

**PHYSICAL ACTIVITY IN THE LIVES OF TWO  
GENERATIONS OF BLACK PROFESSIONAL WOMEN  
IN THE NELSON MANDELA METROPOLITAN  
MUNICIPALITY**

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## ABSTRACT

The association between physical inactivity, adverse health and hypokinetic diseases has been widely researched. There is an increased risk of being overweight, and of developing certain chronic diseases and suffering premature death associated with physical inactivity (Young, Miller, Wilder, Yanek & Becker, 1998).

Recent surveys and studies have revealed that the majority of the South African population has moved extensively along the epidemiological transition towards a disease profile related to Western lifestyle, where deaths due to chronic diseases of lifestyle is a great cause for concern (Steyn, 2006). Black women, in particular, have been identified as a high risk group with the highest levels of inactivity and the highest levels of overweight and obesity in the country (SADHS, 1998; WHO, 2005).

Although there is a growing body of knowledge and research on physical activity in general, there is still a lack of data on the determinants and barriers to participation in physical activity (Lambert & Kolbe-Alexander, 2006). Cultural patterns and economic, political and ideological orders affect the participation of women in sport (Hargreaves, 1994:5). Black women in South Africa have been disadvantaged by the past government's policy of apartheid, and have also been marginalized and oppressed in their own patriarchal societies. The first democratically elected government in 1994, however, committed itself to gender equality and women's emancipation, with constitutional guarantees on equality and an affirmative action policy to address gender inequalities. In order to evaluate the extent of the beneficial impact of these political changes in women's lives, this study proposed to investigate physical activity patterns in the lives of two generations of black professional women (teachers, nurses, social workers and public managers) from the Nelson Mandela Metropolitan Municipality.

The objectives that guided the research were:

- To describe and compare the physical activity patterns and health status of two generations of black women through questionnaires, physical activity records and mechanical devices.
- To explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants.

- To explore and describe the participants' perceptions and attitudes, motivations and constraints relating to physical activity.
- To use the research findings to compile guidelines to promote physical activity participation among black women.

A mixed method approach using both quantitative and qualitative methods was selected to achieve an holistic understanding of physical activity in the lives of black South African women. The older generation (OG) of professional women was comprised of community teachers, nurses, social workers and public managers (n=111, aged 35 to 45 years, mean age = 39.87 years). These women, through their occupations, were in constant contact with the community and could be regarded as role models who influence community lifestyle, attitudes and behaviour. The younger generation (YG) (n=69, aged 18 to 21 years, mean age = 20.12 years) was comprised of teaching, nursing, social work and public management students in the Nelson Mandela Metropolitan Municipality.

The objective of the quantitative section of the study was to provide baseline information on the physical activity patterns and health status of these two generations of black professional women. Physical activity and health questionnaires were administered and the ActiGraph GT1 accelerometer was used to provide an objective measure of energy expenditure. The objective of the qualitative data collection was to explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants, and to investigate their attitudes to and perceptions of physical activity, and their motivations and constraints related to it. In-depth qualitative interviews were held with the participants who wore the ActiGraph, and a group of 47 were interviewed (sample size determined by data saturation from the interviews).

An explorative-descriptive research design was used in the study. The sampling method was purposive and criterion-based. The younger generation of students were mostly selected from the various campuses of the Nelson Mandela Metropolitan University, while additional student nurses were recruited from the Lilitha Nursing College in the Nelson Mandela Metropolitan Municipality. The older generation of professionals were recruited from schools and clinics in the areas of New Brighton, Kwa-Zakhele, Zwide, Motherwell and Kwa-Nobuhle (all historically black areas), the Eastern Cape Department of Social Development, non-government organizations and the Nelson Mandela Metropolitan Municipality.

The quantitative data were analysed by means of descriptive and inferential statistics. The qualitative data was analysed according to the steps described in Creswell (2003).

The results of the quantitative data indicated that prevalence of overweight and obesity among both the YG and OG was high. The mean BMI for the YG and OG were 24.71 kg/m<sup>2</sup> and 31.27 kg/m<sup>2</sup>, respectively, with 41% of the YG and 86% of the OG falling into the overweight/obesity category. BMI was significantly greater ( $p < .05$ ) for the OG than for the YG. In addition, both the OG and YG had satisfactory scores for the health-related behaviour measures (the Belloc and Breslow Lifestyle Index and the HPLP).

All the physical activity measurements (the FIT Index of Kasari, the GPAQ and the ActiGraph data) confirmed that both the YG and OG were not sufficiently physically active. They did not meet the Centre of Disease Control (CDC) and American College of Sports Medicine (ACSM) recommendation of engaging in at least 30 minutes of moderate-intensity physical activity on most, or preferably all, days of the week. The YG were significantly more active than the OG in all the physical activity measuring instruments. They were still, however, not reaching the health enhancing physical activity (HEPA) level ( $\geq 7$  days of any combination of moderate and vigorous activity,  $\geq 3000$  METmins/week).

Pearson Product Moment correlations were calculated to determine the relationship among the various measurements of physical activity on the one hand and the relationship between the measurements of physical activity and the health-related behaviour measurements on the other hand. The correlational analyses highlighted a good cross-validation of the various measures of physical activity. There was a significant correlation between the measures of leisure time physical activity, that is the FIT Index, and the leisure domain of the GPAQ. There was also a significant relationship in the area of walking or steps taken, that is the ActiGraph steps and the GPAQ transport domain. There was also a significant relationship between the overall measures of physical activity, that is the GPAQ total score, and the ActiGraph calories. The correlations between the various physical activity and health related behaviour measures revealed that only the leisure related physical activity measurements, that is, the FIT index and the GPAQ leisure domain, had a significant correlation with the two health related behaviour measures, namely the Belloc and Breslow Lifestyle Index and the HPLP, respectively.

The results from the qualitative data revealed that both the OG and YG had positive attitudes towards physical activity participation (displayed by their awareness of the many benefits, their expressed intention to start exercising, the encouragement given to their children in relation to physical activity participation), even though the majority of them were not active on a regular basis. Participants recognized the educational, recreational and developmental importance of being physically active, a shift in attitude from their own upbringing and lifestyles.

Regardless of how firmly people may believe that physical activity is beneficial to their health, there are many barriers, whether real or perceived, that represent significant potential obstructions to the adoption, maintenance, or resumption of participation in physical activity (Booth *et al.*, 1997). Three sub-themes were identified in relation to the barriers to physical activity participation, namely personal factors, environmental factors and socio-cultural factors. The personal factors included time constraints, stress and tiredness, lack of motivation, negative school experiences, negative associations with exercise and financial constraints. The environmental factors included residential areas, availability of recreation and sports facilities, and safety. The socio-cultural factors were lack of social support, exercise “not being a part of African culture”, traditional roles of males and females, dress code, exercise associated with the young, exercise associated with undesirable weight loss and negative comments by the community. On the basis of research findings, guidelines were drawn up for the promotion of physical activity participation among black women.

Keywords: physical activity, black women, attitudes, perceptions, motivations, barriers, energy expenditure

# CHAPTER 1

## INTRODUCTION

### 1.1 INTRODUCTION

This study focuses on physical activity in the lives of black professional women. It specifically investigates the physical activity levels, the attitudes towards and perceptions of physical activity, the health status, and the motivations and constraints related to participation in physical activity of two generations of black women in the Nelson Mandela Metropolitan Municipality. This introductory chapter contextualises the study by providing a succinct summary of its rationale, its importance and its relevance to the field of physical activity and women's health. The aims and objectives of the study are delineated, followed by the scope of the study, the terminology and a brief outline of the remaining chapters.

### 1.2 CONTEXTUALISATION OF THE STUDY

The human species is structured for movement, and for thousands of generations physical demands have been a part of everyday life as humans lived as hunters, gatherers, farmers and artisans (Sparling, Owen, Lambert & Haskell, 2000). There has been a marked decline in habitual physical activity with modernization: automation and technology have freed many people in developed countries from heavy physical work and manual labour (Simpson, 1989). This, coupled with the growth of passive forms of entertainment and interaction (video games, television, mobile phones and the Internet), has decreased physical activity demands so dramatically as to be nearly non-existent in industrialized and urbanized environments (Sparling *et al.*, 2000). It has become increasingly clear that many of the chronic diseases found in developed countries today are associated fundamentally with the pervasive sedentariness of modern life (Sparling *et al.*, 2000). This disturbing trend has also manifested itself in the developing world and has been reported in recent studies conducted by the World Health Organization (WHO, 2003, 2004, 2005).

The association between physical inactivity, adverse health conditions and hypokinetic diseases has been widely researched. There is an increased risk of being overweight, and of developing certain chronic diseases and suffering premature death associated with physical inactivity (Young, Miller, Wilder, Yanek & Becker, 1998). Results of the largest global study on heart disease released by the WHO in September 2003 indicate, that more than half (8.6 million) of the 16.5 million worldwide who die of heart disease every year are women. Heart attacks and strokes are responsible for twice as many deaths in women as all cancers combined. The Heart Foundation of South Africa has confirmed this trend (Health Systems Trust, 2004).

The growing health risks associated with physical inactivity in the black population were highlighted by studies conducted more than ten years ago (Steyn, Jooste, Bourne, Fourie, Badenhorst, Bourne, Langenhoven, Lombard, Truter, Katzenellenbogen, Marais & Oelofse, 1991; Sparling, Noakes, Steyn, Jordaan, Jooste, Bourne & Badenhorst, 1994; Mollentze, Moore, Steyn, Joubert, Steyn, Oosthuizen & Weich, 1995). Later studies confirmed these findings (Vorster, Wissing, Venter, Kruger, Kruger, Malan, de Ridder, Veldman, Steyn, Margetts & Macintyre, 2000; Kruger, Venter & Vorster, 2001). Increasing urbanization, industrialization and the adoption of a more Western lifestyle has resulted in the escalation of chronic diseases of lifestyle (CDL) in South Africa in recent years, accounting for nearly 40% of adult deaths (Bradshaw, Groenewald, Laubscher, Nannan, Nojilana, Norman, Pieterse, Schneider, Bourne, Timaeus, Dorrington, Johnson, 2003). Obesity in South Africa was researched through the South African Demographic and Health Survey, 1998, the most geographically comprehensive, multi-ethnic measurement of anthropometric patterns in South Africa (Puoane, Steyn, Bradshaw, Laubscher, Fourie, Lambert & Mbananga, 2002). The results indicated that 29.2% of men were overweight or obese and 9.2% had abdominal obesity, whereas 56.6% of women were overweight or obese and 42% had abdominal obesity. Obesity was shown to increase with age and relatively higher levels of obesity were found in urban African women. The highest rates of abdominal obesity were found in white urban men and in urban African and mixed-ancestry women. This type of obesity has been shown to have more adverse health consequences than peripheral obesity, and

predisposes individuals to develop hypertension, diabetes mellitus, cardiovascular disease and stroke (Puoane *et al.*, 2002).

A number of studies have been conducted on the physical activity and leisure patterns of South Africans, beginning in the early eighties with studies on the recreation patterns in the various metropolitan areas in South Africa (Van der Wal & Steyn, 1981; Taljaard, 1985; Taljaard, 1986; Wilson & Hattingh, 1989). In the nineties, studies focussed on physical activity and its implications for health-promotion (Sparling *et al.*, 1994; Levitt, Steyn, Lambert, Reagon, Lombard, Fourie, Rossouw & Hoffman, 1999; Kruger, 1999), and at the beginning of the new century, there were broader initiatives with the first national survey of time use (Statistics South Africa, 2001) and studies which formed part of the WHO investigation into physical activity (WHO, 2005). The WHO survey found that less than one third of South Africans met the American College of Sports Medicine and Centres for Disease Control recommendation for health-enhancing physical activity (to accumulate 30 minutes of moderate activity on most, but preferably all days of the week), and that nearly half (46%) were reportedly inactive (WHO, 2005). These studies have highlighted a growing trend of non-active leisure pursuits and low levels of physical activity among adults, children, youth and women, and particularly among black women in South Africa.

In South Africa, where women constitute the majority of the population, only 23% participate in sport (SISA, 2000), and this drops to 10.8% for black women (Kruger, Venter & Vorster, 2003). According to the South African Demographic and Health Survey (SADHS), 1998, about 29% of men and 56% of women are overweight, with the highest rate occurring among African women (Department of Health, 2002a). According to the Heart Foundation, South Africa has a higher ratio of overweight women than the U.S. (Health Systems Trust, 2004). The physical activity patterns, attitudes and perceptions towards sport participation of black women are therefore an important concern in the sport, recreation and health fields.



The release of the report "Physical Activity and Health: A Report of the Surgeon General" in 1996 highlighted the declining health status of Americans due to inactivity and sedentary lifestyles and stimulated much research in the field (U. S. Department of Health and Human Services, 1996). Many of these studies have highlighted the complexities surrounding physical activity participation and the importance of researching the physical activity behaviour of women and other marginalized people who are at risk (Henderson & Ainsworth, 2003).

Although there is a growing body of knowledge and research on physical activity in general, there is still a lack of data on the determinants and barriers to participation in physical activity (Lambert & Kolbe-Alexander, 2006). Cultural patterns and economic, political and ideological orders affect the participation of women in sport (Hargreaves, 1994:5). Black women in South Africa have been disadvantaged by the past government's policy of apartheid, and have also been marginalized and oppressed in their own patriarchal societies. According to Roberts (1992:3), the majority of black South African women suffer triple oppression on the basis of their class, colour and gender. Gender discrimination was not simply a secondary aspect of racial inequality. Women of all races faced some degree of state-sanctioned discrimination, since legislation – ranging from educational options and tax codes to pensions – re-created women's subordination by assuming their dependence on male breadwinners (Seidman, 1999). Even in the anti-apartheid community, democratic goals seemed at times to embrace a domestic vision for black women rather than calling for autonomous citizenship and political participation as gendered individuals (Seidman, 1999). The first democratically elected government in 1994, however, committed itself to gender equality and women's emancipation, with constitutional guarantees on equality and an affirmative action policy to address gender inequalities.

The extent to which this policy change has impacted on women's lives, particularly the lives of the black woman, is debateable, as the legacies of colonialism and apartheid, as well as historical and cultural patriarchy, still shape women's lives, both in the generation that was mature in 1994, and the younger generation who have been growing to

maturity under the new dispensation. Patterns of social change do not emerge immediately with legislated change, but manifest over time. The poorer black communities seem especially vulnerable to this socio-economic drag. In order to evaluate the extent of the beneficial impact of these political changes in women's lives, this study will conduct comparative quantitative and qualitative research related to physical activity, on two generations of teachers, nurses, social workers and public managers. These women, through their occupations, are in constant contact with the community and could be regarded as role models who influence community lifestyle, attitudes and behaviour. The older generation would have spent their formative years under the old apartheid system, subjected to the discriminatory laws and practices which encompassed migrant labour, segregation, forced removals and limited opportunities and resources, and would have been fairly mature when change was promulgated in 1994. The younger generation would have spent their formative years under a democratically elected government which is committed to gender equality, and free from the legislative constraints of apartheid, if not from social, economic and cultural constraints. The study will examine physical activity in the lives of these two generations of black urban women in a changing society: it aims to understand the complex dynamics and contexts of physical activity, and compile guidelines for its promotion.

### **1.3 AIM AND OBJECTIVES**

The primary aim of this research is to investigate physical activity patterns in the lives of two generations of black professional women from the Nelson Mandela Metropolitan Municipality. More specifically, the objectives are to:

- Describe and compare the physical activity patterns and health status of two generations of black women through questionnaires, physical activity records and mechanical devices.
- Explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants.

- Explore and describe the participants' perceptions and attitudes, motivations and constraints in relation to physical activity.
- Use the research findings to compile guidelines to promote physical activity participation among black women.

#### **1.4 SCOPE OF THE STUDY**

The study commenced in 2005 after all the necessary approvals for conducting it were obtained from the Advanced Degrees Committee of the Faculty of Health Sciences and the Human Ethics Committee of the Nelson Mandela Metropolitan University.

A mixed method approach using both quantitative and qualitative methods was selected to achieve an holistic understanding of physical activity in the lives of black South African women. Due to this mixed method approach being used, the research was divided into two distinct parts: a quantitative section and a qualitative section. Furthermore, in order to assess change across generations, the study researched two groups of professional black women residing in the Nelson Mandela Metropolitan Municipality. The older generation of professional women was comprised of community teachers, nurses, social workers and public managers (n=111, aged 35 to 45 years). These women, through their occupations, were in constant contact with the community and could be regarded as role models who influence community lifestyle, attitudes and behaviour. The younger generation (n=69, aged 18 to 21 years, all professionals in training) was comprised of teaching, nursing, social work and public management students in the Nelson Mandela Metropolitan Municipality.

The objective of the quantitative section of the study was to provide baseline information on the physical activity patterns and health status of these two generations of black professional women. Physical activity questionnaires were administered to obtain the following data:

- Demographic information (including the measurement of height and weight);
- The Belloc and Breslow (1972) lifestyle index;

- The Health-Promoting Lifestyle Profile (HPLP) (Walker, Sechrist & Pender, 1987);
- The Global Physical Activity Questionnaire (GPAQ) (Bull, 2003);
- The FIT (Frequency, Intensity, Time) Index of Kasari (Heyward & Stolarczyk, 1996).

A random sample of 70 participants was selected to wear a motion sensor, the ActiGraph GT1 accelerometer, which was used to record energy expenditure.

The collection of the qualitative data commenced after the collection of the quantitative data. The objective of the qualitative data collection was to explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants, and investigate their attitudes to and perceptions of physical activity, and motivations and constraints related to it. In-depth qualitative interviews were held with the participants who wore the ActiGraph, and a group of 47 was interviewed (sample size determined by data saturation from the interviews).

Pertinent information from the questionnaires and accelerometer data was used as well as the themes and sub-themes from the interviews. The purpose was to triangulate the quantitative data with the qualitative data to obtain a broad picture of the socio-cultural context of women's lives so that their physical activity patterns might be understood against social and personal imperatives, ultimately leading to a greater understanding of the role of physical activity in the lives of South African women.

## 1.5 TERMINOLOGY

There are varying definitions of “physical activity”, “exercise”, “recreation” and “leisure”. To avoid any confusion, definitions of these, as well as other terminology frequently used in the study are provided below.

**Physical Activity** – “any bodily movement produced by the skeletal muscles which results in energy expenditure” (Casperson, Powell & Christenson, 1985). It includes, but

is not limited to, occupational, sports, exercise, household, or other daily and leisure activities (Dishman, Washburn & Heath, 2004: 34).

**Exercise** – a subset of physical activity: planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness (Casperson *et al.*, 1985).

**Leisure-time physical activity** – physical activity undertaken during free time for fun and enjoyment.

**Recreation** – any activity pursued during leisure, either individual or collective, that is free and pleasurable, having its own immediate appeal, not impelled by a delayed reward. Recreation can include an extremely wide range of activities such as sports, games, crafts, music, dramatics and hobbies (Edginton, Hudson, Dieser & Edginton, 2004:10).

**Township** – in South African usage, refers to underdeveloped urban residential areas that, under apartheid, were predominantly reserved for “non-whites” (principally black Africans and coloureds). These townships, administered by a national department, were usually overcrowded, with small plots, poor infrastructure and very few public open spaces and parks.

**Suburbs** – in the South African context, refers to more developed residential areas, with better amenities, bigger plots, better roads and verges and usually with public open spaces and parks. In the apartheid era suburbs, administered by local municipalities, were reserved for Whites.

**Black** – in South Africa during the apartheid era, the population was classified into four groups: black (African), white, Asian (mostly Indian), and coloured (in the South African context, this hold-all term referred to any people who were not white, and were of mixed race, although it also included groups such as the Khoi-san, and people who descended

from foreign slaves, largely of Malaysian extraction: it basically referred to anyone who was not classified “black”, “Asian” or “white”). These official classifications were challenged by anti-apartheid groups who referred to all disadvantaged (that is, not white) groups as “black”. Recently, new racial classifications have been used officially in order to track demographic changes and transformation processes. Given these contested meanings, the terms are problematic. For the purpose of this study, “black”, when used to describe people, refers to black Africans and excludes Asian and coloured people.

## **1.6 OUTLINE OF THE CHAPTERS**

To further contextualise the study within the broad fields of health, sport and recreation, Chapter 2 gives an overview of physical activity, research in South Africa, in relation to adults in general, children and youth, and women specifically. In this chapter, the added dimension of physical activity and health is discussed, with specific emphasis on South African studies related to physical activity and various health variables. The historical, socio-cultural and gender issues affecting women and sports participation are also discussed. The chapter concludes with a summary and justification for this study.

Chapter 3 outlines the research methodology employed in the study. The chapter includes a discussion on the research design, sampling methods, data collection procedures and data analysis techniques used.

Due to the nature of the research design, the results and discussion are spread over Chapters 4 and 5. Chapter 4 focuses on the results and discussion of the quantitative data analysis and Chapter 5 on the qualitative data analysis.

The concluding chapter, Chapter 6, summarizes the major findings of the study, and discusses the resulting implications and limitations of the findings. Based on the findings and implications thereof, guidelines to promote physical activity participation among black professional women in South Africa are also provided.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 INTRODUCTION

There is a growing concern that many of the chronic diseases societies face today are associated fundamentally with the pervasive sedentariness of modern life (Sparling *et al.*, 2000). The association between physical activity, adverse health and hypokinetic diseases has been widely researched. There is an increased risk of being overweight, and of suffering certain chronic diseases and premature death associated with physical inactivity (Young *et al.*, 1998). Recent surveys and studies have revealed that the majority of the South African population has moved extensively along the epidemiological transition towards a disease profile related to Western lifestyle, with more deaths due to chronic diseases of lifestyle (Steyn, 2006). Black women, in particular, have been identified as a high risk group, with the highest levels of inactivity and the highest levels of overweight and obesity in the country (SADHS, 1998; Kruger, Venter, Vorster & Margetts, 2002). The physical activity patterns, attitudes and perceptions towards sport participation among black women are therefore an important concern of the sport, recreation and health fields.

This chapter gives a broad overview of physical activity, its meaning and measurement, and research in South Africa, in relation to adults, to children and youth, and to women. There is a discussion on physical activity and health, with specific emphasis on South African studies related to physical activity and various health variables, and on South African initiatives aimed at increasing participation in physical activity. Black women in South Africa have been affected by the complex political history of the country and by socio-cultural conditions in a patriarchal society, and this has necessitated a discussion on historical, socio-cultural and gender issues in sports participation. The chapter concludes with a summary and justification for the study.

## 2.2 PHYSICAL ACTIVITY – ITS MEANING AND MEASUREMENT

Physical activity is defined as “any bodily movement produced by skeletal muscle that results in energy expenditure” (Casperson *et al.*, 1985). It includes, but is not limited to, occupational, sports, exercise, household, or other daily and leisure activities (Dishman, Washburn & Heath, 2004: 34). Regular physical activity has long been regarded as an important component of a healthy lifestyle. With the growing burden of noncommunicable diseases in both developed and developing countries, the World Health Organization (WHO) Global Strategy on Diet, Physical Activity and Health has encouraged governments to adopt action plans in relation to the treatment and prevention of noncommunicable diseases (WHO, 2004). Unhealthy diets and physical inactivity are among the leading causes of noncommunicable diseases (WHO, 2004).

The Centres for Disease Control and Prevention (CDC) and the American College of Sports Medicine (ACSM) have reviewed the pertinent scientific evidence and developed a clear, concise public health message regarding physical activity: adults should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all, days of the week (Pate *et al.*, 1995). This recommendation emphasizes the health benefits of moderate-intensity physical activity, and the accumulation of physical activity in intermittent, short bouts. Moderate-intensity physical activity refers to a level of effort in which a person should experience some increase in breathing or heart rate, a "perceived exertion" of 11 to 14 on the Borg scale, 3 to 6 metabolic equivalents (METs); or any activity that burns 3.5 to 7 kilocalories per minute (kcal/min) (CDC, 2007).

The relationship between the lack of physical activity and the prevalence of chronic diseases has led to the search for accurate and reliable measures of physical activity (Wood, 2000), and more specifically to the development of improved methods for assessing habitual physical activity and energy expenditure in free-living people (Ainsworth, Montoye & Leon, 1994: 146). Physical activity is regarded as a multi-dimensional construct that includes variables such as frequency, intensity, duration, and



circumstance (Montoye, Kemper, Saris & Washburn, 1995). Adding to its complexity are the many domains in which physical activity may take place, namely, leisure-time physical activity, gardening or yard work, household chores, transport or moving from place to place, and occupational physical activity (Booth, 2000).

The various methods that have been used to estimate or measure physical activity and energy expenditure each have their own advantages and disadvantages. These methods include heart rate, ventilation, electromyographs, calorimetry, blood pressure, biomechanical techniques, observation and time/motion analyses, diaries, questionnaires, interviews, recording of physical response to activity, portable monitoring devices such as pedometers and accelerometers, and doubly labelled water (Montoye, 2000). Much has been researched and written on these various methods (Bassett, 2000; Wood, 2000; Dishman *et al.*, 2004), but for the purposes of this discussion, the focus is on physical activity questionnaires and motion sensors (with specific emphasis on the accelerometer) which, according to Tudor-Locke & Myers (2001), are “arguably the most practical ways to quantify (or categorise) physical activity behaviours for both population-level surveillance studies and clinical and programme applications”. These methods are also the most feasible for the assessment of physical activity in the field. Direct measures such as the doubly labelled water method (considered the most accurate measure of daily energy expenditure), calorimetry and observation are less feasible due to expense and/or burden to the individual (Tudor-Locke & Myers, 2001; Dishman *et al.*, 2004).

Self report questionnaires or interviews have been the most practical, and most widely used, method for measuring physical activity, particularly for scientific inquiry and surveillance studies. This method is time- and cost- efficient (Dishman *et al.*, 2004). Many instruments have been developed over the years, and they differ on several important factors such as the time period over which activity is assessed, type of activity assessed, length of the questionnaire and outcome measurement (Dishman *et al.*, 2004). The more commonly used questionnaires are the Minnesota Leisure Time Physical Activity Questionnaire, the Harvard Alumni/Paffenbarger Physical Activity

Survey, and the Stanford Seven-Day Physical Activity Recall Interview (Dishman *et al.*, 2004). A weakness related to questionnaires (in addition to relying on self-report) is the tendency of individuals to overestimate participation in vigorous activity and underestimate participation in light-to-moderate-intensity activities (Sallis & Saelens, 2000). In addition, questionnaires cannot effectively capture incidental, intermittent or otherwise spontaneous activities, or accurately measure walking which is the most important activity to assess in typically sedentary populations (Tudor-Locke & Myers, 2001).

The International Physical Activity Questionnaire (IPAQ) was developed recently to enable standardized measurement of physical activity across countries (Craig *et al.*, 2003). Since then, the Global Physical Activity Questionnaire (GPAQ) was developed by the World Health Organization (WHO) for physical activity surveillance in developing countries. This questionnaire was designed to produce valid and reliable estimates of physical activity, especially relevant to developing countries where patterns of energy expenditure differ from those of developed countries, and where people experience diverse ways of life (Armstrong & Bull, 2006). It collects information on physical activity participation in three settings (or domains), and on sedentary behaviour. These domains are: activity at work, travel to and from places, and leisure activities (WHO, 2006). The GPAQ (used in the present study, details in section 3.5.8) was validated against motion sensors as well as the IPAQ (Armstrong & Bull, 2006).

A wide variety of motion sensors have been used to monitor physical activity, including pedometers, simple low-cost devices used to record steps, and which therefore measure distance walked, and accelerometers, more sophisticated devices able to detect and record the magnitude of acceleration, thus allowing the quality and intensity of movement to be determined (Hendelman, Miller, Baggett, Debold & Freedson, 2000). Much research has gone into the development of motion sensors, resulting in the newer electronic pedometers being more accurate in the recording of walking-related activity in free-living populations (Tudor-Locke & Myers, 2001), and the new generation of accelerometers providing objective and reliable long-term monitoring (Mathie, Coster,

Lowell & Celler, 2004) for up to 22 days as in the case of the ActiGraph GT1M model. The new generation of accelerometers permits the analysis of downloaded information to determine the time spent performing various intensities of activity, with intensity inferred from velocity of movement (Tudor-Locke & Myers, 2001). They have been used as a criterion measure for the validation of self-reported physical activity instruments (Dishman et al., 2004). A weakness of accelerometers is the expense in relation to unit cost and data management (Tudor-Locke & Myers, 2001).

In a review article investigating the assessment of free-living physical activity, Schutz, Weinsier and Hunter (2001) conclude that no single technique is able to quantify all aspects of physical activity under free-living conditions, and recommend the use of complementary methods. Multiple assessment devices are advised to achieve an accurate profile of physical activity (Wood, 2000).

## **2.3 PHYSICAL ACTIVITY AND LEISURE IN SOUTH AFRICA**

A number of studies have been conducted on the physical activity and leisure patterns of South Africans, beginning in the early eighties with studies on the recreation patterns in the various metropolitan areas in South Africa. In the nineties, studies focussed on physical activity and its implications for health-promotion, and at the beginning of the new century, there were broader initiatives with the first national survey of time use (Statistics South Africa, 2001) and studies which formed part of the WHO investigation into physical activity (WHO, 2003, 2004, 2005). Details pertaining to the findings of these studies are discussed in the following subsections, the last of which focuses on women in particular.

### **2.3.1 Physical Activity and Leisure in Adults**

Studies in the eighties (Van der Wal & Steyn, 1981; Taljaard, 1985; Taljaard, 1986; Wilson & Hattingh, 1989) on the recreation patterns in various metropolitan areas in South Africa highlighted similarities and differences between the race groups. During

this time the Group Areas Act and Separate Amenities Acts were in operation and the metropolitan areas were divided on racial lines. These surveys revealed a shortage of sports and recreational facilities in black areas which was indicative of the imbalances in the provision of recreational facilities for the different race groups. Taljaard (1985) indicated that 58.9% of blacks, 33.5% of coloureds, 31.7% of Indians and just 9.1% of whites expressed the need for more sport and general recreational facilities. The situation was further exacerbated by the rapid urbanization of black people which led to a severe shortage of sports and recreational facilities in black urban areas (Wilson & Hattingh, 1989). Wilson and Hattingh (1989) concluded that the relaxed pace of rural life had to make place for the urban rush: new forms of recreation had to be found to fit in with the new milieu, where traditional ways of spending free time were no longer possible. Popular recreational pursuits among blacks in the Pretoria-Witwatersrand-Vereeniging region were found to be frequenting shebeens, attending stokvels, visiting friends and watching television (Wilson & Hattingh, 1989).

Generally, the participation in sport and recreation was higher for whites than for the other race groups (38.0% of whites, 19.6% of coloureds, 31.5% of blacks and 21.6% of Indians) in the Port Elizabeth Metropolitan area (Taljaard, 1986); and 34.7% of whites, 27.4% of Indians, 38.5% of blacks, 28.1% of coloureds, in the Cape Metropolitan area (Taljaard, 1985). The sample sizes for blacks in both of these surveys were very small (12.9% and 7.0%, respectively). According to Van der Wal and Steyn (1981), the degree of participation in recreation amongst blacks was more inhibited through a lack of facilities than through socio-economic factors. The provision of sports and recreation facilities in historically black areas was detrimentally affected by the past government's apartheid policy. There were limited and inferior facilities provided and these were poorly maintained.

For all the race groups, the most popular forms of recreation were passive in nature, such as visiting friends and family, watching television, listening to the radio or reading. The Port Elizabeth Metropolitan survey (Taljaard, 1986) revealed that 44.6% of whites, 67.8% of coloureds, 58.2% of blacks and 50.3% of Indians engaged in passive forms of

recreation, and the Cape Metropolitan survey (Taljaard, 1985) revealed that 48% of Indians, 49% of blacks, 49% of coloureds, 37% of whites engaged in passive forms of recreation.

The patterns and prevalence of physical activity among black working, middle-aged men drawn from an epidemiological database on the African population of metropolitan Cape Town were reported by Sparling *et al.*, (1994). The data was collected as part of the Coronary Heart Disease Risk Factor study and is also referred to as the BRISK study. The sample consisted of 212 working men aged between 25 and 64 years, who were representative of communities in transition, characterised as urban, underdeveloped and overpopulated. The study indicated that most (57%) of the participants were employed in occupations requiring minimal physical activity, and one quarter (25%) had occupations requiring moderate amounts of exercise. More than half (58.5%) of the total sample that was interviewed participated in physical activity outside of working hours. When comparing the different age strata, the least active groups were those between the ages of 25 to 34 years compared to those who were 35 to 44 years and 45 to 64 years (54% vs. 61%). Those aged between 45-64 years participated predominantly in light intensity activities (57.8%) and only a small proportion (2.8%) engaged in strenuous physical activity. The converse was true for the younger subjects.

In a later study by Levitt *et al.*, (1999) on a peri-urban community of mixed ancestry (coloured) men and women, the Stanford 7-Day recall questionnaire was used to quantify habitual physical activity. Participants were asked to estimate the number of hours spent during the preceding seven days in sleep, moderate, hard and very hard physical activity. Approximately half of the total sample (49.7%) did not participate in 150 minutes or more of physical activity per week, which is the minimum recommendation for health promotion. The prevalence of inactivity increased with increasing age, where 40% of those younger than 35 years were insufficiently active compared to 66% and 76% of those aged between 55 and 64 years, and older than 64 years, respectively.

An extensive study on rural and urban African males and females in the North West Province, the “Transition and health during urbanization of South Africans” study, known as the THUSA study (Kruger, 1999; Vorster *et al.*, 2000; Kruger *et al.*, 2003) reported on physical activity as a risk factor for cardiovascular disease in communities undergoing rural to urban transition. Physical activity was assessed in a subsample of 946 subjects, using a questionnaire based on the Baecke questionnaire and validated for this population (Kruger, Venter & Steyn, 2000). The questionnaire was designed to measure habitual physical activity in the categories of occupational physical activity (employment, or house-work for the unemployed), commuting activity, stair-climbing, and sport and leisure-time activity. About one-third of the subjects (29.2%) were classified as inactive, 27% of the subjects were moderately active and 43% were in the most active category (Table 1).

**Table 1: Level of physical activity reported in the THUSA study (Kruger *et al.*, 2003) (n=946)**

<b>Level of physical activity</b>	<b>Men</b>	<b>Women</b>
Inactive (PAI 1-3.33)	100 (25.2%)	168 (31.7%)
Moderately active (PAI 3.34-6.67)	105 (25.2%)	168 (31.7%)
Most active group (PAI > 6.67)	211 (50.7%)	174 (32.8%)

Men were significantly more active than women. Both men and women in the rural areas were the most inactive. People living on farms were the most active, with 64% of men and 73% of women in the categories of highest PAI.

More recently, in 2003, the International Physical Activity Questionnaire (IPAQ) was administered, as part of the World Health Survey, to a representative sample of South Africans. The South African data included samples from urban and rural communities (n=2014). This survey found (see Table 2) that less than one third of South Africans met the American College of Sports Medicine and Centres for Disease Control recommendation for health-enhancing physical activity (to accumulate 30 minutes of

moderate activity on most, but preferably all, days of the week), and that nearly half (46%) were reportedly inactive (WHO, 2005).

**Table 2: Prevalence of physical inactivity in a representative sample of adult South Africans (World Health Survey, 2005)**

<b>Level of physical activity</b>	<b>Men</b>	<b>Women</b>
Inactive (< 600 METmin/wk)	43%	49%
Minimally Active ( $\geq$ 600 METmin/wk)	20%	27%
Sufficiently Active (HEPA)*	37%	25%

- HEPA (Health enhancing physical activity:  $\geq$ 7 days of any combination of moderate and vigorous activity,  $\geq$  3000 METmin/wk)

In a study which focussed specifically on the health behaviour of black university students, physical activity was assessed by means of questions concerning exercise over the previous two weeks, the type of exercise, and the number of sessions carried out (Peltzer, 2000). The study reported that only one third of the men took regular exercise.

During 2000, Statistics South Africa conducted the first national time use study in the country, the first in a developing country. The aim of the survey was to provide information on the way in which different individuals in South Africa spend their time. The results of the survey pertaining to physical activity and leisure showed that women spend fewer minutes per day on leisure activity than men, in all the age categories. The popular leisure activities are social and cultural activities, socializing and watching television. From the list of the most enjoyed and least enjoyed activities, watching television and videos was the most enjoyed. Playing sport and games was amongst the five most enjoyable activities for men, but did not appear on the list for women. Women walked on average 45 minutes to get to places, which was 63% of their travel time, whereas men walked for 60 minutes, 61% of their travel time (Statistics South Africa, 2001).

### **2.3.2 Physical Activity and Leisure in Older Adults**

Available physical activity data are largely derived from regional, cross-sectional risk factor surveys, and suggest that persons over the age of 55 have the lowest levels of self-reported moderate and vigorous physical activity. The survey of time use (Statistics South Africa, 2001) reported that elderly women and men (60 years and over) spent 640 minutes on average per day – more than 10 hours – sleeping, and over an hour and a half a day doing nothing. Socializing and watching television were the most popular leisure activities. In a two-year follow-up study of older historically disadvantaged South Africans, the Yale Physical Activity Survey for Older Adults (YPAS) was used to describe patterns of weekly activity spent on housework, gardening and yard-work, care-giving, exercise and recreation (Charlton, Lambert & Kreft, 1997). Results from this study suggest that these South African seniors spent an average of 2583 kcal/wk on physical activity, 65% less than that reported in a sample of North Americans of the same age (Lambert & Kolbe-Alexander, 2006).

### **2.3.3 Physical Activity and Leisure in Children and Youth**

The South African National Youth Risk Behaviour Survey reported on activity levels in children and youth (Department of Health, 2002b). The self-reported data is presented in Table 3 below and suggests that more than one-third of children surveyed participate in insufficient or no moderate-to-vigorous activity weekly. In terms of sedentary behaviour, 1 in 4 learners (25.2%) reported watching more than 3 hours of television per day and more than 1 in 3 (37.5%) did not participate in sufficient physical activities to promote a health benefit.



**Table 3: Percentage of 13-19-year-olds who participated in insufficient or no physical activity (Department of Health, 2002b)**

	<b>Males</b>	<b>Females</b>	<b>All</b>
Black	34.4	42.4	37.5
Mixed Ancestry	36.8	56.8	45.6
White	28.2	37	29.4
Indian	40.8	36	33
RSA	34.4	43	37.5

Source: Youth Risk Behaviour Survey, 2002, (n=10 100)

In a study on pre-pubescent children, it was found that 30.52% of boys and 36.57% of the girls aged 11-13 years were inactive and that a significant difference existed between the activity of the girls and the boys (De Klerk, 2002). These findings corroborate earlier findings by Van Deventer (1998/99) on the state of participation in physical activities by high school learners. Non-active leisure featured more prominently in their lifestyle patterns. Respondents of all races and both genders between the ages of 13 and 21 years viewed non-active leisure activities as more important than school sport and physical leisure activities. The lifestyles of parents regarding participation in physical activity did not offer positive role-models to their children. Black and coloured parents did not value participation in active leisure activities to the same extent as white parents did (Van Deventer, 1997, 1998/1999).

Insufficient gross motor development was reported in a study which included 7500 boys and girls. Fifty percent (50%) of all primary school learners involved in the study experienced motor problems which form the basis of academic learning and participation in sport (Nel, 1998; Nel, 2002). A study including 335 Grade 1, 2 and 3 learners found that 64% of them performed under average in motor skills such as kicking, catching, throwing, skipping and rope skipping. These activities form the base of sports participation and the basis of writing and drawing skills (Nel, 2002).

Differences in physical activity levels between black and white South African 9-year-old children were reported by McVeigh, Norris, Cameron and Pettifor (2004). The results indicated that white children expended a significantly greater energy score than black children. Over 90% of white children participated in physical education classes at school compared with only 30% of their black peers (McVeigh *et al.*, 2004).

Although these studies used different measures of physical activity, all reported unsatisfactory levels of physical activity and relatively high levels of non-active leisure among South African children and youth.

#### **2.3.4 Physical Activity and Leisure in Women**

In developing countries the sports and recreation participation rates for women are much lower than for men (Hargreaves, 1994: 28). In most societies, but especially in developing countries, many factors limit women's participation in sport (Chappell, 1999). Chappell and Seifu (2000) reported that in Ethiopia women had great constraints placed upon them in terms of their commitment to family life, child-caring and household activities. Most women were economically dependent upon men, which restricted their participation in leisure time pursuits.

The VIGHOR-study was conducted in the mid-nineties to determine the prevalence of coronary heart disease risk factors among whites in a South African urban community. Joubert (1996) reported on the relationship between the physical activity index and several lipid parameters among white women. In this study, involving 508 women between the ages of 35 and 64 years of age, most of the women had low levels of physical activity: 71.7% of women (35-49 years) and 83.3% of women (50-64 years) were classified as physically inactive. In a later study reporting on the relationship between physique, physical activity and the health of a group of selected white women, 81.1% of the women were classified as inactive (n=111 white women between the ages of 19 and 57 years) (Joubert, 2000).

One South African study has investigated black women specifically and reported on the physical activity levels and health profiles of adult women living in informal settlements (Tshabangu & Coopoo, 2001). This quantitative study reported fairly high levels of daily physical activity in household chores, specifically in collecting wood, fetching water and cooking. It was estimated that the average informal settler was involved in approximately 30 minutes of vigorous activity (chopping wood, carrying water) and was engaged in a further 150 minutes of mild to moderate activity (cleaning the house and walking to work). It was estimated that women in the Mmasechaba informal settlement expended on average approximately  $\pm 1350$  kcal of energy daily (Tshabangu & Coopoo, 2001).

The THUSA study (Kruger *et al.*, 2002), reported specifically on physical inactivity as a major determinant of obesity in black women. Most women (89.2%) did not participate in sport and more than half (59.6%) participated mostly in sedentary leisure activities. In women, a number of cardiovascular disease factors were significantly associated with physical inactivity, especially in over-weight subjects. The THUSA study concluded that, given the low level of physical activity found in rural subjects and in women in urban areas, deterrents to physical activity in black women should be identified and addressed.

A more recent study highlighted the physical activity, lifestyle, socio-economic status and leisure constraints of women in the Potchefstroom area (Erasmus, Wilders & Meyer, 2005). From a sample of 440 women aged between 30 and 65, the vast majority (48.6%) were physically inactive, and only 20.3% of the women followed a health-promoting lifestyle.

This section has highlighted a wide range of studies related to the measurement of physical activity done over the last 25 years. This began with leisure surveys of the 1980s, the physical activity studies of the 1990s focussing on health promotion, culminating in the national surveillance testing which was done as part of the world-wide WHO study. Results from these studies have highlighted a growing trend of non-active leisure activities and low levels of physical activity among children and youth, adults and

particularly among black women in South Africa. Given the low levels of physical activity found in black women, further research is necessary in relation to understanding the complexities surrounding physical activity participation: the psychosocial context, socio-cultural influences, attitudes and perceptions, motivations and constraints to physical activity.

