-vous fréquemment dans les activités exercées étant assise (comme tressage, conversation, aider les enfants à faire les devoirs à domicile) ou dans des activités légères (comme faire la vaisselle, faire la cuisine, repasser les habits, laver les enfants, occupation personnelle (prendre une douche, se maquiller, faire la manucure et la pédicure etc.)

OUI ☐ NON ☐

3.a. Si oui, Précisez le nombre des jours par semaine.....

3.b. La durée moyenne de la séance.....minutes/séance

4.Si vous ne participez à aucune activité physique modérée à la maison quelles sont les raisons? (Cocher par V sur une ou plusieurs réponses).

Manque du temps ☐

Fatigue après le travail ☐

Avoir un domestique qui s'occupe des travaux ménagers ☐

Avoir des enfants pouvant s'occuper de ces travaux ☐

Avoir un membre de famille pouvant s'occuper de ces travaux ☐

Autre raison (Spécifier).....

III EME PARTIE: <u>ALLEZ A ET REVENIR DU TRAVAIL</u>

1. Allez-vous généralement au travail à pieds (même pour un petit parcours)?

OUI ☐ NON ☐

1.a. Si oui, cette marche vous prend combien de minutes?

1.b. Comment marchez-vous normalement?

Lentement ☐ Modérément ☐ Rapidement ☐

2. Marchez-vous généralement en revenant du travail (même pour un petit parcours)?

OUI ☐ NON ☐

2.a. Si oui, cette marche vous prend combien de minutes.....

2.b. Comment marchez-vous normalement?

Lentement ☐ Modérément ☐ Rapidement ☐

IVEME PARTIE: <u>ACTIVITES PHYSIQUES RELATIVES A L'OCCUPATION (votre profession)</u>

1. Combien de jours travaillez – vous par semaine? .....jours

En répondant aux questions ci-dessous, nous vous prions de vous référer à votre journée habituelle au travail. Estimez toutes les activités menées pendant cette journée habituelle (comprenant le repos de midi) et leur durée moyenne.

2. Pendant votre temps de travail journalier, participez – vous dans les activités énergiques (comme soulever des fournitures de bureau, mobiliers lourds etc.)

OUI ☐ NON ☐

2 a. Si oui, Précisez le temps que cela vous prends..... (minutes/heures)

3. Pendant votre temps de travail, participez – vous dans des activités modérées (comme nettoyer, balayer la cours, laver les fenêtres, jardiner, etc.)

OUI ☐ NON☐

3.a. Si oui, précisez le temps que cela vous prends .....(minutes/heures)

4. Pendant votre temps de travail, participez –vous fréquemment dans les activités exercées étant assise (comme écrire, discussion dans les réunions, travail de bureau) ou dans les activités légères (comme porter/soulever les poids légers, simple marche, monter et descendre les escaliers etc.)

OUI ☐ NON ☐

4.a. Si oui, précisez le temps que cela vous prends .....(minutes/heures)

VEME PARTIE: <u>EVALUATION PERSONNELLE DES ACTIVITES PHYSIQUES</u>

5. L'organisation mondiale de la santé, a recommandé à toute personne adulte d'exercer des activités physiques à une intensité modérée d'une durée de 30 minutes au moins, par jour ou sur plusieurs jours de la semaine, pour bénéficier d'une bonne santé.

5.a. Pensez-vous que vous respectez cette ligne de conduite?

OUI ☐ NON☐

5.b. Aimeriez – vous les pratiquer (beaucoup plus, moins que ça, même chose, je ne sais pas) ?

Plus ☐ moins ☐ même chose ☐ Je ne sais pas ☐

MERCI POUR VOTRE COOPERATION

APPENDIX H

Ibibazo ku bijyanye no"kudakora imirimo ntakazangufu": Ingaruka ku bari n'abategarugori bakorera muri Kigali.

Amabwiriza

Muvandimwe,
Ibibazo biri ku mugereka w'uru rwandiko, bijyanye n'ubushakashatsi ku ngaruka zo kudakora imirimo ntakazangufu ku bari n'abategarugori bakorera mu mugi wa Kigali. Ibisubizo byanyu bizadufasha kumenya uruhare abari n'abategarugori bakorera mu mugi wa Kigali bafite mu mirimo ntakazangufu ya buri gihe.

Ibi bizadufasha kandi mu gushiraho gahunda yo guteza imbere ubuzima ku bijyanye n'imirimo ntakanzangufu ku bari n'abategarugori bakorera mu mugi wa Kigali.

Twabasabaga gusubiza neza ibibazo, kandi ntibizanarenga igihe kiri hagati y'iminota 20 na 30. Gusubiza ibibazo ni k'ubushake bwanyu, kandi si ngobwa kwandika amazina yanyu.
Tubijejeko bisubizo muzatanga bizaba ibanga.