## 2.4 PHYSICAL ACTIVITY AND HEALTH

The importance attached to physical activity in health promotion is as old as recorded history. Physical activity has been included in the practice of ancient medicine in China, India, Greece and in many other parts of the world (Dishman *et al.*, 2004:10). The association between physical inactivity and adverse health conditions has been widely researched and emphasized over the years (Slattery, Jacobs & Nichaman, 1989; Paffenbarger, Hyde, Wing, Lee, Jung & Kambert, 1993; Kruger *et al.*, 2003). However, it was the key 1995 report of the U.S. Surgeon General, *Physical Activity and Health* that drew world-wide attention to physical inactivity as a public health challenge (U.S. Department of Health and Human Services, 1996).

Documented evidence from numerous studies on the contribution of physical activity and exercise to the treatment of coronary heart disease, stroke, hypertension, hyperlipidemia, obesity, diabetes, osteoporosis and their effect on the immune system is presented by Dishman *et al.*, (2004), in *Physical Activity Epidemiology*. In addition, lifelong physical activity promotes the health and well-being of women throughout the lifecycle. In a review article entitled, "Women and physical activity: active lifestyles enhance health and well-being", Brehm and Iannotta (1998) summarized research which showed that exercise benefits include prevention of many disorders such as heart disease, high blood pressure, non-insulin dependent diabetes, osteoporosis, and cancers of the breast, colon and reproductive organs. Regular physical activity contributes to lifelong weight control and functional independence in old age. Mental health benefits include psychological well-being, the alleviation of depression and improved body image (Brehm & Iannotta, 1998).

Physical activity is being recognised as an important health behaviour, associated with reduced all-cause morbidity and mortality, in addition to chronic diseases of lifestyle (CDL) (Lambert & Kolbe-Alexander, 2006). The three significant elements of the unhealthy lifestyle predisposing to the development of chronic diseases are the long-term use of tobacco products, the lack of regular aerobic exercise during adult life and the consumption of an unhealthy diet resembling that of most westernized countries which consists of high levels of saturated fat (Steyn, 2006). The rapid escalation of chronic diseases has been described as a global epidemic, threatening populations around the world, which causes half of all deaths on our planet every year (Oxford Health Alliance Annual Report, 2005). The Oxford Health Alliance, encompassing academics, businesses, non-governmental organizations and the WHO has presented harsh statistics on the detrimental effects of CDL on populations throughout the world, with the aim of highlighting the urgency of the matter and mobilizing action in order to reverse the trend (Oxford Health Alliance Annual Report, 2005). In May 2004, the World Health Assembly approved the WHO Global Strategy on Diet, Physical Activity and Health. This strategy serves to establish physical activity promotion on the national health policy agendas of member states, specifically for the prevention and control of CDL (WHO, 2004). These policy initiatives have been supported by the global surveillance of risk factors, including physical activity, thereby initiating both a global and national course of action by member states (Lambert & Kolbe-Alexander, 2006).

In the report, *Chronic Diseases of Lifestyle in South Africa 1995-2005*, the data presented reveals that the majority of the South African population has moved extensively along the epidemiological transition towards a disease profile related to Western lifestyle (Steyn, 2006). The epidemiological transition is driven by the adoption of unhealthy lifestyles, which relate to tobacco use, unhealthy nutrition and lack of regular aerobic physical activity. The quadruple burden of disease – characterised by a combination of poverty-related diseases, urbanization, industrialization and a westernized lifestyle – has serious consequences for the prevention and management of chronic diseases and the unhealthy lifestyles and risk factors that precede them.

CDL in South Africa account for nearly 40% of adult deaths, and the majority of South Africans have at least one modifiable risk factor for chronic disease (Bradshaw *et al.*, 2003). Even with these high statistics, little recognition is given to the magnitude of the burden of CDL in South Africa, and to the prevention of unhealthy lifestyles, in relation to the other competing groups of diseases (Steyn, 2006). The media attention around the HIV/AIDS epidemic has to a large extent camouflaged the effect of CDL. The Actuarial Society of South Africa developed a model in 2000 (ASSA, 2000) to project how the AIDS epidemic could affect the patterns of mortality. The ASSA2000 model projects a tremendous increase in the mortality of young adults (Dorrington, Bourne, Bradshaw, Laubsher, & Timaeus, 2001), and was used to assess and project what the CDL mortality might be in 2010 (Steyn, 2006). The projected mortality, expressed as deaths per day, attributed to AIDS is projected to increase from 77 per day in 1996 to 2184 per day in 2010. It is projected that during the same period the 487 chronic disease deaths per day in 1996 will increase to 563 per day in 2010. CDL will continue to play a significant role in South Africa and therefore requires prevention and cost-effective management (Steyn, 2006).

#### **2.4.1 Physical Activity and Various Health Variables in South Africa**

CDL in South Africa account for nearly 40% of adult deaths, and the majority of South Africans have at least one modifiable risk factor for chronic disease (Bradshaw *et al.*, 2003). According to the National Demographic and Health Survey of 1998, about 29% of men and 56% of women are overweight, with the highest rate occurring among African women (Puoane *et al.*, 2002). According to the Heart Foundation, South Africa has a higher ratio of overweight women than the U.S. (Health Systems Trust, 2004).

There are many South African studies on physical activity and the effect thereof on various health variables (Steyn *et al.*, 1991; Sparling *et al.*, 1994; Mollentze *et al.*, 1995; Joubert, 1996; Joubert, 2000; Vorster *et al.*, 2000; Strydom, van der Westhuizen, Steyn, Dreyer & Wilders, 2001; Kruger *et al.*, 2001; Kruger *et al.*, 2003).

Studies conducted more than 20 years ago highlighted the growing risk of coronary heart disease (CHD) in the black population. The early study of Steyn *et al.*, (1991), of risk factors for ischaemic heart disease (IHD) in a sample of black people in the Cape Peninsula, revealed a population at lower risk for IHD than other South Africans, 30.8% of males and 12.5% of females had at least one risk factor for IHD. They predicted that this would change and therefore recommended that preventative measures be instituted through primary health care planning and services, and advocated then that schools teach a healthy lifestyle from an early age.

Later studies by Sparling *et al.*, (1994) and Mollentze *et al.*, (1995) highlighted the growing risk of CHD in the black population. In the Sparling *et al.*, (1994) study, 43% of the sample were employed in jobs requiring moderate to strenuous physical activity, and the most favourable blood pressure levels and serum lipid profiles were associated with low to moderate levels of habitual physical activity. Hypertension was the single most prevalent cardiovascular disease in rural as well as urban black South Africans, indicative of the already advanced stage of urbanisation and westernization of the rural group. Obesity was prevalent among women and was shown to contribute to hypertension (Mollentze *et al.*, 1995). These studies predicted that as the community became more urbanized, job related physical activity as well as physical activity for daily living would decline. In addition, the upward mobility of the black population and adoption of lifestyles of typical industrialized populations, including western diets, would increase the risk factors for diseases such as IHD and CVD (Steyn *et al.*, 1991; Sparling *et al.*, 1994; Mollentze *et al.*, 1995). The need for sport and leisure-time physical activity would become more important and should be considered as part of a public health strategic plan (Sparling *et al.*, 1994).

In the late nineties, the VIGHOR-study was conducted to determine the prevalence of CHD risk factors in a South African urban Caucasian female community (Joubert, 1996; Strydom *et al.*, 2001). The study concluded that physical activity had an influence on the lipid parameters of pre- as well as postmenopausal women (Joubert, 1996). The postmenopausal group of women presented in the “risk” category in relation to total

cholesterol, low-density lipoprotein cholesterol and total cholesterol/high-density lipoprotein cholesterol ratio. This would enhance the risk of CHD and place a severe burden on health-care costs relating to the treatment of chronic diseases when it progressed to chronic treatment (Strydom *et al.*, 2001). In a later study also focussing on CHD risk factors of white females in the Zululand area who attended health and fitness clubs, Coetsee (2003) reported that 42% of the subjects displayed two or more risk factors for CHD.

The relationships of physical activity, lifestyle and some socio-economic aspects with the health status of men were reported by Dreyer, Dreyer and Van der Merwe (2001). A sample of 525 Caucasian men between the ages of 30 and 60 were selected at random for this study. Education qualification showed a statistically significant relationship with lifestyle, quality of participation in physical activity and health. Respondents with a diploma or degree reported statistically significantly better lifestyle profiles, better health and a higher level of participation in physical activity than respondents who only had a school education. There was also a statistically significant relationship between income and participation in physical activity. Physical activity also showed statistically significant relationships with lifestyle and health, independent of education qualification. The higher the quality of participation in physical activity, the better the lifestyle profiles and health status of the respondents (Dreyer *et al.*, 2001).

Obesity in South Africa was researched through the South Africa Demographic and Health Survey, 1998, the most geographically comprehensive, multi-ethnic measurement of anthropometric patterns in South Africa (Puoane *et al.*, 2002). The results indicated that 29.2% of men were overweight or obese and 9.2% had abdominal obesity, whereas 56.6% of women were overweight or obese and 42% had abdominal obesity. Obesity was shown to increase with age and higher levels of obesity were found in urban African women. The highest rates of abdominal obesity were found in white urban men and in urban African and mixed-ancestry women. This type of obesity has been shown to have more adverse health consequences than peripheral obesity, and predisposes individuals to develop hypertension, diabetes mellitus, cardiovascular



disease and stroke (Puoane *et al.*, 2002). Also of interest in this study was the difference in self-perceived rates of obesity between African and white women. Although the highest rates of obesity were reported among African women, fewer perceived themselves to be obese compared to perceptions reported by white women (Puoane *et al.*, 2002). The distribution of anthropometric variables in the South African population also differed by age, gender, education background, and area of residence, and led to the recommendation that policies be directed toward raising the educational status of women because they are key figures in improving the nutritional status of the whole nation (Puoane *et al.*, 2002). This survey was aimed at surveillance, and no attempt was made to link obesity to physical activity, as it was not measured. However, in a regional study (Thusa study) described below, these relationships were explored.

The relationship between body mass index (BMI) and physical activity was investigated in 530 black women living in the North West Province as part of the THUSA study (Kruger *et al.*, 2002). Physical activity was measured and quantified using a Physical Activity Index (PAI) based on the Baecke questionnaire (Kruger *et al.*, 2000). The authors reported that physical activity was significantly and inversely associated with BMI ( $r = -0.14$ ;  $p < 0.0005$ ) and waist circumference ( $r = -0.15$ ;  $p < 0.0005$ ). Furthermore, the women who were in the highest tertile for physical activity were 62% less likely to be obese compared to those who were the least active. Similarly, the women in the second tertile for physical activity had approximately half the risk of obesity when compared to those who were least active. The subjects most at risk of being obese were those from higher income categories and habitual low physical activity. These findings highlight the importance of physical activity in the prevention of obesity and overweight in women. This is particularly important since 54% of the women participating in the study were classified as either overweight or obese.

The THUSA study also investigated physical inactivity as a risk factor for cardiovascular disease in communities undergoing rural to urban transition (Kruger *et al.*, 2003). The risk factors for CVD that were measured in this study included BMI, blood pressure (BP), total serum cholesterol, triglycerides and fasting blood glucose and insulin. The only

variable related to a reduced risk of CVD that was significantly associated with increased levels of physical activity was fasting insulin among men. The most active men had higher systolic and diastolic BP results than the least active men (mean systolic BP  $129 \pm 1.57$  mm Hg versus  $125 \pm 2.18$  mm Hg and mean diastolic BP  $78 \pm 0.95$  mm Hg and  $73 \pm 1.32$  mm Hg, respectively). In women, the most active group had a significantly higher mean high-density lipoprotein (HDL) cholesterol concentration than the inactive group and also a significantly lower mean triglyceride concentration. The most active group of women also had significantly higher fasting serum glucose than the group with moderate physical activity. More importantly, lower levels of physical activity were significantly associated with CVD risk factors for both men and women who were overweight. The men who were least active and who were overweight had significantly higher total cholesterol, low-density lipoprotein (LDL) cholesterol, LDL:HDL ratio and fasting insulin levels than those who were moderately active and overweight. Similarly, the overweight and physically active women had significantly lower LDL cholesterol, LDL:HDL ratio and fasting insulin than the overweight women who were inactive (Kruger *et al.*, 2003).

The THUSA study (Vorster *et al.*, 2000 and Kruger *et al.*, 2001) reported that the socio-economic status of Africans had improved with urbanization. The highest socio-economic group had the best nutritional, physical and mental health status, but they also had the highest fat intake, and the highest mean total serum cholesterol levels. Urbanization has been shown to be associated with an improvement in some health determinants, but with a deterioration in others. In addition, urbanization is also associated with an emergence of risk factors for CVD (Vorster *et al.*, 2000). Vorster *et al.* (2000) also indicates that most women (89.2%) did not participate in sport, and that a number of cardiovascular disease risk factors were significantly associated with physical inactivity, especially in overweight subjects (Kruger *et al.*, 2001).

In a cross-sectional survey investigating the prevalence of Type 2 diabetes mellitus and its risk factors in a working class peri-urban community in the Western Cape, physical inactivity was identified as a modifiable risk factor for the disease. Based on the

population attributable risk factor analysis, it was estimated that the prevalence of Type 2DM in the community might fall from approximately 7% to 4% should both upper segment fat distribution and low levels of physical activity be removed (Levitt *et al.*, 1999). In a re-analysis of the same study, physical activity levels, along with a self-reported history of angina, patient awareness concerning hypertension and diabetes status, height, weight and waist circumference, contributed significantly to a global cardiovascular disease risk score (Steyn, Levitt, Hoffman, Marais, Fourie, Lambert, Gaziano, Kepe, Lombard, 2004).

Wilders and Strydom (2003) and Wilders, Strydom and Steyn (2001) investigated the relationship between physical activity and lifestyle in Caucasian women. The sample was comprised of 425 Caucasian women between the ages 30-65 ( $42.9 \pm 9.6$  years) living in the urbanized area of Potchefstroom. Results showed that physical activity had a positive effect on health status, and contributed significantly to the existential and spiritual well-being of women.

The effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries including South Africa (the INTERHEART study) was reported on recently. In this multi-country case-control study in which more than 15 000 acute myocardial infarction cases were compared to control subjects, 9 risk factors (smoking, diet, exercise, alcohol, hypertension, diabetes, abdominal obesity, psychosocial factors and lipids) were associated with 90% of the risk of acute myocardial infarction. The risk or preventable death attributable to inactivity (less than 4hr/week of moderate to strenuous activity) was 12.2% (Yusuf, Hawken, Ôunpuu, Dans, Avezum, Lanas, McQueen, Budaj, Pais, Varigos, Lisheng, 2004).

Limited data is available on physical activity in relation to health in South African children. Firstly, physical activity levels have been reported to be closely linked to socio-economic status. In a cross sectional study of children recruited from the Birth to Twenty cohort study, children falling into the highest socio-economic status quartile had mothers with the higher educational levels, generally came from dual parent homes,

were highly physically active, watched less television, weighed more and had greater lean tissue than children in lower quartiles. A greater percentage of children living in dual parent homes and with mothers of a higher educational status were highly active compared with children living in single parent homes and with mothers of a lower educational status. There were high levels of low activity and high television watching time among lower socio-economic status groups. The study also found significant racial differences in patterns of activity. White children were found to be more active than black children, and were more likely to participate in physical education classes at school and watched less television than black children (McVeigh *et al.*, 2004). South Africa was included in a recent systematic review investigating the prevalence of overweight and obesity in school-aged youth from 34 countries, and which examined associations between overweight and selected dietary and physical activity patterns (Janssen, Katzmarzyk, Boyce, Vereecken, Mulvihill, Roberts, Currie & Pickett, 2005). This study revealed that in most countries, physical activity levels were lower and television times were higher in overweight than normal weight youth (Janssen *et al.*, 2005). Overweight and obesity is prevalent among the young as well. Du Toit and Pienaar (2003) found that the prevalence of childhood obesity (15.83%) among pre-school urban children corresponded with the reported figures in previous South African studies, and was consistent with results among pre-school children in the United Kingdom, Canada and the United States of America.

Furthermore, there is indirect evidence that early deprivation or early life stunting is associated with greater risk for obesity in school girls, aged 10-15 years from the North West Province. Stunted girls were less physically active than their non-stunted counterparts were, and had greater subcutaneous fat deposition and higher waist circumferences (Kruger, Margetts & Vorster, 2004).

Physical activity levels have been positively linked with bone mineral density in black and white pre-adolescent South African schoolgirls (Micklesfield, Zielonka, Charlton, Katzenellenbogen, Harkins, & Lambert, 2004) as well as in 9-year-old white schoolchildren (McVeigh, *et al.*, 2004). Black children had a significantly greater bone

mass at the hip and spine than white children (girls only), but had lower physical activity levels. McVeigh *et al.*, (2004) thus concluded that the role of exercise in increasing bone mass may become increasingly critical as a protective mechanism against osteoporosis in both ethnic groups, especially because the genetic benefit exhibited by black children to higher bone mass may be weakened with time, as environmental influences become stronger.

A recent study examined the association between physical activity levels and other risk factors for chronic diseases of lifestyle among high school learners (Frantz, 2006). Nine hundred and fifty-one high school learners aged from 13 to 18 years were selected from secondary schools in selected communities in the Western Cape. The results indicated that 32% of the learners were classified as being physically inactive and that 21% engaged in health risk behaviours. In addition, 35% of the learners had more than one risk factor present for chronic diseases of lifestyle.

The growing health risks associated with physical inactivity in the black population was highlighted by studies conducted more than 20 years ago. Increasing urbanization, industrialization and the adoption of a more Western lifestyle has resulted in the escalation of CDL in South Africa in recent years, accounting for nearly 40% of adult deaths (Bradshaw *et al.*, 2003). The high levels of obesity reported for black women in particular, coupled with low levels of physical activity, mitigates for preventative and cost effective ways to promote physical activity and adopt a healthy lifestyle.

## **2.5 SOUTH AFRICAN INITIATIVES AIMED AT INCREASING PARTICIPATION IN PHYSICAL ACTIVITY**

The national Ministries of Health, Education and Sport have a number of initiatives aimed at increasing the levels of participation in physical activity.

The Ministry of Health was instrumental for the development of a series of guidelines for the prevention or management of CDL (diabetes, hypertension, hyperlipidaemia, and

overweight guidelines are available) (Lambert & Kolbe-Alexander, 2006). In November 2004, the Directorate of Health Promotions, within the Department of Health, launched an inter-sectoral strategy aimed at the promotion of healthy lifestyles and change from risky behaviour, particularly among the youth (Andrews & Pillay, 2006). In a presentation entitled, "Towards implementation of the WHO Global Strategy on Diet, Physical Activity and Health: South African Experience", the Director of Health Promotion, Zanele Mthembu, identified promoting healthy lifestyles as a national priority, and one of the key priority programmes for the Health Sector Strategic Plan (2004-2009). The five key components in this priority area are: promotion of physical activity, promotion of good nutrition, tobacco control, combating misuse of alcohol and other substances and the promotion of safe sexual behaviour (Mthembu, 2006).

There have also been initiatives within the Ministry of Sport and the Ministry of Education which provide a policy and programme framework that support the participation in physical activity. Sport and Recreation South Africa (SRSA) is the national governmental department responsible for devising and implementing sport and recreation policy, specifically targeting mass participation as well as sports development. In the 1998 White Paper on Sport and Recreation in South Africa, "getting the nation to play" was the pervasive theme. Priority four in the White Paper is "to motivate the community to develop active and healthy lifestyles and to channel those with talent towards the competitive areas of sport". The primary focus is on community based recreation and sports development through physical education and youth and junior sports, with women and girls being a specific focus area (Sport and Recreation South African, 1998). SRSA has initiated various levels of programme development as a means of fulfilling their mandate. These include the building of multi-purpose sporting facilities in rural areas and historically disadvantaged townships; the Indigenous Games Project, aimed at popularizing the many games from our rich indigenous heritage; Junior Dipapadi, a sport development program initiated to help teachers, care givers, sport administrators and community leaders develop sport among children from an early age. Siyadlala is a national project of SRSA (2004) aimed at facilitating mass participation in sport and recreation activities, especially in disadvantaged communities, in high crime

areas and governmental priority nodal areas. This programme was launched in 2004, and has employed 39 instructors to coordinate the introduction of new sporting codes to previously disadvantaged areas.

In a more recent presentation by SRSA to the Portfolio Committee, “an active and winning nation” was the theme. An objective is to increase the levels of participation in formal, organized sport and recreation activities (from 25% to at least 30%). Developing and implementing a mass participation programme, talent identification, school sports programmes and rehabilitation programmes for offenders are seen as ways to motivate the community to develop active lifestyles (Sport and Recreation South Africa, 2006).

The importance of physical education as an essential school curriculum subject, which lays the foundation for lifelong engagement in regular physical activity, has been expressed by many researchers, including those in South Africa (Walter, 1994; Kloppers & Jansen, 1996; Keim & Zinn, 1998; Amusa, 1999; Van Deventer, 1999, 2000, 2004). The UNESCO Charter for Physical Education and Sport (1978) accorded to it the status of a “fundamental right”, guaranteed within education systems through provision of opportunities for practice (UNESCO, 1978). However, a world-wide survey (which included South Africa) on the state and status of physical education in schools, funded by the International Olympic Committee in 1999, highlighted concerns for the provision of physical education in schools, due to the lack of legal status and actual implementation, restricted or decreasing curriculum time allocation, subject status, inadequacies in financial, material and human resources and other factors (Hardman & Marshall, 2000).

Since the advent of curriculum transformation in South Africa in the mid-1990s, Physical Education has ceased to feature as a separate school subject in the school curriculum. In the interim, a national curriculum which includes a Physical Education component has been put in place and has been introduced incrementally in Grades R-11 and will be implemented across the system in 2008 when it is introduced in Grade 12 (Pote, 2006).

Physical Education is housed within the Life Orientation curriculum. Life Orientation is one of the eight Learning Areas that all Grade R-9 learners have to take during the General Education and Training Band and one of the fundamental subjects (i.e. compulsory) that all Grade 10-12 learners must take as part of their 7-subject package in the Further Education and Training Band (Department of Education, 2003). Learner performance in Life Orientation is formally assessed, recorded and reported on and this includes the Physical Education component. Teachers are expected to record and report on learner performance in Physical Education on a quarterly basis and this mark makes up 25% of the Life Orientation mark per term and year (Pote, 2006).

Physical Education thus still forms a compulsory part of the South African school curriculum by virtue of the fact that it is accommodated in the Life Orientation curriculum from Grades R to 12 and has a Learning Outcome dedicated to it. Furthermore, each Learning Outcome in the curriculum, including the movement outcome of Life Orientation, is now formally assessed to ascertain learner achievement therein (Pote, 2006).

In research conducted by Keim and Zinn (1999), interviews with principals, teachers and pupils revealed that physical education was suffering from very low status and allocated curriculum time was being used in many schools for what is seen as more important subjects. In addition, 85% of the primary schools in the Western Cape (which is one of the wealthier provinces in the country) had no physical education (Keim & Zinn, 1998). The lack of qualified teachers, inadequate facilities and insufficient funding made it more difficult to practise physical education in historically disadvantaged schools (Van Deventer, 2004).

The National Department of Education has identified critical issues in relation to the implementation of the Physical Education component of the Life Orientation curriculum. Firstly, not all teachers who currently teach Life Orientation are qualified to teach the Physical Education component of the Life Orientation curriculum. While the movement outcome is a compulsory focus area, it is not taught in all schools as many teachers do



not feel confident to teach and assess it. The National Department of Education has suggested that a comprehensive in-service programme such as an ACE (Advanced Certificate in Education) for the Physical Education component be presented as an interim measure to enable all Life Orientation teachers to present and assess basic movement activities. Secondly, not all schools possess the basic equipment and facilities required to present movement activities. Many schools cite lack of resources as a problem and use it as a reason not to present the movement activities. The National Department of Education has suggested that teachers be trained in the improvisation of equipment and the effective use of available facilities until schools are equipped with such resources (Pote, 2006).

In March 2005, the Ministers of Sport and Recreation and Education signed a cooperative agreement to collaborate on all aspects of school sport including curricular and extracurricular activities as well as recreational and competitive sport, aiming to rekindle a spirit of participation and a culture of sport that has declined, especially amongst schools in disadvantaged communities over the past few years (Pandor, 2006).

Two initiatives that began in the non-governmental sector have been supported by Departments of Health and Education. (Lambert & Kolbe-Alexander, 2006). These include the Global Move for Health concept and the development and adoption of a National Youth Charter for Participation in Sport and Physical Activity.

The Move for Health Programme was initiated as a multifaceted intervention approach to promoting physical activity among Brazilian men and women, called the “Agita Mundo”, meaning “move for health”. The main aim of this campaign is to educate individuals on the health and fitness benefits of exercise and to promote the implementation of physical activity programmes. The Agita Mundo programme was formed in response to the high prevalence of chronic disease of lifestyle among Brazilian men and women. It was launched in 1996 in Sao Paulo, spread to the rest of Brazil and in other countries of Latin America, and the WHO has characterized it as a model for other developing countries (Matsudo, Matsudo, Andrade, Araujo, Erinaldo De Oliveira & Braggion, 2002). Consequently, the World Health Assembly mandated its

member states, of which South Africa is one, to celebrate “Move for Health” annually. The core message of “Move for Health” is to encourage individuals to accumulate 30 minutes of moderate physical activity on most days (at least 5) of the week.

The South African campaign has been named “Vuka South Africa – Move for your Health”, which means “Wake up South Africa, move for your health”. The National Department of Health, together with its partners (National Department of Education, and Sport and Recreation South Africa) launched the “Vuka South Africa – Move for your Health” campaign in May 2005 (National Department of Health, 2005). There are plans for the future implementation of the Move for Health programme, together with the monitoring and evaluation of the campaign (Lambert & Kolbe-Alexander, 2006).

In response to an increased prevalence of inactivity or sedentary living in South African children and youth, a nationwide intervention in an attempt to curb this exponential rise in sedentary behaviour was initiated. Facilitated by Professor Tim Noakes at the University of Cape Town, the Youth Fitness and Wellness Charter initiative received input from individuals, representing National (Departments of Health, Education, and Sport and Recreation), Local and Provincial government, non-government and non-profit organisations, parents, care-givers, faith-based organisations, educational organisations, sporting organisations, clubs, schools, the private sector, the media and other key role players. The initiative has gained the support of Professor Kader Asmal, who has become the official patron of the Charter. The focus of this campaign is on everyone (national and local government, parents, non-government organizations, faith-based organizations and other key role players) working together and creating opportunities for all children to become physically active and to establish a lifelong commitment to an active and healthy lifestyle. The Charter has ten articles, focusing on the fundamental right of children to participate in physical activity, sport and play, as well as its role in nation building, well-being and health, and the need for partnerships, education and training, facilities and infrastructure, protection, the role of the media and research in working towards the well-being of the children and youth of South Africa through the medium of sport and play (Youth Fitness and Wellness Charter, 2006).

Non-governmental organizations such as SCORE (Sport Coaches Outreach) have also made a meaningful contribution. SCORE recruits international and local volunteers to teach physical education, coach sport and train instructors in underprivileged communities. Most volunteers live in the communities where they work, assist in introducing Physical Education at the primary schools in their area, assist teachers in organizing leagues and tournaments and assist with the establishment of sports teams and clubs in the broader community. Since the start of the programme in 1991, over 650 volunteers from 22 different countries have been hosted by more than 180 communities. More than 500 000 children have participated in the SCORE sports programs (SCORE, 2006).

In the private health care and life insurance industries, some medical aid companies and life insurance companies have recognized the importance of physical activity in health promotion. These companies encourage their members to lead an active lifestyle by subsidizing gym memberships, encouraging members to participate in the 10 000 step campaign and offering discounted rates for compliance. In addition, there has been a steady increase in the number of gyms in South Africa, and initiatives like Run/Walk for Life (2007).

This section has highlighted the growing awareness in the country of the importance of leading an active lifestyle. A number of initiatives have been undertaken to promote physical activity among the South African population. These include government initiatives from the Departments of Health, Education and Sport, as well as non-governmental initiatives such as the Move for Health programme, the Youth Fitness and Wellness Charter, and other public and private initiatives. Very few initiatives, however, have focused on black women specifically. The present study seeks to shed light on the effect these general initiatives may have had on black professional women.

## 2.6 HISTORICAL, SOCIO-CULTURAL AND GENDER ISSUES IN SPORTS PARTICIPATION

Cultural patterns and economic, political and ideological orders affect the participation of women in sport (Hargreaves, 1994:5). South Africa has a complex political history. Black people were severely disadvantaged by the past government's policy of apartheid which affected every aspect of life in South Africa. The patterns of life in black society had been transformed since the days of colonialism, when black men were forced to move from rural areas to work in mines by the migratory labour system. Women thus became the head of the family, and, in addition to raising the family, they had to tend to the cattle and the land. Apartheid brought with it discriminatory laws and practices and encompassed migrant labour, segregation, forced removals, poor living conditions for blacks and a lot of hardships (Bernstein, 1985). Women carried a heavy burden as a result of apartheid, but their oppression also came from historical and cultural conditions. Black women have been marginalized in their own patriarchal societies (Goosen & Klugman, 1996:31; Nauright, 1997:19). "Sexual and racial discrimination condemned them to the bottom of the pile and on their backs rests a vast superstructure of law and of custom, cemented into a modern industrialized state" (Bernstein, 1985).

According to Roberts (1992:3), the majority of black South African women suffer triple oppression on the basis of their class, colour and gender. This inhibits their participation in various forms of leisure and recreation. With regards to women's health, it has been referred to as "quadruple" oppression: race, social class and gender have been linked to the complexities of being new arrivals in an urban environment (Cooper, Pick, Myers, Hoffman, Sayed & Klopper, 1991).

Socio-cultural factors discourage women from leisure-time physical activities. Goosen and Klugman (1996:143) highlight attitudes and perceptions of black women towards physical activity:

- "It is not usual in my culture to take part in planned exercise programmes. Exercise came from working in the home and on the land".

- “Sport and exercise is regarded as masculine and women feel uncomfortable and self-conscious”.
- “Many women feel they have enough to cope with without taking on exercise as well”.

Various factors constrain women’s access to free time and limit the choices about how to spend free time. These constraints result from women’s structural position in society, particularly in the family. In the labour market the ideology is “a woman’s place belongs in the home” (Roberts, 1992:3). These factors are reflected in a recent study of constraints to physical activity participation by women between the ages of 30 and 65 in Potchefstroom (Erasmus *et al.*, 2005). Lack of time was indicated as being the most important constraint on participation in leisure. Feelings of guilt, as well as family commitments, work and school responsibilities were listed amongst the biggest constraints. Women see self-neglect as the price that has to be paid for work and family success (Erasmus *et al.*, 2005).

Nauright (1997:20) emphasizes the need to understand the historical and social conditions that have prevented South African women from fuller participation in sport, and to develop programmes and create facilities and infrastructure to counter this trend.

The South African Sports Commission acknowledged that women have for many years been disadvantaged by being afforded relatively limited access to participation in physical activity, leisure time physical activity and sport. Women were also relatively absent in decision-making roles in sport, in coaching, refereeing and administrative positions, reflecting massive gender inequalities in the sporting structures of the country and a strong association between sport and masculinity (Hargreaves, 1997). To address these challenges, SA Women, Sport and Recreation (SAWSAR) was formed (South African Sports Commission (SASC), 2003a). Projects outlined for 2003-2005 included “Research on women in sport and recreation update – data on women participation trends” (SASC, 2003b). The SASC “Women in Sport Seminar” resolved that there was a need to identify issues of health that affect women’s participation in

sport; that sport and physical activity be used to prevent and manage obesity; that researchers be appointed to research the rate of participation of women in sport and that all issues affecting women's participation in sport be investigated (SASC, 2003c).

Gender had been treated as less important than race and ethnicity as a factor that affects equality (Hargreaves, 1997). However, the role and position of women in South Africa has changed dramatically over the past transitional decade. Women had participated in the struggle for democracy in a multitude of ways (Meintjies, 2004). South Africa's transition to a new democracy was accompanied with a call by women to address gender subordination at all levels (Seidman, 1999). "...If democracy and human rights are to be meaningful for women, they must address our historical subordination and oppression. Women must participate in, and shape, the nature and form of our democracy" (Charter for Women's Effective Equality, 1994) (Seidman, 1999). During the negotiations for a new constitution, between 1992 and 1994, women's organizations played a pivotal role in ensuring that women's needs and interests should become part of the debate about rights. A Women's National Coalition (WNC) was formed that crossed racial and ideological divides to influence the constitution-making process. The WNC produced a Charter for Women's Effective Equality, a document that represented the hopes and dreams of South African women (African National Congress, 1994). Gender discrimination was not simply a secondary aspect of racial inequality. Women of all races faced some degree of state-sanctioned discrimination, since legislation ranging from tax codes to pensions re-created women's subordination by assuming their dependence on male breadwinners (Seidman, 1999). Even in the anti-apartheid community, democratic goals seemed to embrace a domestic vision for black women rather than calling for autonomous citizenship and political participation as gendered individuals (Seidman, 1999). Feminist intellectuals began to argue that unless gender concerns were considered during the course of democratization, new political institutions would re-create and reinforce inequality (Seidman, 1999). The battle for gender recognition was won and gradually the political slogans increasingly demanded a "non-racial, democratic and non-sexist South Africa".

President Nelson Mandela committed South Africa's first democratically elected parliament to gender equality and women's emancipation in his opening speech to parliament on 24 May 1994:

"Freedom cannot be achieved unless the women have been emancipated from all forms of oppression. All of us take this on board that the objectives of the Reconstruction and Development Programme will not have been realized unless we see in visible practical terms that the conditions of women in our country has radically changed for the better, and that they have been empowered to intervene in all aspects of life as equals with any other member of society" (Myakayaka-Manzini, 2002).

The constitution guarantees the equality of women and allows for affirmative action to address gender and race inequalities. Many laws which discriminated against women have been changed, for example, the Employment Equity Act; Choice in Termination of Pregnancy Act; Maintenance Act; Sexual Offences Act, as well as legislation on customary law. However, the country still faces many challenges relating to women: crime and violence against women, impoverished women headed households; the high percentage of uneducated women; women's poorer health status; gender bias in the labour market; unemployment for black women; women's predominance in the low skill and low paid occupations; and land rights and land reform not being gender sensitive (Swedish International Development Co-operation Agency (SIDA), 1999).

The government has shown commitment to gender equality. Thirty percent of parliamentarians are women (Garson, 2004). South Africa has the third-highest proportion of companies in the world employing women as senior managers (South Africa Info, 2004). Post-apartheid South Africa has a number of bodies dealing specifically with gender issues. They are often called the "national machinery" for gender equality. These bodies include the Commission on Gender Equality (CGE) and the Office on the Status of Women (OSW). More recently (August, 2004), President Thabo Mbeki launched the Women's Working Group to advise the government and to help establish a shared understanding of the transformation challenges facing South

African women (Masango, 2004). While a lot has been done, society still lags behind in implementation: “We have good legislation and good policies, but we need enough funding to ensure proper implementation” (Meintjies, a commissioner with the Commission on Gender Equality, 2005). The South African experience indicates that advancing gender equality demands finding a balance between the essentially political project of ensuring women’s social and economic participation and political representation, and the more technical project of institutionalising or mainstreaming a gender perspective in policy and practice (Beall, 2001). Beall (2001) argues that it is essential that the national machinery for the advancement of gender equality in South Africa shows its commitment to “doing gender” from “bottom to top, as well as from top to bottom”.

In post-apartheid South Africa, the legacies of colonialism and apartheid still shape women’s access to sports (Pelak, 2005). A recent report by the South African Sports Commission (SASC) titled “The Status of SA Women in Sport and Recreation 1994 to 2004” (SASC, 2004) aimed to establish the impact of democracy on the status of South African girls and women in different sectors of recreation and sport, and highlights the adversities facing women. A patriarchal society, poverty, sexual harassment, and a lack of access to appropriate facilities are some of the reasons given for the continuing position of women in sport in South Africa. The most significant social agents are mothers (support), fathers (role models), teachers and coaches. The school was also seen as the main institution for the delivery of sport and recreation. These findings concur with the findings of SIDA (1999) whose report looked at the economic, social, cultural, legal, and political situation of women in South Africa, and with the views of Beall (2001) and Meintjies (2004, 2005), who highlighted the need for synergy between policies and implementation.

In spite of the many obstacles, democratization has created space for the emergence of a national, broad-based women’s movement that has encouraged South African women to imagine new possibilities (McFadden, 1992; Seidman, 1999; Pelak, 2005). A growing number of South African women are negotiating the realities of poverty to construct new



sporting identities and enjoy the physical pleasures of competitive sports (Pelak, 2005). Pelak (2005) in an article entitled “Negotiating gender/race/class constraints in the new South Africa: A case study of women’s soccer”, noted that the democratization of South Africa, including the emergence of gender equality as an autonomous aspect of democracy in the country, has opened up the global game of women’s soccer to South Africans, especially black women. Through the tenacity of women athletes and their supporters, historical gender boundaries and meanings in soccer are being renegotiated. This is in line with Hargreaves’ (2000) observation that in spite of “seemingly insurmountable difficulties, township women are active agents in the process of negotiating new relations of power, in the construction of their own sporting identities, and in the creation of a new social practice. They are by no means passive recipients of handout culture, but are engaged in a constant struggle to secure better opportunities for all African women”.

This section has highlighted complex historical, political, socio-cultural and gender issues surrounding sports participation by black women in South Africa. This study seeks to shed light on the effects on physical activity participation left by colonialism, apartheid and cultural patriarchy, in relation to the political reform of the nineties and constitutional guarantees on equality in the new South Africa.

## **2.7 SUMMARY AND JUSTIFICATION FOR THE PRESENT STUDY**

The association between physical inactivity, adverse health conditions and hypokinetic diseases has been widely researched and acknowledged as a growing concern world-wide. Many of the chronic diseases faced today are associated fundamentally with the pervasive sedentariness of modern life (Sparling *et al.*, 2000). This modern life of industrialized and urbanized environments with its accompanying passive forms of entertainment has manifested itself in developing countries. In a developing country like South Africa, these problems are magnified when coupled with existing challenges such as poverty, deficiencies in health care provision, unemployment, low levels of education,

crime and violence and an HIV/Aids epidemic. Greater emphasis and more resources are being made available to the HIV/Aids crisis, leaving limited resources for CDL.

South African studies conducted in the eighties and nineties warned of the changes in lifestyle of particularly black South Africans and the accompanying detrimental effects to health. The studies of Van Der Wal (1981), Taljaard (1985/6) and Hattingh (1989) highlighted the changes in recreation needs with the rapid urbanization of black people and the severe shortage of sports and recreational facilities in historically black urban areas, then racially divided under apartheid. Sedentary forms of recreation in the form of frequenting shebeens, attending stokvels, visiting friends and watching television were replacing the more active rural lifestyles people had before urbanization. The negative effects of this are reflected in the studies by Steyn *et al.*, (1991), Sparling *et al.*, (1994) and Mollentze (1995) who highlighted the growing risk of CHD in the black population. These studies predicted that as the community became more urbanized, job related physical activity as well as physical activity for daily living would decline. In addition, the upward mobility of the black population and adoption of lifestyles of typical industrialized populations, including western diets, would increase the risk factors for diseases such as IHD and CVD (Steyn *et al.*, 1991; Sparling *et al.*, 1994; Mollentze *et al.*, 1995). There was a call for sport and leisure-time physical activity to be considered as part of a public health strategic plan (Sparling *et al.*, 1994).

Later studies highlighted the growing levels of inactivity among adult South Africans (Levitt *et al.*, 1999; Kruger, 1999; Vorster *et al.*, 2000; Statistics South Africa, 2001; Kruger *et al.*, 2003; WHO, 2005). Men and women over 60 years of age spent 65% fewer calories in physical activity than the amount reported in a sample of North Americans of the same age (Lambert & Kolbe-Alexander, 2006). The National Youth Risk Behaviour Survey reported that 1 in 4 learners (25,2%) reported watching more than 3 hours of television per day and more than 1 in 3 (37.5%) did not participate in sufficient physical activities to promote health. South African children of all races and both genders between the ages of 13 and 21 saw non-active leisure activities as more important than school sport and physical leisure activities (Van Deventer, 1997,

1998/1999). In South Africa, where women constitute the majority of the population, only 23% participate in sport (SISA, 2000), and this drops to 10.8% for black women (Kruger *et al.*, 2003). According to the National Demographic and Health Survey of 1998, about 29% of men and 56% of women are overweight, with the highest rate occurring among African women. According to the Heart Foundation, South Africa has a higher ratio of overweight women than the U.S. (Health Systems Trust, 2004). It is therefore not surprising that CDL account for nearly 40% of adult deaths, and the majority of South Africans have at least one modifiable risk factor for chronic disease (Bradshaw *et al.*, 2003). CDL will continue to play a significant role in South Africa and therefore requires prevention and cost-effective management (Steyn, 2006).

Although there is a growing body of knowledge and research on physical activity in general, there is still a lack of data on the determinants and barriers to participation in physical activity (Lambert & Kolbe-Alexander, 2006). In addition, there is a scarcity of research involving people at risk, especially black women.

A number of community based programmes and public health initiatives have been activated to increase mass participation in physical activity. However, these have not been evaluated to see whether they have been effective and have met the programme objectives, and whether they have been sustainable.

Much can be learnt from research done elsewhere. In the U.S. much research has been done on physical activity, particularly following the release of the report "Physical Activity and Health: A Report of the Surgeon General" in 1996, which highlighted the declining health status of Americans due to inactivity and sedentary lifestyles. Research in the U.S. has focused on women in general, as well as on minority groups who were more at risk due to inactivity and sedentary lifestyles (Johnson, Corrigan, Dubbert & Gramling, 1990; King, Blair, Bild, Dishman, Dubbert, Marcus, Oldreidge, Paffenbarger, Powell & Yaeger, 1992; Floyd, Shiness, Maguire & Noe, 1994; Airhihenbuwa, Kumanyika, Agurs & Lowe, 1995; Wells, 1996; McDonald & McAvoy, 1997; Eyler, Baker, Cromer, King, Brownson & Donatelle, 1998; Henderson, 1998; Young *et al.*, 1998; Ainsworth, Irwin,

Addy, Whitt & Stolarzyck, 1999; Henderson & Ainsworth, 2001, 2003). Some of the conclusions from these studies are that socio-cultural issues were related to physical activity (Henderson & Ainsworth, 2003); women living in rural areas were more likely than urban inhabitants to be completely inactive during leisure time (Brownson, Eyler, King, Brown, Shyu & Sallis, 2000); the most common barriers to becoming physically active were safety, availability and cost (Eyler *et al.*, 1998); the unrealistic stereotyping of Indo-Canadian women seemed to have allowed educators, administrators and government agencies to ignore the differential needs and barriers they faced (Vertinsky, Bath & Naidu, 1996). A review of these studies has highlighted the benefits of researching the physical activity behaviour of women, in particular minority groups or marginalized people who are at risk. An important distinction in the research findings from other countries and South African research, is that in South Africa, because of its apartheid history, the marginalised people who are at risk, in fact comprise the majority of the population. Few other countries have a comparable scenario. This means that in targeting the marginalised people, particularly women, in this country, a much larger group is reached than is typical of other countries. The positive implication of this is the greater potential to change population behaviour. However, there are negative implications with regard to the logistical challenges of sheer numbers.