Turabashimiye.

Jeanne KAGWIZA

Kigali Health Institute
Physiotherapy department
BP 3286
Tel:572172
Cell/Mobile:08410021

APPENDIX I

IBIBAZO

Nimero y'ibibazo .....itariki .....

IGIKA CYA MBERE: IBIJYANYE N'IMIBEREHO, UBWIYONGERE N'UBUKUNGU BY'ABATURAGE

AMABWIRIZA

- Subiza ibibazo byose
- Shyira akamenyetso ka (V) ku gisubizo kimwe cyangwa se byinshi ku mwanya wateganyijwe.
- Tanga ibisubizo byanditse mu mwanya wateganyijwe

1. Ufite imyaka ingahe? ☐

2. Subiza kuri ibi bikurikira
   - Ingaragu ☐
   - Ndubatse ☐
   - Kutabana n'uwo twashakanye ☐
   - Natandukanye n'uwo twashakanye ☐
   - Umupfakazi ☐

3. Amashuli wize ni angahe?
   - Ntabwo nize rwose ☐
   - Amashuli abanza 1 – 6 ☐
   - Amashuli yisumbuye 1 – 3 ☐
   - Amashuli yisumbuye 4 – 6 ☐
   - Amashuli makuru ☐

4. Ukora akahe kazi muri iki kigo?
   - Gukora isuku ☐
   - Kwakira abantu ☐
   - Umunyamabanga ☐
   - Umubitsi ☐
   - Umuyobozi ☐
   - Ibindi (vuga muri make) .....

5. Muri rusange uhembwa angahe ku kwezi?

Hasi ya 50.000 frw	☐
51.000 – 100.000 frw	☐
101.000 – 150.000 frw	☐
Hejuru ya 150.000 frw	☐

6. Ukoresha igihe kingana iki mu rugo kubikoresho by'itumanaho no kwinezeza (kwidagadura) bikurikira?
   Niba utabifite shyira akamenyetso ka **(V)** ahakwiriye mu murongo wa ntacyo, niba ubifite ariko utabikoresha shyira ka **(V)** ahakwiriye mumurongo wa sinyikoresha.

Ibikoresho	Ntacyo	Sinyikoresha	Munsi y'isaha 1 – 3H	Hejuru ya 3H
Oridinateri				
Televiziyo/Video				
Radio				
Telefone yo munzu				
Telefone igendanwa				
Imikino yo kumeza (amakarita, scrabble, dame, monopoly, ...)				
Ibindi (bivuge muri make).....				

7. Waba ufite/warigeze uburwayi bukurikira?

Uburwayi	Yego	Oya
1. Indwara y'umutima	☐	☐
2. Diyabeti	☐	☐
3. Bronshite	☐	☐
4. Rubagimpande	☐	☐
5. Indwara z'amagufwa	☐	☐
6. Umugongo uhoraho	☐	☐
7. Uburwayi/ibibazo byo mutwe (depression)	☐	☐
8. zindi (zivuge muri make)		

IGIKA CYA KABIRI

Amabwiriza

Iki gika cyerekeye ku gihe mukoresha mumirimo ntakazangufu inyuranye. Muri iyo mirimo harimo iyo mukorera ku kazi, kujya no kuva ku kazi, imirimo mukora mu rugo, no mugihe mutari kukazi (mugihe cyo kwishimisha/Kwidagadura).

IGICE CYAMBERE: Imirimo ntakaza ngufu ikorwa mugihe kitari icyakazi n'icyo kwishimisha.

Ibibazo bikurikira bijyanye n'imirimo mukora mugihe kitari icy'akazi no kwishimisha. Mu gusubiza mutekereze ku minsi ishije, mufate icyumweru gisanzwe ho urugero.

1. Mugihe cyanyu cyo kwishimisha cyangwa se kitari icy'akazi mukora imirimo ntakazangufu ikaze nka basket, volley, umupira w'amaguru, imyitozo ngororamubiri, kwirukanka bidakabije, imbyino nyarwanda?

   Yego ☐ Oya ☐

1.a. Niba aribyo, uyikora iminsi ingahe mu cyumweru?

.....

1. b. Ugereranyije ukoresha igihe kingana iki buri nshuro? Iminota.....kunshuro

2. Mugihe cyangu cyo kwishimisha cyangwa se kitari icy'akazi, mukora imirimo ntakaza ngufu igereranyije (nko kugenda wihuta, koga mu mazi menshi, imbyino zisanzwe, n'imyitozo igereranyije, nka tenisi yo kumeza, n'ibindi .....)

   Yego ☐ Oya ☐

2.a. Niba aribyo, uyikora iminsi ingahe mu cy'umweru? .....