The new political order in South Africa has benefited women in a number of ways, with constitutional guarantees on equality and an affirmative action policy to address gender inequalities. However, the legacy of colonialism, apartheid and historical and cultural patriarchy still shape women's lives today. In order to see to what extent women may have benefited from this emancipation, this study will conduct comparative quantitative and qualitative research on two generations of women from comparative professions. The study will examine physical activity in the lives of urban black women in our changing society, seeking to understand the complexities of physical activity, and will focus on the need for synergy between policies and implementation.

The study follows the social model of women's health as described by Doyal (1994) (as cited in Goosen & Klugman, 1996:2). Doyal's approach does not concentrate on the

inside of women's bodies, as doctors so often do (medical model). Instead, it looks at their living and working conditions; at what labours they perform and how; at what their responsibilities and duties are; and at the realities of their daily lives. Instead of starting with diseases and looking for their causes, this model proposes starting with women's daily activities and assessing their potential for improving or destroying their health. It examines the elements of women's health in a holistic and integrated way. The social model encourages identifying and overcoming barriers to optimising their well-being and leading healthy lives (Goosen & Klugman, 1996: 2); their physical activity patterns, psychosocial contexts, socio-cultural influences, attitudes and perceptions; and their motivations and constraints in relation to physical activity.

## **CHAPTER 3**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter outlines the research methodology employed in the current study and includes a discussion on the research design, sampling methods, data collection procedures and data analysis techniques utilized to achieve the aims and objectives outlined in Chapter 1. A mixed method approach using both quantitative and qualitative methods was used in this study.

#### **3.2 RESEARCH DESIGN**

Research design is defined as a “plan, or road map, for conducting the study” (Rossman & Rallis, 2003:134). Selecting the appropriate design to meet the aims and objectives of the research is therefore an essential part of any study. The research design employed in this study is a mixed method, and can be classified as quantitative, qualitative and exploratory-descriptive in nature and is suited to the multi-faceted approach to understanding the role of physical activity in the lives of black professional women. A description of the characteristics of this research design follows.

##### **3.2.1 The Mixed Method Approach**

The study falls within the broad sphere of both quantitative and qualitative research. This mixed method approach is relatively new in the social and human sciences and has been referred to by many different terms, including: integrating, synthesis, quantitative and qualitative methods; multimethod; multimethodology; and “mixed methods” (Creswell, 2003:178).

The mixed method approach is used in order to achieve an holistic understanding of physical activity in the lives of black South African women. Whereas the quantitative

data will provide baseline information, the qualitative data will seek to understand the psychosocial context and socio-cultural explanations for those results. The intent is to triangulate the qualitative data with the quantitative data to obtain a broad picture of the socio-cultural context of women's lives so that their physical activity patterns might be understood against societal and personal imperatives. This method to uncover the root causes of physical behaviour, as well as an understanding of physical activity patterns will impact on recommendations.

Quantitative research tends to focus on analysis (i.e., taking apart and examining components of a phenomenon), whereas qualitative research seeks to understand how participants experience and construct meaning in a specific setting, and how the components mesh to form a whole. Qualitative research in physical education, exercise science and sports science is relatively new (Thomas & Nelson, 2005:345). However, it has been claimed that the traditional quantitative research paradigm is often compromised by the realities of working within wellness programming (Dunnagan, Peterson & Wilson, 1997). Simplistic techniques, which are often employed in health promotion programmes, do little to address more substantive issues such as changes in behaviour, knowledge or health status. In a combined quantitative and qualitative approach the weaknesses of one methodology can be overcome by the strengths of the other. Quantitative changes can be better understood and given validation through qualitative data (Dunnagan *et al.*, 1997).

### **3.2.2 Explorative-Descriptive Nature of the Research Design**

The research method used will be primarily exploratory-descriptive in nature. Exploratory-descriptive research sets out to observe, record and describe pertinent behaviour. It is a primary and necessary goal for the development of scientific knowledge (Cozby, 1993). Exploratory-descriptive research provides an accurate and detailed description of a given phenomenon or construct (Christensen, 1997), as well as systematic examination and organization of carefully observed information (Cozby, 1993; Dane, 1990).

Exploratory-descriptive research is the most useful methodology for obtaining baseline information on the physical activity patterns of black South African women and the psychosocial context and socio-cultural influences on physical activity in the lives of the participants. The descriptive approach provides a careful and detailed description of a particular phenomenon (Christensen, 1997). More specifically, this approach provides a method for discovering new meaning, for describing what exists, for determining the frequency with which something occurs, and for categorizing information (Mouton & Marais, 1990).

This study is exploratory in that it explores a relatively unknown field (Mouton, 1985). Although some research exists on the physical activity patterns of South Africans, very little is known about such patterns among black women. A number of South African studies have highlighted the risks of a sedentary lifestyle on various health variables: however, no studies have been found that investigate the physical activity patterns of black women in South Africa, nor have these examined the psychosocial context and socio-cultural influences on their physical activity.

### **3.3 PARTICIPANTS AND SAMPLING**

The population for this study was two generations of professional black women residing in the Nelson Mandela Metropolitan Municipality. The older generation of professional women was comprised of community teachers, nurses, social workers and public managers (n=111, aged 35 to 45 years, mean age = 39.87 years). These women, through their occupations, were in constant contact with the community and could be regarded as role models who influence community lifestyle, attitudes and behaviour. The younger generation (n=69, aged 18 to 21 years, mean age = 20.12 years) was comprised of teaching, nursing, social work and public management students in the Nelson Mandela Metropolitan Municipality.

The sampling method was purposive and criterion-based. Purposive sampling is judgmental sampling that involves the researcher's conscious selection of participants



(Burns & Grove, 1999:233). Criterion-based sampling enables the identification of specific criteria for inclusion in the sample (Polit & Hungler, 1993:252). Choosing participants who share characteristics and experience makes it possible to gather in-depth information about the phenomenon being investigated (Holloway & Wheeler, 1996:75). The criteria for inclusion in this study were that the participants:

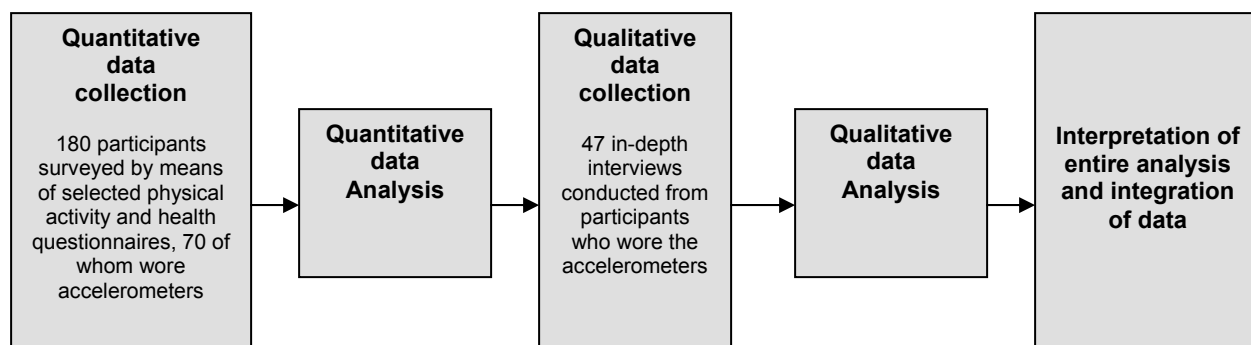
- were qualified, practicing teachers, social workers, nurses and public managers, aged 35-45 years, working and residing in the Nelson Mandela Metropolitan Municipality; or students in the disciplines of teaching, social work, nursing science and public management, aged 18-21 years, residing and studying in the Nelson Mandela Metropolitan Municipality
- were black African women, whose home language is Xhosa
- were able to communicate and express themselves in English
- were participating voluntarily.

The younger generation of students were mostly selected from the various campuses of the Nelson Mandela Metropolitan University, while additional student nurses were recruited from the Lilitha Nursing College in the Nelson Mandela Metropolitan Municipality. The professional teachers were recruited from various primary and high schools in the areas of New Brighton, Kwa-Zakhele, Zwide, Motherwell and Kwa-Nobuhle (all historically black areas). The majority of the professional social workers in the study were employed by the Eastern Cape Department of Social Development and served in the historically black areas of the Nelson Mandela Metropolitan Municipality. Other professional social workers worked for Non-Government Organizations (NGOs) such as the SOS Children's Village, Childline, the Self-help and Resource Exchange (SHARE), Family and Marriage Association of South Africa (FAMSA) and the South African National Council on Alcoholism and Drug Dependence (SANCA). The professional nurses in the study all worked at primary health care clinics in the areas of New Brighton, Kwa-Zakhele, Zwide, Motherwell, Kleinskool, Greenbushes and Kwa-Nobuhle (all historically black areas). The public managers were recruited from the Nelson Mandela Metropolitan Municipality (Grades 14 upwards) and held managerial positions in a variety of areas, namely, skills development, economic development,

human resources, sport and recreation, arts and culture, special projects, agriculture, housing, tourism, and trade and investment.

### 3.4 STUDY DESIGN AND DATA COLLECTION PROCESS

The study used both quantitative and qualitative measurements. This mixed approach calls for a sequential explanatory strategy, characterized by the collection and analysis of quantitative data followed by the collection and analysis of qualitative data (Creswell, 2003:213-215). Equal emphasis was given to each method with results integrated during the interpretation phase of the study. The steps fell into clear, separate stages, which facilitated description and reporting (Creswell, 2003:213-215). Figure 1 represents a graphic model of the strategy:



**Figure 1: The sequential explanatory strategy of data collection and analysis**

The research proposal was submitted to the Advanced Degree Committee and the Human Ethics Committee of the Nelson Mandela Metropolitan University for approval before the commencement of any data collection. Approval was received in February 2005.

Permission to conduct the study using students, employed teachers, nurses, social workers and public managers was then sought from: relevant academic departments in the Nelson Mandela Metropolitan University, i.e. Nursing Sciences, Social Development

Professions, Public Management; the Education Faculty; the Eastern Cape Provincial Departments of Education, Health and Social Development; and the Nelson Mandela Metropolitan Municipality. A copy of the generic letter sent to these departments (adapted as was necessary) is provided as Appendix A.

Each participant who met the criteria for inclusion was provided with information related to the objectives, purpose, significance and data collection procedures of the study to enable her to make an informed decision regarding participation. Participants were also assured of feedback based on their scores and measurements of physical activity, and recommendations on how they could improve. This gesture ensured transparency of individual data collected and enabled participants to gain direction from the study. This feedback was given only after all measurements and interviews were completed and all data collected.

Each participant was provided with an information letter and consent form (Appendix B) in which the objectives and purpose of the study, as well as the research ethical principles to be observed in this study, are stated. These principles included the right to privacy or non-participation, the right to remain anonymous, the right to confidentiality and the right to expect experimenter responsibility, as set out by Tuckman (1978).

The data were collected from May 2005 to December 2005. The data for the younger generation was collected at the various campuses of the Nelson Mandela Metropolitan University, namely, the South Campus, North Campus, Second Avenue Campus and the Algoa Campus, as well as from the Lilitha Nursing College. The data for the older generation was collected mainly at the various places of employment of the participants, namely, schools, clinics and offices. Where this was not possible, the relevant data was collected at their homes, by arrangement.

A Human Movement Science graduate was trained to assist with data collection. The research assistant accompanied the researcher to most of the data collecting sites. Where possible, the data was collected from participants in small groups of up to ten. All

the questionnaires were explained to the participants, who then completed the demographic information, the Belloc and Breslow (1972) lifestyle index and the Health-Promoting Lifestyle Profile (HPLP) (Walker *et al.*, 1987) on their own. The researcher administered the GPAQ and the FIT (Frequency, Intensity, Time) Index of Kasari on a one-to-one basis with each participant. The questionnaires were checked before collection to ensure that all details were filled in and that all questions were answered. Specific details of these questionnaires are given in section 3.4. The research assistant also helped with the measurement of height and body mass.

Participants were asked to indicate on the demographic questionnaire their willingness to wear the ActiGraph accelerometer. One hundred and seventy participants (OG=103, YG=67) agreed to wear the ActiGraph accelerometer, and a random sample of 70 participants (OG=36, YG=34) was selected from this total. A random sample was selected based on the results of the GPAQ scores which indicated that 100% of the OG and 95% of the YG were sedentary or minimally active. Participants were required to wear the accelerometer for seven days: specific details in this regard are provided in section 3.4.9. The ActiGraphs were fully charged beforehand, set for data collection and taken to the participants at their convenience, usually their place of residence. Thereafter, in-depth qualitative interviews were held with the participants from the sample group of 70 (the participants who wore the ActiGraph), details of which are provided in section 3.4.10.

The data collection was completed in December 2005. The quantitative data were captured onto computer and checked before being analysed statistically. The qualitative data were transcribed in February and March 2006.

Individual feedback was posted to every participant (n=180) in the study (after the completion of both the quantitative and qualitative data collection) between April and June 2006, an example of which can be seen in Appendix C.

### **3.5 MEASURING INSTRUMENTS**

The accurate measurement of physical activity is central to the internal validity of this research. Measuring a behaviour as complex and multifaceted as activity is challenging (Janz, 2006). Physical activity epidemiology has relied heavily on questionnaire methods, and has recently been supported by a second generation of electronic activity monitors such as heart rate monitors, accelerometers and pedometers. Electronic activity monitors bring to the assessment of activity a non-invasive, objective method that provides time stamped measures of duration of movement, frequency of bouts of movement, and some marker of movement intensity such as heart rate, movement count or steps (Janz, 2006). These monitors are suitable for activity assessments in small to medium sized studies. This study used a multifaceted measurement system of questionnaires, accelerometers and in-depth interviews for the measurement of physical activity. Altogether seven measuring instruments were used. These instruments are discussed below by referring to both what the instrument assesses and how it was implemented.

#### **3.5.1 Demographic Questionnaire**

Demographic information was obtained from all the subjects (Appendix D). This included name and surname, date of birth, age, residential address, contact numbers, home language, marital status, number of children, occupation, highest education qualification, monthly income, domestic assistance, height and body mass. Height and body mass were measured (details below) and filled in on the questionnaire. A participant code (used for data inputting and analysis) was allocated to each person to ensure anonymity and confidentiality (discussed in detail in section 3.7).

#### **3.5.2 Height**

Height measurements were taken in accordance with SISA (2000) procedures. A height-metre stick was placed against a wall on a firm and even surface (photograph of

equipment in Appendix E). The participant was bare-footed and stood upright with heels together, arms hanging freely by the side, palms facing the thighs, and buttocks and shoulders pressed against the wall. The head was placed in the Frankfort plane to ensure that the head was not tilted backwards, and gentle upwards traction was applied alongside the mastoid processes (behind ears) to ensure that the body was fully stretched. The participant was instructed to look straight ahead, take a deep breath and stand as tall as possible. It was ensured that the heels were not raised. The needle of the height-metre-stick was lowered until in firm contact with the vertex (highest point on the head). The height was recorded as from the floor to the vertex in centimetres to the nearest millimetre. Face validity is accepted. Anthropometric measures are considered reliable when measured by a qualified individual.

### **3.5.3 Body mass**

Body mass measurements were taken in accordance with SISA (2000) procedures. Body mass was taken with a Seca 750 scale. The participant was bare-footed with minimal clothing. The scale was set to zero before measurements were taken. The participant stood on the scale in an upright, stationary position, looking straight ahead, with palms facing the thighs. The body mass was recorded to the nearest 0.1kg. Face validity is accepted. Anthropometric measures are considered reliable when measured by a qualified individual.

### **3.5.4 Body mass index**

Height and body mass were used to calculate the body mass index (BMI) or Quetelet index. BMI is used to assess weight relative to height and is calculated by dividing body mass in kilograms by height in meters squared, ( $BMI = \text{kg}/\text{m}^2$ ). BMI is a good indicator of total body composition in population based studies and is related to health outcomes (American College of Sports Medicine, 2006: 58). BMI standards are used to classify obesity and to assess disease risk (Hoffman, 2006: 87). As BMI increases, mortality rate from cardiovascular disease and diabetes increases as well (Bray & Gray, 1988).

The WHO defines *obesity* as a BMI of 30 kg/m<sup>2</sup> or more; *overweight* as a BMI of between 25 and 29.9 kg/m<sup>2</sup>; and *underweight* as a BMI of less than 18.5 kg/m<sup>2</sup> (WHO, 1998).

### **3.5.5 Belloc and Breslow (1972) lifestyle index (Appendix F)**

Seven health habits, commonly referred to as the “Alameda 7”, were shown to be associated with physical health status and mortality in a pioneer longitudinal study initiated in 1965 in Alameda County, at the Human Population laboratory in the California State Department of Public Health (Schoenborn, 1986). These habits are: eating breakfast, taking regular meals with no in-between snacking, participation in moderate exercise two to three times a week, getting adequate sleep (seven to eight hours a night), non-smoking, maintaining moderate body weight, and little or no consumption of alcohol (Belloc & Breslow, 1972). Data were gathered by means of questionnaires completed by a probability-based sample of adult residents of Alameda County (n=6928). The questionnaire items were found to be highly reliable (three out of four respondents answered 90 percent or more of the items identically) (Hochstim & Renne, 1971). Physical health was measured along a spectrum ranging from severe disability to high energy level with absence of chronic conditions or symptoms and was expressed by a “ridit” (Relative to an Identified Distribution). Questions about health status corresponded favourably with medical records in circumstances where it had been possible to make comparisons (Meltzer & Hochstim, 1970). In studying the reciprocal relationships, physical health was taken as a dependent variable and current health practices were examined as possible independent variables. Small, but statistically significant (Chi-square test,  $p < 0.05$ ), differences in the expected direction were found for every item (Belloc & Breslow, 1972). Although some evidence has suggested that breakfast and snacking habits are less important for future health than the other five habits (Wiley & Camacho, 1980), a nine and a half-year follow-up of the 1965 Alameda cohort found that people who followed each of the seven good habits tended to live longer than people who did not follow them (Breslow & Enstrom, 1980). Further, the effects were additive: people having more of the good habits tended to live

longer than people having fewer of them (Breslow & Enstrom, 1980). In the present study, compliance with each of the seven healthy lifestyle habits, as described by Belloc and Breslow (1972), was measured, in addition to an accumulated lifestyle index score out of 7. The lifestyle index of Belloc and Breslow (1972) has been used in many other South African studies, for example in Dreyer, Coetsee, Strydom and Van der Merwe (1997); Fourie (1999) and Wilders and Strydom (2003).

### **3.5.6 Health-Promoting Lifestyle Profile (HPLP) (Walker *et al.*, 1987) (Appendix G)**

This questionnaire evaluates the respondents in terms of their likelihood to engage in health-promoting behaviours. The HPLP is a 48-item summated rating scale which provides a measure of frequency of performance of specific health-promoting behaviours. An overall measure of the health-promoting components of lifestyle is obtained along with a measure of six subscales, namely, self-actualisation, health responsibility, exercise, nutrition, interpersonal support and stress management. Respondents are classified as *low* with a health-promoting percentile score of 20% or less; *average* with a health-promoting percentile score of between 21% and 79%; and *high* with a health-promoting percentile score of 80% and higher.

The total scale has high internal consistent validity ( $\alpha = .922$ ) and subscale alpha coefficients are reported to range from .702 to .904. This scale seems to be well accepted among researchers as a tool to determine the likelihood of individuals to engage in health behaviours and has been used in various studies, including a few South African studies, for example in Walker, Volkan, Sechrist and Pender (1988); Duffy (1988); Duffy and MacDonald (1990); Frank-Stromberg, Pender, Walker and Sechrist (1990); Pender, Walker, Sechrist and Frank-Stromberg (1990); Dreyer and Dreyer (2001); Wilders and Strydom (2003).



### 3.5.7 The FIT (Frequency, Intensity, Time) Index of Kasari (Appendix H)

The index was developed in the 1970s by Kasari (1976) and was proved to be related to aerobic fitness; that is, with the increase in intensity, duration and frequency of exercise, there is an accompanying increase in the index score and fitness (Sharkey, 1997:7). The FIT Index of Kasari quantifies the respondent's participation in any form of leisure time physical activity, taking into account the intensity, frequency and duration of participation. Depending upon their score, subjects are classified into the following categories, *low active* (less than 17), *moderately active* (17 to 35) and *highly active* (greater than 35). The FIT Index of Kasari has been successfully used in many South African studies where it is referred to as the physical activity index of Sharkey (1984), for example in Strydom, Kotze, Roux, Schoeman, Joubert and Van der Merwe (1991); Strydom *et al.*, (1991); Van der Merwe (1995); van der Westhuizen (1997); Boshoff (1998), Fourie (1999); Rabie (1999); Wilders and Strydom (2003).

### 3.5.8 Global Physical Activity Questionnaire (GPAQ) (Appendix I)

The GPAQ was developed by the World Health Organization (WHO) for physical activity surveillance in developing countries. This questionnaire was designed to produce valid and reliable estimates of physical activity, especially relevant to developing countries where patterns of energy expenditure differ from those of developed countries, and where people experience diverse ways of life. It collects information on physical activity participation in three settings (or domains), and on sedentary behaviour. These domains are: activity at work, travel to and from places, and leisure activities (WHO, 2006). METs and METminutes are used in the analysis of physical activity in the GPAQ. MET (Metabolic Equivalent) is the ratio of the work metabolic rate to the resting metabolic rate. One MET is defined as 1 kcal/kg/hour and is equivalent to the energy cost of sitting quietly. A MET is also defined as oxygen uptake in ml/kg/min with one MET equal to the oxygen cost of sitting quietly, around 3.5 ml/kg/min. A METminute is computed by multiplying the MET score by the minutes performed (Bull, 2003). For the GPAQ, the following selected MET values were taken from previous research using the

Ainsworth, Haskell, Whitt, Irwin, Swartz, Strath, O'Brien, Basset, Schmitz, Emplainscourt, Jacobs & Leon (2000) compendium:

Moderate physical activity (in work and leisure domains) = 4.0 METs

Vigorous physical activity (in work and leisure domains) = 8.0 METs

Transport related walking/cycling = 4 METs

The development of a standardized tool to measure physical activity enables comparisons across culturally diverse populations. Comparable, valid and reliable information on physical activity enables countries to follow trends over time, understand regional and global comparisons, and better inform physical activity policy decisions (Armstrong & Bull, 2006).

The GPAQ was validated in nine countries (including South Africa). The test-retest reliability of GPAQ was examined to assess the repeatability of the instrument over multiple applications using a 3- to 7-day time gap for time 1 and time 2. Test-retest reliability data produced good-to-excellent results, indicating a high level of repeatability between administrations of GPAQ ( $r=0.67-0.81$ ). Concurrent validity (intermethod comparison) was undertaken by comparing GPAQ with the International Physical Activity Questionnaire (IPAQ), an instrument with known acceptable-to-good validity and reliability properties, which has been validated in twelve countries, and a moderate-to-good correlation coefficient ( $r=0.54$ ) was obtained (Craig, Marshall, Sjostrom, Bauman, Booth, Ainsworth, Ekelund, Yngve, Sallis & Oja, 2003).

The criterion validity of GPAQ was assessed using objective motion monitors, either a pedometer or accelerometer. Objective measurement of physical activity by motion sensors enables the collection of more accurate information on activity patterns than do questionnaires (Shephard, 2003). However, as motion sensors are not usually practical for population surveillance of physical activities, their use as a measure for determining the criterion validity of questionnaires is important (Armstrong & Bull, 2006).

Pooled criterion validity (from pedometer studies) was fair for both total physical activity ( $r=0.31$ ), and for time spent in sedentary activities ( $r=0.26$ ). Overall, these results indicated that GPAQ performed well and at least as well as the IPAQ short-form in terms of its measurement properties (Armstrong & Bull, 2006). The GPAQ version 1 (GPAQv1) has since been revised with the formulation of the GPAQ version 2 (GPAQv2). The GPAQv2 is only slightly modified from GPAQv1 and retains the same structure and domain approach, but is slightly shorter with the removal of some of the screening questions (Armstrong & Bull, 2006). The GPAQ version 1 (GPAQv1) was used in this study.

### **3.5.9 Accelerometer (ActiGraph GT1M model)**

The ActiGraph (GT1M model) (photograph in Appendix J), formerly known as the CSA Actigraph, is an accelerometer used to measure energy expenditure. The ActiGraph collects and reports physical activity in “counts” and then converts these counts to calories. Counts are the summation of the accelerations measured during the epoch period. The ActiGraph measures changes in acceleration 30 times each second. The ActiGraph also has a pedometer function, measuring the number of steps taken.

The ActiGraph has been shown to be a reliable and valid tool for measuring physical activity (Melanson & Freedson, 1995; Freedson, Melanson & Sirad, 1998; Trost, Ward, Moorehead, Watson, Riner & Burke; 1998; Welk, Blair, Wood, Jones & Thompson, 2000). It was also used as the standard for validating the International Physical Activity Questionnaire (IPAQ) in 12 European countries (Craig *et al.*, 2003), as well as the Centres for Disease Control and Prevention’s National Health and Nutrition Examination Survey (NHANES, 2006). More recently, it was used in the validation of the GPAQ (Armstrong & Bull, 2006). In a comparative study on the reliability of accelerometry-based activity monitors, the ActiGraph had the least variability across monitor units and the highest overall reliability (G values above 0.60 and ICC values above 0.80) (Welk, Schaben & Morrow, 2004).

The ActiGraph GT1M model has been upgraded from the 7164 model, with a direct USB connection, more than 1 megabyte of memory (the 7164 model had 64K of memory), is self-calibrating and completely waterproof. The Actigraph is compact and easy to wear; it weighs less than one ounce (28 grams) and is approximately 1.5 inches (5cm) in width and length.

The participants were required to wear the ActiGraph on the waist with an elastic belt, either above or below their clothing. Participants were asked to wear the ActiGraph for seven days, putting it on first thing in the morning and removing it last thing at night and removing it when bathing or showering. The ActiGraph data were deemed valid if it were worn for at least five days. For activity counts, and time spent in moderate to vigorous activity, at least three to four days of monitoring is required to achieve reliability (Matthews, Ainsworth, Thompson & Bassett, 2002). Only one participant from the YG failed to comply with the five day requirement. This resulted in the data of 69 participants (OG=36, YG=33) used in the study. The participants were reminded by the researcher every morning to wear their ActiGraphs by daily SMSs to their cell phones. After the seven day period expired, information collected on the ActiGraphs was downloaded onto a computer for analysis.

### **3.5.10 In-depth Interviews**

In-depth qualitative interviews were held with participants from the sample group of 70 (the participants who wore the ActiGraphs). The sample size was determined by data saturation from the interviews. Data saturation is explained as data adequacy and it involves the collection of data until no new information is obtained (Morse, 1994:147). Finally, 47 participants were interviewed, 20 from the OG (six teachers, four nurses, five social workers and five public managers) and 27 from the YG (seven education, seven nursing science, five social work and eight public management students).

The purpose of using in-depth qualitative interviews for this study was to explore the meanings associated with the involvement of black women in physical activity. The goal

of the qualitative aspect of the study was to understand how women defined their physical activity contexts. It would further enhance our understanding of the psychosocial and socio-cultural contexts influencing the physical activity of black women. The interviews each took between 30 to 40 minutes, and interviewees were informed that the conversation would be recorded for research purposes.

The questions in the qualitative portion of the study were designed to encourage women to talk about their lives and how they perceived and described the importance or relevancy of physical activity in their lives. Traditional quantitative methods are not able to uncover the complex nature of these attitudes and practices.

A semi-structured interview guide (Appendix K) was used to collect data for the study. This approach allowed the interviewer the freedom to probe and to ask questions in whatever order seemed appropriate and served as a basic checklist during the interview.

The interview guide provided topics within which the interviewer was free to explore, probe and ask questions that would elucidate and illuminate perceptions of physical activity. Interviewing techniques and skills were applied to allow the interviewer to build a conversation within a particular subject area and to establish a conversational style, and thereby deepen responses. These included verbal and non-verbal probing, reframing, clarifying, summarizing and perception checking.

### **3.6 DATA ANALYSIS**

As this study is primarily exploratory-descriptive in nature, mostly descriptive statistics were used to present quantitative results, but some inferential statistics were also computed to determine the statistical and practical significance of the results. The statistical analyses were done using Microsoft Excel and the statistical software package, *Statistica* version 7. Descriptive statistics are used to present quantitative descriptions in a manageable form (Babbie & Mouton, 1998:459) and to facilitate

organization and interpretation (Dane, 1990; Cozby, 1993). The descriptive statistics used in this study included: means, standard deviations, frequency distributions and graphs. Inferential tests used to compare the data from the two generations of black women included the t-test, with Cohen's d as the practical significance test; and the Chi<sup>2</sup> test, with Cramér's V as the practical significance test. Pearson Product Moment correlations were calculated to determine the relationship between the various measurements of physical activity and the relationship between the measurements of physical activity and the health-related measurements. The aim of the statistical analysis of the data was to provide a description and comparison of the physical activity levels (occupational, commuting and sport and leisure), lifestyle habits and the health promoting behaviour of black women in the Nelson Mandela Metropolitan Municipality.

Data analysis of the qualitative part of the study was conducted using the constant comparison technique, a systematic method for coding, recording and analysing qualitative data (Glaser & Strauss, 1967). Analysis included the process of bringing order to the qualitative data and organizing words into patterns, categories, and basic descriptive units. Interpretation involved attaching meaning and significance to the analysis, explaining descriptive patterns, and looking for relationships and linkages within the data. Creswell (2003) describes the stages of the data management and analysis process used in this study as follows:

Step 1: The data is prepared for analysis. This involves transcribing the interviews and attaching related field notes.

Step 2: All the data is read to obtain a holistic view of all the documents/transcriptions.

Step 3: A detailed analysis with a coding process is initiated. Coding is the process of organizing the material into meaningful "chunks". Tesch (in Creswell, 2003:196-99) provides the following steps in the coding process:

- All the transcriptions are read carefully to get a sense of the whole. Ideas that emerge are recorded.

- The most interesting document is analysed first. The document is read with notes made in the margin.
- After completing this task with several respondents, a list of all the topics is drawn up. Similar topics are clustered together.
- The data is reconsidered using the list. The topics are abbreviated as codes and the codes are written next to the appropriate segments of the text.
- The most descriptive wording for the topics are found and turned into categories. Topics that relate to one another are grouped in order to limit the number of categories.
- Categories are abbreviated into codes which are then alphabetized.
- The material belonging to each category is clustered and a preliminary analysis performed.
- The data is recoded as necessary.

Step 4: The coding process is used to generate a description of the setting or people as well as categories or themes for analysis.

Step 5: Decisions are made on how the description and themes will be represented in the qualitative narrative.

Step 6: The final step in the data analysis process involves making an interpretation or making meaning of the data.

These steps engage a researcher in a systematic process of categorizing and analysing textual data. In this study a set of transcripts with a protocol on how to do an open analysis was given to an independent coder who had experience in qualitative analysis. After analysis the researcher and independent coder met for a consensus discussion on the identified themes in the data. A letter from the independent coder is provided in Appendix L, confirming the consensus discussion on the identified themes, sub-themes and categories.

### **3.7 DATA VERIFICATION**

All research should verify internal and external validity. The validity and reliability of the quantitative measurements used in the study are outlined in section 3.4.

Data verification of the qualitative part of the study was done according to Guba's model of trustworthiness (Krefting, 1991:215-222). This model is conceptually well developed and has been used by qualitative researchers for decades (Krefting, 1991).

Guba's model identifies four criteria for ensuring and establishing trustworthiness: truth value, applicability, consistency and neutrality, and a relevant strategy for achieving each of these.

#### **3.7.1 Truth Value**

Truth value is used to determine to what extent the findings of the study are a true reflection of the life-world of the informants, as described and experienced by them (Krefting, 1991: 215-216). The strategy for establishing truth value was credibility, which was achieved in the following ways:

- Investigator triangulation was ensured by using an experienced independent coder who assisted with coding and analysis of the original interview transcripts, and then engaged in a consensus discussion with the researcher in order to finalize the analysis of the transcribed data.
- Krefting (1991:215) highlights that "truth value is usually obtained from the discovery of human experiences as they are lived and perceived by the informants". The interviews were tape-recorded to capture verbatim responses by the participants.
- Triangulation was employed in this study through the use of qualitative (semi-structured interviews) and quantitative data (various questionnaires and data obtained from the ActiGraph); informal conversations and



observations; and a thorough investigation and comparison of literature with the research findings.

### **3.7.2 Applicability**

Krefting (1991:216) defines applicability as “the degree to which the findings can be applied to other contexts and settings or with other groupings”. Transferability ensures applicability of the study. Transferability in qualitative research can be achieved by using a nominated sample, time sampling, dense descriptions of the research methodology and working contextually (Krefting, 1991:217). Purposive and criterion based sampling was used in this study, ensuring that the participants shared the same characteristics and experiences, thus making it possible for the gathering of in-depth information on physical activity in the lives of black professional women. In addition, dense descriptions were used. Comprehensive detail on the participants as well as the research context, setting and process were clearly outlined to enable others to determine transferability of results.

### **3.7.3 Consistency**

Consistency is concerned with the extent to which replication of the study in a similar context, or with similar informants, will lead to the same results (Krefting, 1991:215-222). Dependability is the strategy used to ensure consistency. The actions that can be carried out to establish dependability include the keeping of a dependable audit, proving a dense description of the research methods, stepwise replication, triangulation, peer examination and code-recode procedures (Krefting, 1991:216-217). The actions taken to establish dependability in this study were:

- A detailed description of the research methodology has been provided.
- Peer examination of the research methodology and implementation by the study’s promoter and the Advanced Degrees Committee of the Faculty of Health Sciences at the NMMU.

- A code-recode procedure was used through which the researcher re-checked the accuracy of the initial coding.
- The services of an independent coder were enlisted to verify the accuracy of the coding.

### **3.7.4 Neutrality**

Neutrality refers to the extent to which the study's findings are free from bias, that is, that the findings are a true reflection of the participant's experiences only, and that there are no external influences (Krefting, 1991: 217). It is proposed that neutrality in qualitative research should consider the neutrality of the data, rather than of the researcher, and therefore suggested confirmability as the strategy to achieve neutrality (Krefting, 1991:217). Confirmability was established in the following ways:

- An independent coder was used to check and verify coding, data analysis and interpretation of the research findings.
- The researcher's report contains verbatim narrations to substantiate statements made, and to provide an audit trail or chain of evidence for interpretations.

## **3.8 ETHICAL CONSIDERATIONS**

Most research in the study of physical activity deals with humans. The researcher needs to be concerned about any circumstances in the research setting or activity that could harm the participants (Thomas & Nelson, 2005:88). The proposal was submitted to the Advanced Degree Committee and the Human Ethics Committee of the Nelson Mandela Metropolitan University for approval before the commencement of any data collection. Permission was also sought from the relevant academic departments in the Nelson Mandela Metropolitan University (i.e. Nursing Sciences, Social Development Professions, Public Management and the Education Faculty); and the Eastern Cape Provincial Departments of Education, Health and Social Development and the Nelson

Mandela Metropolitan Municipality to conduct the study using students, employed teachers, nurses, social workers and public managers, respectively.

Each participant who met the criteria for inclusion was provided with information related to the objectives, purpose, significance and data collection procedures of the study to enable her to make an informed decision regarding participation.

Each participant was provided with an information letter and informed consent form (Appendix B) in which the objectives and purpose of the study, as well as the research ethical principles to be observed in this study, are stated. These principles include the right to privacy or non-participation, the right to remain anonymous, the right to confidentiality and the right to expect experimenter responsibility, as set out by Tuckman (1978).

It was explained to the participants that permission to take part in the study was voluntary and that refusal to participate would not prejudice them in any way (Brink, 1996:44). Voluntary participation was achieved by allowing the participants to clarify any doubts related to the research project, as well as information provided to them either verbally or in writing. Following the clarification of doubts, the signing and handing in of the informed consent (Appendix B) served as proof that the participant was given full information, and that she understood fully the objectives and processes of the study, and that consent was given voluntarily (Brink, 1996:42).

All data gained is privileged information to be handled with care and respect (Cormack, 2000). Guidelines regarding privacy and confidentiality were adhered to and emphasis was on preserving anonymity to ensure confidentiality. The following guidelines as outlined by Brink (1996:45) were used to ensure anonymity:

- Provision of a code name for each participant.
- Keeping of the master copy of participant names and matching names in a separate storage place.
- Destroying the list of names after use.

- Using only the code names when discussing data collected.

The study did not require conduction of invasive procedures that could physically harm the participants. The participants were given the right to refuse to divulge any information perceived by them to be confidential and private (Brink, 1996:45). At no stage were the participants in danger, humiliated or treated unfairly. They were well informed at all times and all information obtained was kept private and confidential.

## **CHAPTER 4**

### **RESULTS AND DISCUSSION OF QUANTITATIVE DATA**

#### **4.1 INTRODUCTION**

The general aim of this research was to explore and describe, and then compare, the role of physical activity in the lives of two generations of black professional women, namely teachers, nurses, social workers and public managers, from the Nelson Mandela Metropolitan Municipality. Both quantitative and qualitative measures were used to achieve the general aim of the study. The focus of this chapter is on the quantitative data collected. The measures used for this purpose were various questionnaires and the ActiGraph accelerometer. These measures provided objective information on various health variables, energy expenditure and physical activity involvement. The quantitative data, providing baseline information on the health status and physical activity involvement of the two generations of black professional women, will be triangulated with the qualitative data (discussed in Chapter 5). The results in this chapter are presented in four sections: the biographical distribution of the participants, physical characteristics of participants, health related behaviour measurements and physical activity related measurements, with a discussion after each section. In this chapter, where reference is made to significant differences, this implies a statistical significance,  $p \leq .05$  and a practical significance, Cohen's  $d > 0.20$  or Cramér's  $V > 0.10$  or  $0.07$  or  $0.06$  for 1 or 2 or 3 (and more) degrees of freedom, respectively.

#### **4.2 BIOGRAPHICAL DISTRIBUTION OF PARTICIPANTS**

Table 4 provides descriptive information of the two groups of participants in relation to their education levels, marital status, income levels, child-raising obligations and levels of domestic assistance at home, all of which may influence involvement in physical activity. The study sample consisted of two generations of black professional women. The older generation (OG), aged 35 to 45 years, consisted of 111 participants (25 nurses, 24 social workers, 23 public managers and 39 teachers) and the younger

generation (YG), aged 18 to 21 years, consisted of 69 participants (8 student teachers, 18 student nurses, 14 student social workers and 29 student public managers).

**Table 4: Biographical distribution of participants**

	<b>OG (n=111)</b>	<b>YG (n=69)</b>
<b>Participants</b>		
Teachers	39 (35%)	8 (12%)
Nurses	25 (23%)	18 (26%)
Social Workers	24 (22%)	14 (20%)
Public Managers	23 (21%)	29 (42%)
<b>Education Level</b>		
1 <sup>st</sup> year student	-	43 (62%)
2 <sup>nd</sup> year student	-	22 (32%)
3 <sup>rd</sup> year student	-	4 (7%)
Diploma	46 (41%)	-
Degree	50 (45%)	-
Post-graduate	15 (14%)	-
<b>Marital Status</b>		
Married/living with a partner	58 (52%)	0 (0%)
Not married	53 (48%)	69 (100%)
<b>Raising children</b>		
Yes	94 (85%)	0 (0%)
No	17 (15%)	69 (100%)
Single parenting	46 (41%)	
<b>Income</b>		n.a
R3000-R4999	6 (5%)	
R5000-R6999	33 (30%)	
R7000-R9999	41 (37%)	
R10000+	31 (28%)	
<b>Domestic Assistance</b>		n.a
No domestic assistance	68 (61%)	
Domestic assistance 1-2 days/week	35 (32%)	
Domestic assistance 3 or more days/week	8 (7%)	

The study sample was initially set at 100 for the YG and 100 for the OG. This was, however, not possible for the YG due to the declining number of black students studying the traditional professions of teaching, nursing and social work at the University and at colleges in the Nelson Mandela Bay Municipality. Consultations with the relevant academic departments at the NMMU revealed that due to the widening of career opportunities, fewer black students are now attracted to these traditional professions, which at one stage were amongst the limited career options for the majority of black women in South Africa.

The OG were all qualified professionals in their fields, 41% with diplomas, 45% with degrees and 14% with a higher post-graduate qualification. Of the OG, 65% earned R7000 or more per month. With regards to marital status, 52% were married or living with a partner and 48% were not married. However, 85% were raising children, with 41% being single parents. Only 39% had some form of domestic assistance in their households, with 61% doing their own domestic work.

The YG was comprised of undergraduate students (62% 1<sup>st</sup> years, 32% 2<sup>nd</sup> years and 7% 3<sup>rd</sup> years) mainly studying at the various campuses of the Nelson Mandela Metropolitan University. All the students were unmarried and four students (6%) had a child, each cared for by a grandmother. As these four students did not take responsibility for raising their child, it was not reflected in Table 4.

The raising of children, parenting while single, income and domestic assistance are factors which can affect physical activity involvement and are discussed in both Chapters 5 and 6.

### 4.3 PHYSICAL CHARACTERISTICS OF PARTICIPANTS

Comparisons between the OG and YG in relation to age, height, body mass and BMI are tabulated in Tables 5 and 6. The results indicate that mean body mass and BMI were significantly greater for the OG than the YG. The mean BMI for the OG falls into the obese category ( $\geq 30\text{kg/m}^2$ ), whereas the mean BMI for the YG falls within the normal category ( $< 25\text{kg/m}^2$ ).

**Table 5: Comparison of the physical characteristics between the OG (n=111) and the YG (n=69)**

Variable	Mean	SD	Min	Q1	Median	Q3	Max	t-test	p	Cohen's d
<b>Age (years)</b>										
OG	39.87	3.43	35.00	37.00	40.00	43.00	45.00	46.60	<.0005	<b>-7.14</b>
YG	20.12	0.98	18.00	19.00	20.00	21.00	21.00			
<b>Height (m)</b>										
OG	1.60	0.06	1.46	1.56	1.60	1.64	1.76	-0.10	.922	n.a
YG	1.60	0.05	1.47	1.56	1.59	1.63	1.75			
<b>Body mass (kg)</b>										
OG	79.97	16.02	50.00	69.50	78.00	91.00	133.00	-7.32	<.0005	<b>-1.12</b>
YG	63.15	13.05	42.00	54.00	60.00	71.00	113.00			
<b>BMI (kg/m<sup>2</sup>)</b>										
OG	31.27	6.12	18.97	26.87	30.62	35.08	54.44	-7.55	<.0005	<b>-1.16</b>
YG	24.71	4.84	17.44	21.30	23.95	26.79	41.26			

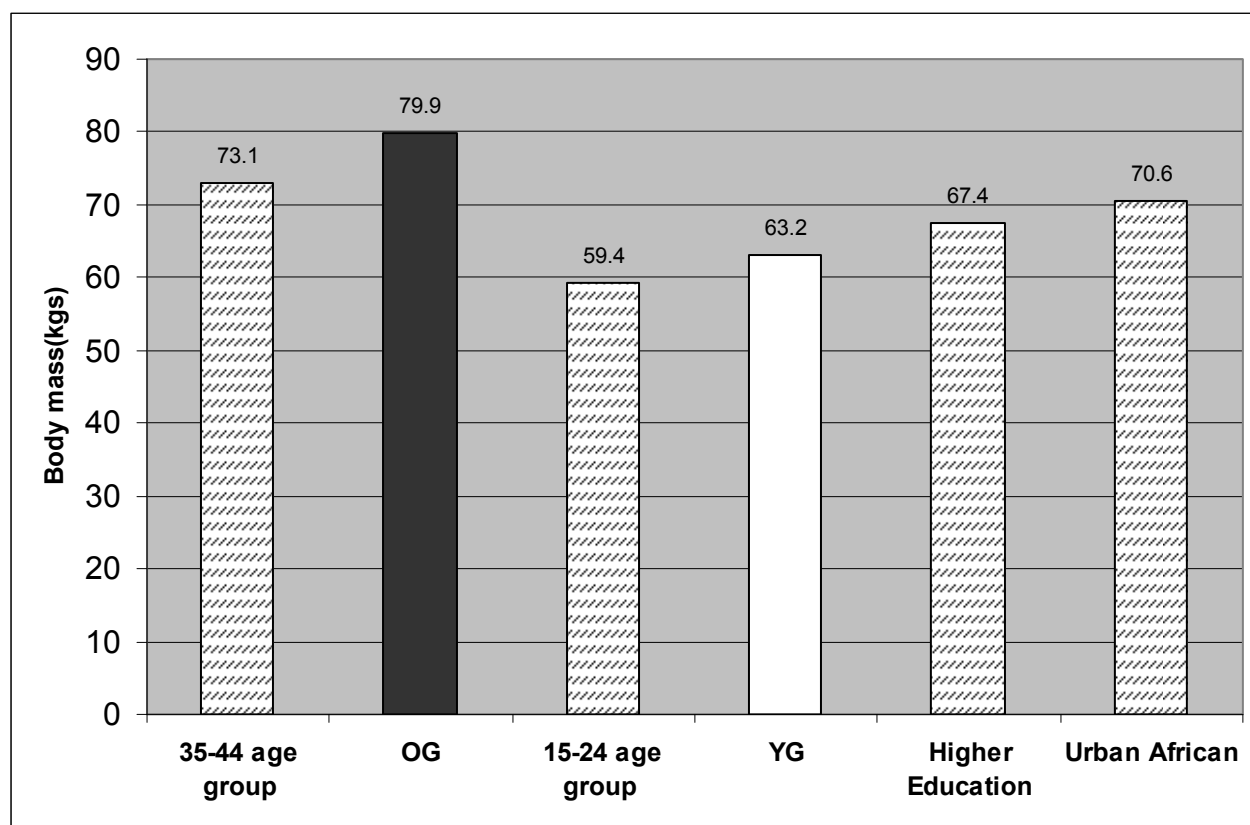


There was a significant difference in the frequency distribution of the BMI categories between the OG and the YG (Table 6), with 87% of the OG and 41% of the YG being classified as overweight or obese.

**Table 6: Comparison of the frequency distribution of the BMI categories of the participants**

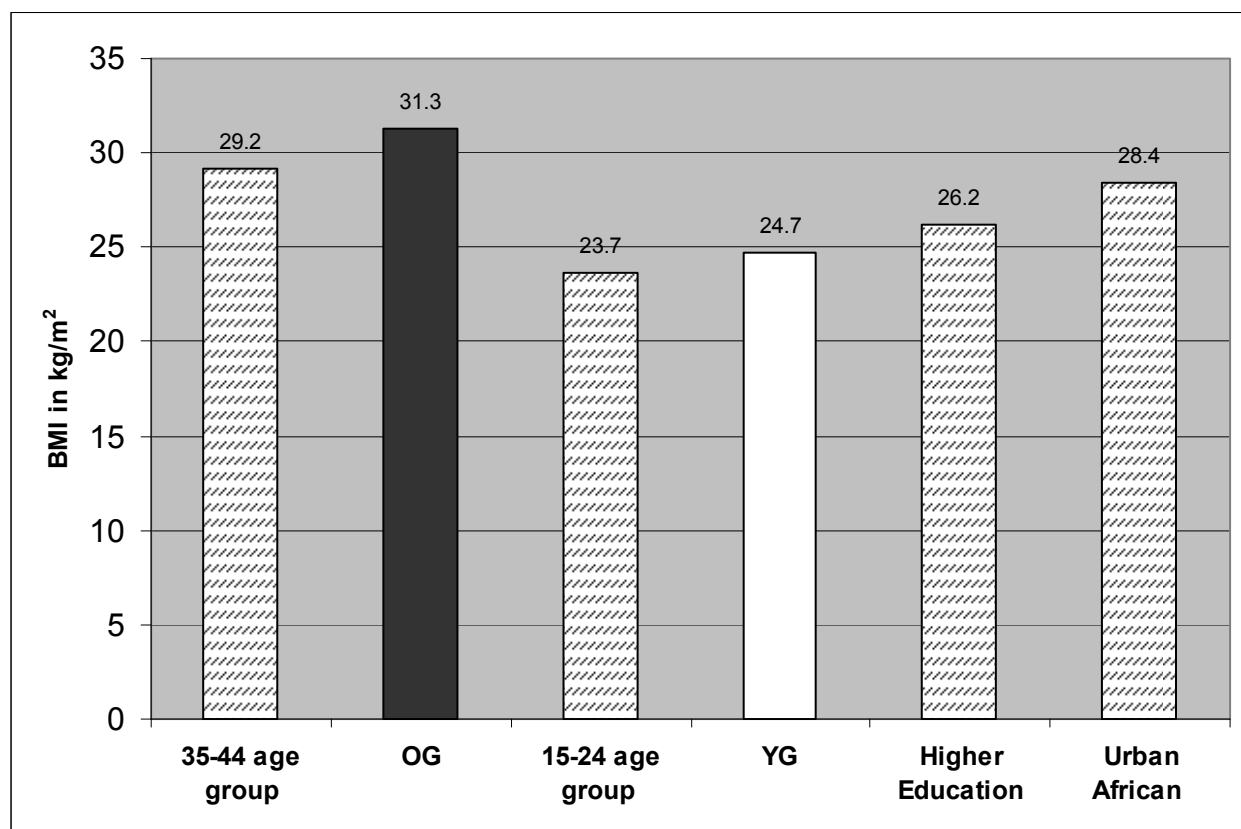
<b>Category</b>	<b>OG (n=111)</b>		<b>YG (n=69)</b>	
Normal weight (BMI < 25kg/m <sup>2</sup> )	15	14%	41	59%
Above normal weight (BMI ≥25kg/m <sup>2</sup> )	96	87%	28	41%
Overweight (BMI = 25.00-29.90kg/m <sup>2</sup> )	32	29%	17	25%
Obese (BMI ≥ 30kg/m <sup>2</sup> )	64	58%	11	16%
<b>Chi<sup>2</sup></b>	<b>df</b>	<b>p</b>	<b>V</b>	<b>Outcome</b>
46.46	2	<.0005	0.51	significant

Body mass comparisons of the OG and YG with women groups from the South African Demographic and Health Survey (SADHS) (1998) (Figure 2), a national level survey on various demographic and health indicators in South Africa, revealed that both the OG and the YG had a significantly greater body mass than their comparative age categories for women in the SADHS (1998) (OG:  $t=4.52$ ,  $p<.0005$ ,  $d=0.43$ ; YG:  $t=2.41$ ,  $p=.019$ ,  $d=0.29$ ). The OG had a significantly greater body mass than women in the SADHS (1998) with a higher education (post matric) ( $t=8.27$ ,  $p<.0005$ ,  $d=0.78$ ) as well as urban African women ( $t=6.17$ ,  $p<.0005$ ,  $d=0.59$ ). The YG had a significantly lower body mass than women in the SADHS (1998) with a higher education (post matric) ( $t=-2.68$ ,  $p=.009$ ,  $d=0.32$ ) as well as urban African women ( $t=-4.72$ ,  $p<.0005$ ,  $d=0.57$ ). Norm adjusted percentages were used in the comparison.



**Figure 2: Body mass comparison of the OG and YG with women groups from the SADHS (1998)**

BMI comparisons of the OG and YG with the SADHS (1998) are presented in Figure 3. The OG had a significantly greater BMI than the comparative 35-44 age group ( $t=3.56$ ,  $p=.001$ ,  $d=0.34$ ), the higher education group ( $t=8.73$ ,  $p<.0005$ ,  $d=0.83$ ), as well as the urban African group ( $t=4.94$ ,  $p<.0005$ ,  $d=0.47$ ). There was no significant difference between the YG and the comparative 15-24 age group in the SADHS (1998). The YG, however, had a significantly lower BMI than the higher education group ( $t=-2.56$ ,  $p<.0005$ ,  $d=0.31$ ), as well as the urban African group ( $t=-6.33$ ,  $p<.0005$ ,  $d=0.76$ ). Norm adjusted percentages were used in the comparison.



**Figure 3: BMI comparison of the OG and YG with women groupings from the SADHS (1998)**

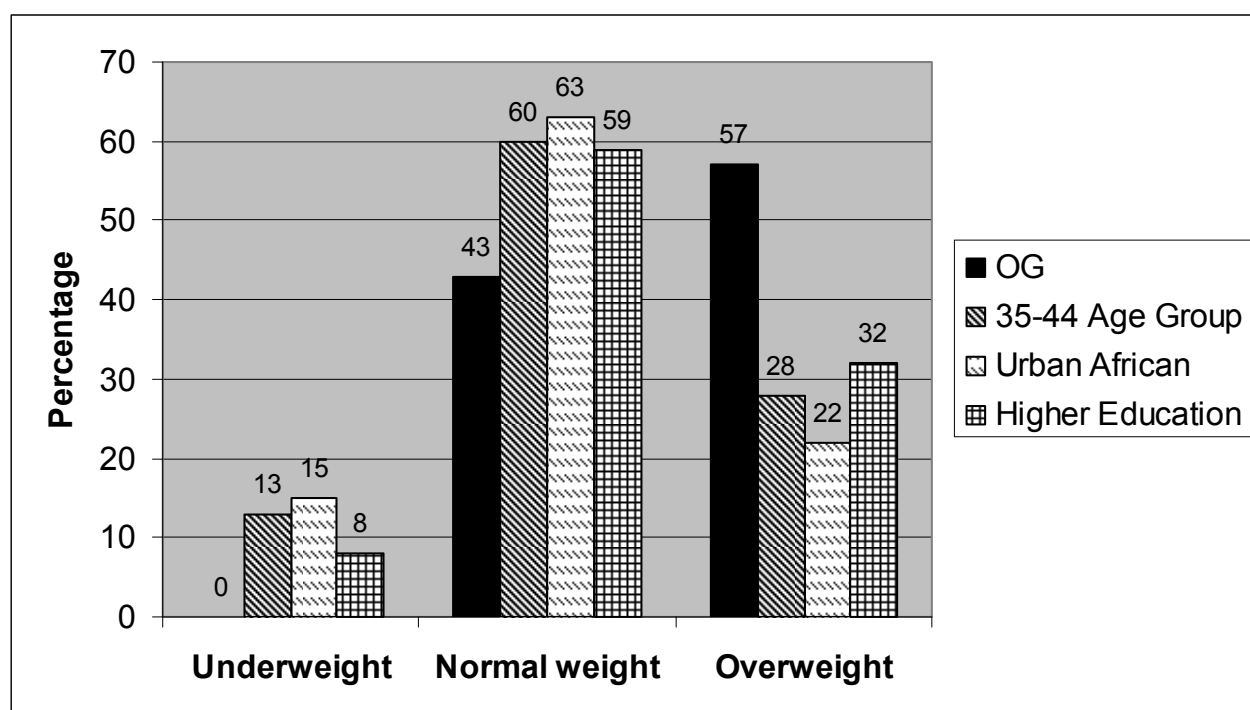
### 4.3.1 Perception of Body Weight

Perception of body weight (in relation to being underweight, of moderate weight and overweight) was significantly differently distributed between the YG and OG (Table 7). Due to the small numbers in the *perceived underweight* category, these values were consolidated with the *perceived moderate weight* category in the calculation of inferential statistics. Even though 41% of the YG and 87% of the OG were overweight with a BMI  $\geq 25\text{kg/m}^2$  (Table 6), only 33% of the YG and 57% of the OG perceived themselves to be overweight (Table 7).

**Table 7: Comparison of the perception of body weight between the participants**

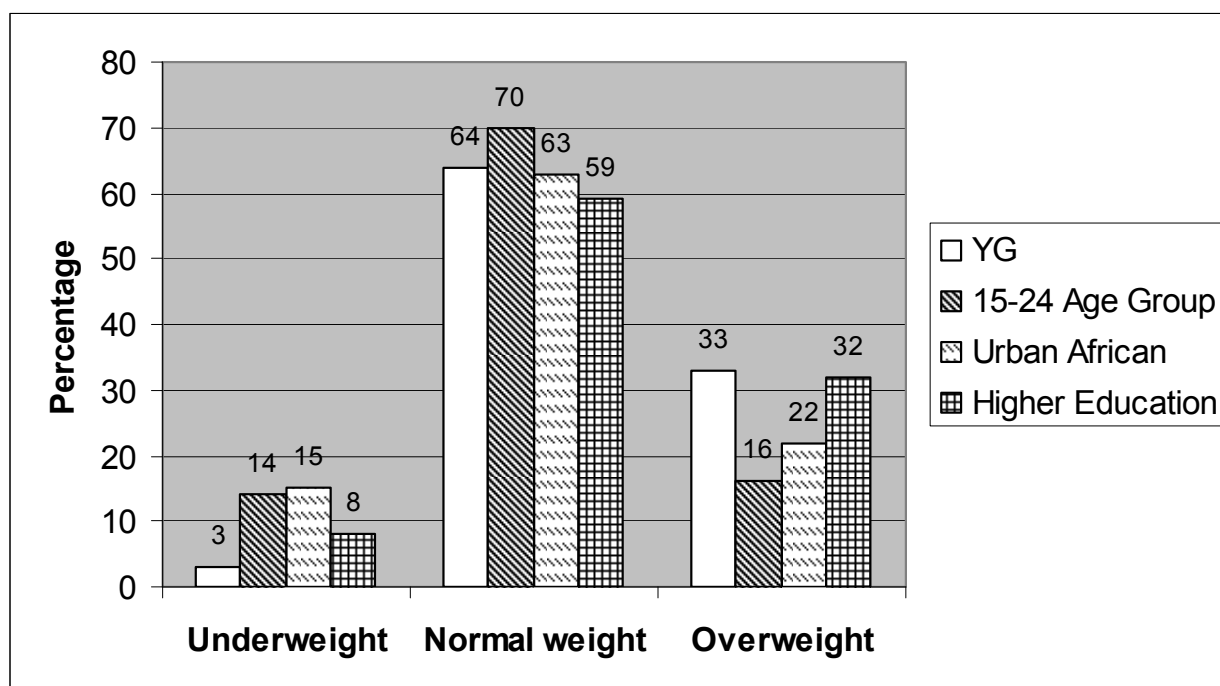
	OG (n=111)		YG (n=69)	
Perceived underweight	0	0%	2	3%
Perceived moderate weight	48	43%	44	64%
Perceived overweight	63	57%	23	33%
<b>Chi<sup>2</sup></b>	<b>df</b>	<b>p</b>	<b>V</b>	<b>Outcome</b>
8.42	1	.004	0.22	significant

The comparison of the frequency distribution of perceptions of being underweight, normal and overweight respectively, when comparing the OG with various women groups reported in the SADHS (1998), is presented in Figure 4. Norm adjusted percentages were used in the comparison. The OG had a significantly different frequency distribution of the three categories of weight perception in comparison to the other groups: the *age group 35-44* ( $\text{Chi}^2=52.96$ ,  $p<.0005$ ,  $V=0.49$ ), the *urban African group* ( $\text{Chi}^2=88.27$ ,  $p<.0005$ ,  $V=0.63$ ), and the higher education group ( $\text{Chi}^2=34.58$ ,  $p<.0005$ ,  $V=0.39$ ).



**Figure 4:** Comparison of the frequency distribution of perception of body weight of the OG with various women groups in the SADHS (1998)

The comparison of the frequency distribution of perceptions of being underweight, normal and overweight respectively, when comparing the YG with various women groups reported in the SADHS (1998), is presented in Figure 5. There was no significant difference between the YG and the *higher education group*. However, the YG had a significantly different frequency in comparison to the *age group 15-24* ( $\text{Chi}^2=13.82$ ,  $p=.001$ ,  $V=0.32$ ) and the *urban African group* ( $\text{Chi}^2=7.54$ ,  $p=.023$ ,  $V=0.23$ ). Norm adjusted percentages were used in the comparison.



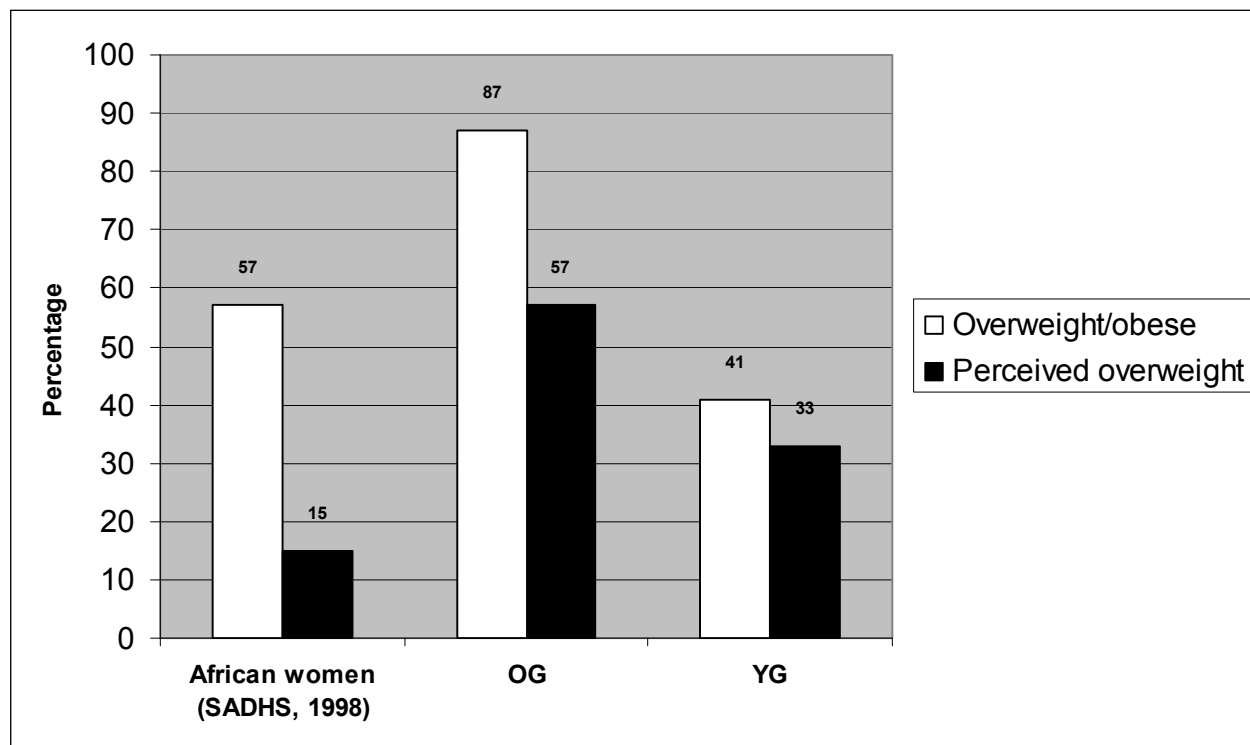
**Figure 5: Comparison of the frequency distribution of perception of body weight of the YG with various women groups in the SADHS (1998)**

Perceived weight in relation to BMI was significantly different between the YG and the OG (Table 8). In respect of perceived weight and BMI, Table 8 indicates that 65% of the OG and 76% of the YG correctly perceived their weight category. Thirty two percent (32%) of the OG and 16% of the YG underestimated their weight, while 3% of the OG and 9% of the YG overestimated their weight.

**Table 8: Comparison of perceived weight in relation to BMI between the participants**

	OG (n=111)		YG (n=69)	
Perceived moderate weight and BMI < 25kg/m <sup>2</sup>	12	11%	35	51%
Perceived moderate weight and BMI ≥ 25kg/m <sup>2</sup>	36	32%	11	16%
Perceived overweight and BMI < 25kg/m <sup>2</sup>	3	3%	6	9%
Perceived overweight and BMI ≥ 25kg/m <sup>2</sup>	60	54%	17	25%
<b>Chi<sup>2</sup></b>	<b>df</b>	<b>p</b>	<b>V</b>	<b>Outcome</b>
42.06	3	<.0005	0.48	significant

Figure 6 highlights greater awareness of perceived overweight by the YG and OG, in relation to the African women in the SADHS (1998).



**Figure 6: Comparison of measured overweight and perceived overweight of the OG, YG and African women from the SADHS, 1998**

#### 4.3.2 Discussion

The SADHS (1998) has highlighted the high rates of overweight and obesity among South Africans (29% of men and 56% of women), with the highest rate occurring among African women (57%). According to the Heart Foundation, South Africa has a higher ratio of overweight women than the U.S. (Health Systems Trust, 2004), which is reportedly 33.2% (Ogden, Carroll, Curtin, McDowell, Tabak, Flegal, 2006). The results of this study concur with these findings, with 86% of the OG and 41% of the YG falling into the overweight/obese category.



Obesity is a predisposing factor for developing hypertension, diabetes and other pathologies, and a number of South African studies have shown that obesity is an independent predictor of the emergence of hypertension and diabetes in Africans (SADHS, 1998). South African studies conducted in the nineties (Steyn *et al.*, 1991; Sparling *et al.*, 1994; Mollentze *et al.*, 1995) predicted that as the black community became more urbanized, job related physical activity and physical activity for daily living would decline (to be discussed later), and coupled with the adoption of lifestyles of typical industrialized populations, including western diets, chronic diseases of lifestyle would begin to manifest. The prediction is manifesting itself as seen in recent research. However, even though it is a serious threat, the media attention around the HIV/AIDS epidemic has shadowed its importance, and thus it is not given the recognition it deserves.

The treatment of obesity lies with prevention as it is an extremely difficult condition to treat effectively (SADHS, 1998). It is a very complex condition due to the socio-cultural circumstances surrounding it. The SADHS (1998) revealed differences in self-perceived rates of obesity between African and white women in South Africa. Although the highest rates of obesity were reported among African women (57%), fewer perceived themselves to be obese (15%) compared to the ratio of white women, with measured overweight reported at 53% and perception of overweight also reported at 53% (SADHS, 1998). The present study however, showed greater awareness of overweight and obesity among the two groups than African women in the SADHS (1998), with perceived overweight reported at 57% and 33% for the OG and YG, and measured overweight at 87% and 41%, respectively. Level of education may account for this greater awareness in comparison to the African women in the SADHS (1998) sample; however, some cultural traditions which convey positive associations with being overweight and obese may account for differences in perception in relation to white women. In a study on perceptions of overweight African women about acceptable body size of women and children (Mvo, Dick & Steyn, 1999), black women expressed the desire to lose some weight, but there was no negative social pressure to motivate this. This will be discussed in greater depth in Chapter 5.

## 4.4 HEALTH RELATED BEHAVIOUR MEASUREMENTS

The health related behaviour of the OG and YG were measured using the Health-Promoting Lifestyle Profile (Walker *et al.*, 1987) and the Belloc and Breslow (1972) lifestyle index.

### 4.4.1 Health-Promoting Lifestyle Profile (HPLP) (Walker *et al.*, 1987)

The HPLP, a 48-item summated rating scale, was used to measure the health-promoting behaviours of the two groups (Table 9). An overall measure of the health-promoting components of lifestyle is obtained along with a measure of six subscales, namely, self-actualisation, health responsibility, exercise, nutrition, interpersonal support and stress management. Respondents are classified as *low* with a health-promoting percentile score of 20% or less; *average* with a health-promoting percentile score of between 21% and 79%; and *high* with a health-promoting percentile score of 80% and higher.

Subscales with the highest means were self-actualization and interpersonal support, while exercise had the lowest mean. The results showed intermediate levels of health-promotion in the areas of health responsibility, nutrition, stress management, and in the total score. When comparing the two groups, significant differences were reported for health responsibility and the overall HPLP score with the OG scoring higher than the YG in both areas, indicating that the OG were engaging in more health promoting behaviours than the YG. This is in keeping with the study by Walker *et al.* (1988) who reported higher scores in overall health promoting lifestyles for older adults than for younger adults.

**Table 9: Health-Promoting Lifestyle Profile (HPLP) (Walker *et al.*, 1987) comparison between the OG and YG**

Subscales (%)	Mean	SD	Min	Q1	Median	Q3	Max	t-test	p	Cohen's d
Self-actualisation										
OG	75.84	14.46	41.03	64.10	76.92	87.18	97.44			
YG	74.54	11.62	35.90	66.67	74.36	82.05	100.00	-0.63	.531	n.a
Health responsibility										
OG	49.01	16.57	16.67	36.67	46.67	60.00	86.67			
YG	36.86	18.84	3.33	20.00	33.33	46.67	83.33	-4.54	<b>&lt;.0005</b>	<b>-0.70</b>
Exercise										
OG	22.22	21.01	0.00	6.67	13.33	33.33	93.33			
YG	20.19	19.80	0.00	6.67	13.33	26.67	80.00	-0.64	.521	n.a
Nutrition										
OG	52.30	16.33	27.78	38.89	50.00	61.11	88.89			
YG	47.67	15.64	22.22	33.33	50.00	61.11	77.78	-1.88	.061	n.a
Interpersonal support										
OG	65.98	17.03	23.81	52.38	66.67	80.95	100.00			
YG	65.70	18.56	23.81	52.38	66.67	80.95	95.24	-0.10	.918	n.a
Stress management										
OG	50.84	17.15	9.52	38.10	47.62	61.90	90.48			
YG	47.62	17.11	14.29	33.33	47.62	61.90	85.71	-1.22	.222	n.a
HPLP total										
OG	56.64	10.98	30.56	48.61	56.25	65.97	77.78			
YG	52.46	11.20	30.56	44.44	52.78	61.11	78.47	-2.47	<b>.015</b>	<b>-0.38</b>

Comparing the overall HPLP scores (as mean values in the 1-4 Likert scale format) of the OG and YG of the present study with other studies of women (Table 10), the OG and YG scored significantly lower than the nursing practitioners (M=2.9) in the Blackwell (2004) study.

**Table 10: Comparison of the OG and YG of this study with other studies using the HPLP total score in the mean Likert scale format**

HPLP total score (1-4 Likert scale format)	M	SD	n	Comparison with OG (M=2.70, SD=1.33, n=111)			Comparison with YG (M=2.57, SD=1.34, n=69)		
				t-test	p	Cohen's d	t-test	p	Cohen's d
Walker <i>et al.</i> (1988) European American women	2.85	.40	97	-1.07	.286	n.a	-1.94	.054	n.a
Ahijevych and Bernhard (1994) African American women	2.55	.45	187	1.41	.159	n.a	0.18	.858	n.a
Brady and Nies (1999) older African American women	2.71	.48	58	-0.06	.956	n.a	-0.76	.451	n.a
Blackwell (2004) nursing practitioners	2.90	.48	321	-2.30	<b>.022</b>	<b>0.25</b>	-3.50	<b>.001</b>	<b>0.46</b>
Peltzer (2002) black South African university women students	2.66	1.40	231	0.25	.802	n.a	-0.47	.636	n.a

Comparing the overall HPLP scores (in the mean raw score format) of the OG and YG of the present study with studies on white South Africans (Table 11), both the YG and OG scored significantly lower than all the listed groups.

**Table 11: Comparison of the OG and YG of this study with other South African studies using the HPLP mean raw scores**

HPLP total score (raw score format)	M	SD	n	Comparison with OG (M=129.56, SD=15.81, n=111)			Comparison with YG (M=123.54, SD=16.12, n=69)		
				t-test	p	Cohen's d	t-test	p	Cohen's d
Erasmus <i>et al.</i> (2005) white women (30-65 years)	184.85	32.25	435	-17.52	<.0005	1.86	-15.48	<.0005	2.01
Dreyer <i>et al.</i> (2001) white men (30-60 years)	186.02	26.32	525	-21.76	<.0005	2.27	-19.24	<.0005	2.46
Wilders and Strydom (2003) white women (30-65 years)	186.2	30.7	388	-18.73	<.0005	2.02	-16.54	<.0005	2.16

#### 4.4.2 Belloc and Breslow (1972) lifestyle index

Table 12 reflects the compliance of the OG and YG with the seven healthy habits of Belloc and Breslow (1972). Over 80% of both groups complied with the health habits of getting adequate sleep, taking little or no alcohol, and most importantly, non-smoking. Less than 15% of both groups complied with taking regular meals with no snacks in between. Approximately 25% of participants reported participating in moderate exercise at least two to three times a week. The only significant difference between the OG and YG was reported for maintaining a moderate body weight, with only 43% of the OG as compared to the 64% of the YG maintaining a moderate body weight.

**Table 12: Comparison between the OG and YG of compliance with the seven healthy habits of the Belloc and Breslow's (1972) Lifestyle Index**

Health habits	OG (n=111)		YG (n=69)		Chi <sup>2</sup>	p	Cramér's V
	n	%	n	%			
Taking little or no alcohol	111	100%	69	100%	0.00	1.000	n.a
Non-smoking	111	100%	67	97%	1.91	.167	n.a
Getting adequate sleep	98	88%	58	84%	0.66	.417	n.a
Maintaining a moderate body weight	48	43%	44	64%	7.17	<b>.007</b>	<b>0.20</b>
Eating breakfast	50	45%	26	38%	0.95	.331	n.a
Exercising moderately at least 2-3 times a week	28	25%	15	22%	0.28	.594	n.a
Taking regular meals, no snacks in-between	16	14%	6	9%	1.3	.255	n.a
Compliance with 3 or more habits	107	96%	65	94%	0.76	.384	n.a
Compliance with 4 or more habits	75	68%	50	72%	0.48	.488	n.a
Compliance with 5 or more habits	40	36%	25	36%	0.00	.979	n.a
Compliance with 6 or more habits	16	14%	7	10%	0.70	.404	n.a

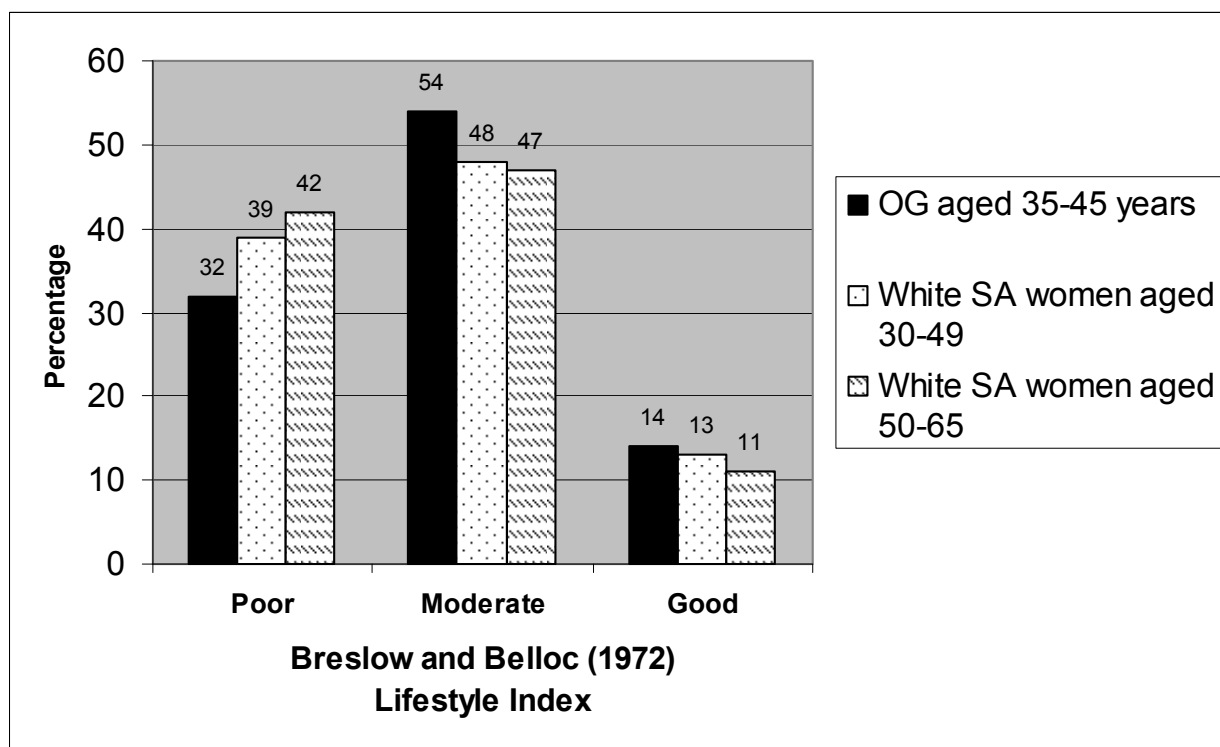
Comparing the Belloc and Breslow scores (compliance with the 7 health habits) with South African studies (Table 13) revealed that OG scored significantly higher than the pre-menopausal women in the Wilders *et al.*, 2001 study. These South African studies classified participants who followed four or more lifestyle habits as following a healthy lifestyle. Using this classification, 68% of the OG and 72% of the YG are following a healthy lifestyle.

However, in relation to the question “do you maintain a moderate body weight?” it should be noted that the SADHS (1998) reported that white women (and to a lesser extent, white men) were more likely to think themselves to be overweight than Africans.

**Table 13: Comparison of the Belloc and Breslow scores of this study with other South African studies**

Rate of compliance (max = 7)	M	SD	N	Comparison with OG (M=4.15; SD=1.12; n=111)			Comparison with YG (M=4.12; SD=1.12; n=69)		
				t-test	p	Cohen's d	t-test	p	Cohen's d
Dreyer <i>et al.</i> (2001) white men (30-60 years)	4.13	1.54	525	0.13	.897	n.a	-0.05	.958	n.a
Wilders <i>et al.</i> (2001) white women									
Pre-menopausal ≤ 49 years	3.79	1.34	301	2.52	<b>.012</b>	<b>0.28</b>	1.90	.058	n.a
Post-menopausal ≥ 50 years	4.16	1.39	96	-0.06	.954	n.a	-0.20	.844	n.a
Wilders and Strydom (2003) white women (30-65 years)	3.90	1.30	388	1.84	.066	n.a	1.32	.187	n.a

Figure 7 shows a graphic comparison between the OG and pre- and post-menopausal white women in the study by Wilders and Strydom (2003). Participants were classified as follows: compliance with less than 4 habits *poor* (unhealthy), four to five habits *moderately healthy* and six to seven habits as *good* (healthy). There was no statistical difference between the OG and the women in the Wilders and Strydom (2003) study.



**Figure 7: Comparative distribution of the Belloc and Breslow Lifestyle Index between the OG of the present study and each of the pre- and post-menopausal women groups in the Wilders and Strydom (2003) study**

#### 4.4.3 Discussion

The World Health Organization (WHO) formulation of health as “physical, mental and social well-being, not merely absence of disease and infirmity” is in keeping with the growing interest in health promotion, and the move from disease prevention (Breslow, 1999). With advances in medical science leading to an increase in life expectancy, improving the quality of life through the promotion of healthy behaviour has become



important. The professional women in the present study should ideally practice health promoting behaviour practices, as they are role models in the community in view of their professions. The professional women in the study all work in historically disadvantaged communities, many serving the poorest of the poor. Teachers, nurses and social workers are beacons of knowledge to people of all ages in the community and should serve as models of health promotion.

The overall HPLP scores for both the OG and YG were satisfactory; however, in view of their education levels and professional status, it was expected to be higher. Their scores were lower than the various groups in the American studies (Table 10) as well as the groups of white South Africans (Table 11). Teachers, nurses and social workers could help others to lead healthier lives by adopting better health related behaviours themselves, in order to serve as role models and change agents.

High scores for both generations were achieved in the HPLP self actualization subscale (having a sense of purpose, seeking personal development, setting realistic goals, having long term goals and experiencing self-awareness and satisfaction). This is in keeping with the UCT Unilever Institute of Strategic Marketing's gender survey – *The Bending of Gender in the new South Africa* (Rutter, 2007). This survey found that young, black, mostly urban women have moved furthest away from traditional gender roles, they feel they can “achieve anything” and value independence. They are conscious of the sacrifices their parents – particularly their mothers – made in the past, and reject traditional stereotypes of men and women. They were reported as being confident, optimistic, feisty and ambitious, set on achieving their goals, and placed great importance on being in control of themselves and their destiny (Rutter, 2007). The high scores in the HPLP self actualization subscale echo these sentiments, and reflect the great strides these professional women have made in their emancipation. These black professional women, particularly the OG, have come from a complex political history, carrying a heavy burden as a result of apartheid. In addition, their oppression also came from historical and cultural conditions where they were marginalized in their own patriarchal societies (Goosen & Klugman, 1996:31; Nauright, 1997:19).

High scores were also achieved for the HPLP interpersonal support subscale (maintaining meaningful interpersonal relationships, spending time with close friends, discussing problems with others, expressing love and concern for others and receiving love and concern from others). The qualitative interviews revealed that many participants were part of different women groups, mostly church related, where they gave and received much support. These women groups would meet regularly and socialize and they would rally together and help a member in need. This aspect is discussed in greater depth in Chapter 5.

Some of these women groups, which included members of the OG in this study, started in “stokvels”. Stokvels are a traditionally African type of rotating credit and savings organization, used to mobilize savings outside the formal financial structure (Verhoef, 2001). A group of friends contribute an amount each month, then each person gets a chance once a year to take home the lump sum. Stokvels can be traced to the end of the 19<sup>th</sup> century when they were introduced to the urban environment by African women when they lost access to the traditional means of production, while still bearing the responsibility for the subsistence of the family (Verhoef, 2001). Stokvels are the biggest industry in the informal sector in South Africa, and have been and remain vital in Black women’s survival strategies. Stokvels are generally gender based with either an exclusively male or female membership, with women generally preferring a women-only stokvel. From what is known of the history of stokvels in South Africa, they served a social as well as economic purpose. Despite the opportunities opened up to Africans by urbanization, African men and women in the cities experienced social displacement in an unknown, artificial, and constrained urban environment. Membership in stokvels helped to establish relations of trust with people of the same ethnic group or religious affiliation (Verhoef, 2001). They generated a strong sense of solidarity among members, demonstrating the African concept of *ubuntu* – which means caring for each other’s well-being in a spirit of mutual support. The “stokvel” savings concept has become integrated into various other groups, i.e. women groups at churches, choir groups, charity groups, women in their various occupations, for example, teachers at a school getting together, and others. The stokvel, in relation to professional women, may

not be as important in serving their economic needs as was the case in the past, but they continue to play an important social and supportive role. It may also have played a role in the financial independence of women, and contributed to the changing gender roles and attitudes discussed in the UCT Unilever Institute of Strategic Marketing's gender survey – *The Bending of Gender in the new South Africa* (Rutter, 2007).

Stress is our emotional response to events in life. Stress management implies the learning of effective coping strategies, and ways to deal with the many sources of stress in modern life. Stress has been linked to heart disease, cancer, ulcers, immune suppression and other ills (Sharkey, 1997: 4). Both the OG and YG had satisfactory scores on the stress management subscale (OG=51% and YG=48%).

Certain aspects of daily lifestyle are predictive of future health status (Wiley & Camacho, 1980). The seven health habits of Belloc and Breslow (1972), namely, regular exercise, adequate sleep, a good breakfast, regular meals, weight control, abstinence from smoking and drugs, moderate use of or abstinence from alcohol are associated with health and longevity (Breslow & Enstrom, 1980). The study predicted that men could add 11 years of life and women 7 years, just by following six of the seven habits. In the present study, 14% of the OG and 10% of the YG reported complying with six of the seven health habits. In the Alameda County studies, 15% of the people over age 75 practiced all seven of the good health habits, contrasting with only 6% to 7% of people under age 45 (Walker *et al.*, 1988). In the present study just 1% of both the OG and YG reported complying with all seven habits. Several studies of the general population have suggested that age, gender and socioeconomic status may influence health behaviour. Older people, women and people with a higher socioeconomic status were found to engage more in health protective behaviour (Walker *et al.*, 1988).

In the report, *Chronic Diseases of Lifestyle in South Africa 1995-2005*, the data reveals that the majority of the South African population has moved extensively along the epidemiological transition towards a disease profile related to Western lifestyle (Steyn, 2006). The epidemiological transition is driven by the adoption of unhealthy lifestyles,

which relate to tobacco use, unhealthy nutrition and lack of regular aerobic physical activity. Tobacco use and nutrition as they apply to the present study are discussed here, with physical activity discussed in depth later.

The SADHS (1998) reported a reduction in tobacco use (26%) from surveys done previously, with the lowest rate being among black females (5%). The present study results are similar, with an incidence of 0% for the OG and 3% for the YG. These are encouraging results, because the teachers, nurses and social workers in communities serve as role models to our youth. Contributing factors for this decreasing national trend could be attributed to the Tobacco Products Control Amendment Act of 1999, one of the most comprehensive pieces of tobacco legislations in the world (SADHS, 1998), the introduction of health warnings on cigarette packages (1995), the ban on cigarette advertising (2001) and the increase in cigarette taxes (Health Systems Trust, 2003). It is important, however, for these tobacco control campaigns to continue.

Regarding alcohol use, the SADHS (1998) reported just under half of males and one-fifth of females 15 years and older acknowledge being current consumers of alcohol. The survey notes that estimates of alcohol consumed in South Africa suggest that consumption could in fact be higher than these figures. High levels of risky drinking (especially over weekends) was reported for particularly African and coloured populations, non-urban populations and persons having lower education. All the participants in the present study reported moderate use of or abstinence from alcohol.

Healthy eating habits and healthy food choices contribute directly to overweight, obesity, heart disease and other health problems (Sharkey, 1997:3). Adherence to healthy eating habits and healthy food choices are reported on very generally in the present study. Participants reported on taking regular meals, eating breakfast, including the four basic food groups in meals, eating roughage and reading labels on food. Compliance with these practices was satisfactory with the OG scoring 52% and the YG, 48%. Greater compliance, though, was expected from the participants, due to their being

educated, and predominantly in the health, education and social development fields, and in positions to advise communities in this area.

The exercise subscales indicated very low compliance figures for both the HPLP and Belloc and Breslow test. Both the OG and YG reported low participation rates in leisure time physical activity. This is discussed later in section 4.5.

An important implication in relation to health promotion is that responsibility for health does not lie with the health profession alone: each person can take responsibility for their own health. However, in a country like South Africa, with high levels of unemployment, illiteracy and an unskilled labour force, many people may not be aware of the importance of leading a health promoting lifestyle, as well as being unaware of what it entails. The professionals working in the many disadvantaged communities like teachers, nurses and social workers are role models and will need to educate people on these matters. It is very important for these professional people not only to talk about, but also to model a healthy lifestyle. People need to be made aware that engaging in a healthy lifestyle is not merely related to life extension, but to an increase in the quality of life and contributes to healthy and successful aging by delaying the onset of chronic disease and extending the active lifespan (Stroebe, 2000:7).