2.b. Ugereranyije ukoresha igihe kingana iki buri nshuro? Iminota.....kunshuro

3. Mu gihe cyanyu cyo kwishimisha cyangwa se kitari icy'akazi, mukora imirimo ntakazangufu cyane cyane mwicaye(nko kureba televiziyo, kumva radiyo, gukina imikino yo kumeza nk'amakarita, scrabble, ...) cyangwa se imirimo yoroheje (nko gutwara imodoka, kugenda buhoro, n'ibindi .....)

   Yego ☐ Oya ☐

3.a. Niba aribyo, uyikora iminsi ingahe mu cyumweru?

.....

3.b. Ugereranyije ukoresha igihe kingana iki buri nshuro? Iminota.....kunshuro

4. Mu bintu bikurikira hari ikibabuza gukora imirimo ntakazangufu, igereranyije mugihe Runaka cyo kwishimisha nk'ibyavuzwe haruguru kuri (1) no kuri (2). (shyira akamenyetso ka **(V)** ku gisubizo kimwe cyangwa byinshi)

Ikikubuza gukora imirimo ntakaza ngufu	Yego	Oya
Kubura uburyo (ibibuga by'imikino uburyo bwo gukora imikino	☐	☐
Ngororangingo, inzira y'abanyamaguru, n'ibindi .....)	☐	☐
Kubura igihe	☐	☐
Kubura inkunga	☐	☐
Urugendo ruhenze	☐	☐
Kubura ibikoresho bya siporo	☐	☐
Imbogamizi z'umuco (ko kutambara ibigufi)	☐	☐
Kubura inkunga y'umuryango	☐	☐
Kugira ibibazo by'ubuzima	☐	☐
Izindi mbogamizi, (zivuge murimake .....)		

IGICE CYA KABIRI : <u>Imirimo yo mu rugo</u>

Ibibazo bikurikira bijyanye n'ibyo mukora mu rugo. Mu gusubiza mutekereze ku minsi ishize, mufate icyumweru gisanzwe ho urugero.

1. Ubusanzwe iyo muri mu rugo, hari imirimo ikomeye mukora (nko kwasa inkwi, guhinga, kuvoma n'ibindi .....)

   Yego ☐ Oya ☐

1.a. Niba aribyo, uyikora iminsi ingahe mucyumweru? .....

1.b. Ugereranyije ukoresha igihe kingana iki buri nshuro? Iminota.....kunshuro

2. Ubusanzwe iyo muri murugo, mukora imirimo yoroheje (nko gusukura inzu, kumesa n'intoki, koza amadirishya/urwiyuhagiriro, gukora mu busitani, gukubura imbuga, n'ibindi .....)

   Yego ☐ Oya ☐

2.a. Niba aribyo, uyikora iminsi ingahe mu cyumweru?.....

2.b.Ugeranyije ukoresha igihe kingana iki buri nshuro? Iminota.....kunshuro

3. Ubusanzwe iyo muri murugo, akenshi mukora imirimo isaba kwicara (nko gutunganya imisatsi, kuganira, gufasha abana gukora imikoro n'ibindi .....) cyangwa n'imirimo yoroheje (nko koza ibikoresho byo mu gikoni, gutera ipasi, guteka, kwita kubana no kwiyitaho).

Yego ☐ Oya ☐

3.a. Niba aribyo, uyikora iminsi ingahe mu cyumweru?.....

3.b. Ugereranyije ukoresha igihe kingana iki buri nshuro? Iminota.....Kunshuro

4. Niba nta murimo n'umwe ukora ntakazangufu woroheje ukora, biterwa niki?(shyira akamenyetso ka(V) ku gisubizo kimwe cyangwa byinshi).

Kubura igihe ☐
Kunanirwa nyuma y'akazi ☐
Kugira umukozi wo mu rugo ubikora ☐
Kugira abana bashobora kubikora ☐
Kugira abavandimwe bashobora kubikora ☐
Inzindi mpanvu.....
.....

IGICE CYA GATATU : Kujya no kuva ku kazi

1. Ubusanzwe mujya ku kazi n'amaguru, (niyo byaba ari agace k'urugendo)?

Yego ☐ Oya ☐

1.a. Niba aribyo, ukoresha igihe kingana iki ugenda n'amaguru?.....

1.b. Ubundi ugenda kubuhe buryo?

Buhoro ☐
Uburyo busanzwe ☐
Nihuta ☐

2.Iyo uva ku kazi ugenda n'amaguru (Niyo byaba ari agace k'urugendo)?

Yego ☐ Oya ☐

2.a. Niba aribyo, ukoresha igihe kingana iki ugenda n'amaguru?

2.b. Ubundi ugenda ubuhe buryo?