#### **4.5 PHYSICAL ACTIVITY RELATED MEASUREMENTS**

The physical activity levels of the OG and YG were measured using the FIT Index of Kasari, the GPAQ and the ActiGraph accelerometer.

##### **4.5.1 The FIT (Frequency, Intensity, Time) Index of Kasari**

The FIT Index of Kasari measures leisure time physical activity. Based on regular daily activity, the activity index is calculated by multiplying the score for each category (score = intensity X duration X frequency). The categorization of activity levels (Table 14) is based on the categories reported by Sharkey (1997:8).

More than 80% of the participants were classified as sedentary (92% of the OG and 86% of the YG), with the YG being significantly more active than the OG (Table 14). These low results are in keeping with the results with the Belloc and Breslow questionnaire where only 25% of the OG and 22% of the YG complied with moderate exercising two to three times a week (Table 12). The exercise subscale in the HPLP questionnaire with questions pertaining to the adherence of regular exercise patterns (Table 9) has the lowest mean scores with the OG scoring 22% and the YG 20%. All three measurements reinforce the fact that the majority of the participants from both the YG and OG do not engage in significant leisure time physical activity.

**Table 14: Comparison between the OG and YG of the FIT (Frequency, Intensity, Time) Index of Kasari**

Category		OG (n=111)	YG (n=69)	
0-39	: Sedentary	102 (92%)	59 (86%)	
40-59	: Moderately active	9 (8%)	3 (4%)	
60-100	: Highly active	0 (0%)	7 (10%)	
Chi <sup>2</sup>	df	p	V	Outcome
12.36	2	.002	0.26	significant

To allow for comparison with South African studies, the categorization of activity levels was adjusted in the table below, with cut-off points set at <17 (low active), 17-35 (moderately active) and  $\geq 36$  (highly active). The results show that almost 80% of both OG and YG were classified as low active in comparison to the white South African women where approximately 50% were classified as low active (Tables 15 and 16). Both the OG (Table 15) and YG (Table 16) had significantly lower scores than the white women in the South African studies.

**Table 15: Comparison of the FIT Index of Kasari for the OG with other South African studies**

Study	Low active	Moderately active	Highly active	Comparison with OG				Outcome
				Chi2	df	p	v	
Wilders and Strydom (2003): white women (30-65 yrs)								
Pre-menopausal $\leq$ 49 yrs	143 (46%)	78 (25%)	90 (29%)	42.19	2	<.0005	0.44	Significant
Post-menopausal $\geq$ 50 yrs	55 (57%)	21 (22%)	20 (21%)	11.69	2	.020	0.29	Significant
Erasmus <i>et al.</i> (2005) white women (30-65 years)	214 (49%)	131 (30%)	95 (21%)	32.32	2	<.0005	0.38	Significant
<b>OG</b>	<b>84 (76%)</b>	<b>19 (17%)</b>	<b>8 (7%)</b>					

**Table 16: Comparison of the FIT Index of Kasari for the YG with other South African studies**

Study	Low active	Moderately active	Highly active	Comparison with YG				Outcome
				Chi2	df	p	v	
Wilders and Strydom (2003): white women (30-65 yrs)								
Pre-menopausal $\leq$ 49 yrs	143 (46%)	78 (25%)	90 (29%)	26.58	2	<.0005	0.44	Significant
Post-menopausal $\geq$ 50 yrs	55 (57%)	21 (22%)	20 (21%)	11.69	2	.020	0.29	Significant
Erasmus <i>et al.</i> (2005) white women (30-65 years)	214 (49%)	131 (30%)	95 (21%)	26.50	2	<.0005	0.35	Significant
<b>YG</b>	<b>53 (77%)</b>	<b>6 (9%)</b>	<b>10 (14%)</b>					

#### 4.5.2 Global Physical Activity Questionnaire (GPAQ)

The GPAQ reports information on physical activity participation in three settings (or domains) and sedentary behaviour. These domains are activity at work (both paid and non-paid), travel to and from places, and recreation activities. METs and METminutes are used in the analysis of physical activity in the GPAQ. MET (Metabolic Equivalent) is the ratio of the work metabolic rate to the resting metabolic rate. A MET is defined as oxygen uptake in ml/kg/min with one MET equal to the oxygen cost of sitting quietly, around 3.5 ml/kg/min. A METminute is computed by multiplying the MET score by the minutes performed (Bull, 2003).

For the GPAQ, the following selected MET values according to the Ainsworth *et al.*(2000) compendium were used:

Moderate physical activity (in work and leisure domains) = 4.0 METs

Vigorous physical activity (in work and leisure domains) = 8.0 METs

Transport related walking/cycling = 4 METs

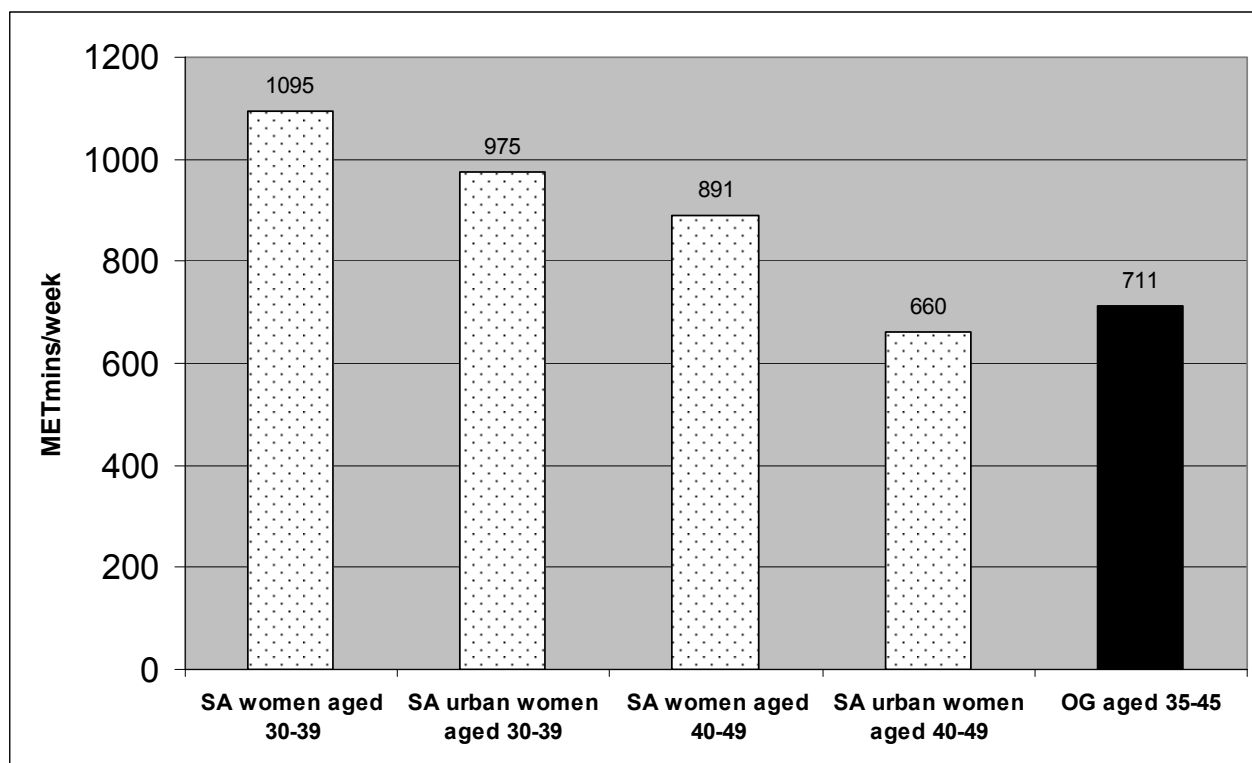
The GPAQ data is presented in Table 17. The YG were significantly more active than the OG, expending a total of 1170.7 METmins/week in comparison with the OG of 711.5 METmins/week. The YG expended significantly more METmins than the OG in both the transport domain (675.4 METmins/week vs. 180 METmins/week) and the leisure-time domain (280.3 METmins/week vs. 157.7 METmins/week). However, the OG expended significantly more METmins than the YG in the work domain (373.8 METmins/week and 215.0 METmins/week, respectively). All of the total METmins for the OG, and most of the total METmins for the YG, were expended through doing moderate intensity activity (mod METmins). The YG spent significantly more minutes per day sitting than the OG: 630.0 min (10.5 hours) and 445.7min (7.4 hours), respectively (Table 17).



**Table 17: Physical activity (PA) comparison between the OG and YG using the GPAQ**

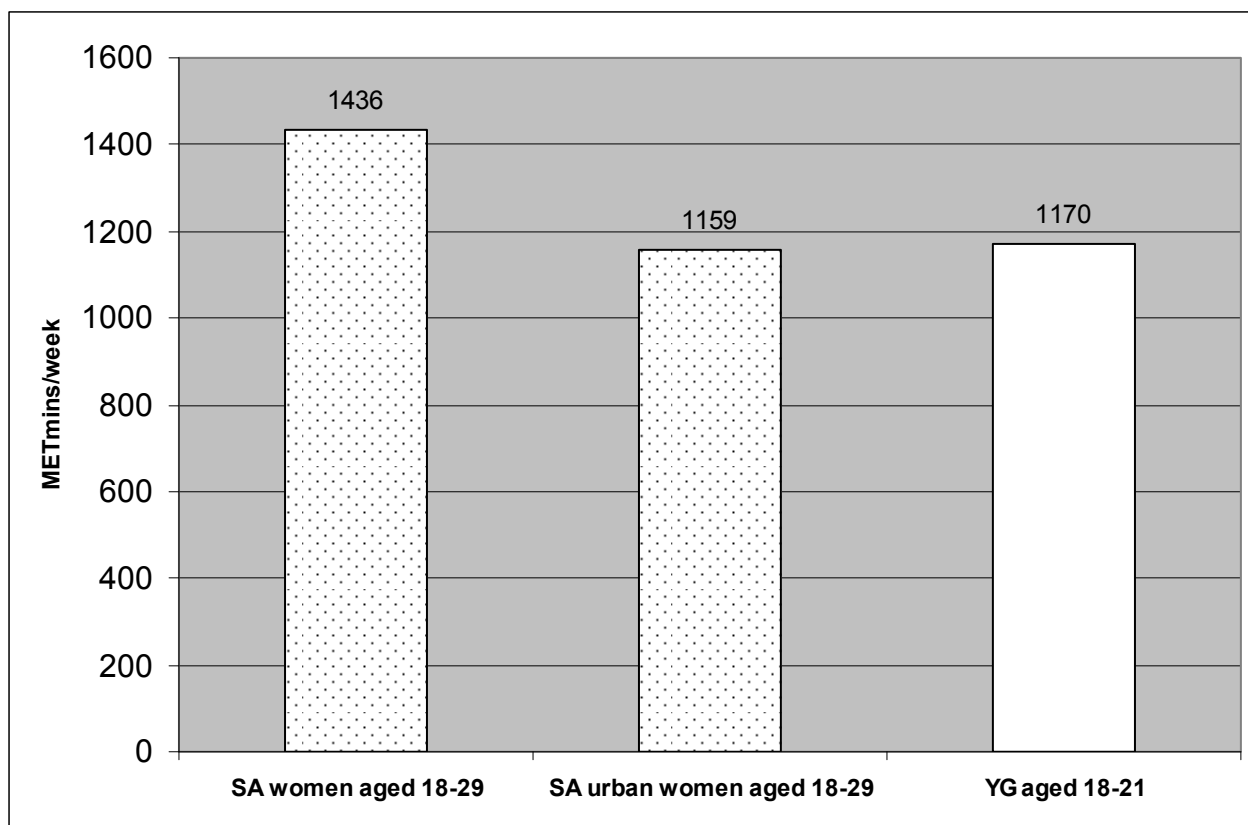
Physical activity (METmins/wk)	Mean	SD	Min	Q1	Median	Q3	Max	t-test	p	Cohen's d
<b>PA: Work</b>										
OG	373.80	321.39	0.00	0.00	480.00	480.00	960.00	-3.69	<.0005	<b>-0.57</b>
YG	215.07	196.69	0.00	0.00	240.00	320.00	720.00			
<b>PA: Transport</b>										
OG	180.00	356.85	0.00	0.00	0.00	200.00	1820.00	7.35	<.0005	<b>1.13</b>
YG	675.36	548.09	0.00	280.00	480.00	840.00	2240.00			
<b>PA: Leisure</b>										
OG	157.66	299.16	0.00	0.00	0.00	210.00	1200.00	1.67	.098	0.26
YG	280.29	677.54	0.00	0.00	0.00	240.00	3360.00			
<b>Tot METmins</b>										
OG	711.46	544.00	0.00	330.00	680.00	960.00	2300.00	4.38	<.0005	<b>0.67</b>
YG	1170.72	863.23	0.00	600.00	880.00	1560.00	3800.00			
<b>Mod METmins</b>										
OG	711.46	544.00	0.00	330.00	680.00	960.00	2300.00	3.69	<.0005	<b>0.57</b>
YG	1062.90	729.09	0.00	600.00	840.00	1320.00	3800.00			
<b>Sitting</b>										
OG	445.68	109.36	240.00	360.00	450.00	540.00	720.00	10.51	<.0005	<b>1.61</b>
YG	630.00	122.19	300.00	570.00	660.00	720.00	840.00			

The comparison of METmins between the OG and comparative age groupings in the World Health Survey (2003) is shown in Figure 8. The OG was significantly less active than the SA women in the 30-39 age category ( $t=-7.43$ ,  $p<.0005$ ,  $d=0.71$ ), urban women 30-39 age category ( $t=-5.10$ ,  $p<.0005$ ,  $d=0.48$ ), and women 40-49 age category ( $t=-3.48$ ,  $p=.001$ ,  $d=0.33$ ). There was no significant difference between the OG and the SA urban women aged 40-49.



**Figure 8: Comparison of METmins of the OG with groupings from the World Health Survey (2003)**

The comparison of METmins between the YG and comparative age groupings in the World Health Survey (2003) is shown in Figure 9. The YG was significantly less active than the SA women in the 18-29 age category ( $t=-2.55$ ,  $p=0.013$ ,  $d=0.31$ ). There was however no significant difference between the YG and the SA urban women aged 18-29.



**Figure 9: Comparison of METmins of the YG with groupings from the World Health Survey (2003)**

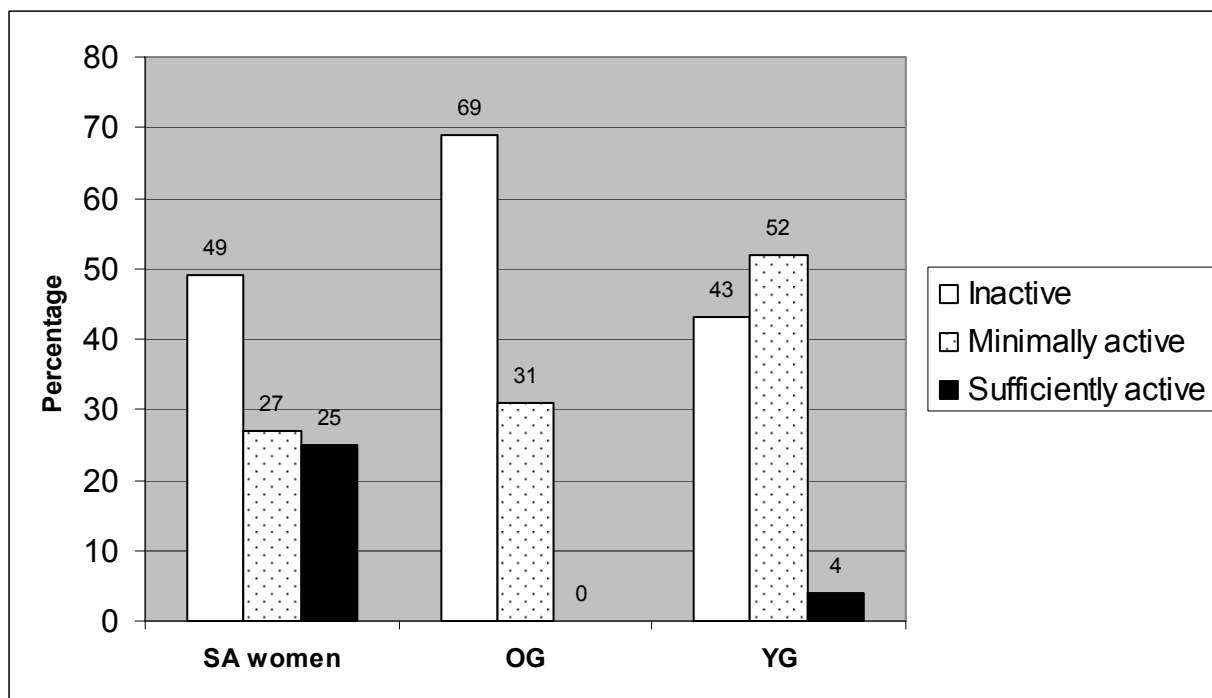
There was a significant difference between the YG and OG in relation to the GPAQ activity levels (Table 18), with the YG being more active than the OG. The sufficiently active category or health enhancing physical activity (HEPA) category is calculated as  $\geq 7$  days of any combination of moderate and vigorous activity,  $\geq 3000$  METmins/week. The GPAQ calculates moderate and vigorous activity separately (in mins/day and days/week) for the domains of work, transport and leisure. The combination of moderate and vigorous activity within the various domains can therefore exceed 7 days. Due to the small numbers in the *HEPA* category, these values were consolidated with the *minimally active* category in the calculation of the statistical significance. An observation of note is that only 4% of the YG and none of the OG were sufficiently active to fall into the HEPA group.

**Table 18: Comparison of the GPAQ activity levels between the OG and YG**

Activity levels	OG (n=111)		YG (n=69)	
Inactive (<600 METmin/wk)	77	69%	30	43%
Minimally active ( $\geq 600$ METmin/wk)	34	31%	36	52%
Sufficiently active (HEPA)*	0	0%	3	4%
<b>Chi<sup>2</sup></b>	<b>df</b>	<b>p</b>	<b>V</b>	<b>Outcome</b>
11.83	1	.001	0.26	significant

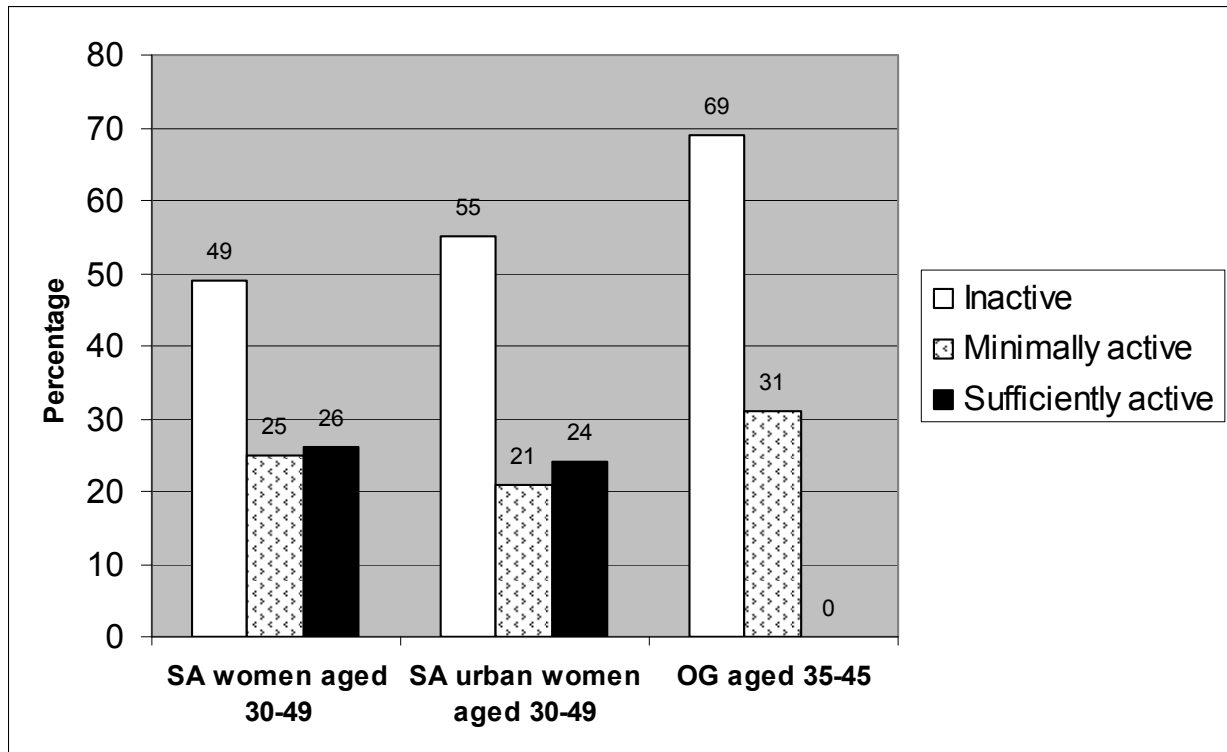
\* HEPA (Health enhancing physical activity:  $\geq 7$  days of any combination of moderate and vigorous activity,  $\geq 3000$  METmin/wk)

A comparison of the frequency distribution of physical activity levels of the OG and YG with a representative sample group of South African women in the World Health Survey (2003) is shown in Figure 10. Significant differences were observed for both the OG ( $\text{Chi}^2=38.06$ ,  $p<.0005$ ,  $V=0.41$ ) and the YG ( $\text{Chi}^2=28.67$ ,  $p<.0005$ ,  $V=0.46$ ) in relation to the South African sample.



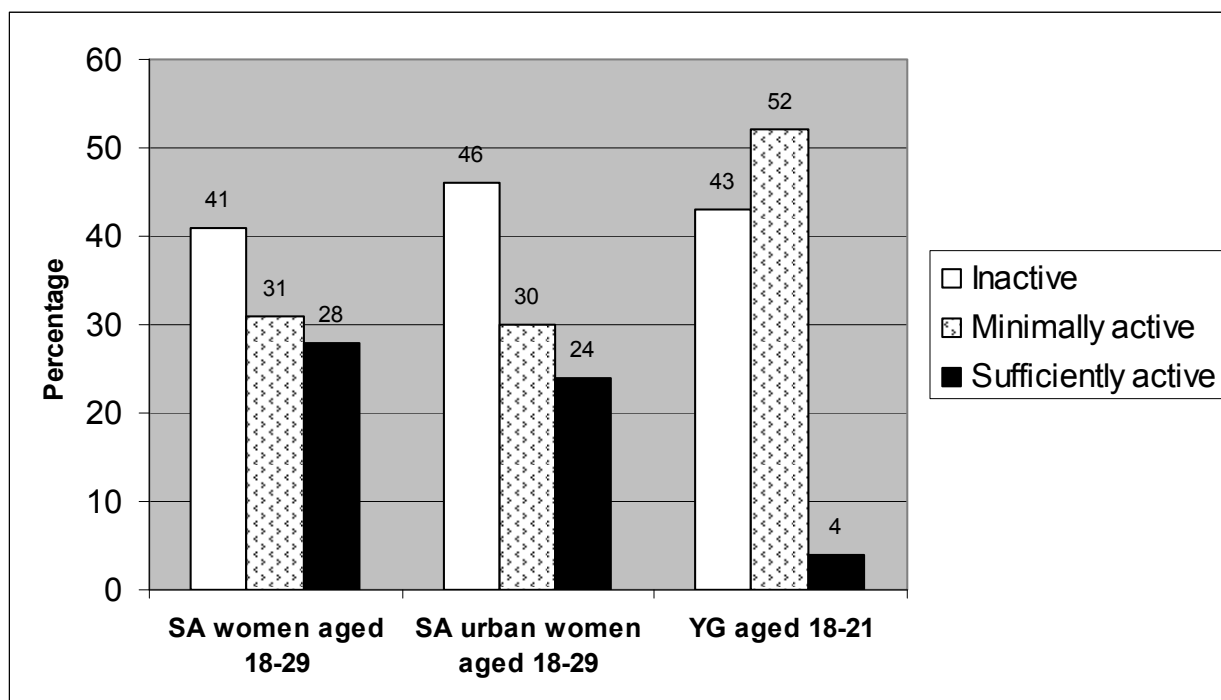
**Figure 10: Comparison of the frequency distribution of levels of physical activity among three groups: SA women, OG and YG**

Comparative frequency distributions of the physical activity levels of the OG and comparable age groupings in the World Health Survey (2003) are shown in Figure 11. The frequency distribution of the OG differed significantly from that of the SA women in the 30-49 age category ( $\text{Chi}^2=39.67$ ,  $p<.0005$ ,  $V=0.42$ ) and also from that of the urban women aged 30-49 ( $\text{Chi}^2=35.71$ ,  $p<.0005$ ,  $V=0.40$ ).



**Figure 11: Comparative frequency distributions of the physical activity levels of the OG with comparative South African age groupings in the World Health Survey (2003)**

Comparative frequency distributions of the physical activity levels of the YG and comparable age groupings in the World Health Survey (2003) are shown in Figure 12. The frequency distribution of the YG differed significantly from that of the SA women in the 18-29 age category ( $\text{Chi}^2=23.87$ ,  $p<.0005$ ,  $V=0.42$ ) and also from that of the urban women aged 18-29 ( $\text{Chi}^2=22.51$ ,  $p<.0005$ ,  $V=0.40$ ).



**Figure 12: Comparative frequency distributions of the physical activity levels of the YG with comparative South African age groupings in the World Health Survey (2003)**

During the calculation of the amount of time spent sitting, the amount of time spent watching television per day was noted (Table 19). Both the OG and YG spent in excess of two hours a day watching television.

**Table 19: Comparison of television viewing in minutes per day between the OG and YG**

Variable	Mean	SD	Min	Q1	Median	Q3	Max.	t-test	p	Cohen's d
<b>Television viewing (mins/day)</b>										
<b>OG</b>	130.00	66.51	30.00	60.00	120.00	180.00	360.00	1.30	.196	n.a
<b>YG</b>	145.65	95.18	0.00	60.00	120.00	180.00	480.00			

A comparison of time spent television viewing between the various groupings in the first national time-use study (Statistics South Africa, 2001) is presented in Table 20. In this survey, socializing and watching television were the two most popular forms of leisure activities. Both the OG and YG spent more minutes per day watching television than the comparative age groupings in the time-use survey (Table 20).

**Table 20: Comparison of television viewing in minutes per day with the South African survey of time use (Statistics South Africa, 2001)**

Group	Television viewing (mins/day)
Survey of Time Use Grouping:	
Females aged 10-19 years	76
Females aged 20-39 years	75
Females aged 40-59 years	70
Females: Formal urban	106
Female population	136
Whole population	138
OG 35-45 years	130
YG 18-21 years	146



### 4.5.3 Accelerometer

A random sample of 70 participants (from a total of 170 participants who agreed to wear the accelerometer) were selected to wear the ActiGraph. A random sample was selected based on the results of the GPAQ scores which indicated that 100% of the OG and 95% of the YG were sedentary or minimally active. One participant from the YG failed to comply with wearing the ActiGraph for the required five days which resulted in the data of 69 participants (OG=36, YG=33) being used in the study. The demographic profile of the ActiGraph sub-sample is presented in Table 21. This sub-sample matches the physical characteristics of the larger group presented in Tables 5 and 6, with regards to age, height, body mass and BMI.

**Table 21: Profile of the ActiGraph sub-sample**

	<b>OG (n=36)</b>	<b>YG (n=33)</b>
<b>Participants</b>		
Teachers	9 (25%)	6 (18%)
Nurses	9 (25%)	9 (27%)
Social Workers	8 (22%)	7 (21%)
Public Managers	10 (28%)	11 (33%)
Mean age (years)	39.89 ± 3.16	19.79 ± 0.93
Mean height (m)	1.61± 0.05	1.60± 0.05
Mean body mass (kg)	79.19± 12.72	63.39±9.53
Mean BMI (kg/m <sup>2</sup> )	30.62± 4.87	24.71±3.66
Normal weight (BMI < 25kg/m <sup>2</sup> )	5 (14%)	19 (58%)
Above normal weight (BMI ≥25kg/m <sup>2</sup> )	31 (86%)	14 (42%)
Overweight (BMI = 25.00-29.90kg/m <sup>2</sup> )	10 (28%)	11 (33%)
Obese (BMI ≥ 30kg/m <sup>2</sup> )	21 (58%)	3 (9%)

The results of the ActiGraph accelerometer data are presented in Table 22. The ActiGraph was worn by both the OG and YG for an average of 6 days. The YG was more active than the OG, with significant differences reported for calories, steps and minutes spent doing moderate activity.

**Table 22: Comparison of the ActiGraph data between the OG (n=36) and YG (n=33)**

	Mean	SD	Min	Q1	Median	Q3	Max	t-test	p	Cohen's d
<b>Calories</b>										
OG	105.85	83.32	7.83	49.68	70.25	119.02	347.49	2.85	<b>.006</b>	<b>0.69</b>
YG	178.18	124.94	39.50	81.77	148.92	227.45	490.91			
<b>Steps</b>										
OG	6025.19	1935.08	3487.83	4654.29	5801.90	6606.79	11384.80	5.42	<b>&lt;.0005</b>	<b>1.31</b>
YG	9178.19	2846.73	4253.60	6786.40	9145.14	10890.00	14453.67			
<b>Mets</b>										
OG	306.67	111.95	163.11	231.88	270.91	364.34	621.81	1.81	.075	n.a
YG	358.34	125.55	153.69	273.30	325.18	456.44	626.61			
<b>Mod A</b>										
OG	17.08	12.21	2.50	9.11	13.36	21.79	52.20	6.19	<b>&lt;.0005</b>	<b>1.49</b>
YG	42.26	20.83	12.00	24.33	42.43	55.57	83.71			
<b>Hard A</b>										
OG	0.60	2.71	0.00	0.00	0.00	0.00	16.17	0.63	<b>.533</b>	n.a
YG	1.07	3.60	0.00	0.00	0.17	0.43	20.57			

The step categories as proposed by Tudor-Locke and Bassett (2004) were used in the analyses of the step data from the ActiGraph (Table 23). In relation to the step categories, the YG were significantly more active than the OG. Eighty seven percent (87%) of the OG were classified as low active / sedentary.

**Table 23: Comparison of the step categories (Tudor-Locke & Bassett, 2004) between the OG and YG**

Step category	OG (n=36)		YG (n=33)	
Sedentary lifestyle (<5000 steps/day)	11	31%	1	3%
Low active (5000-7499 steps/day)	20	56%	10	30%
Somewhat active (7500-9999 steps/day)	2	6%	10	30%
Active ( $\geq$ 10000 steps/day)	3	8%	6	18%
Highly active (>12500 steps/day)	0	0%	6	18%
<b>Chi<sup>2</sup></b>	<b>df</b>	<b>p</b>	<b>V</b>	<b>Outcome</b>
23.91	4	<.0005	0.59	significant

#### 4.5.4 Discussion

All the physical activity measurements confirmed that both the YG and OG are not sufficiently physically active. They are not meeting the Centre of Disease Control (CDC) and American College of Sports Medicine (ACSM) recommendation of engaging in at least 30 minutes of moderate-intensity physical activity on most, preferably all, days of the week (Centers for Disease Control and Prevention and the American College of Sports Medicine, 1995).

The YG were significantly more active than the OG in all the physical activity measuring instruments, the FIT Index of Kasari, the GPAQ and the ActiGraph data. They were still however, not reaching the HEPA level ( $\geq$ 7 days of any combination of moderate and vigorous activity,  $\geq$  3000 METmins/week).

Certain trends can be identified when analyzing these measuring instruments. The YG scored very high in the transport domain (GPAQ, Table 17) and had a mean number of steps of 9178 (Table 22) in the ActiGraph data. Most of their physical activity was accumulated in the transport domain, and less in the work and leisure domains. They expended more energy walking to get to places. None of the YG had their own cars and they had to rely on public transport (buses and mini-bus taxis) to get to and from places. This would entail walking from their homes to the bus stops in their areas, and back again. The students who lived in university residences walked to their lectures, with many of them walking back and forth to their residences daily, in-between classes. They also walked to shopping centres and places of entertainment near the university campus. The majority of the OG had their own cars 78 (70%), and drove in their cars to get to and from places, the rest (30%) traveled in lift clubs or used public transport. The area of concern here is that once the YG have qualified in their various professions, have found places of employment and are earning a salary, they too will be using cars to get to and from places. The transport domain which is their biggest source of energy use, will not play a major role as it presently does.

There was a significant difference in energy expenditure in the work domain (GPAQ, Table 17) between the YG and the OG, with the OG expending more energy in this domain. The OG do not expend much energy in their professional duties, or paid work. The social workers and public managers spend most of their working hours seated: meeting or consulting with clients, working at their computers, writing reports and driving to get to places. The nurses at the community clinics also spend a lot of time seated while consulting with patients and writing reports; and during clinic days they spend more time standing and walking for short distances. Teachers spend most of their working hours standing, walking in the class, and then being seated at times. The energy expended by the OG in the work domain comes from their unpaid work, doing domestic chores. These professional women worked full-time in their careers, and ran their households with very little help. More than half of the participants (61%) did not have any domestic assistance at home, 32% had assistance one to two days a week and only 7% had assistance three or more days a week (Table 4). In addition, 85%

were raising children, with 41% being single parents. Their days started with light domestic chores before leaving for work, light domestic chores and cooking after work, with the thorough house cleaning and the laundry done on weekends.

There was a significant difference between the YG and OG in the amount of time spent sitting, with the mean score being 630 and 446 minutes a day, respectively. This is to be expected because the YG are attending lectures daily. In-between lectures they sit in the computer labs, sit in the library and sit chatting to friends. Both the YG and OG spend a lot of time watching television daily, 146 and 130 minutes, respectively, more than the comparative groups in the national time use survey (Table 20). Information obtained from the in-depth interviews conducted in relation to television viewing indicate that the OG found watching television very relaxing at the end of the day, after all their chores were completed. Many of the YG staying in the university residences had television sets in their rooms, which they watched while lying in bed.

The leisure time physical activity scores were very low for both the YG and the OG. The score for the exercise subscale in the HPLP was the lowest for both the YG and the OG, 20% and 22% respectively; only 22% of the YG and 25% of the OG reported participating in moderate exercise at least 2-3 times a week in the Belloc and Breslow Lifestyle Index and only four percent of the YG and zero percent of the OG were sufficiently active to fall in the HEPA category of the GPAQ. All the data confirm the sedentary nature of the participants' lifestyles. The leisure domain is the only area these professional women can use to improve physical activity participation rates. Paid work and the unpaid work at home doing domestic chores do not allow for sufficient energy expenditure. The transport domain is a temporary outlet for energy expenditure for the YG due to the necessity of walking to get to and from places, and should diminish when they qualify in their respective fields. Like the OG, they will then use their own cars, and do very little walking. It is the leisure domain which has to gain more prominence in the lives of both groups of black professional women. Both the YG and the OG need to be aware of the importance of leading an active lifestyle, and make a commitment of setting aside just 30 minutes a day for moderate intensity physical

activity. Determinants and barriers to leisure time physical activity among black women need to be identified, and measures put into practice to assist in the promotion of leading an active lifestyle.

The importance of physical activity in health promotion has been widely researched, and has become widely recognized as a key health behaviour, associated with chronic diseases of lifestyle (CDL). Increasing urbanization, industrialization and the adoption of a more Western lifestyle have resulted in the escalation of CDL in South Africa and account for nearly 40% of adult deaths. In addition, the majority of South Africans have at least one modifiable risk factor for chronic disease (Bradshaw *et al.*, 2003). Many South African studies have highlighted the sedentary nature of people's lifestyles, with the growing trend of non-active leisure activities (Chapter 2, section 2.2.1). South African studies on physical activity and the effect thereof on various health variables (Chapter 2, section 2.3.1) have also highlighted the increased health risks facing South Africans as a result of the low levels of physical activity participation. The present study has confirmed these trends, with very few participants meeting the CDC recommendations of 30 minutes of moderate exercise on most, preferably all, days of the week (4% for the YG and 0% for the OG) and high levels of obesity (41% of the YG and 86% of the OG). The activity levels are significantly lower and the overweight/obesity levels are significantly higher than the South African norms (SADHS, 1998; World Health Survey, 2003). Investigating the determinants and barriers to participation in physical activity of this group of people is important for health promotion, and for the improvement of service delivery in the education, recreation and sport industry.

Like most human behaviours, physical activity is complex. Physical activity in our daily lives is determined and affected by many factors (Sparling *et al.*, 2000). The results and discussion emanating from the next chapter (Chapter 5) aims to elucidate the factors that may have constrained the participants in the present study from participating in adequate physical activity. The qualitative interviews and the discussion in Chapter 5 focus on the psychosocial context and socio-cultural influences on physical activity in



#### 4.6.2 Correlations between various physical activity and health-related measurements

The correlations between the various physical activity measurements (the FIT Index of Kasari, the ActiGraph data and the GPAQ) and the health-related measurements (BMI, the Belloc and Breslow's Lifestyle Index and the HPLP), are presented in Table 25. Both leisure related physical activity measurements, namely the FIT index and the GPAQ leisure domain had a significant correlation with Belloc and Breslow Lifestyle Index and the HPLP.

**Table 25: Correlations between various physical activity and health-related measurements**

	Physical Activity Related Measures								Health-related Measures		
	FIT Index	Actigraph (AG)			GPAQ				BMI	Belloc & Breslow	HPLP
		Calories	Steps	Mets	Work	Transport	Leisure	Total			
BMI	-.002	.094	-.295	-.069	.248	-.240	-.045	-.101			
Belloc & Breslow	<b>.505</b>	-.296	-.191	-.159	-.132	-.221	<b>.433</b>	.059	-.076		
HPLP	<b>.334</b>	-.265	-.261	-.128	-.149	-.127	<b>.352</b>	.069	.098	<b>.402</b>	

#### 4.6.3 Discussion

A number of different physical activity related measurements, namely the FIT Index of Kasari, the ActiGraph data and the GPAQ, and health related measurements, namely BMI, the Belloc and Breslow Lifestyle Index and the HPLP were used in the study. Pearson Product Moment correlations were calculated to determine the relationship between these various measurements.

As discussed in Chapter 2, multiple assessment methods are advised to achieve an accurate measure of physical activity (Schultz *et al.*, 2001; Wood, 2000). Each of the three measures concentrates on specific aspects related to physical activity: the FIT Index of Kasari quantifies participation in leisure time physical activity, the GPAQ calculates physical activity in METminutes, in three domains namely activity at work,



travel to and from places, and leisure activity and the ActiGraph collects and reports physical activity in “counts” and then converts these counts to calories. The ActiGraph also has a pedometer function, measuring the number of steps taken.

The correlational analyses highlighted a good cross-validation of the various measures of physical activity. There was a significant correlation between the measures of leisure time physical activity, that is the FIT Index and the leisure domain of the GPAQ. There was also a significant relationship in the area of walking or steps taken, that is the ActiGraph steps and the GPAQ transport domain. There was also a significant relationship between the overall measures of physical activity, that is the GPAQ total score and the ActiGraph calories. Motion sensors (the ActiGraph in the present study) have been used as a criterion measure for the validation of self-reported physical activity questionnaires like the GPAQ, as discussed in Chapter 2.

The correlations between the various physical activity and health related measures revealed that only the leisure related physical activity measurements, that is the FIT index and the GPAQ leisure domain had a significant correlation with the two health related measures, namely the Belloc and Breslow Lifestyle Index and the HPLP. There was no significant relationship between BMI and any of the physical activity related measures. The reason for this may be that a large proportion of the sample, 87% of the OG and 41% of the YG had a BMI score of  $\geq 25\text{kg/m}^2$ , falling into the overweight or obese categories.

Due to the specific characteristics of this sample group, and the sample size, it was not feasible to calculate any further correlations. With the majority of the group being physically inactive (results of the GPAQ indicated that 100% of the OG and 95% of the YG were sedentary or minimally active) it was not feasible to compare or correlate any of the indices of health risk in persons getting sufficient levels of activity versus those who were inactive.

## **CHAPTER 5**

### **RESULTS AND DISCUSSION OF THE QUALITATIVE DATA**

#### **5.1 INTRODUCTION**

Chapter Three detailed the research methodology implemented in this study, including the qualitative aspects: the in-depth interviews, data analysis and data verification. This chapter discusses the research findings as they emerged during the process of data analysis. The qualitative data were analysed using Tesch's framework as described in Cresswell (2003:196-199). An independent coder was used to enhance the dependability and neutrality of the findings (Guba in Krefting, 1991:215-222). The objective of the analysis was to explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants, to investigate their perceptions of and attitudes towards physical activity, and to extract the motivations and constraints which inspired or inhibited physical activity.

#### **5.2 DEMOGRAPHIC PROFILE OF THE PARTICIPANTS**

A demographic profile of the participants in the study is provided in order to place them and their narratives in a social context. In-depth qualitative interviews were held with the participants from the sample group of 69 (the participants who wore the ActiGraph). The sample size was determined by data saturation from the interviews. Data saturation is explained as data adequacy and it involves the collection of data until no new information is obtained (Morse, 1994:147). Ultimately, 47 participants were interviewed, a younger generation of 27 (6 education, 8 nursing science, 5 social work and 8 public management students) and an older generation of 20 (6 teachers, 4 nurses, 5 social workers and 5 public managers).

The two generations of women reflect pre- and post democracy age groups in South Africa. The older generation (aged 35 to 45 years) spent their formative years in apartheid South Africa and were disadvantaged by the past government's policy of

apartheid. Apartheid brought with it discriminatory laws and practices and encompassed migrant labour, segregation, forced removals, poor living conditions for blacks and numerous hardships (Bernstein, 1985). The older generation of women grew up in historically black areas and went to black schools known as DET schools (Department of Education and Training). The provision of education in black schools was racially unequal by design, schools were deprived of qualified teachers, physical resources and teaching aids such as textbooks and stationary (Fiske & Ladd, 2004). The younger generation of women (aged 18-21 years) spent their formative years in a post-apartheid South Africa, post-1990, with the removal of discriminatory laws and practices from the statutes and under the first democratically elected government and a constitution which guarantees equality and non-discrimination.

In post-apartheid South Africa, the legacies of colonialism and apartheid are nevertheless still evident. Schools known as DET schools in historically black townships are even in present times still attended mainly by black pupils. These schools are still constrained by poor facilities and lack of human capacity (Fiske & Ladd, 2004). Schools in formerly white residential areas were, during apartheid, schools for whites only and are known as “Model C” schools. These former Model C schools tend to have better facilities and are better resourced and managed than most former DET schools/black schools, and are mainly attended by the middle class of post-apartheid South Africa (both black and white). While racial segregation has fallen away in post-apartheid South Africa, the terms “Model C”, “DET schools” and “black schools” are still current, and are used in this study to distinguish between schools.

There are also marked discrepancies between historically black and white residential areas, with the former still adversely affected by poor roads, facilities and infrastructure. There has been some racial integration in formerly white residential areas, as the growing black middle class seek better living conditions. However, most historically black township areas continue to be racially exclusive, comprising of blacks only.