Buhoro ☐
Uburyo busanzwe ☐
Nihuta ☐

IGICE CYA KANE: Imirimo ntakazangufu ijyanye n'akazi

1. Mukora iminsi ingahe mu cyumweru?.....

Mugusubiza ibibazo bikurikira, mutekereze k'umunsi ushize, mufate umunsi usanzwe ho urugero muri ku kazi, gereranya imirimo yose ukora kuri uwo munsi(mushyizemo n'igihe cyo kuruhuka cya saa sita)n'igihe imara

2. Mu gihe cyawe cy'akazi, ukora imirimo y'ingufu (nko guterura ibikoresho biremereye, n'ibindi.....)?

Yego ☐ Oya ☐

2.a. Niba aribyo, bigufata igihe kingana iki?.....Iminota, amasaha.

3. Mu gihe cyawe cy'akazi, ukora imirimo yoroheje(nko gukora isuku, gukubura imbuga, koza amadirishya, gukora mu busitani, n'ibindi.....)?

Yego ☐ Oya ☐

3.a. Niba aribyo, bigutwara igihe kingana iki?.....Iminota, amasaha.

4. Mugihe cyawe cy'akazi, ukora imirimo wicaye(nko kwandika, ibiganiro mpaka, akazi ko mubiro) cyangwa imirimo yoroheje(nko guterura ibintu bitaremereye, kugenda ahantu haringaniye, kuzamuka escaliers, n'ibindi.....)?

Yego ☐ Oya ☐

4a. Niba aribyo, bigutwara igihe kingana iki?.....Iminota, amasaha.

IGICE CYA GATANU: Igenzura bwite ry'mirimo ntakazangufu

Umuryango mpuzamahanga wita k'ubuzima, wasabye buri muntu wese ukunze gukora imirimo ntakazangufu k'uburyo buringaniye,(mugihe byibura cy'iminota 30), ku munsi cyangwa iminsi myinshi mu cyumweru, kuko bifite akamaro kubuzima.

1. Mutekeraza ko mwubahiriza ayo mabwiriza?

Yego ☐ Oya ☐

2. Mwe se mwumva mwakora mute?

Birenze ☐

Nkibyateganyijwe ☐

Hasi yaho ☐

Simbizi ☐

MURAKOZE CYANE

APPENDIX J

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Telephone: (021) 959-2542/6 Fax: (021) 959-1217 e-Mail: mmarais@uwc.ac.za

DEPARTMENT OF PHYSIOTHERAPY

Kigali Health Institute
Physiotherapy
BP 3286
Tel: 572172
Cell/ Mobile: 08540371
DEPARTMENT OF PHYSIOTHERAPY

2003-06-24

Banks and Insurance Companies

Dear Madam,

Re: Invitation to a focus group discussion

Following a letter to your company requesting your nomination of participants for a focus group discussion, I am formally inviting you to come for a focus group discussion.

Date: Saturday 28/06/2003
Venue: Gymnasium – Physiotherapy Department, Kigali Health-Institute.
Time: 10.00am-11.00am
Participants will include women from the Ministry of Gender and Women in Development and women from certain banks and insurance companies in Kigali.

Your participation will be highly appreciated.
Thanking you in advance
Yours sincerely,
Jeanne Kagwiza

APPENDIX K

UNIVERSITY *of the* WESTERN CAPE

Private Bag X17 **Bellville 7535** South Africa
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DEPARTMENT OF PHYSIOTHERAPY

DEPARTMENT OF PHYSIOTHERAPY

2003-06-24

Ministry of Gender and Women in Development

Dear Madam

Re: invitation to a focus group discussion

Following a letter to your Ministry requesting your nomination of participants for a focus group discussion, I am formally inviting you to come for a focus group discussion.

Date: Saturday 28/06/2003
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Your participation will be highly appreciated.
Thanking you in advance.
Yours sincerely,
Jeanne Kagwiza

APPENDIX L

FOCUS GROUP DISCUSSION GUIDE

1. What the word physical activity means to you?

PROBE:

- Please mention some kinds of physical activities that you know?
- What types of physical activities are you involved in?
- Where these activities take place?
- How often do you participate in physical activity?

2. What are the benefits of physical activity to your health?

PROBE:

- How do you feel after doing any physical activity like washing clothes, cleaning house, swimming, walking, aerobics, and so forth?

3. What makes it easier for you to participate in any physical activity program?

PROBE:

-What would motivate you to be involved in physical activity?

-What would encourage you to continue with physical activity program once you start?

- Who would motivate you to do physical activity?
- What would encourage you to continue a physical activity program once started?
- Tell us about any facilities for physical activities available in your community

4. What prevents you or any other woman like you from participating in physical activity?

PROBE:

- What incentives our culture provides you or any woman for starting a physical activity program?

5. Give me your opinions or views on what can be done to promote physical activity participation in your communities

PROBE:

-What needs to be done in order to start a physical activity program?

-Who should take responsibility for the program?

-What would be your contribution in such program?

I appreciate your time and contribution to this endeavor

Thank you

APPENDIX M