The professional teachers and nurses in the present study worked in various primary and high schools, and at primary health care clinics in the historically black areas of the Nelson Mandela Bay Municipality. Most of the professional social workers in the study were employed by the Eastern Cape Department of Social Development and served in the historically black areas of the Nelson Mandela Bay Municipality. The public managers were recruited from the Nelson Mandela Bay Municipality and held managerial positions in a variety of areas, namely, skills development, economic development, human resources, sport and recreation, arts and culture, special projects, agriculture, housing, tourism, and trade and investment. While the majority of the older generation of participants worked with black communities, 65% lived in formerly white suburbs (Kabega Park, Linton Grange, Bridgemead, Rowallan Park, Bluewater Bay and Summerstrand), while only 35% lived in historically black townships. Eighty eight percent of the older generation of participants who had school-going aged children sent their children to former Model C schools, while only 12% sent their children to township schools. While the professional women may work with black communities, the majority live in the more affluent, formerly white, residential areas, and send their children to the better resourced schools in these areas.

These findings tie in with the results of the recently released study, conducted by UCT Unilever Institute of Strategic Marketing and TNS Research Surveys, entitled *Black Diamond 2007: On the Move*, where South Africa's black middle class is referred to as "Black Diamonds" (UCT Unilever Institute of Strategic Marketing, 2007). This study revealed that South Africa's black middle class has grown by 30% in just over a year. Twelve percent of South Africa's black population account for over half (54%) of all black buying power (compared with 10% accounting for 43% of black buying power 15 months ago). In the earlier Black Diamond studies conducted at the end of 2005, researchers found many respondents who lived in townships expressed the desire to eventually move to the suburbs. The *Black Diamond 2007: On the Move* study indicates that the number of "Black Diamond" families living in suburbs in South Africa's metropolitan areas has grown from 23% to 47% in the past 15 months (Higgs, 2007). Reasons for these moves given by the participants are: the making of sound property investment

decisions, and the provision of tighter security and better-resourced schools for their children. These factors have a bearing on physical activity involvement, and are discussed later.

The younger generation of students were studying at the various campuses of the Nelson Mandela Metropolitan University. Additional student nurses were recruited from the Lilitha Nursing College in the Nelson Mandela Bay Municipality. The majority of the younger participants came from rural (44%) or urban township (41%) homes. Fifty six percent completed their school education at township schools and 44% went to former Model C schools. This means that even though many students lived in rural or urban township areas, they attended former Model C schools in formerly white suburban areas. While studying, the majority stayed in NMMU residences (48%), while the rest lived at home in township areas (26%), student communes (15%) and the Provincial Nurses' Home (11%). Whether these respondents grew up in a rural or urban township environment, which schools they attended, and different accommodation options while studying, have all had an impact on physical activity involvement, and will be discussed later.

### **5.3 DISCUSSION OF THEMES, SUB-THEMES AND CATEGORIES**

From the interviews conducted, three themes, relevant sub-themes and categories emerged. In this section, the discussions of the three themes with their sub-themes and categories are presented: Theme 1, perceptions of, and attitudes towards physical activity; theme 2, motivations for physical activity participation, and theme 3, barriers to participation in physical activity. Each is supported with direct representative quotations from participant interviews as a means of highlighting their meanings and interpretations of physical activity. The results are, in turn, compared, contrasted and discussed in relation to existing knowledge in the field. Quotations from participants are italicized and placed between square brackets. The language is quoted verbatim and no effort has been made to formalize language usage in the participants' verbal responses. Where clarification is required, explanations are given in parenthesis.

### **5.3.1 Theme1: Perceptions of, and Attitudes towards, Physical Activity**

“Perception”, defined as “the ability to see, hear, or understand things; awareness; a way of seeing, understanding or interpreting something” (Oxford Advanced Learner’s Dictionary, 1995) refers to the “processes by which we apprehend or become aware of objects, qualities or other items of sensory input and organize them into coherent units of experience” (Cashmore, 2002: 194). Perception of physical activity relates to the way in which a person sees, or understands, the concept of physical activity: what it is, where it comes from, what it means.

“Attitude” has been defined as a “settled behaviour or manner of acting, as representative of feeling or opinion” (The Concise Oxford English Dictionary, 1982). Psychologists have been interested in attitudes from the earliest days of psychology because they assumed that by knowing someone’s attitude, behaviour could be predicted (Shaw, Gorely & Corban, 2005:127). However, the relationship between attitudes and behaviour is a complex one. Behaviours usually, but not always, reflect established beliefs and attitudes. However, behaviour can be influenced by a number of factors beyond attitude, including social factors, preconceptions about self and others, and monetary factors (Gale Encyclopaedia of Psychology, 2001). Psychologists have moved back to an earlier and less-complicated view of attitudes, and they are now simply defined as “evaluations about people, objects and events” (Shaw *et al.*, 2005: 126). Attitude towards physical activity is taken to refer to the state of mind or feeling towards physical activity, or an evaluation of physical activity.

Determining their perception of, and attitude towards, physical activity is the first step towards understanding the role of physical activity in peoples’ lives. Establishing how people perceive physical activity and whether they have a positive or negative attitude to physical activity will assist in an understanding of how these perceptions and attitudes have a bearing on their actions. Such an investigation is complex because of the many factors that affect people’s feelings and belief systems: a web of interrelated issues surrounds perceptions and attitudes. Thus, in-depth probing into the role of physical

activity in their daily life is needed to establish whether people see it as important, as well as to establish their current leisure and recreation activities, their reasons for involvement or non-involvement, the involvement of friends and family in relation to their own physical activity, how they spend their time over a typical week and weekend, and also to capture their reflections on childhood physical activity. In addition, understanding people's perceptions of, and attitudes towards, physical activity is important for the drafting of intervention strategies for the promotion of physical activity.

Table 26 below depicts theme 1, with its identified sub-themes and categories. The discussion around the following sub-themes and categories provides greater insight into the participants' perceptions of, and attitudes towards, physical activity.

**Table 26: Perceptions of and attitudes towards physical activity**

THEMES	SUB-THEMES	CATEGORIES
<p><b>THEME 1:</b> Perceptions and attitudes to physical activity</p>	<p>Perceptions of physical activity</p> <p>Attitudes towards physical activity</p>	<p>Awareness of the importance of exercise</p> <p>Intention to start exercising</p> <p>Exercise is a personal choice</p> <p>Motivating their children to exercise</p> <p>"Sedentary but busy"</p>

### 5.3.1.1 Perceptions of physical activity

Problems do exist in relation to the language and definitions concerning physical activity and related terms. The primary focus of this study was the role of physical activity in people's lives, and the widely used definition of physical activity by Casperson *et al.*, (1985), as, "any bodily movement produced by skeletal muscles that results in energy expenditure", was adopted. This definition includes, but is not limited to, occupational, sports, exercise, household, or other daily and leisure activity. The present study required participants to acknowledge physical activity in its broadest sense, related to all types of movement, and not simply exercise which is defined in Chapter 1 as a subset of physical activity: planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness.

The misconception of the definitions of physical activity was problematic. However, a broadened perspective of physical activity was gleaned from the in-depth interviews and probing. For the majority of the participants, physical activity was synonymous with exercise and playing sport (going to the gym, jogging, playing netball and other sports), as is seen in their responses below. The physical activity related to occupation, household chores and walking to get to places was not seen as a part of energy expenditure. This additional information was gleaned from specific questions to participants during the interview.

Below are the responses from participants (OG) when they were asked to describe the role of physical activity in their daily lives. For most of the participants, physical activity meant exercising or playing sport.

*[I was very, very active. I was playing netball, I was an athlete.]*

*[I like to dance.]*

*[I was planning to start with gym but due to financial constraints I couldn't.]*



*[I don't do anything.]* This is a response from a teacher who walks 15-20 minutes daily to get to school, but did not associate her walking with physical activity.

*[My schedule is too full; I don't have time to exercise.]* This participant has no time to exercise, but expended a lot of energy doing domestic chores: cleaning, washing, ironing, and cooking, at her house and her elderly father's house. Domestic chores were not associated with physical activity.

*[I do feel the need for exercise. But I am lazy to go to Virgin Active by foot, so I was hoping that I might get a car this December.]* Physical activity was again associated with exercising at a gym, and not walking, with the participant ironically being "lazy" to walk to Virgin Active, and feeling the need to get a car to drive to exercise.

Similar perceptions came from the YG. Below are their responses when asked to describe the role of physical activity in their daily lives.

*[I don't do any exercise; I never participated in sport at school.]*

*[When I was at school I was playing netball. I was exercising all the days. But now I am not doing anything.]*

For both participants physical activity is associated with exercise and playing sport. Both of these participants reported walking for at least 30-40 minutes a day, to and from the bus stop, but did not associate this with physical activity.

*[I played netball for Natal, but not anymore. I do nothing now.]* This participant walked from Forest Hill to the university (30 minutes) for most days of the week, but did not regard this as physical activity.

*[Exercise does not fit into my life because I'm lazy and I hate exercising, because you get sweat and all that stuff, so to me walking home and to church, that's my exercise!]*

The participant laughed when she said “walking home and to church” as if she was saying something dismissive or sarcastic, as if it were not true exercise.

This perception of physical activity being narrowly associated with exercise and structured activity was also reported by Henderson and Ainsworth (2003), who cited an example by an American Indian woman who said, “I hardly do any physical activity. The only thing I can think of is walking”.

For the YG, their future physical activity entailed joining Virgin Active. The impression the researcher got from interviewing the YG was that joining a gym like Virgin Active was what many of the YG aspired to because it symbolized rising status and being a modern woman. There is a certain glamour and status about going to a gym, rather than walking or doing any other form of physical activity. The Virgin Active brand was often mentioned, as opposed to other gyms, indicating that a fashionable status is attached to joining that gym, in particular. The implication is that exercise is preferable when it is fashionable.

*[I would love to join a gym club; oh I would love to have a trainer.]*

*[I plan to join the gym full time.]*

One of the YG participants said she saw her future in relation to physical activity as “work, gym and home”, all conveniently packaged. The OG did not have this association with gym membership.

### 5.3.1.2 Attitude towards physical activity

Attitude towards physical activity refers to the state of mind or feeling towards physical activity or evaluation of physical activity. The YG and OG generally had a positive attitude towards physical activity: they recognized the importance of exercise and the need to make it a part of their lives. The importance people place on their beliefs about the benefits of exercise can provide a basis for their future intentions. The word “exercise”, as a subset of physical activity, is used in the discussion below because this is the term the participants used, and they used it as defined in Chapter 1 as “a subset of physical activity: planned, structured, and repetitive bodily movement done to improve or maintain one or more components of physical fitness”.

#### ➤ Awareness of the importance of exercise

Even though only a small percentage of the participants were engaged in regular physical activity (15% of the OG and 22% of the YG), the majority of the participants had a positive attitude towards exercise. They recognized the importance of it and were keen to make it a part of their daily lives.

The association between physical inactivity and adverse health conditions has been widely researched and emphasized over the years (Slattery *et al.*, 1989; Paffenbarger *et al.*, 1993; Kruger *et al.*, 2003). Physical activity and exercise benefits include the prevention of many disorders such as heart disease, high blood pressure, diabetes, and osteoporosis, and contributes to stress reduction, weight control and functional independence in old age, as reported by Brehm and Iannotta (1998) and Dishman *et al.*, (2004).

The OG recognized the contribution of exercise to good health, with particular reference to physical well-being, the immune system and psychological well-being.

*[Because of our health we must use our body because your health depends on the way you treat yourself, so gym and exercise is good for you.]*

*[I know it will contribute much better to my life and my health.]*

*[I believe if I keep my body fit I will not get sick easily.]*

*[You must exercise because it is good for your health.]*

*[I enjoyed running because it really makes you feel relaxed and it relaxes your muscles and makes you fit physically and health wise you don't easily get sick. It boosts your immune system.]*

*[First and foremost, for your physical well being, for you to give your body the chance to function. And also for psychological and mental, it is part of those things that are renewing your strength in all aspect of your life mentally and emotionally. When you exercise you feel composed.]*

The YG were also aware of the benefits of exercise to good health and, more specifically, its role in reducing the risks related to obesity, cardiovascular disease, diabetes and osteoporosis.

*[It is very important to exercise. It helps you to be physically fit.]*

*[It will keep my body healthy.]*

*[I think I am so aware of things like my health. I know that a person has to keep healthy, and one of the things you can do to keep healthy is exercise, for your heart and for your kidneys.]*

*[Yes it is, mostly for my health, you know. In my family, for me it is important, because most of them they got diabetes and everything like that...and I think it is very important, because they've got heart problems and cholesterol just heart attacks and stuff. It run in the family so for me it is vitally important that I exercise to reduce that risk.]*

*[Yes it is because it prevents lots of diseases like heart attacks and from becoming obese and it is important.]*

*[I have just realized that it prevents, well maybe it limits you from getting diseases and secondly it just helps keeping your bones like strong especially when you old you will need to have strong bones to support you cause apparently you stop growing when you old and your bones are all fragile, ja, and so you feel good and firm and able to do things on your own for a long time and I also think it makes you active for a long time so you won't be dependant as such on people, and that is the importance I realize, and of course for us and people to keep in shape and look good.].* This student acknowledged that she learnt a lot from the Health Psychology module she completed. The module encouraged her to look at her life in relation to physical activity and health, and motivated her to start exercising.

*[I don't get sick when I am here because I exercise.]* "Here" refers to the university residence.

*[I am on diet so believe that if I play netball I am going to lose weight and be healthy.]*

*[I want to stay healthy ... so that's why I want to increase.]*

*[It limits you from getting diseases.]*

*[It just helps keeping your bones like strong.]*

*[It makes you active for a long time so you won't be dependent on people.]*

The contribution of exercise to stress reduction was acknowledged by the OG. Stress among public servants, particularly, teachers, nurses and social workers has been widely reported in the media. Occupational stress in the workplace was cited as one of the leading reasons for absenteeism at work (Rothman, 2005). Research by the Human Sciences Research Council in 2005 found that more than half of the country's 350 000 teachers had considered leaving the profession because of stress. Stress and depression has been precipitated by heavy workloads, unmanageable class sizes and by unruly and ill-disciplined pupils (Sunday Times, 2007). Most nurses were also under a lot of pressure as they faced high workloads on a daily basis. Nurses also reported a fear of becoming infected with HIV-Aids, as they were not aware of the status of the patients they treated (Rothman, 2005; Makie, 2006). The morale of social workers was also low due to low salaries, and the stress related to high workloads caused by the shortage of social workers. South African social workers have to cope with case loads ranging from 600 to 3000 in extreme cases, compared with 13 to 20 cases per social worker in Britain (The Times, 2007).

*[Even if I am just doing gym it is something I am doing outside work and house situation. Whatever it could be, ballroom dancing, whatever, it takes your mind out of stress, because you are exercising and enjoying yourself. I think everybody must do something.]*

*[I used to tell people I am a nervous speaker, I have got nerves, and the best way to relax myself is to go to the gym to exercise. I used to suffer; the doctor said my heart muscles were strained too much so I thought if I could go to the gym it would help me.]*

*[I know and understand that exercises can make you feel less stressed because I am so stressed, occupational and financially stress and I can make exercises walking or something I will feel less stressed.]*

*[Physical well-being, give your body the chance to function, also for psychological and mental, renewing your strength mentally and emotionally.]*

The contribution of exercise to psychological well-being and stress reduction was also acknowledged by the YG.

*[It improves your self-esteem.]*

*[Because exercise is healthy and it keeps you healthy and fit and it also relaxes your mind, relieve stress and stuff so I really think it's a good thing to exercise.]*

*[What motivate me first of all its stressed out you know when I'm feeling stressed I just go jogging, it keeps me, I don't know whether to say fit or but I just feel myself you know I just feel healthy.]*

*[It motivate me in such a way that when I'm not my self or when I'm stressed, it motivates me to keep the stress out and I'm getting stress free and it helps me a lot, ja it keeps me fit and active in everything I'm doing. I feel better, that's why I like jogging, I like exercising a lot.]*

*[After I jog I feel stress free.]*

The OG recognized the importance of exercise in maintaining a moderate body weight, good shape and toning of muscles. The SADHS (1998) has highlighted the high rates of overweight and obesity among South Africans (29% of men and 56% of women), with the highest rate occurring among African women. The results of the present study indicated that 86% of the OG fell into the overweight/obese category, although only 57% perceived themselves to be overweight. Obesity is a predisposing factor for developing hypertension, diabetes and other hypokinetic diseases, so it is important for the professional women in this study to be aware of the important role of physical activity in the maintenance of a moderate body weight.

*[If I could just drop in weight too because I feel so tired. This is not my weight. I've just gained this weight. And I feel if I have to maintain it, I have to gym. I can see that I'm going to be fat.]*

*[I think it is important to be in a good shape. To keep weight down and tone your muscles too so that you don't age very early, avoid aging. It keeps you fresh and you will not get tired easily.]*

*[Yes I enjoy it. I can feel my body is firming up.]*

*[In the future I would like to be more active in exercise because I can see that I have developed a lot of weight and it does not make me feel comfortable, because when I go to shops I don't have sizes and it's tiring especially in summer. I want to do exercises.]*

Exercise was also acknowledged by the YG as being important to keep in shape, and important in weight control.

*[It is to keep up your body structure and everything.]*

*[To keep in shape and look good.]*

*[For fat people, it's a must do.]*

*[Especially weight]*

The results of the present study revealed that 41% of the YG fell into the overweight and obese category, which underscored the importance for participants to be aware of the role of exercise in the maintenance of a moderate body weight.



➤ **Intention to start exercising**

Even though many participants were not exercising, they recognized the need to start exercising. Many expressed a determination to start exercising.

The transtheoretical model (TTM) of stage of change (Dishman *et al.*, 2004:407), described health behaviour adoption and maintenance as a process that occurs through a series of behavioural and motivationally defined stages. The model asserts that change is not linear for most individuals, but in values cycling through the stages at different rates of progression. In relation to this study, the majority of the participants have passed the precontemplation stage (individuals are inactive and have no intention to start exercising), and are in the contemplation stage (individuals are inactive, but intend to become more active in the near future). But research has shown that behaviour is influenced by expectations that the desired outcomes would outweigh the anticipated costs or barriers to a given behaviour (Dishman *et al.*, 2004). Participants may be intending to be more active in the future, but will have to overcome the many barriers discussed in Theme 3.

*[Where I live, I live with white people and they are more or less about 55 years or more but they are active. So keep asking myself why don't I do the same as they do because I am still energetic and young, but they are more energetic than me because they exercise every morning and evening. They walk and jog and I like it and I want to do it, I am determined. I see myself being 100% active.]*

*[I think I am keen but I don't think I will do it outside, rather at home, in the house, in the room. But I must just make the effort.]*

*[I want to do exercises. To be realistic, I think taking a walk its less expensive than going to a gym so it means even if I don't go to a gym I can also do exercises.]*

*[But I do feel the need for exercise. But I said I am lazy to go to Virgin Active by foot, so I was hoping I that might get a car this December.]*

*[I want to be active. For instance at least in summer I do the physical exercises because it is hot, my mind is tired and I want to refresh myself.]*

*[It is good to be conscious about exercise. Even if it is just walking, I see it as important in my life. I just need to encourage myself and go for it. I would love to see myself doing exercises in the future.]*

*[I am planning to get back into running.]*

*[I want to run. I would love to. Ideally that is what I would like to do. If I could wake up earlier I really could.]*

*[The kids will grow up... be less dependant on me... I will have time for myself.]*

With the YG, “next year” was the buzz word. Many participants plan to join a gym “next year” or exercise in the future; it is something they would “love to do”.

*[Next year I plan to join the gym full time.]*

*[Maybe next year.]*

*[I'm planning to start yoga next year.]*

*[I was going to start next year.]*

*[I feel that there's a need that I should exercise but I was going to start next year.]*

*[Next year I want to start exercising and start to lose weight.]*

*[I am dreaming of doing that in the future.]*

*[I am interested in learning squash. I can still do it when I am married.]*

*[I would like to exercise.]*

*[I would love to do that.]*

*[I would love to exercise. I would love to feel firmed up.]*

Joining a gym like Virgin Active was an ambition of many of the YG, once they were working and could then afford to pay for it. A very idealistic perception by one of the participants sums it up well, “In the future you always think of work, gym and home”.

*[If I have time I could go to gym.]*

*[I will think of actually joining the gym.]*

*[I will join the clubs like Virgin Active and exercise.]*

*[I would love to join a gym club ... I would love to have a trainer.]*

*[I will exercise because I will have money so that I can pay and be active. I want to put my body in active.]*

*[If I can work, I will do it.]*

*[I would like to get one of those machines.]*

*[I will join the clubs like Virgin Active and exercise. That's what I want to do.*

Why would you go to Virgin Active and exercise?

*I don't want to be fat.]*

*[Ideally I was like if I graduate and would go to Virgin Active ....you know....I think I really will do that... I'm sure... I would love... I would really love I would buy those bicycles that just stand there... stationery bicycle ... ]*

*[I really don't wish to be like my parents, because they don't do exercise and all those stuff, but when I'm older, I would like my household to be much healthier, cook healthy stuffs, have healthy diet, go to the gym, something like that, not the way that I'm living now.]*

➤ **Exercise is a personal choice**

In addition to recognizing the need for exercise, and indicating a determination to start exercising, some participants recognized that it was a personal choice, and required self-motivation; it is up to the individual to make the choice to be active. Many participants felt they were not influenced by friends, family or society. It was an individual choice. This is further reinforced by the acknowledgment by many that they were just “lazy”, there were no excuses: inactivity was “just laziness” on their part (discussed later under barriers). However, it should be borne in mind that participants also cited social barriers to physical activity participation which are discussed later. Comments from the OG were:

*[I can't be waiting because we are women and we have different responsibilities at different times.]* This participant felt she could not wait for her friends when she wanted to go walking; they each made decisions to suit their own lifestyles.

*[I want to be active, for myself.]*

*[It depends on you.]*

*[It is a personal choice and a consciousness and an awareness.]*

*[It is a personal thing.]*

*[It is my personal choice.]*

*[I see myself joining one.]* “One” referring to a gym.

*[I need to work on myself.]*

*[I am not influenced by others of what decisions I make in life. It is not a matter of him (her husband) to encourage me. I take responsibility for myself.]*

*[It is your own choice.]*

The YG also felt that people had a choice to be active or not.

*[It is my choice about being lazy.]*

*[It's up to them, if they want to exercise.]*

*[I think it's personal as you grow.]*

*[It's your choice; you don't have to do it for the society, if you feel like it then do it.]*

Most parents among the OG (88%) consciously chose to send their children to former Model C schools, knowing that the schools are better resourced than the township schools in relation to sports facilities. At the former Model C schools, children are exposed to more sports and are encouraged to participate.

➤ **Motivating their children to exercise**

Many of the OG motivated and encouraged their children to exercise. Many may not be active themselves, but they wanted their children to be active. Again they acknowledged the importance of exercise, and wanted what was best for their children, and did not want their children “to be lazy like their parents”. For the OG, who attended school during the apartheid years, there were very limited opportunities for participation in sport other than netball and athletics, in addition to very little encouragement from the schools and parents. Eighty eight percent (88%) of the OG who had school going children sent their children to former Model C schools, where a variety of sport is offered, and where playing at least one summer sport and one winter sport is compulsory.

*[I really do encourage them; even in summer I ask them to please join the summer sport, cricket. The oldest one is at Westering and the other one goes to Kabega. Sport is encouraged at the school and they like it too. My youngest son didn't want to join Callies (a soccer club), but I encouraged him to join and he enjoyed it after that. What are they going to do if they don't join, on a Sunday afternoon they are always busy playing matches, otherwise they will just be sitting in the house.]* This mother takes her son to soccer practices and watches his matches on Sundays. The soccer club is in addition to school sport.

*[I tell her I can't do anything now because I was lazy and fat, she's also fat but I just want her to be active she must not be like me, I just encourage her.]*

*[Yes, they must play sport, soccer, athletics, anything; I won't tell them what to do, as long as they stay active. I would encourage them to be part of any sport and not be lazy like their parents.]*

*[My child is very active at school, even when she is playing with others, she is playing netball and tennis and everything. I encourage her.]*

*[Yes, because it is important for health reasons for one because I was recently diagnosis with low blood pressure and dizziness so maybe I don't eat a good diet and need to do exercise. And also for my children, because they must know that it is important to exercise.]*

*[She is much more active, even in the house, playing around in the house. And she is involved in sport at school. I encourage it because I know it's healthy.]*

*[My child is very very active. He is attending here at Greenwood. He likes to swim and play each and every sport, he likes music, and he likes everything. I can say he is hyperactive. He influences me sometimes, he says mum let's go there, and I'll go because of him. I don't even need to encourage him, he is already active. I like it very much.]*

The YG also reported that they would encourage their children to exercise and play sport. Playing sport was seen as important for good health, in addition to keeping children away from social problems such as drinking and crime. They also recognized the importance for children to start exercising from a young age. The researcher also got the impression that the participants would actively encourage their children to exercise by taking them to various classes, watching their games and motivating them.

*[I will encourage my children to exercise. I'm going to encourage them because it is healthy and sport for good health.]*

*[I will want the best for them. The things which I did not have, they must have them. So that they can be healthy.]*

*[Exercising I think is the best, I would encourage them to exercise, I would practice what I preach probably, I would also go to exercise with them and encourage them that exercise is the best, because normally you don't get sicknesses because you're much healthier and eat healthy, have a healthy diet to follow, than what I'm doing right now.]*

*[I would be very happy 'cause you know when you playing sport you feel really good, even physically you're not lazy even though you eat a lot, but then I think I'll support and encourage my kids to do sport and in the gym (I don't know about that). I think that sport is very important. Well, personally I love sport anyway, so I think I'll encourage them to do sport. I never got that from my parents so I think I would be supportive, 'cause I know how it feels like to have a family encouraging.]*

*[I will even take them to gym practices. I believe it is part of their health and growth. I will encourage them to participate in sport.]*

*[Ja, it's an important thing, especially for the youth, because many of the times you don't do anything, they are going to do robbery or go to taverns and drink alcohol to spend their times. So it is important.]*

*[You go to practices ... and don't think of any other distractions like drinking with friends.]*

*[It will try and motivate them; it also plays a role in life and to relieve stress and everything, to build up bones.]*

*[I never got a chance to do it at school. I would love my children to do that at school I will definitely make time.]*

*[I'll encourage my kids. You must start young.]*

*[I don't want my children to become like me.]*

*[I'm going to encourage them because it is healthy and sport for good health.]*

*[I just think that exercise is good for the body so I will always encourage them to exercise.]*



*[I'll be very happy; I would actually watch their every game.]*

*[People should be young when exercising to get into a routine.]*

*[Yes, because it is for their own good, to keep them healthy.]*

➤ **“Sedentary but busy”**

The heading of this sub-category was borrowed from Henderson and Ainsworth (2003), who noted in their study the great amount of activity African American and American Indian women were involved with. These women were defined as “sedentary” by physical activity standards, but led very busy lives. The same could be said of the OG in the present study.

To get a broader perspective of physical activity (bearing in mind the narrow perception of physical activity by the majority of participants who associated it with exercise only), participants were asked to describe what they did on a typical weekday.

The weekdays for the majority of the OG were very similar. The day started with getting ready for work, making beds and doing light domestic chores, helping children prepare for school and preparing lunches. Then it was off to work (70% had their own cars and the rest travelled in lift clubs or used public transport), with some of them dropping off children at school. At work most of the participants were seated all day. The social workers and public managers spend most of their working hours seated, meeting or consulting with clients, working at their computers, writing reports and driving to get to places. The nurses at the community clinics also spend a lot of time seated while consulting with patients and writing reports; during clinic days, however, they spend more time standing and walking for short distances. Teachers spend most of their working hours standing and walking in the class, although they are seated at times. The working conditions for many public servants in South Africa are far from ideal, and have led to occupational stress as was discussed in 5.3.1.1. The shortages of staff have led

to high teacher/pupil ratios in schools and high case loads for nurses and social workers. All the professional women in this study worked in historically black areas and with communities who depended upon their social services. Many of the teachers, nurses and social workers felt physically and mentally exhausted after a working day.

After working, participants went home where they once again did light domestic chores, cooking, assisting children with homework, and watching television. These professional women worked full-time in their careers, and ran their households with very little help. More than half of the participants (61%) did not have any domestic assistance at home, 32% had assistance 1-2 days a week and only 7% had assistance 3 or more days a week (Table 4). In addition, 85% were raising children, with 41% being single parents. Their days started with light domestic chores before leaving for work, working in a physically and emotionally draining environment, doing light domestic chores and cooking after work, with thorough house cleaning and the laundry done on weekends. The description “sedentary but busy” is apt because by physical activity standards, the participants would be described as sedentary, that is, not expending much energy during the day. Their days, however, were busy, starting from the early morning till early evening.

The YG, by virtue of being students, had fewer responsibilities. The students who lived in university residences walked to their lectures, and the rest used public transport (buses and taxis) to get to the university. Students spent their time on campus attending lectures, going to the library and computer labs and chatting to friends. Outside of lectures, a few had part-time jobs, some attended church services and/or events: one person was involved with the university peer helping programme, and another was part of the Black Management Forum. Students who lived at home often had the added responsibility of household chores and cooking after attending lectures. The majority watched television during the late afternoons and evenings.

To gain a broader picture of physical activity, participants were asked to describe a typical weekend, in addition to responding to the question, “What do you do for fun and

for leisure and how do you spend your free time?" The leisure and recreation activities for the majority of the participants were sedentary in nature: the most popular activities were watching television; visiting, chatting and socializing with friends and family; listening to the radio or listening to music at home; attending church services, funerals and functions; and shopping. Other activities included attending various women group meetings; cultural ceremonies; playing with their children; reading; going to the beach; gardening; domestic chores; dancing; and going for walks. In the main, the OG was physically sedentary, but their lives were filled with activities. Some of these activities, like going to the gym, gardening and domestic chores, were more physical than others.

*[Well, I drive around to friends. I like chatting and just dancing to music and I am just watching TV and listening to good music at home.]*

*[I watch TV. I enjoy it and listening to the radio a lot, I subscribe to the Sunday Times and Weekend Post. I like reading. I also receive my Nursing News every month. I like reading other books.]*

*[I read. I spend time with family. I sit at home with the kids and go to the beach sometimes. Perhaps I invite friends over and have a braai.]*

Shopping, going to watch films, and playing with children were also popular.

*[For fun I just play with my kids. They are seven and five. They are still young. I like to go shopping in town.]*

*[The only thing I do for fun that is interesting is I give time to play with my kids.]*

*[I like to go to movies, I like cinemas. And we also party a lot with our friends. We dance, we sit around and discuss issues about our families and give each other advice on how to cope with different situations, especially when you are married.]*

*[Shopping is the main thing, and getting around. I don't just buy things, but walk around and just look at things and see what is there.]*

Most women spend their free time over weekends doing household chores, which is in keeping with the fact that 61% did not have domestic help. Doing household chores was not always seen as a drudgery, and some even enjoyed it. Weekends were a time for catching up on all the tasks needed for the smooth running of their households.

*[For fun, maybe over the weekend I do my cleaning. I have my house and must do my cleaning. I don't have any somebody to help me to do the cleaning, the thorough cleaning in the morning and in the afternoon.]*

*[I am a person that is always at home. I keep myself busy at home. I like to work at home, cleaning, doing the washing, cooking. I am a hard worker at home.]*

*[I like to stay at home, cleaning, washing windows, reading, and staying with my kids and family.]*

*[Tidy the house because I can't afford somebody to help me so I do it myself.]*

*[I have to be home to do house duties, washing the little one's clothes.]*

*[I do the cleaning up. If there is shopping then I do that. Then I come back and do washing and ironing.]*

*[Usually get up about 7 and then clean the house, do some washing, after I finish I will cook, wash myself, I dress up, and some weekends go to town.]*

Quite a number of the OG spend a great deal of their leisure time and weekends going to church, attending church meeting and functions. Ninety percent (90%) of the OG interviewed reported going to church regularly, with the Seventh Day Adventists attending church on a Saturday and other denominations on a Sunday. Most of the

participants were also very involved in church activities which went beyond attending the Sunday service.

*[All I can say is that I like to attend church meetings; I am an active member in the church.]*

*[I am also involved at church. My church is an active one, on Wednesdays, Fridays and Saturdays; we always have sermons so I enjoy being at church most of the time.]*

*[We are also involved in church; we go to Church every Sunday. We have an association. It's a group of people in the same area and we meet the end of every month for Bible Studies. We help each other; it is linked to the church.]*

*[I grew more towards God... and I spend my time reading the Bible and meditating. I go to wherever I think I am going to get some more, I'm always hungry for the Word of God. Wherever there's a conference or workshop, I go there.]*

*[I like listening to Radio Kingfisher (Christian radio station). I used to sit in front of the TV. But I have grown away from that now. I prefer the radio. My children know that after the 7 o'clock news after that I have no interest in the TV. It's reading mostly and meditating.*

*[For fun I'm involved at the church with the children where we have the age between 6 and 9 and they are the adventurers and then from 10 to 16 and they are the pathfinders. We will have outings over weekends, etc. My fun and leisure revolves around the work I do for the church.]*

*[Sundays I get up, watch TV, wash myself, and go to the church. If I intend to do something in the afternoon I attend the 7:30 to 9:00 services, otherwise the main service is at 10:00 to 12:00 or maybe past 12.]*

*[And every Sunday I go to church.]*

*[Over weekends I go for shopping most of the time on Saturdays, doing cleaning and on Sundays I go to church; from nine up until four o' clock I am at the church. The whole day on Sunday. I am the choir member at church and am also the treasurer of the Young Womens. I am really busy.]*

*[I am in church from about nine o' clock or ten o' clock, depends but usually about ten o' clock until four o' clock. Sometimes we get out the church at two and then we go to visit the sick.]*

*[On a typical weekend I start on a Friday. I attend the church at seven o' clock and then even in the morning, Saturday at nine o'clock, I am at the church. Then I come back from the church past twelve and then I come back again, and at half past two I go back to church again and then I come back at about seven and then I just prepare myself something to eat, eat and then go to sleep on a Saturday, so most of the time on a Saturday I spend at the church.]*

An interesting dimension in relation to attendance of church activities is that even though most of the participants lived in historically white suburbs and sent their children to former Model C schools, they felt more comfortable attending churches in their former areas of residence in historically black townships. In addition, attending funerals and cultural events were popular weekend happenings in the townships.

*[We are also involved in church; we go to Church every Sunday. We have an association. It's a group of people in the same area and we meet the end of every month for Bible Studies. We help each other; it is linked to the church. It is in New Brighton. Even though we stay in Westering, we travel every Sunday to New Brighton.*

So you haven't joined the Church in Westering?

*No, we are comfortable with the one in New Brighton.]*

*[I also attend the church in the community so I have to go to the family and bring them down to church and then back again and then go back to the city and come back again.]*

*[I clean the house, thoroughly, on Saturday, I cook, I do washing. At 1 o'clock I drive to PE to my father and do the same thing. On Sunday I go to church in Motherwell and then go back to my father's home again and cook dinner. Five o'clock I go to my home again. I am very busy.]* (Participant stays in Rowallan Park, an historically white suburb, and visits her father in the township, and attends the church there as well.)

*[I am staying in Kabega Park and they (her extended family) are staying in Kwazakhele. But most of the time I'm spending with my family and go to church in Kwazakhele. I just go to sleep there in Kabega.]*

*[I attend funerals on Saturdays and church on Sundays and visiting my mum.]*  
Participant stays in the suburbs and attends funerals, church and visits her mother in the township.

*[If there is no funeral that I have to attend, in the afternoon after I do the ironing I sit down.]*

*[There are a lot of funerals that we attend nowadays on Saturdays.]*

*[Saturdays it's either shopping or African rituals like slaughtering a goat.]*

*[Over a weekend I am most of my time spending with my family. There are cultural things that are happening and on Saturdays I am attending funerals, and then afterwards I spend time with my mother.]*

*[Sometimes they are hectic, depending upon what is going on in the community. Sometimes they slaughter goat ... people are always doing such functions.]*

The YG spent a great deal of time watching television and DVDs, chatting and socializing with friends, listening to music, reading (mainly magazines) and sleeping. In addition, over weekends, some went partying and clubbing with friends and watched films. Very few played sport: netball, jogging and going to the gym. Many of the students living in university residences had their own televisions in their bedrooms and watched a great deal of television while lying in bed, switching the television on first thing in the morning and watching until late.

*[I like reading magazines, be with my friends, like going out, partying.]*

*[I'm always at the TV, watching TV, sleeping if I'm not writing.]*

*[Sometimes I read books, sometimes go out with friends, but most of the time I like quiet time with myself. I watch a lot of TV.]*

*[I watch TV, I go to movies, I listen to radio and I like taking lots of naps. I don't like going around, I just sleep.]*

*[For fun, I hang out with my friends, sometimes I go shopping or go to the movies. Nothing else.]*

*[I like partying, going shopping. That's all, I don't do much, I don't have time actually.]*

*[I like to listen to music; I love music, and watching TV, ja. And also just go out with my friends, and just to chat with my friends.]*

*[We sleep most of the time and watch TV. In the morning you get up bath, eat and watch TV until about 11 or 12 at night. I only go out to the shop and to school (university) and come back and watch TV.]*



Over weekends, the YG also spent a lot of time attending church services and other church activities, in addition to studying and preparing for tests and assignments.

*[Ah well, on a Saturday ... I'm weird, I go to church twice ... On a Saturday I wake up, I go to church, I come back and sleep ... I'm going to wake up round about 5:00, fetch my supper... and just do a little bit of studying, even if it is an hour, at least it's something so I won't feel guilty ... and then I watch TV most of the times and I will sleep again and wake up. Sunday ... mostly it's just sitting and doing my school work and then on Sunday evening I go to Church again.]*

*[On Sunday I wake up at 7 o'clock, go to church at 9, come back at one, and then I do my school stuff, my studies.]*

*[On Sunday I go to church, like today at 4 o'clock I'm going to church. I'm not practicing with the choir but I'm singing with the choir at the church, it's only the girls on Wednesday, just singing and if someone has a problem we just discuss it. Each church has its problem with money so we also do something maybe we have raffles or do some shows.]*

*[Sundays, I just go to church and then just come back.]*

*[On Saturday maybe in the afternoon, about 3 to 4, I just go out with my cousin's sister maybe to the Bible study and then out to friends, visiting friends, and then come back home at about 5 o'clock. Maybe just go out for 3 hours and go back home. Then on Sunday, I wake up, clean the house, and prepare for church and go to church. When I come from church maybe at about 2:00 and then I go straight home you know and then maybe just study if I'm going to write a test or just stay with my family, enjoy the evening with my family.]*

*[On a weekend, Saturday, I usually go to town, to pay my parent's accounts and then come back home and then go to a funeral or if there's an activity at a church I go there and that's it. On Sunday I go to church.]*

*[Sundays, obviously I go to church then come back, go to the beach maybe or come back and have Sunday dinner with friends and start looking at our books, that's my life, so boring.]*

*[On Sundays I wake up at about 9. I prepare to go to church. My church starts at 11.00. It is about a 15 minute walk approximately. I go out about 10:30 to get to church. I come back at 1.00.]*

*[On Saturday I play netball and then shopping and on Sunday I go to church.]*

### **5.3.1.3 Summative discussion of Theme 1**

The narrow definition of physical activity by participants - that is, being defined in relation to exercise and sport, to the exclusion of other bodily movement related to household, travel or other daily activity – is problematic. People need to be made aware of the health benefits of any bodily movements produced by skeletal muscles that result in energy expenditure, which includes but is not limited to occupational, sports, exercise, household, or other daily and leisure activities. Multiple short periods of activity spread throughout the day will benefit health (Hardman & Stensel, 2003). People need to be made aware of the many ways physical activity can be accumulated throughout the day and should be encouraged to make active choices like: walk as much as possible to get to places, take the stairs rather than the lift, park the car or get off the bus further away from one's destination, play with children or pets, do gardening and household chores, walk while doing errands and exercise while watching television.

The OG and YG generally had a positive attitude towards physical activity. They were aware of the many benefits of exercise, even though the majority of them were not

physically active on a regular basis. They recognized the importance of exercise to physical and mental well-being, stress reduction, and maintaining a moderate body weight. This is similar to the results of the CAPS study on African American and American Indian women (Henderson & Einsworth, 2003). This is also in keeping with the perceived benefits of physical activity in both men and women reported by Steinhardt and Dishman (1989), namely: staying in shape, feeling better, maintaining good health, maintaining body weight, losing weight, improving appearance, reducing stress and relaxing, and helping to cope with life's pressures. In the present study these benefits may have been expressed differently, but in essence they covered the same concepts. Conspicuous by their absence in the present study were the perceived benefits as reported by Steinhardt and Dishman (1989) of "fun and enjoyment" and "companionship". None of the participants in the present study perceived "fun and enjoyment" and "companionship, socializing and meeting others" as benefits of exercise. The responses of both the YG and OG on the importance of exercise for various health reasons comes across as "textbook" knowledge. The health message regarding the value of physical activity had reached this target group. This would have been imparted through their various professional training programmes as teachers, nurses and social workers. In addition, the recently publicized South African statistics on over-weight and obesity levels in many national newspapers and radio talk shows has led to a renewed emphasis on the declining health status of South Africans due to a sedentary lifestyle. The serious health related aspects associated with exercise have been emphasized in our textbooks, our academic programmes and in the media. The fun and enjoyment as well as the companionship and socialization aspects of exercise are unspoken of. Yet, both these elements are important in the adoption and maintenance of an exercise routine or regimen. People may be knowledgeable of the health benefits of exercise, but if they do not derive fun and enjoyment through the exercise activities, they are not likely to sustain it. The success of any exercise programmes depends on people enjoying what they doing, and having fun.

Not perceiving fun and enjoyment and companionship and socialization as a benefit of exercise may stem from childhood and past experiences. These socio-cultural factors

are discussed in Theme 3. One of the socio-cultural barriers was that exercise is associated with what children and young people do, and not adults.

*[When someone is exercising they will perceive that person as someone trying to pretend to be younger than their age. Somebody who thinks she is young when they are old.]*

*[If an older fat person in our culture starts doing exercises or going to gym ... there is a Xhosa word “uflayi” that they would use. There are women in our communities would say so and so wants to be young....]*

*[It is something for children or young ladies or young children.]*

It is possible that health is perceived as a benefit of exercise because of its “serious” nature, distinguishing it from what children do. The lighter side, the fun and enjoyment aspects, are perceived to be more suitable for children, and not for adults.

Not receiving any social support and encouragement from family and friends was one of the barriers discussed in Theme 2.

*[Because I was raised like this you know and my family and extended family did not show interest in it you know....]*

Many participants grew up in an environment where there was no family or peer history of people exercising together. Exercise and exercising together was not spoken of in many homes, so participants had not associated companionship and socialization as a perceived benefit of sport and exercise.

*[It (exercise and playing sport) is not something that was encouraged. We used to play a lot outside when we were children but it was just part of being active ... we were pushed towards the outside to play rather than inside – they would say, go outside because you*

*are making the house dirty. They did not think of it as us exercising, it was just trying to keep the house clean, and if you want to play, go outside.]*

Even the play of children was not encouraged for its educational, recreational or developmental value.

All these experiences reinforce the non-acknowledgement of the “fun and enjoyment” and “companionship” associated with sport and exercise.

Both the YG and OG expressed their intention to start exercising, and could be categorized into Dishman *et al.* (2004) contemplation stage (individuals who are inactive, but who intend to become more active in the near future). In addition, the recognition by some of the participants that it was a personal choice and that it required self-motivation reinforced their being in the contemplation stage. The transition to the third stage, the preparation stage (individuals who are active below a criterion level but intend to become more active in the near future), will however be a difficult one, bearing in mind all the barriers to participation discussed in Theme 2. The interrelationship between perceived benefits of exercise, expressed intentions, motivations and barriers is a complex one when translating attitudes into behaviour.

The realization by participants that exercise is a personal choice is significant. It shows that participants are aware that the decision to start exercising lies with each individual. The individual chooses to be active or sedentary and is responsible for the consequences of their choice. Realizing that exercise is a personal choice is an important step towards taking responsibility and then being proactive towards leading an active lifestyle.

Another aspect of positive attitude is that both the YG and OG were keen to encourage their own children to exercise and play sport, motivated by not wanting their children “to be lazy like their parents”. Many of the OG were actively motivating and encouraging their children, taking them to matches and watching their games. They had recognized

the educational, recreational and developmental importance of being physically active. There had been a shift from their past when children were shunted outside to go and play.

*[They did not think of it as us exercising, it was just trying to keep the house clean, and if you want to play, go outside....]*

Many of the OG and YG grew up in an environment where exercise, especially in relation to girls, was “not in our culture”, “in the olden days we were healthy without exercising”, “exercise is for white people”. Girls were socialized into domestic roles and were required to clean the house, wash dishes and cook, while boys played.

*[Even if you are a young girl you make sure the home is clean before you can go to the field.]*

*[In our culture the boys do nothing and just play and the girls have to clean and do everything, so now.]*

There has been a change in attitude towards girls exercising and playing sport. The OG encouraged their daughters to play sport and be active.

*[I just want her to be active, she must not be like me, I just encourage her.]*

*[She is playing netball and tennis and everything. I encourage her.]*

*[She is much more active ... I encourage it because I know it's healthy.]*

This generational change in attitude towards exercise and sport participation, and in the support given, is encouraging. We know from the social learning theory of Bandura that boys and girls are socialized into particular roles, through observational learning, imitation and modelling (Ormrod, 1999). Girls are often expected to behave in accordance with traditional female roles of doing household chores rather than

exercising or playing sport (discussed in Theme 3). Studies in socialization into primary and secondary sport roles indicate that the family is the earliest and most persistent socializing agency, especially for females (McPherson, Curtis & Loy, 1989). The professional women in the present study are challenging these stereotypic practices in society by giving their daughters encouragement and support to exercise and participate in sport. Very often, at schools and in suburbs, active white compatriots have become role-models in this regard.

The women in the study, particularly the OG, led very busy lives. Their jobs were often stressful with many of them working in short staffed, under-resourced public sectors. Eighty five percent (85%) raised children, of which 41% were single parents, and 61% did their own domestic chores at home. The lack of time (discussed in Theme 2) was perceived as the main reason for not participating in exercise by the OG.

*[My schedule is always tight. I'm a busy woman. I participate a lot in church so I always have church meetings one after the other. I'm also participating in the woman's clubs so that's what is keeping me busy most of the time. I also participate in the governing bodies of schools and also participating in the trusts in the area. I'm a member of the governing body for my children's school. So my schedule is always busy. For instance this weekend on Sunday I had 3 meetings – a meeting at 10:00, I had a meeting at 1:00 and one at 3:00. They are all outside work related.]*

Work, family and community responsibilities were all claiming their share, leaving very little time or energy for the individual. The women were self-sacrificing, putting others before their own needs, which is in keeping with the findings of Erasmus *et al.* (2005) who reported that women see self-neglect as the price that has to be paid for work and family success.

*[You have to look after the family so you don't have time do go and exercise. We have lots of responsibilities.]*

*[You put your child first ... I always put other people first then I come second. When my kids were younger I didn't feel the need to take care of myself.]*

*[We are focused so much on bringing up our children that we forget ourselves. We forget to take care of ourselves.]*

“Sedentary but busy” is an apt description for the OG. By physical activity standards, they were sedentary, but their lives were filled with activities as described earlier. The YG, by virtue of being students were sedentary, but they were not as busy. In the GPAQ data (Table 17), the OG and YG reported sitting for 446 minutes (7.4 hours) and 630 minutes (10.5 hours) a day, respectively. The popular leisure and recreation activities for both the OG and YG described above were sedentary in nature: watching television (130 minutes and 146 minutes respectively, more than the comparative groups in the national time use survey in Table 20), visiting, chatting and socializing with friends and family, listening to music and attending church activities. The qualitative interviews confirmed and reinforced the earlier findings on the sedentary nature of the participants’ lifestyles, as measured and discussed by the quantitative data in Chapter 4.

The church played an important part in the lives of most participants. For many, their involvement with the church went beyond attending the Sunday service; they were involved in the choir, various church committees, women’s groups and events. Even though the majority of participants stayed in former white suburbs and sent their children to former Model C schools in these suburbs, their spiritual needs were being met by churches in their former black neighbourhoods. It is also in their former black neighbourhoods where they socialized with friends and attended cultural ceremonies and rituals. Besides providing some models of a more active lifestyle, their new neighbourhoods provided a good financial investment, better schools for their children and the physical comforts of living in an attractive neighbourhood. However, the OG socialized and “lived” in their former black neighbourhoods, with these neighbourhoods still providing a strong socio-cultural model for behaviour.



Many participants participated in women groups, mostly church related, where they gave and received a lot of support, and these groups were situated in their former black neighbourhoods. These women groups would meet regularly and socialize and they would rally together to support and help a member in need. Some of these women groups, in relation to the OG, started in “stokvels”. Stokvels are a traditionally African type of rotating credit and savings organization, used to mobilize savings outside the formal financial structure (Verhoef, 2001), as discussed in 4.3.4. The qualitative interviews confirmed and supported the high scores achieved for the HPLP interpersonal support subscale (maintaining meaningful interpersonal relationships, spending time with close friends, discussing problems with others, expressing love and concern for others and receiving love and concern from others), discussed in 4.3.1. The social support network in these women groups helped members socially, emotionally, financially and spiritually, but did not extend to exercise and sport. These church groups and women’s groups could be the avenue to initiate, promote and implement exercise and sports related programmes (to be discussed in Chapter 6).

#### **5.3.1.4 Summary**

The discussion revolving around Theme 1 has shed light on the perceptions of and attitudes towards physical activity. It has highlighted the narrow perceptions that both the OG and YG had towards physical activity, equating it to exercise and playing sport, to the exclusion of other bodily movement related to household, travel or other daily activities.

Theme 1 also revealed the positive attitudes toward physical activity by both the OG and the YG. There was an awareness of the importance of physical activity to health, their desire to start exercising, and a realization that the transition towards an active lifestyle depended on their personal choices. The positive attitudes expressed by participants towards their own physical activity participation can translate into potential motivators for later involvement in physical activity. The positive attitudes were also evident in the

encouragement and support of their children's (future children in the case of the YG) exercise and sports participation, including their daughters.

Even though positive attitudes were expressed towards physical activity, the leisure and recreation activities for both the OG and YG were sedentary in nature: watching television, visiting and socializing with friends and listening to music. In addition, the church played an important part in the lives of most participants: they were involved in the church choir, various church committees and women's groups. Even though the OG were sedentary by physical activity standards, their lives were busy with activities related to work, home, family and community responsibilities.

The lives of the OG and YG may have been sedentary in nature, but there has been a positive transition from the past, in relation to perception of and attitudes towards physical activity. This may have come with education and modern life experiences, but is still being influenced by strong socio-cultural factors (as discussed in Theme 3).

### **5.3.2 Theme 2: Motivations for Physical Activity Participation**

Motivation, the why of behaviour, is the key to participation, enjoyment and adherence in physical activity and sport (Potgieter, 2006: 7). The word "motivation" is derived from the old French word *movere*, meaning "to move", which itself is derived from the Latin word *motivus*. The word "motivation" has the same root therefore as words "motive", "motor", "motion", and "emotion". So motivation has to do with reasons (motives) for moving (motion) in a certain direction and is closely connected to how we feel (emotion) (Freemantle, 2001: 63). Motivation, therefore, is concerned with why people behave in a certain way and why a particular course of action is preferred to other options. It covers a wide spectrum of human behaviour, from habitual actions to purposeful goal-directed behaviour (Potgieter, 2006: 7).

Table 27 below outlines Theme 2, and lists the reasons given by those who were regularly engaged in physical activity. These are the motivations they had for

participating in physical activity, and they are very similar to the discussion of the awareness of the importance of exercise, which included the awareness of those who were not physically active.

A very small percentage of the OG (15%) and YG (22%) were regularly engaged in some form of exercise, with 25% of the OG and 11% of the YG reporting that they exercised occasionally, but that it was not a regular part of their lives.

**Table 27: Motivations for physical activity participation**

THEMES	SUB-THEMES	CATEGORIES
<b>THEME 2:</b> Motivations for physical activity participation		Health Stress relief Weight loss Encouragement from spouse Environment

➤ **Health**

There were participants from both the OG and YG who exercised for health reasons.

OG: *[I enjoyed running because it really makes you feel relaxed and it relaxes your muscles and makes you fit physically and health-wise you don't easily get sick. It boosts your immune system.]*

YG: *[I don't get sick when I am here because I exercise.]* This student exercises when she stays at the university residence but, significantly, not when she goes back to her home in an historically black township, and associates health benefits with both exercise and location.

YG: *[It helps me a lot, ja it keeps me fit and active in everything I'm doing. I feel better, that's why I like jogging, I like exercising a lot.]*

The contribution of exercise to health is fully supported by research and well documented. The benefits include the prevention of many disorders such as heart disease, high blood pressure, diabetes, osteoporosis and other (Dishman *et al.*, 2004). Both the OG and YG, through their education and professional training, would have been introduced to this information.

➤ **Stress relief**

Walking for the OG and jogging for the YG had a cathartic effect with resultant stress relief and refreshing consequences.

OG: *[I like it very much. Sometimes I experience pain there, sharp chest pains and then I just stand up and take a walk immediately. Otherwise not less than three times a week I take about an hour's walk, sometimes early in the morning or when I come home from work when I am not feeling very hungry and tired. I take a walk. I like it very much and I like stretching in the morning.]*

OG: *[Even when you are troubled, there's something that worries you, you just stand up and take a walk, by the time you come back you have all the solutions.]*

OG: *[After a walk I feel a real relief of some certain things and when I was feeling tired and have been for a walk I am not feeling tired anymore and am tidying the house. It refreshes me.]*

YG: *[It motivate me in such a way that when I'm not myself or when I'm stressed, it motivates me to keep the stress out and I'm getting stress free.]*

YG: *[Yes, I do jogging, everyday. At half past six in the evening, ja. I do it. It's quiet and I enjoy it. It helps me for instance when I'm stressed I just go and jog. It keeps out the stress. You know. After I jog I feel stress free.]*

Section 5.3.1.2, Awareness of the importance of exercise, highlights the occupational stress experienced by teachers, nurses and social workers in South Africa's under-resourced public sector. The reduction of stress through exercise is supported by research (Bahrke & Morgan, 1978; Berger & Owen, 1988). To determine how exercise benefits mental health, links between exercise and brain chemicals associated with stress, anxiety, and depression are being investigated (Christian, 2007).

### ➤ **Weight loss**

Weight loss is one of the common motivators for exercise.

OG: *[I joined Virgin Active Gym last year while I was still staying here in Park Drive. After work I would walk a couple of times up and down Brickmakerskloof or I would walk around St George's Park, also I would walk to Spar and not use the car. Then I joined Virgin Active at Humewood. I also follow the Sure Slim programme. I started in August last year. I was weighing 102, but now I am around 86.]* (Park Drive, Brickmakerskloof, St George's Park and Humewood are all historically white areas.)

YG: *[I don't like my body, so I am on diet so I believe that if I play netball I am going to lose weight and be healthy.]*

YG: *[In Scotia Residence at main campus I was picking up weight. First I did spinning and it was fun. I joined the gym at Second Avenue. It was fun ... then I did quite a bit of weight lifting and now I am jogging.]*

YG: *[I jog in the morning. I did that very much last month and the month before because I saw that my tummy was developing so I said I must jog for a while until my tummy is flat. So I jogged the whole month of last month and this month.]*

YG: *[Yes I enjoy it. I can feel my body is firming up]*

The overweight/obesity levels were high for both the OG and YG, 87% and 41%, respectively. The participants in the present study however, showed greater awareness of overweight and obesity than African women in the SADHS (1998), as discussed in 4.3.1. Motivation to lose weight is in keeping with this awareness.

#### ➤ **Encouragement from spouse**

Only one participant reported receiving social support from her husband. They go to the gym together, and over weekends, take their children along to the gym as well.

OG: *[The person who decided on my exercising last year is my husband. The reason is maybe I did not prioritize it in terms of my needs. Before then maybe he did not feel like paying for me, so I am not paying for myself he is paying for both of us. But he really felt it is high time that we both go to the gym.]*

The social support (given to adults) described above is an isolated example. Social support from family and friends, which was lacking in this study, plays a key role in encouraging the adoption and maintenance of regular activity (Titze *et al.*, 2005), and is discussed in more detail in 5.3.3.3.

#### ➤ **Environment**

Of the OG who exercised regularly, all lived in historically white suburbs which they found conducive to walking and exercise (environmental factors discussed in detail in Theme 3). The safe and aesthetically attractive neighbourhoods which were

uncluttered, taxi-free, with wide verges, were more conducive to exercise than the areas in which the participants grew up.

When did you start doing this (start taking walks regularly)?

*[It's less than ten years, I can say. I started doing this when I came to stay here in Kabega (historically white suburb). I started staying here in 1997.]*

Did you not walk when you were there (staying in the township)?

*[No, how can you walk when there are always children playing in the streets and always people standing against the walls. There is no place to walk, there are stones, you know, and the taxis are very busy. Even the fields, we have no sports fields to run.]*

Of the YG who exercise regularly, all of them lived on either the North Campus or South Campus residences of the NMMU, where they had access to sports facilities, a safe environment, and exercise companions. None of the participants who lived in the townships and who commuted to their classes were involved in any form of sport or exercise. Jogging around the campus, for weight loss, was the most popular form of exercise for the YG.

*[When I go jogging in the morning, I see people also jogging.]*

*[It is very easier here than when I am at home. I feel secure here.]*

*[I exercise twice a week or maybe once a week depending on when I want to go to the field. I will jog at the sports centre, we'll just do it 5 times or 4 times, then we just play.]*

*[I usually wake up at 5 and start jogging at 6, then I get ready to come to school. And if I don't come to school I wake up at 6 and jog for an hour and stop at 7.]*

### **5.3.2.1 Summative discussion of Theme 2**

Stress relief and weight loss were the most common personal motivators for physical activity participation. This reinforces the earlier discussion in 5.3.1.2. Stress has been widely reported by teachers, nurses and social workers working in short staffed, under-resourced public sectors, and the participants are aware of the benefits of exercise in this regard. And, although only a small percentage of participants were regularly engaged in exercise, the motivation for weight loss and the acknowledgement of the importance of exercise in relation to weight loss discussed in 5.3.1.2, reinforces the fact that there is a growing awareness of overweight and obesity among the participants in the present study. This is further reinforced by the quantitative data discussed in 4.2.1, where perceived overweight was reported at 33% and 57% for the YG and OG, and measured overweight at 42% and 87%, respectively, as compared to African women in the SADHS (1998), who had the highest rates of obesity (57%), with only 15% perceiving themselves as obese.

The environment (discussed in detail in Theme 3) has a big influence. Some participants started exercising only when they came to live in historically white neighbourhoods. It was not only the aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment without the disruption of taxis, the wide grassed or tarred sidewalks, and no people loitering), but seeing many people (mainly white) walking and running regularly.

Conspicuous by their absence, again, were the perceived benefits as reported by Steinhardt and Dishman (1989) of “fun and enjoyment” and “companionship”, as discussed earlier. None of the participants listed “fun and enjoyment” and “companionship, socializing and meeting others” as a reason for exercising.



### **5.3.2.2 Summary**

Just five categories were listed as motivators for physical activity participation by those who either exercised regularly or those who exercised occasionally: health, stress relief, weight loss, the environment and encouragement from a spouse. Stress relief and weight loss were the more common motivators. Walking for the OG and jogging for the YG were the most popular activities, with just a few participants going to the gym.

### **5.3.3 Theme 3: Barriers to Participation in Physical Activity**

Even though many of the participants were aware of the numerous health benefits of physical activity participation, there were often barriers and deterrents that limited and prevented them from regular participation. These barriers, real or perceived, represent significant potential obstructions to the adoption, maintenance, or resumption of participation in physical activity (Booth, *et al.*, 1997). Research in a variety of population groups has shown that physical activity is a complex behaviour that is influenced by a multitude of variables, including those at personal, social, environmental and policy levels (Young & Voorhees, 2003).

Table 28 depicts Theme 3, with its identified sub-themes and categories. These are illustrated and discussed next.

**Table 28: Barriers to physical activity participation**

THEMES	SUB-THEMES	CATEGORIES
<p><b>Theme 3</b></p> <p>Barriers to physical activity participation</p>	<p>Personal factors</p> <p>Environment factors</p> <p>Socio-cultural factors</p>	<p>Time constraints</p> <p>Stress and tiredness</p> <p>Lack of motivation</p> <p>Negative school experiences</p> <p>Negative associations with exercise</p> <p>Financial constraints</p> <p>Lack of awareness of available programmes</p> <p>Lack of knowledge</p> <p>Residential areas</p> <p>Availability of recreation and sports facilities</p> <p>Safety</p> <p>Legacy of the past</p> <p>Lack of social support</p> <p>“Not in my culture”</p> <p>Traditional roles of males and females</p> <p>Dress code</p> <p>Exercise associated with the young</p> <p>Exercise associated with undesirable weight loss</p> <p>Fear of being accused of having HIV/AIDS</p> <p>Negative comments by people in the community</p>

### 5.3.3.1 Personal factors

The personal factors discussed below relate to the individual, and focus on specific barriers arising from their personal circumstances and personal choices. These personal factors provide a glimpse into the complex behavioural choices people make with regards to physical activity.

#### ➤ Time constraints

Having time constraints was listed as the main reason for not participating in exercise by the OG. Lack of time was also the most frequently cited barrier to participation in exercise in studies on inactive Australians (Booth, Bauman, Owen & Gore, 1997), a diverse sample of U.S. women (Eyler, Matson-Koffman, Vest, Evenson, Sanderson, Thompson, Wilbur, Wilcox, & Young, 2002), and African-American women (Sanderson, Cornell, Bittner, Pulley, Kirk, Yang, Littleton, Brownstein, Matson-Koffman, & Raczynski, 2003; Young & Voorhees, 2003).

*[I don't have enough time or I don't allocate time for it.]*

*[I join the gym but never have time to go there.]*

*[My schedule is always tight.]*

*[I don't have the time now.]*

These time constraints were mainly due to family and work commitments. The participants were working full time, many of them in the short-staffed, under-resourced public sector: 85% had children, of which 41% were single parents and 61% were doing their own domestic chores at home. These women led busy lives: work, family and community responsibilities all claimed their share, leaving very little time for the individual.

*[Really, I feel I am overworked already. So I get enough exercise, I think, from my daily life because I live a busy life.]*

*[No, my schedule is always full everyday. Because I must go and see to my father that he is in good condition and everything is intact. Then I must go home and clean my house and do washing.]*

*[My schedule is always tight. I'm a busy woman. I participate a lot in church so I always have church meetings one after the other. I'm also participating in the woman's clubs so that's what is keeping me busy most of the time. I also participate in the governing bodies of schools and also participating in the trusts in the area. I'm a member of the governing body for my children's school. So my schedule is always busy. For instance this weekend on Sunday I had 3 meetings – a meeting at 10:00, I had a meeting at 1:00 and one at 3:00. They are all outside work related.]*

Research has shown that a women's stage of life appears to be an important natural determinant of her physical activity participation (Marcus & Forsyth, 1998). In adulthood, work demands and parenting or lack of assistance with childcare were possible barriers. Employed women with children younger than five years of age were significantly less likely to report exercise participation than working women without children (Marcus *et al.*, 1994). Being a mother, rather than the number of children and their ages, negatively affected exercise participation (Verhoef, Love & Rose, 1992). Although mothers and women without children have been found to identify similar benefits to exercising, mothers perceived more barriers to participation (Verhoef *et al.*, 1992). This is supported by Henderson, Bialeschki, Shaw and Freysinger (1989) who found that the combined effect of lack of time and family obligations affected adult women mostly in early life stages because of child rearing responsibilities and later family commitment such as parents and senior members of the family.

In the present study, after a full day of work, the women returned home to domestic work, taking care of the family, cooking, cleaning and other household chores. The

findings concur with the study on the environmental, policy and cultural factors related to physical activity in a diverse sample of women in the United States (White, African American, Latina and American Indian women). Family priorities were a main barrier to the physical activity in all the groups. Having multiple roles as wife, mother, daughter, and as an active community member was mentioned as time-consuming and difficult, leaving little time or energy for exercise (Eyler *et al.*, 2002).

*[I have more responsibilities now and a child in the house, I have to come home and cook and work.]*

*[Responsibility and time ... and I'm very tired. Like now, I'm tired.]*

*[Responsibility made me change. Then I did not have a kid, I was just alone. Now I'm responsible, I have a kid, I'm not married, then I change. Another thing is responsibility at work. I don't have much time now because I'm responsible.]*

*[No, I'm sure it is because we are too committed, even now when you are coming home from work you have to look after the family so you don't have time to go and exercise. We have lots of responsibilities.]*

*[No, and at that stage I had the young kids and you had to nurse the child. You put your child first, but now my kids are a little more grown up. My youngest is 7, and it makes things easier. I always put other people first then I come second. When my kids were younger I didn't feel the need to take care of myself.]*

*[But the disadvantage for women is child bearing – we are focused so much on bringing up our children that we forget ourselves. We forget to take care of ourselves.]*

*[I think now it is the kids because I spend a lot of time with them, look after them. But initially they were with my mother but now they are with me. I'm looking at ways of accommodating them and the gym.]*

*[It does not matter whether it is Monday, Sunday or Tuesday, the days just go. As I was analyzing, my schedule is full. My husband is a pastor so there are lots of church activities, too.]*

*[No, I'm sure it is because we are too committed, even now when you are coming home from work you have to look after the family so you don't have time to go and exercise. We have lots of responsibilities.]*

*[I have many things to do and give priority.]*

Family and childrearing commitments were seen as major responsibilities of the OG. Even though these were working women, the domestic responsibilities were not shared by their male partners. Women have been socialized into these domestic roles from early childhood (discussed later under cultural factors), and this was reflected in the dominance of family and childcare commitments in their present lives. Similar results were reported by Erasmus *et al.* (2005) of constraints to physical activity participation by women between the ages of 30 and 65 in Potchefstroom. In the present study, the women were self-sacrificing for their families. The following quote sums it up well, "we are focused so much on bringing up our children that we forget ourselves. We forget to take care of ourselves". Women see self-neglect as the price that has to be paid for work and family success (Erasmus *et al.*, 2005).

For the YG of university and college students, time constraints were expressed in relation to pressure of their studies, rather than family commitments. This is understandable as only 26% lived at home where they assisted with some domestic chores. Similar results were reported by Asihel (2005) where undergraduate female students from the University of the Western Cape (UWC) claimed that they had no time to participate in recreational sports because of academic work such as assignments, tests and exams.

*[Sometimes too much homework like when I have late classes until twenty past four and get here at 5:00.]*

*[I got too busy with assignments ... I lost all interest.]*

*[I would say the books, I have no time.]*

➤ **Stress and tiredness**

Also related to time constraints, the OG reported stress and tiredness as reasons for not participating in exercise. The responsibilities related to work, family and children seem to take their toll.

*[I feel I am overworked already.]*

*[I am just too tired...]*

*[When I come back home I am tired and I feel like resting.]*

The women in the study, particularly the OG, led very busy lives. Their jobs were often stressful with many of them working in short staffed, under-resourced public sectors. This, coupled with home and family responsibilities, can lead to extreme tiredness, and a lack of energy to even consider exercising.

➤ **Lack of motivation**

The lack of motivation due to admitted laziness, having no interest and not making the time and effort, was also widely reported as a barrier to physical activity participation. Lack of motivation was also a widely reported barrier in a study among physically inactive Australians (Booth *et al.*, 1997), and in a diverse sample of women in The Women's Cardiovascular Health Network Project (Eyler *et al.*, 2002).

Many of the OG were frank about their feelings and cited laziness, not making the time and effort, or not prioritizing physical activity in their lives.

*[Well, for instance, I'm not staying far from this complex, just 10 or 15 minute walk. I'm just lazy. No, I am lazy to walk, even to the Spar.]*

*[I think I am just lazy.]*

*[It is just laziness, because I have a Discovery Card, with all the benefits. It has Vitality and gives you the opportunity to join, but I don't know why I don't do exercise.]*

*[It is not about I can't make the time. Mostly I am lazy in this area. I need to work on myself. If I can make time for other things I can make time for exercise. It's not a lot of time, I mean just 15 or 20 minutes. I'm really lazy in this one.]*

*[We are lazy that is all I can say. When I get inside my house I don't want to go outside. If you want to do exercise you go from your work, otherwise you won't go, the couch is too comfortable.]*

*[I do have the time and I can make time, really.]*

*[No, maybe if I can be motivated, I can do it freely, I do have the time, there is nothing that stops me. I have time.]*

*[To be specific I don't have reasons, just excuses all the time.]*

*[No, we do have a gymnasium, just my own interest because we have the environment around us to be able to exercise, but we just send our children.]*



Even though the women were aware of the value and benefits of physical activity and exercise they were simply not motivated enough to allocate time to it or to give it any priority in their lives.

The YG also reported laziness and lack of interest or motivation as barriers to participation in exercise.

*[I don't think there is except that I am lazy, I don't want to exercise.]*

*[If I was serious enough, I would exercise. I am a bit lazy.]*

*[I became lazy. There is nothing preventing me, I'm just lazy. It's just laziness.]*

*[There's just no interest.]*

*[I'm not interested. No, I don't like it.]*

Participation in physical activity and exercise needs self discipline and self motivation. At former Model C schools, pupils are compelled to participate in a sport and compelled to attend practice. This extrinsic motivation could lead to some sort of dependency as is seen in the example below. One of the aims of school sport participation should be for intrinsic motivation to come to the fore, where pupils participate in sport for the love and enjoyment of it, and not because they are compelled to do it.

*[I would love to join a gym club, oh I would love to have a trainer, ja that would discipline me cause I will have someone everyday saying (name of the participant), come to whatever, exercise go to the gym, ja a personal trainer, a trainer that will help me. I realize I can't do it on my own, I need support. In high school I had a coach and you don't attend, you don't play, you know we had consequences, if you don't come to practice you don't play, you miss out on a match, you don't get your colours, you have to*

*go to second team. I need someone to discipline me, literally discipline me. Without that I don't think I can do it on my own. I tried to do it before and it didn't work, so ... ]*

When people have grown up in the absence of physical activity and exercise, never having experienced the fun and enjoyment of it, or been made aware of the many benefits, they are not aware of what they have missed, and may therefore show no interest and question their involvement in the present time.

*[I grew up without sport and everything, and why now? I've been living without it for such a long time, so why should I start now?]*

➤ **Negative school experiences**

For the OG, there were very limited opportunities for participation in sport, other than netball and athletics track events for many young girls. Some participants were never encouraged to take part in activities at school.

*[If you were not good in netball or running, there was nothing else to do.]*

*[There were no facilities for tennis at that time. I could not run.]*

*[There were some opportunities; there was netball.]*

*[It's not like everybody was encouraged to do exercises.]*

*[You would participate at the beginning of the term ... but there would be people chose for certain activities.]*

Body shape, size and ability influenced participation in sport and exercise at school. Those who had the potential to represent the school in netball and athletics in particular,

were encouraged. Those who were “fat” and lacking in ability were left out and participated in other activities, such as choir singing.

*[I was too fat and lazy, I was only singing.]*

*[There would be people chosen for certain activities and I was very very fat when I grew up.]*

*[No, I was not active in sport. I was just a singer in a choir. I sang in church.]*

*[Yes, there were some opportunities; there was netball. But I was not interested since I was a fat little girl so I thought I can not do anything.]*

*[What happened was every beginning of the year everybody had to run because then they would select people who had the potential to run. We all had to run, and then in March all those selected would run for competitions. I could not run, that is what I remember.]*

*[When I was at school, I liked netball, but unfortunately I was short and tiny and I was bullied and I didn't get chance to play most of the time because teachers would leave us to practice on our own and then I wouldn't get a chance to take part in the practice. So I wouldn't get a chance to participate in netball, the sport that I was interested in.]*

Participants from the YG who attended historically black schools were similiarly disadvantaged. Participation in sport at many black schools was optional. Pupils could choose whether or not they wanted to be involved. Pupils were not encouraged or motivated to participate in sport. In addition, there was a limited choice, with netball and athletics in many cases being the only options.

*[It never made it compulsory but we did PT sometimes ... we were not forced to go to PT classes.]*

*[I never participated in sport at school.]*

*[No, it was a choice.]*

*[No, I was studying in black schools ... they don't care there ... whether you like sport or you do not, it is the same thing.]*

Some participants experienced problems with the availability of favourite sports. There were very few choices.

*[I had to stop in high school because they didn't have athletics.]*

*[In black schools you don't have much choice.]*

*[If you are struggling, they'll just chuck you out of the team.]*

*[In our school there was only one team which could play very well.]*

There was a strong contrast between historically black schools and former white Model C schools. Those who went to former Model C schools were exposed to many more sports opportunities. In addition to athletics (which was compulsory at the schools' interhouse athletics meeting) and netball, pupils participated in hockey, tennis, swimming, basketball, power walking, ballroom dancing and drum majorettes. Also, at Model C schools, pupils had to play one summer and one winter sport. Schools had many teams for each sport, catering for those who were very good and represented the school's first team, and those who played socially. Many black schools only had one team, and those not good enough to play in the first team were neglected.

One of the participants from the YG compared her experiences at a black school with those of her sister, who attended a former white Model C school, reinforcing the contrasting conditions between historically black and white schools:

*[My sister she plays hockey, indoor hockey and outdoor hockey, she plays netball, she does swimming, and the choir thing as well. She's got ballet classes ... she goes to Monument ... it's a white school ... I went to a black school.*

Does that make a difference?

*Yes, I think it make a lot of difference, because in her school it's like ... most ... everybody there is participating, they have to participate in something, either one or how many... they have to. In ours they check ... if you are a good player then go ahead and play, but if you are struggling, they'll just chuck you out of the team. That's why I did not try in some sports because ... I felt I'm not good enough... they don't even consider you ... unlike in my sister's school ... there will be 1<sup>st</sup> team, 2<sup>nd</sup> team and 3<sup>d</sup> team. In our school there was only one team which could play very well ... and the rest ok ... and you know I was scared about being rejected from the team ... that was the thing ... (laughing).]*

The importance of physical education as an essential school curriculum subject which lays the foundation for lifelong engagement in regular physical activity has been expressed by many researchers, including those in South Africa (Walter, 1994; Kloppers & Jansen, 1996; Keim & Zinn, 1998; Amusa, 1999; Van Deventer, 1998/1999, 2000, 2004). While physical education forms a compulsory part of the South African school curriculum by virtue of the fact that it is accommodated in the Life Orientation curriculum, it is not being offered in many schools (particularly historically black schools) as discussed in Chapter 2. In addition, many black schools do not have a well structured and implemented extramural sports programme.

➤ **Negative associations with exercise**

Only one participant from the OG responded negatively to exercise by saying “I don’t see the need”:

*[I don’t think that there are reasons except that I was discouraged when I was a learner because I was interested in participating then and then I grew up with that attitude. So I think that is the reason why I don’t participate.]*

The YG expressed many more negative associations with exercise than the OG. Exercise has to compete with “so many better things to do” like watching television, going to the movies, socializing with friends, going to nightclubs and partying (discussed in another section). Exercise was described as too tiring and exhausting, requiring too much effort, and resulting in unwanted sweatiness.

*[I think it is because this is my first year and I wanted to experience a lot of things so it wasn’t so interesting for me anymore to play hockey. Maybe next year I will start playing again.]*

*[It’s like I’ve got so much things better than going around and jogging ... ]*

*[I said I don’t like tiring myself like because I’ve got so much better things to do than tiring myself.]*

*[It’s so tiring.]*

*[It’s just too much effort, I think.]*

*[Exercise does not fit into my life because I’m lazy and I hate exercising, because you get sweat and all that stuff.]*

*[Nothing is making me feel that I should do exercise.]*

*[It's too exhausting.]*

Physical activity and exercise requires motivation and discipline and, due to its physical nature, will result in sweatiness and tiredness. This physical exertion was so discouraging to one of the participants that she would rather resort to liposuction in an effort to lose weight than exercise. The association of exercise with slavery was another extreme example of dissatisfaction.

*[I was thinking to go in the future to do liposuction when I've got the money, but not go to do those exercises and stuff, I don't like, you know to strain myself with exercises.]*

*[The reason why you don't see people exercising, they regard it as slavery.]*

#### ➤ **Financial constraints**

The professional women in this sample were mainly civil servants working for government departments. By South African standards they would fall into the middle-income bracket, with the majority (67%) earning between R5 000 and R9 999 a month. The majority had families to support, with 85% having children: 41% were single parents. Housing bond repayments, school fees and the rising price of food and petrol are costly expenses, particularly in a single parent household. Due to these financial commitments, exercise was not given priority in many a monthly budget. Local government and municipalities have not provided many facilities and opportunities for leisure, recreation and exercise and people have to join gyms and clubs in the private sector should they wish to exercise at a gym. These private gyms and clubs are found mainly in the suburbs and many participants found their charges prohibitively expensive. Transport costs would also have to be factored in for those staying in the townships. Financial constraints have also been reported in other

studies (Booth *et al.*, 1997; Marcus & Forsyth, 1998), and were a lower priority in others (James, Hudson & Campbell, M.K., 2003; Titze, Stronegger & Owen, 2005).

*[It's not affordable, I could afford it but it would pinch me somewhere.]*

*[My contract that has expired and now that I had to start afresh pay that joining fee. It was a lot of money. I was used to paying that R200 now it's R400, I thought it was continuous, so I stopped the gym.]*

*[But I would say it is tight finances, but you do not see it as a basic need, and it does not come as a priority in terms of finance. You look at the basic things like food and taking children to school and then after doing the budget there is no money left for the gym.]*

*[You know, honestly, I don't know, if you look at Summerstrand and Greenacres (where commercial gyms are situated), those places are so remote and expensive, definitely I will be paying R215.00 pm for a particular option.]*

*[At the present moment only the financial strains, because I have a medical aid that provides me with an exam for the gym things and I have to pay R500 to gym for the rest of my life.]*

*[I was planning to start with gym but due to financial constraints I couldn't.]*

*[I was at Virgin Active but the contract expired in June. It is too expensive now.]*

*[Gym fees are expensive.]*

*[The other thing is where I am staying in Kwadwesi, if there was recreation, you know, center that is offering these services I would go because I know when I get home I just sit and watch TV and go to bed. The fact that we have to go to Summerstrand to get such services influences us not to go, and the fees, it's expensive.]*



The YG also reported financial problems as a limiting factor. Tertiary education is expensive, and even on university campuses, there are joining and affiliation fees for the various sports clubs and the various gyms. Many of the YG would have liked to join a gym like Virgin Active where the facilities are modern and more attractive, and more expensive, than the gyms at the university. Asihel (2005) reported that the relatively high cost of recreational sport participation is one of the main barriers for female undergraduate students at the University of the Western Cape (UWC). Like NMMU, UWC sport and recreation clubs require various registration, affiliation and transportation fees which the students could not afford.

*[Financial is the problem. Because sometimes I wanted to come to the biokinetics but money is a problem.]*

*[I really wanted to go to join the Virgin Active here in Summerstrand but I don't have money to go there. That's one of the other reasons.]*

*[It's like because of the money, because I would like maybe to go to Virgin Active.]*

*[I would really like to join a gym but it is expensive.]*

The next two barriers were reported by the YG.

➤ **Lack of awareness of available programmes**

Some students (particularly first years), reported not knowing where to go, not knowing whom to ask in relation to sport and recreation at the university. The university does have a week long orientation programme before the commencement of lectures, where students are orientated to the campus and all its services, including a Campus Fest where all the sports clubs and societies promote themselves. In addition, all this information is available on the university website. It could be that students did not attend the orientation programme and were therefore not aware of all the offerings. The

NMMU student counselling services that coordinates the orientation programme indicated that just over 50% of first years attended the programme in 2007, a similar percentage to past years. Some of the comments below also show a lack of confidence in gathering or seeking out information.

*[This is my first year and I wanted to experience a lot of things so it just didn't come to my mind to do anything.]*

*[There are no visible clubs for sports and no instructors.]*

*[I wanted to play hockey ... I did join a club but I did not know where to go to play.]*

*[I don't even know where the netball courts are and I never knew anybody who played netball here.]*

*[Even if I get there, I don't know who to ask and where to go.]*

Similar findings were reported by Asihel (2005), where female students from UWC were not aware of the recreational sports on offer, and also lacked the confidence in gathering or seeking out information.

➤ **Lack of knowledge**

Participants who were not exposed to physical education and sport at school, are at a greater disadvantage than those who have had some experience. They lack exposure to different sports, and would not have been encouraged and motivated to play sport. They would also not have been exposed to the fundamentals of exercise, "*how to start it, how to do it, when to do it*". This barrier would affect many participants, but was only cited by the YG.

*[I don't have a deep or basic understanding of the game.]*

*[To go there not knowing anything.]*

*[I would like to exercise, but I don't know how to start it, how to do it, when to do it.]*

### **5.3.3.2 Environmental factors**

The environmental factors discussed below pertain to the physical environment and surroundings of the participants that had an impact on physical activity participation. These were residential areas, availability of recreation and sports facilities, safety and the legacy of the past.

#### **➤ Residential areas**

Historically black townships were severely neglected by the past apartheid government. Very few sports and recreation facilities were provided, small houses were built on small plots which has led to overcrowding and roads were narrow with poor stony and untarred sidewalks. Township areas are still plagued with these problems, and coupled with the increased urbanization and increased demands on transport, including minibus taxis, the environment is not conducive to physical activity and exercise. There is a growing body of literature which suggests environments that are aesthetically attractive, with enjoyable scenery and sidewalks or pavements, are positively associated with physical activity participation (Sallis, Hofstetter & Hovell, 1992; Wilcox, Castro, King, Housemann & Brownson, 2000; Brownson, Baker, Housemann, Brennan & Bacak, 2001; Humpel, Owen & Leslie, 2002; Ainsworth, Wilcox, Thompson, Richter & Henderson, 2003; Reis, Bowles, Ainsworth, Dubose, Smith & Laditka, 2004; Wendel-Vos, Schuit, De Niet, Boshuizen, Saris & Kromhout, 2004; Titze *et al.*, 2005).

*[The other thing is where I am staying in Kwadwesi, if there was recreation, you know, centre that is offering these services I would go because I know when I get home I just sit and watch TV and go to bed.]*

*[No, how can you walk when there are always children playing in the streets and always people standing against the walls. There is no place to walk, there are stones you know and the taxis are very busy. The people who like running there go to Uitenhage Road because it is difficult to run around. Even the fields, we have no sports fields to run.]*

In addition, women wearing exercise clothing like shorts and tights are victimized. The expected dress code of women is discussed later under cultural factors.

*[You must make sure when you run there you don't wear tights. Like where I am staying in Bridgemean you can run with tights on but not in KwaZakhele because people will call you, shout at you. It is because women shouldn't be dressed like that. People are more understanding in Bridgemean, because you don't just see running in KwaZakhele. You must be careful what clothes you wear. People are running and exercising in Bridgemean so they understand.]*

In formerly white suburban areas where many of the OG were currently living, a number of participants mentioned that they were motivated by the number of people (mainly white) who they saw walking and running. The environment in these areas is generally clean and uncluttered, there are wide grassed or tarred sidewalks, lower traffic volumes, no taxis racing around, and fewer loiterers. Some of the women are encouraged by their neighbours to join them on walks, others are motivated to see elderly people exercising daily and taking their dogs for walks. These women are motivated and encouraged and not criticized by “curious neighbours” saying “heh, what is she doing”, as they would be in the townships. It is unusual to see women exercising in the township, more particularly black women, whereas many people of both sexes are seen exercising regularly in the suburbs. This point is elaborated on later under cultural factors. As mentioned above, all the participants in the OG who exercised regularly lived in formerly white suburbs.

*[Everybody here is taking a walk, even an old woman or a crippled person. In the community everybody is taking a walk. They just enjoy it, even in the mornings, and in my area, people will come from work and put their car and exercise. It is very important here. There is an open field there and sometime I will just go and play basketball with my kids and people won't say, heh, what is she doing?]*

*[Where I live, I live with white people and they are more or less about 55 years or more but they are active. So keep asking myself why don't I do the same as they do because I am still energetic and young, but they are more energetic than me because they exercise every morning and evening. They walk and jog and I like it and I want to do it, I am determined. I see myself being 100% active.]*

*[There is not much crime there, I have peace of mind and no curious neighbours that want to know what I am doing now.]*

*[The environment is supportive and encouraging. I stay in Kabega.]*

*[I stay in Rowallan Park. Most of my neighbours they are white, they like to do the walking. Like yesterday, my neighbour came to my house and said let's go ... but I was already asleep with my pyjamas on. I said I'm coming from my bed now, I cannot go. My neighbours are quite active and they encourage me really... I said to my neighbour I'll join you today .... When I come from work I'll just check where they are and go for a walk.... The old people they always walk with their pets and they are always encouraging.]*

*[It does especially in Westering. The white people they walk a lot, they run a lot. You see a white lady and the men about 4:00 putting on their shorts to go jogging.]*

*[I stay in Rowallan Park. I see an old man every day exercising. We usually chat to each other and he says to me he is 63 and he walks every day with his dog. He encourages us. He looks strong actually for his age.]*

*[Yes it is because I live in the suburbs, I do have a chance, but because of my tight schedule I can't, I want to exercise. Yesterday I asked my colleague because there is a gym at the sport centre and I am interested to spend at least 10 or 20 minutes there.]*

*[Yes, I really would love to do it, for instance, my husband is planning to buy a house somewhere and I think I will make time to take walks like going to the shops. I will be able to do more, because at the moment I am just trying my best now. I think I will be motivated and meet other people who would be taking walks. I would see them walking and join them, I would be much motivated. In my area there are no people doing that now.]* This participant's husband was planning to buy a house in Bluewatersbay, a formerly white suburban area, where she felt she would be motivated to walk.

The YG also cited black areas as detrimental to physical activity and exercise. The congestion of people and cars, as well as crime, in black areas was reported.

*[It's very unusual. Unless you stay in a white area 'cause if you stay in black area, there is no actually space for you to jog, there's cars running around, there's people everywhere, maybe if you do it at six o'clock in the morning, then crime could also be a problem.]*

*[It's crime and it's always busy with cars 'cause there's streets and there's no pavement so it's always busy. And society, our society is like they look at you and they think "oh that one".]*

*[I see people running when I'm in the taxi, but they are not in this community, they are in the white community.]*

University residences were found to be more conducive to physical activity and exercise. The residences are on the university campuses, which – except for one small non-residential campus – are situated in formerly white suburbs. They are fully fenced, and

patrolled by a 24-hour security service. The gardens and grounds on the university campuses are well maintained, the roads are safe and not busy. The university also has very good sports facilities and a wide variety of sports codes to choose from. Exercising is encouraged on the campuses. In many black townships, it is not common to see women running and exercising for various reasons, (discussed below), whereas at the university, students encourage one other. The environment inspires students to get involved.

*[It is better when I'm here (at residence). I don't jog when I am at home. There's no one there (at home in the township), no ladies there, who want to go to jog.]*

*[Well, in my neighborhood, they don't like exercising. I don't know, it's because they're not exposed to it at our age but my friends here at school are the ones that are jogging and are exercising. But in my neighborhood, no. They don't like exercising, 'cause they say it's too exhausting, all those jogging and that stuff.]*

*[Yes, there are a lot of black students exercising, we jog as a group, I don't jog alone We are about 5, and we encourage each other.]* (These students exercise on campus).

*[I'm from a disadvantaged area so I didn't have a chance to jog in the evening 'cause there a lot of corruption you know maybe I can go and be stabbed by a tsotsi you know, by someone. I feel so secured here (on campus) you know, that's why I want to increase or I've increased my rate of physical activity, jogging.]*

*[Very different because at the sports centre they have a gym and there by the res there are also some girls who get up in the morning and go jogging, so it's a little bit better because there are people who do what you want to do. Where I live there are no people who do that, get up in the morning and go jogging or places where you can go for gym that are much safer and you'll be safer when you come back home in the evening or so.]*

*[You just exercise at school (university), not at home. I think they would, they'd say what is she doing?]*

*[Yes, it will be different. I have been saying to myself maybe next year I should go and stay on campus because I would then be involved in things around the school. So I think I would be motivated because even my friends are doing a karate thing there. It is judo they are doing. I did try it some time this year, and I am willing to do it.]*

➤ **Availability of recreation and sports facilities**

In addition to the suburbs being aesthetically attractive, they also offer more opportunities in relation to the availability of recreation and sports facilities. There are a number of sports clubs, fields and parks, and all the golf courses and well established fitness centres are found in the suburbs. Limited recreational and sports facilities exist in many townships, which were also listed as a deterrent.

*[If there was a recreation centre that is offering these services, I would go.]*

*[There is no infrastructure that motivates them to exercise.]*

The availability of sports opportunities was variable on the different university or college campuses. Those students who attended classes at the Algoa campus were disadvantaged in that there was no provision for any sport there. Students had to travel to one of the other campuses to play sport. Transport was then an added expense and problem to these students. Also, students who stayed at the Nurses Home at the Provincial Hospital were also affected by the lack of sports provision.

*[You had to go to Vista University to practice and that is quite far for me to travel.]* Vista is now the Missionvale Campus of NMMU.



*[Practices start late and they are at Main Campus and it is hard to get there and the taxis are scarce at that time.]*

*[At 7:00 late, so I was thinking that I would not have transport and there wouldn't be any shuttles around.]*

*[Not in this campus. There is no sport here.]*

*[When I was doing my first year I asked them about it and then they told me I have to go to main campus.]*

*[Ja, I want but there's no team here.]*

➤ **Safety**

The crime rate in South Africa, in particular violent crime against women and children, is very disturbing. South Africa has the worst known figures for gender-based violence for a country not at war (Moffett, 2006). South African police statistics on the incidence of rape reported to the police are higher than the reported rates in neighbouring African countries and the highest among Interpol members (Statistics South Africa, 2000).

In the suburbs, people live behind high walls, many with electric fencing, alarms and armed response, which people cannot afford in the townships. A new web-based SA crime and victimization mapping tool launched by the Centre for Justice and Crime Prevention indicates that many townships in the Nelson Mandela Metropolitan Municipality, namely New Brighton, KwaDwesi, KwaZakhele, Motherwell and Kamesh are hotspots for murder, with New Brighton being in the category of 10 murders per 10 000 people and the other areas between 5 to 10 murders per 10 000 people (Willemse, 2007). Neighbourhood safety, particularly in relation to women and physical activity participation, has also been reported as a barrier in other studies

(Marcus & Forsyth, 1998), but was not emphasized as much as it was by participants in the present study.

The participants were very wary of crime, particularly those living in the townships.

*[I think the real reason that made people not exercise is being afraid of safety because if you go out jogging you are not safe. If you go to gym you come back in the evening and it is not safe.]*

*[It was difficult when I was staying in KwaZakhele. When I came back from Cape Town in 1996 because I was still very active, but when I came back it was very dangerous and you couldn't wake up early and run, like I am doing at Bridgemed. That was one of the reasons that prevented me; it's a dangerous area KwaZakhele, in the mornings and evenings.]*

*[Yes, I think there will be a difference because at the same time in our community crime is rife. I feel scared to take a walk to far places because I have a seventeen year old daughter who likes to jog and I always tell her to please not go to far places. She likes to go the sea, there is a sea nearby, she likes to go there to gym there. I am sure it is because of the crime that is high and the rapes so I am not feeling safe so I don't feel secure in walking in KwaZakhele like in Kabega Park.]*

Safety issues in relation to crime were also a factor listed by the YG. Students staying on the university campuses felt safe, whereas many staying in student digs in Central or in black township areas, feared being mugged and/or raped.

*[I'm scared to go there in the park because there's crime and everything ...]*

*[It's the crime.]*

*[In my neighborhood it is not easy for me to do that because of crime, because if you wake up early in the morning and then you go jogging outside, there is no one in the morning, so you easily get mugged or raped or something.]*

*[Yes, I think it is but then it depends who you are, where you staying like staying in Central is not safe for me, even early jogging. Because there is crime here. If I was staying somewhere else I would be able to, it does depend on where you are staying as well.]*

*[Yes, because here in Central I can be afraid to go to the park, there are more criminals around here and maybe they will rape me.]*

*[I'm from a disadvantaged area so I didn't have a chance to jog in the evening 'cause there a lot of corruption you know maybe I can go and be stabbed by a tsotsi you know, by someone.]*

### ➤ **Legacy of the past**

Two participants from the OG felt that a lot of the violence and crime plaguing many townships today, originated during the seventies, at the height of the political struggle against apartheid. The Soweto uprising of 1976 gave rise to the intensification of the struggle against apartheid and police repression. The strategy used in the struggle was to “make the country ungovernable”, and included school stayaways, rent boycotts, consumer boycotts, labour strikes and township riots. “No education before liberation”, “no normal sport in an abnormal society” and “one settler, one bullet” were among the many slogans chanted, and capture the turbulent atmosphere in the townships. There was a lot of violence, which was not only directed at the apartheid regime, but against community members in the townships. To a large extent, the criminal element found a foothold. The crime and violence which emanated from these times is still very prevalent today. It became unsafe for people to move freely then, as is still the case today.

*[I joined a karate club but ...when I was growing up there was a lot of riots, so we would formulate something and then that thing, it would go away.]*

*[(safety became a problem) in 1986 when we struggled .... After boycotts people changed. There used to be football teams and netball. Things changed during the riot period it took a long time and it changed the people. It was unsafe and people did not go anywhere. People used that anger and violent spirit against each other in the community.]*

Some people from that generation have acknowledged in hindsight, that the political struggle against apartheid may have engendered some of these social problems found in townships today. A poem by Mzi Mahola, a well known poet from New Brighton township, captures this sentiment in a short poem entitled “Oh My God” (Mahola, 2006).

### **Oh My God!**

In our struggle against the beast  
We may have erred by causing disorder.

Our children  
Are now familiar with disorder  
Estranged from respect.

In the shadow of these problems, physical activity for leisure and recreation, or for exercising, is curtailed.

### 5.3.3.3 Socio-cultural factors

Culture consists of the ways of life that people create as they participate in a group or society (Coakley, 2007: 5). It encompasses all the socially invented ways of thinking, feeling, and acting that emerge as people try to survive, meet their needs, and achieve a sense of meaning and significance in the process (Coakley, 2007: 5). The participants in the present study were all Xhosa speaking, black South African women residing in the Nelson Mandela Metropolitan Municipality. They share a common cultural heritage – a way of life, a collective history, and a sense of themselves as a people – based on their ethnicity. (Dishman *et al.*, 2004: 283). Relationships and interactions with others in a community (which in South Africa has been historically divided by race and ethnicity) can have a strong impact on behaviour (Dishman *et al.*, 2004: 403). The socio-cultural categories discussed below encompassed those factors detrimental to physical activity participation due to differences with the norms and values acceptable to the community. Socio-cultural constraints are also called antecedent constraints (less visible) and are considered to be the most problematic constraints because they are less visible (Henderson, 1993).

#### ➤ Lack of social support

Research has shown that social support by family and friends played a key role in encouraging the adoption and maintenance of regular activity (Titze *et al.*, 2005), and the lack of such support was cited as a significant barrier in some studies (Marcus & Forsyth, 1998; James *et al.*, 2003; Brown, 2005). Receiving the support and encouragement from friends as well as having someone to exercise with are important for the adoption and maintenance of physical activity.

The OG reported not receiving any support and encouragement for participation in physical activity from their family while growing up.

*[My parents did not allow me to go.]* Her parents did not allow her to go and play sport.

*[I was discouraged when I was a learner.]*

Current friends and family (excluding their children) of the OG were not involved in any form of exercise. There was no encouragement from peers; the social environment was not conducive to the promotion of physical activity.

*[I don't have friends that like to exercise.]*

*[No, they are not, they are lazy. My husband does not exercise.]*

*[My friends? No, not a single one, they mostly like music.]*

*[I think they are also like me, just lazy. We don't exercise much.]*

Not being in a supportive family environment influences participation in physical activity.

*[Because I was raised like this, you know, and my family and extended family did not show interest in it, you know, so the cultural thing for me, because nobody in my family plays sports or participating in none of those things.]*

Peer pressure also discourages activity: having no friends to exercise with, and to motivate and encourage one other, was an important factor cited by the YG.

*[I wouldn't exercise alone, but if there can be someone who can say let us go and do that ...]*

*[I don't have anybody to do it with, I might have gone out there, but not because they have some influence ... because I see like my friends are not doing it, nobody around I know is doing it, so I'm not doing it also.]*

*[Ja, there is no one who can motivate me to go there. If there can be a person who can say "let's go and exercise", I can go ... ]*

*[I also think peer pressure prevents me, because sometimes you tell your friends I'm exercising and they tell you it's a waste of time and you'll never lose weight, because normally you want to lose weight and then after 2 weeks I get discouraged and then I think ok, I might as well be happy with the way I look cause of the peer pressure or the discouragements.]*

*[I think most of my friends don't play sport, so I think that is why.]*

*[My friends influence me. They just like watching TV, walking around, going shopping and going out at night.]*

*[My friends are just like me so I get no motivation from them.]*

*[I think they don't have the time and they don't want to make the time. Some of them were playing sports in high school but are not playing it here, like hockey. I don't know, they always say they are too old for that.]*

*[We don't talk about exercises and these things.]*

*[They don't do anything so I just want to be like them.]*

*[My friends are not interested in sport.]*

*[Maybe by staying with friends can prevent me ... chatting to my friends that also prevents my physical activity.]*

*[Sometimes you tell your friends I'm exercising and they tell you it's a waste of time. I feel like an alien.]*

*[The topic of exercising does not come up.]*

*[My mom doesn't want me to exercise 'cause she likes my body, she wants me to be fat.]*

Not receiving any social support from family and friends may be due to exercise being seen as “not in my culture”, “exercise is for white people”, and exercise being associated with what children and young people do, all of which are discussed later.

➤ **“Not in my culture”**

It was reported that exercise, particularly for women, was not seen as being part of black culture, and therefore not seen as important and therefore not encouraged. It was not common to see women exercising: *“it has never been a part of their lives at all.”*

*[Yes, in our culture the women are always at home, you never see the woman in our black townships taking a walk or doing something. They will think there is something funny with that one, if I'm a black woman. But if you are staying in Summerstrand and there are also white people then they would understand me but not in our culture, it is really not. Those who attend the gyms go to the ones in Greenacres or Central. Not in the area. It's not common for woman, it's always men.]*

*[It was not seen as the thing for one to be actively involved in exercises.]*

*[It will not be common enough for you to see a black women running or taking a walk near the beach or walking the dog.]*

*[And to some extent the background has an influence because it goes to back then when it (exercise) was not something that is important for women to do.]*

*[In my area where I am I would not find women exercising.]*



*[I won't say it is money. Because you can take a walk. I don't know, it may be ignorance. It has never been a part of their lives at all.]*

Children were encouraged to go and play outside but not for any educational, recreational or developmental needs, but to keep the house clean.

*[Not really. I try to encourage some but I would say our culture may have played a part because it is not something that was encouraged. We use to play a lot outside when we were children but it was just part of being active. We never really spent a lot time inside the house when we were young. We like to play ball, and anything that was outside. You never spent much time in the house. You know if you were inside they would say do this and this and wash the dishes. But we were pushed towards the outside to play rather than inside – they would say go outside because you are making the house dirty. They did not think of it as us exercising, it was just trying to keep the house clean, and if you want to play, go outside. It was better being outside doing your own things. Also us avoiding getting this task and that task.]*

Many of the YG concurred with the OG that exercise was not seen as an important part of black culture. Particularly in relation to women, domestic chores kept one fit. Quotes like “it’s not in our culture”, “they don’t care”, “exercise is for white people”, and “this one wants to be white” capture the perception of many people.

*[It's not in our culture ... I've been living without it for such a long time so why should I start now?]*

*[My mom doesn't want me to exercise cause she likes my body, she wants me to be fat, but I don't like it. They say African women are big so I also have to be big.]*

*[People there don't like exercising.]*

*[If they see you jogging they'll say Ah, this one wants to be white or she doesn't have anything to do.]*

*[They'll tell you, hey, in the olden days we were healthy without exercising.]*

*[Black women aren't meant to exercise, it's for white people.]*

*[I'm going to look skinny and African ladies are not skinny.]*

*[He will say that black girls are supposed to be nice and heavy.]*

*[Ja, its very unusual you know, exercise in the black society, they take it as a hobby, it needs to be a hobby, it's not something you need to do to get healthy, cause they'll tell you, hey, in the olden days we were healthy without exercising. If you do your duties at home then you're fit, they'll tell you. They'll say black women aren't meant to exercise, it's for white people.]*

*[No ... they think you want to slim if you exercise. If you are slim, they say why are you exercising, 'cause you are so small ... they then discourage you ... and you say, ooh let me give up.]*

*[You know black people they don't like healthy things. They are just eating, sleeping, going to work, not exercising.]*

*[Normally jogging and eating healthy diet or doing sports, it's not in our culture.]*

*[They would see me as a crazy woman because at the location women who wake up at 5 and go for a jog they will take you as crazy, so it is not a popular thing to go jogging.]*

*[They don't think they really care and they don't care. They are not that involved. I don't think they are interested in that.]*

*[Yes, because some black people they feel that things like jogging are for white people, the men just stare at you. They see people when they jog they just put on shorts, so maybe they think you are not wearing enough clothes.]*

*[You know black people. People there don't like exercising, they spend their time sitting and doing something else. If they see you jogging, they'll say ah, this one wants to be white or she doesn't have anything to do or something like that. It's very unusual. Unless you stay in a white area 'cause if you stay in black area, there is no actually space for you to jog, there's cars running around, there's people everywhere, maybe if you do it at six o'clock in the morning, then crime could also be a problem.]*

*[Because I do have a friend whose grandmother is very stereotyped and she said no when she wanted to go jogging. She said, where do you get such ideas, that's for white people.]*

The games played as children were considered to be incidental: no intrinsic value was attached to the games.

*[It's definitely not an important thing. It will look silly running into the mountains on your own, it's not something that's encouraged. We play like the games you grow up like skipping rope and ball games we just play normal games the kids will play, but there's nothing like forced or encouraged like exercise to keep healthy. People don't know, they're not aware of the illnesses that come with not exercising so they really don't care – only those who are educated – about such things.]*

➤ **Traditional roles of males and females**

From a young age, boys and girls were socialized into particular roles. Girls were required to do domestic chores such as cleaning the house, washing dishes and cooking, and the boys could simply play. Girls were given limited opportunities to play because of these domestic responsibilities. Responsibilities to home and family were central in the lives of girls growing up, leading to the natural transition of assuming this role into adulthood. This early socialization of girls into domestic chores and family responsibilities is clearly why family and home commitments were listed as the main reasons why women do not have the time or inclination for physical activity participation.

*[I think they've got lots of time to do these things. Females have to clean, males just put their things down and go straight to the gym. The women are supposed to clean up. Even if you are a young girl you make sure the home is clean before you can go to the field.]*

*[I think specifically with the black culture in the days then it was not seen as the thing for one to be actively involved in exercises. We still have bit of that though the times have changed a bit. It will not be common enough for you to see a black woman running or taking a walk near the beach or walking the dog. You are at home rather making breakfast for the husband and cleaning and cooking. We are more too responsible, that's the other thing you don't have a helper, or you just don't want to find the time to do exercises. You are busy running around for everyone in the house and not taking care of yourself. You are not taking time to do exercise. And to some extent the background has an influence because it goes to back then when it was not something that is important for women to do. For men they have all the time, but the women are to bear the children and, be responsible for the house. You just don't have time for yourself.]*

*[But the reality of this matter is in our black culture. If you are black and you are a girl there are more responsibilities that are expected of you. The boy can just play. No one expects him to come back and wash the dishes or sweep the floor or dust the room. It is like a boy is exempted from it. There is more responsibility that is given to girls than boys. We girls we learn from a very early age that there are things to be taken care of. The treatment of boys and girls is totally different.]*

*[It is the culture that has an impact, in our culture the boys do nothing and just play and the girls have to clean and do everything, so now. Mothers say your place is here at home.]*

*[I think so because in my area I always see boys with the bags going to training. I think it is so because in our culture the girls are always busy with the cooking and all those chores, but the boys most of the time just wash dishes and do their homework and that's all.]*

The YG did not comment as much on the socialization of boys and girls into their respective roles as did the OG.

*[I think we have come to expect that girls don't exercise because guys play soccer quite competitively, they are passionate about it. But with us the sport is cooking, cleaning and doing the washing.]*

*[They (boys) play soccer and they running around like the typical games like touch games, make a soccer ball and kick it and fighting, well chasing each other, just those typical boy games*

And the girls?

*Working, what else, fetching water, cooking, preparing lunch, supper and breakfast, only the little ones have time to, but I think nowadays I think all the girls don't work as hard as they did in the olden days, they spend time walking around, actually just waking around and just gossiping or whatever, but they never, no there's no exercising thing.]*

➤ **Dress Code**

There is a perception that it is not acceptable for black women to wear tights. Participants would not feel comfortable wearing tights and other gym clothes when exercising in the township. It was fine for them to wear these clothes while exercising in the suburbs or at the gyms, which are generally found in the suburbs.

*[You must make sure when you run there you don't wear tights. Like where I am staying in Bridgmead you can run with tights on but not in KwaZakhele because people will call you, shout at you. It is because women shouldn't be dressed like that.]*

*[The dress code in gym is a private thing so I think I would only do it there.]*

*[Yes, they can in a way, when I am going to a gym I will have to wear the tights and things and the community will say that why is an old female wearing such things so to them, they will say it's not acceptable.]*

Only one YG participant remarked on the sports clothes.

*[They see people when they jog they just put on shorts, so maybe they think you are not wearing enough clothes.]*

From interviews with the participants the researcher gleaned that it was more acceptable for younger women to be seen wearing shorts or tights while exercising, but once you were married, it was not acceptable.

➤ **Exercise associated with the young**

Exercise was seen to be associated with children and young people and what children and young people did, and it was not acceptable for women (particularly married women) to be seen exercising. Women were discouraged by the “destructive talk” of community members.

*[When someone is exercising they will perceive that person as someone trying to pretend to be younger than their age. Somebody who thinks she is young when they are old.]*

*[If an older fat person in our culture starts doing exercises or going to gym ... there is a Xhosa word “uflayi” that they would use. There are women in our communities would say so and so wants to be young and starts destructive talk. It’s associated with the men in our location would join this clubs. It’s just that the people have destructive talks then saying that that person is trying to be young now.]*

*[In my area where I am I would not find women exercising. I would see the school going children, the teenagers, but not women.]*

Only two participants from the YG perceived exercise to be associated with the young, and not adults.

*[It is something for children or young ladies or young children.]*

*[Some of them were playing sports in high school but are not playing it here, like hockey. I don’t know, they always say they are too old for that.]*

➤ **Exercise associated with undesirable weight loss**

Exercise was associated with weight loss. Participants may have been aware of the health and other benefits of exercise, but only considered exercising when they perceived that they were overweight and therefore needed to lose weight.

*[Like for instance the perception is that if you are not overweight, you tend to overlook that. The people who are concerned about exercise are the people who have heavy weights, and who are overweight. Exercise is associated with losing weight. I don't have a problem with my weight; I have been a thin girl up until now when I have gained weight. Now I am starting to say, wow I need to do something about it. I've been a 64 weight girl so that did not bother me really, and did not think I should do anything. I associated that with losing weight. I did not need to lose weight.]*

*[No, it is not a common thing. My sister who stays at Framesby, she enrolled with Virgin Active. Most of the time we join or want to exercise because of weight. I don't remember anybody who I've come across talking about exercising. Only when they want to lose weight then they want to exercise. Beyond that we haven't come across that we need to exercise. My sister joined for weight reasons as well.]*

Many of the YG related exercise to weight loss, so if body weight was not an issue, there was no need to exercise. The other health related benefits were of no concern to these participants.

*[I don't think I need to. I'm thin.]*

*[I'm slim and so I don't need to lose weight.]*

*[Ja, it is important for some people, for fat people.]*



*[I don't like exercise. I'm not overweight, I'm not thin, I like my figure, so I won't exercise.]*

*[I thought I was putting on a bit of weight and I started jogging. No one actually motivated me, but I just started jogging.]*

*[I think exercise is there to lose weight and then it will make me not grow fat again, because there is this thing about black women growing fat and all that stuff. No I don't, so I'm considering doing exercise. I think it's going to help me with that.]*

What do you think your future physical activity will entail? Do you think at some point you will exercise? When?

*At some point yes, but not now, when I feel there is a need, because now I don't feel there is a need for me to exercise*

When do you think there will be a need? What changes must occur?

*Maybe if I gain a little bit, I gain weight, ja.]*

Participants also reported being discouraged by older family members who did not want them to lose weight because “African ladies are not skinny” and “black girls are supposed to be nice and heavy.”

*[They think you want to slim if you exercise. If you are slim, they say why are you exercising, 'cause you are so small ... they then discourage you...and you say ooh let me give up.]*

*[Like my mom doesn't want me to exercise 'cause she likes my body, she wants me to be fat, but I don't like it.*

Why would she like you to be fat?

*'Cause they say African women are big so I also have to be big. She's also big.]*

*[I think when I'm going to exercise I am going to lose weight and I don't want to lose my weight ... that's another thing. I'm going to look skinny, and African ladies are not skinny (laughing .... )]*

*[But I also have this brother who's also fat, and he will also say that black girls are supposed to be nice and heavy. So if I'm thin it's a little bit of a problem, so then there would be a sort of debate whether I should exercise or not. I end up not exercising.]*

The more traditional views of weight expressed above, with their resultant tensions and dilemmas, is supported by Mvo *et al.*, (1999) who indicated that black women expressed the desire to lose some weight, but there was no negative social pressure to motivate this. The comments by the participants above indicate negative social pressure from elders should the participants indeed lose weight. This is perhaps in keeping with more traditional views that “fatness reflects wealth” (Van der Merwe, 2006).

➤ **Fear of being accused of having HIV/AIDS**

Weight loss was also associated with HIV and Aids. There is still a lot of stigma surrounding HIV/Aids and one participant reported being scared of losing weight through exercise because the community would think she had HIV/Aids.

*[Where I live it would be so strange to wake up in the morning and go jogging, people will look at you strangely, and then if you all of a sudden loose weight, people would say things like you're sick or HIV positive or things like that, so sometimes you're scared of losing weight because of what people might say about you, so the society also play a very big role.]*

Van der Merwe (2006) of the International Association for the Study of Obesity blamed the rising number of overweight black women in South Africa on Aids. HIV/Aids has created fears among black women that if they are seen to be losing weight it would be assumed they have the disease (Van der Merwe, 2006).

➤ **Negative comments by people in the community**

The OG reported on the “destructive talk” by the community when older women are seen exercising.

*[When someone is exercising they will perceive that person as someone trying to pretend to be younger than their age. Somebody who thinks she is young when they are old.]*

*[If an older fat person in our culture starts doing exercises or going to gym... there is a Xhosa word “uflayi” that they would use. There are women in our communities would say so and so wants to be young and starts destructive talk.]*

The YG were plagued more by the negative comments from community members when exercising. They would be laughed at, accused of wanting to be white, accused of being HIV positive, called mad and crazy and joked about.

*[You know black people. People there don't like exercising; they spend their time sitting and doing something else. If they see you jogging, they'll say Ah, this one wants to be white or she doesn't have anything to do or something like that.]*

*[I don't know, maybe they don't want to exercise. But if I'm not in Durban, if I'm at KZN, there in Tugela Ferry ... so people do not know that you must exercise ... so that is why they laugh ...]*

*[It is strange to see a person jogging in the morning. Where are you running to, why are you in such a hurry, what you want to catch by running?]*

*[No, it will be very awkward to see a girl exercising. They will like laugh at you and say you're wasting time. That's what they'll say.]*

*[Especially when I was picking up weights I would have guys saying "... no stop, you are going to kill my children."]*

*[Where I live it would be so strange to wake up in the morning and go jogging, people will look at you strangely, and then if you all of a sudden loose weight, people would say things like you're sick or HIV positive or things like that, so sometimes you're scared of losing weight because of what people might say about you, so the society also play a very big role.]*

*[No, they would think I am mad. They would think I am crazy.]*

*[They would see me as a crazy woman.]*

#### **5.3.3.4 Summative discussion of Theme 3**

Efforts to promote participation in physical activity are likely to be most effective if they address the needs and interests of particular target groups (Booth *et al.*, 1997). Regardless of how firmly people may believe that physical activity is beneficial to their health, there are many barriers, whether real or perceived, that represent significant potential obstructions to the adoption, maintenance, or resumption of participation in physical activity (Booth *et al.*, 1997). The professional women in the present study were a unique target group, sharing a similar demographic profile in terms of sex, race/ethnicity, socioeconomic status and education. Their shared cultural heritage, as black Xhosa speaking women, has revealed unique barriers to participation in physical activity in relation to their way of life, and sense of themselves as a people, based on their ethnicity. This has highlighted the need for research targeting specific groups based on specific demographic profiles, which in turn would lead to more meaningful targeted interventions for the promotion of physical activity. This has also been a recommendation by studies conducted on a multiethnic sample of adolescents (Sallis, Zakarian, Hovell & Hofstetter, 1996), women from diverse racial/ethnic groups (Eyler,

Matson-Koffman, Young, Wilcox, Wilbur, Thompson, Sanderson & Evenson, 2003) and African American women (Sanderson *et al.*, 2003).

The barriers to physical activity participation identified as personal factors, arise to a large extent from the personal circumstances and personal choices, whether real or perceived, that the participants have. The personal circumstances of the OG were such that they lead very busy lives, with work, family and various community commitments all claiming their share. The stress and tiredness cited as a barrier may also be due to multiple roles women have in their daily lives. Universally, family priorities which include the multiple roles women have as wife, mother, and daughter have been recognized as one of the main barriers to physical activity in women (Booth *et al.*, 1997; Eyler *et al.*, 2002; Ainsworth *et al.*, 2003; Young & Voorhees, 2003). Many women in the OG reported that they had no choice, “I have to come home and cook”, “You have to look after the family”, and “We have lots of responsibilities”. They see it as their duty and responsibility. Many are self-sacrificing, “I always put other people first, then I come second”, “we are focused so much on bringing up our children that we forget ourselves”. Women have been socialized into these domestic roles from a young age, and even though they have full-time jobs like many men, these domestic chores are still their sole responsibility, and are not shared with their male partners. “Females have to clean, males just put their things down and go straight to the gym”, “men have all the time, but women are to bear the children and be responsible for the house”. The women, particularly the black women of South Africa, have been liberated from the many unjust laws and legislation of the past and have constitutional guarantees of equality, but are still constrained by cultural norms and values in a patriarchal society. Liberation from these social and domestic restrictions is needed, if women are to be free to exercise.

The participants from both the YG and OG openly admitted a lack of motivation due to laziness, having no interest, and not making an effort as a barrier to physical activity participation. Participation in physical activity and exercise does need self discipline and self-motivation. Getting people moving from the comfort of watching television and other

sedentary activities requires determination and willingness on the part of the participant, coupled with creative and new interventions for the promotion of physical activity.

A rather unique personal barrier was the negative childhood experiences. Many participants of the OG and those of the YG attending historically black schools were exposed to very limited opportunities for participation in exercise and sport while at school. Apart from netball and athletics, there was little else on offer. Body shape, size and ability influenced participation, and those who did not make the school's only team were neglected. "If you are struggling, they'll just chuck you out of the team", "I was studying in black schools ... they don't care there ... whether you like sport or you do not, it is the same thing". These negative experiences are bound to stay with people and continue to affect them later in life. It is therefore not surprising that people would show a lack of interest or dislike for sport and exercise, or question their involvement, "I grew up without sport and everything and why now I've been living without it for such a long time, so why should I start now?"

Exercising and playing sport has to compete with many options perceived as more exciting by the YG, "so many better things to do" like watching television, going to the cinema, socializing with friends and going to nightclubs. The physical exertion and the accompanying sweatiness was a great deterrent to many of the YG. Exercising and playing sport should not have to compete with these more sedentary activities, but should be enjoyed for its own uniqueness.

In the present economic climate in South Africa, the financial constraints reported by both the YG and OG may be understandable. The OG, on salaries of the public sector, have housing bond repayments, school fees, the rising cost of food and other expenses to contend with. The YG are faced with the rising costs of tertiary education and accommodation and living expenses while studying. However, in relation to physical activity, the financial constraints reported by both the YG and OG were related to the high costs of exercising at private gyms, the "Virgin Actives" that so many of the participants aspire to go to. Going to a gym has become the "in thing", and the

impression the researcher got from participants (particularly the YG), was that it was associated with success and status. Fashionable brand names have become associated with exercise. This indicates a rather narrow view of physical activity. There are cheaper and more affordable ways of exercising, and other ways people can accumulate the recommended amount of physical activity (discussed later).

The insecurity of a few participants from the YG was evident in their responses, “I did not know where to go to play”, and “I don’t know who to ask and where to go”. The students lacked the confidence and motivation to go and find out these things. The lack of knowledge: “I would like to exercise, but I don’t know how to start it, how to do it, when to do it” reflects a gap in our education system. The life orientation curriculum (which encompasses the physical education component) in South African schools should lay the foundation for lifelong engagement in regular physical activity. The UNESCO Charter for Physical Education and Sport (1978) accorded to it the status of a “fundamental right”, guaranteed within education systems through provision of opportunities for practice (UNESCO, 1978). However, a world-wide survey (which included South Africa) on the state and status of physical education in schools, funded by the International Olympic Committee in 1999, highlighted concerns for the sustenance of physical education in schools, due to the lack of legal status and actual implementation, restricted or decreasing curriculum time allocation, subject status, inadequacies in financial, material and human resources and other factors (Hardman & Marshall, 2000). These concerns are still relevant today.

The present study highlighted the importance of environmental factors in relation to physical activity participation. All of the participants who exercised regularly (OG, 15% and YG, 22%) and those who exercised occasionally (25%, OG and 11%, YG) lived in historically white suburbs (the YG lived in university residences situated in a historically white suburb) which they found conducive to walking and exercise. They all started exercising when they came to live in these neighbourhoods. It was not only the aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment and wide grassed or tarred sidewalks, low traffic volumes, and absence of loiterers), but

also seeing many people (mainly white) walking and running regularly. They were motivated to see elderly people exercising and taking their dogs for a walk, and many were encouraged by their neighbours to join them. From field notes taken during the interviews, the researcher noted the relatively good race relations that existed in many of these lower to middle income suburbs. Having been part of a divided past with the implementation of the Group Areas Act, it was encouraging to hear of the harmony that existed between people in many of these suburbs. In addition, the suburbs offered more opportunities in relation to the availability of recreation and sports facilities, and people felt safer walking and exercising in these areas, as opposed to walking and exercising in black townships. A growing body of literature suggests that environmental characteristics such as access to facilities, neighbourhood sidewalks, streetlights, and enjoyable scenery are all positively associated with physical activity participation (Booth, Owen, Bauman, Clavisi & Leslie, 2000; King, Castro, Wilcox, Eyler, Sallis & Brownson, 2000; Wilcox *et al.*, 2000; Ball, Bauman, Leslie & Owen, 2001; Brownson *et al.*, 2001; Ainsworth *et al.*, 2003; Addy, Wilson, Kirtland, Ainsworth, Sharpe, & Kimsey, 2004; Reis *et al.*, 2004; Wendel-Vos *et al.*, 2004).

It is not surprising that crime and violence in South Africa would have a detriment effect on physical activity participation in South Africa. As noted previously, the crime rate in South Africa, and in particular violent crime against women and children, is very disturbing. South Africa has the worse known figures for gender-based violence for a country not at war (Moffett, 2006). South African police statistics on the incidence of rape reported to the police are higher than the reported rates in neighbouring African countries and the highest among Interpol members (Statistics South Africa, 2000). Participants living in black townships were more wary of crime than participants in the suburbs, who felt safer walking and exercising.

The socio-cultural factors, also called antecedent constraints, are considered to be problematic because they are less visible (Henderson, 1993:33). These factors are determined by the norms and values acceptable to the community, and may not have any scientific base, but still have far reaching influences.



The majority of the participants (both YG and OG) reported very little social support for physical activity participation. There was no support and encouragement for many of the participants while growing up. Their current friends and family members (excluding children) were not involved in any form of exercise. The social environment in relation to physical activity participation was, in many cases, neutral, it was not spoken of or witnessed “nobody around me is doing it”, “the topic of exercising does not come up”; or it was negative, “my mom does not want me to exercise ‘cause she likes my body, she wants me to be fat”, “my parents did not allow me to go”. This may be the reason why participants in the study did not perceive companionship and socializing through physical activity as a benefit (discussed in Theme 1). They grew up in an environment where there was no family or peer history of people exercising together, and no social support for physical activity participation. Studies in sports and socialization indicate that people are socialized into sports, and that the most important “agents of socialization” (those who exert influence) are described as the “significant others” and include parents, siblings, teachers, peers and role models (Moore, Lombardi, White, Campbell, Oliveria & Curtis Ellison, 1991; Payne, Reynolds, Brown, Fleming, 2002; Coakley, 2007: 91-92). Research has indicated that social support is important for increasing physical activity participation among women in general (Treiber, Baranowski, Braden, Strong, Levy, Knox, 1991) and in particular for sedentary women of various racial/ethnic backgrounds (Eyler, Brownson, Donatelle, King, Brown & Sallis, 1999; Wilcox *et al.*, 2000; Sharma, Sargent, Stacy, 2005).

Many participants in the present study grew up in a community where exercise for women was “not in my culture”, “with us, the sport is cooking, cleaning and doing the washing”, “black women aren’t meant to exercise, it’s for white people”. Exercise was associated with the young, and was not acceptable for women. Girls were socialized into the traditional, domestic roles of cleaning the house, washing dishes and cooking. Those women who did exercise were subjected to “destructive talk” and ridiculed by the community, accused of wanting to be white, and called mad and crazy. It would require a great deal of determination, self-belief and motivation to go against these cultural norms, values and expectations. This may be the reason why all the participants who

were exercising regularly lived in historically white suburbs, away from the criticism they would receive in historically black areas.

Obesity is a complex issue in black women, with deep socio-cultural connotations. Studies have shown that an overweight body type is admired in the black South African community. When shown a range of body types, from very thin to very obese, black women chose a more ample body type as their ideal, while white women thought a leaner physique was more desirable (Mciza, 2006).

The association of exercise with weight loss had wider implications. There were many participants who felt that one needed to exercise only to lose weight. Exercise was important for fat people, and there was no need to exercise if one was thin. "I don't need to, I'm thin", "I'm not overweight, I'm not thin. I like my figure, so I won't exercise". Many participants were aware of the health benefits of exercise, but would only consider exercising when they needed to lose weight. In addition, some participants were discouraged from exercising and losing weight by older family members because "African ladies are not skinny" and "black girls are supposed to be nice and heavy". It has been argued that being overweight in the black community symbolises beauty, affluence, good health and a negative HIV status (Jennings, 2004). A serious implication with regards to weight loss is its association of HIV/aids. Loss of weight through exercise might be associated with HIV/aids, and people would be scared of being accused of being HIV positive. Again, it would require a great deal of self-confidence not to be affected by what people say. All these different perceptions, associations and implications of weight loss are bound to have a detrimental effect on physical activity participation.

### 5.3.3.5 Summary

The discussion above has highlighted the many barriers, real and perceived, to physical activity participation. Many of the barriers and constraints are universal in relation to women's lives in a modern world. These include categories under the personal factors sub-theme, namely, time constraints, stress and tiredness, lack of motivation and financial constraints. The other categories under the personal factors sub-theme, namely negative school experiences, negative associations with exercise, lack of awareness of available programmes and lack of knowledge, seem to stem from an inadequate education system that has not prepared people sufficiently for future lifetime physical activity.

The environmental factors related to the aesthetics of residential areas, availability of facilities and safety are typical of underdeveloped urban areas and will need to be considered in any programmes aimed at the promotion of physical activity.

The socio-cultural factors highlighted the uniqueness of certain barriers and constraints to black Xhosa speaking women. Many participants grew up in an environment where there was no social support for sport or exercise participation for women specifically. Girls and women were socialized into traditional domestic roles, sport and exercise were "not in my culture". Sport and exercise was associated with the young. Exercise was associated with undesirable weight loss where being overweight could symbolize beauty, affluence and good health. There was also the fear that weight loss through exercise might be associated with HIV and Aids. Those participants who exercised in the townships were going against traditional norms and were subjected to criticism from community members.

This chapter has explored and described the psychosocial and environmental context and the socio-cultural influences on physical activity in the lives of two generations of black professional women. It has investigated and described their perceptions of and attitudes towards physical activity, and extracted the motivations and constraints which

inspired or inhibited their physical activity. A concluding verdict is that the black professional women are in transition. They are balancing on a scale with many factors working for and against physical activity participation. On the one hand, they have the knowledge, good intentions and the positive environment of the suburbs in relation to physical activity participation. On the other, they have the negative childhood and school experiences, lack of social support, and socio-cultural factors related to “not in my culture” and negative comments by people in the community. How the scale tips depends on where it is weighted more. For long term health and social benefits, it is important to weight it towards the modern perspective, so that the universal health message will outweigh the more negative socio-cultural constraints. The transition has started, and will gain momentum with education, the further empowerment of women in South Africa, as well as meaningful targeted interventions for the promotion of physical activity.

*[I really don't wish to be like my parents, because they don't do exercise and all those stuff, but when I'm older, I would like my household to be much healthier, cook healthy stuffs, have healthy diet, go to the gym, something like that.]*

## CHAPTER 6

### SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

#### 6.1 INTRODUCTION

There is a growing concern that many of the chronic diseases we face today are associated fundamentally with the pervasive sedentariness of modern life (Sparling *et al.*, 2000). With modernization there has been a marked decline in habitual physical activity, automation and technology have freed many people in developed countries from heavy physical work and manual labour (Simpson, 1989). This, coupled with the growth of passive forms of entertainment and interaction (video games, television, mobile phones and the Internet), has decreased physical activity demands so dramatically as to be nearly non-existent in industrialized and urbanized environments (Sparling *et al.*, 2000). This disturbing trend has also manifested itself in the developing world and has been reported in recent studies conducted by the World Health Organization (WHO, 2005).

The association between physical activity, adverse health conditions and hypokinetic diseases has been widely researched. There is an increased risk of being overweight, of suffering from resultant chronic diseases and of premature death associated with physical inactivity (Young *et al.*, 1998).

Recent surveys and studies have revealed that the majority of the South African population has moved extensively along the epidemiological transition towards a disease profile related to Western lifestyle, where deaths due to chronic diseases of lifestyle is a great cause for concern (Steyn, 2006). Black women, in particular, have been identified as a high risk group, with the highest levels of inactivity, and the highest levels of overweight and obesity in the country. In South Africa, where women constitute the majority of the population, only 23% of women participate in sport (SISA, 2000), and this drops to 10.8% for black women (Kruger *et al.*, 2003). According to the

National Demographic and Health Survey of 1998, about 29% of men and 56% of women are overweight, with the highest rate occurring among African women. The physical activity patterns, attitudes and perceptions towards physical activity participation of black women are therefore an important concern in the sport, recreation and health fields.

Although there is a growing body of knowledge and research on physical activity in general, there is still a lack of data on the determinants and barriers to participation in physical activity (Lambert & Kolbe-Alexander, 2006). Cultural patterns and economic, political and ideological orders affect the participation of women in sport (Hargreaves, 1994:5). Black women in South Africa have been disadvantaged by the past government's policy of apartheid, and have also been marginalized and oppressed in their own patriarchal societies. According to Roberts (1992:3), the majority of black South African women suffer triple oppression on the basis of their class, colour and gender. The first democratically elected government in 1994, however, committed itself to gender equality and women's emancipation, with constitutional guarantees on equality and an affirmative action policy to address gender inequalities.

In order to evaluate the extent of the beneficial impact of these political changes in women's lives, this study conducted comparative quantitative and qualitative research related to physical activity, on two generations of teachers, nurses, social workers and public managers. These women, through their occupations, were in constant contact with the community and could be regarded as role models who influence community lifestyle, attitudes and behaviour. The older generation would have spent their formative years under the old apartheid system, subjected to its discriminatory laws and practices, while the younger generation would have spent their formative years under a democratically elected government which is committed to gender equality, and free from the legislative constraints of apartheid, if not from social, economic and cultural constraints. The study described and compared physical activity in the lives of these two generations of black urban women in a changing society: it aimed to understand the complex dynamics and contexts of physical activity. This concluding chapter presents a

brief summary of the purpose, methods used and outcomes of the study, before listing conclusions, limitations, guidelines for the promotion of physical activity, and recommendations for future research.

## **6.2 SUMMARY**

The purpose of this study was to investigate the physical activity patterns in the lives of two generations of black professional women from the Nelson Mandela Bay Municipality.

In order to assess change across generations, the study researched two groups of professional black women residing in the Nelson Mandela Bay Municipality. The older generation of professional women was comprised of community teachers, nurses, social workers and public managers (n = 111, aged 35 to 45 years). These women, through their occupations, were in constant contact with their communities and could be regarded as role models who influenced community lifestyle, attitudes and behaviour. The younger generation (n = 69, aged 18 to 21 years) was comprised of teaching, nursing, social work and public management students in the Nelson Mandela Bay Municipality.

A mixed method approach using both quantitative and qualitative methods was used to achieve an holistic understanding of physical activity in the lives of black South African women.

The objective of the quantitative data collection was to provide baseline information on the physical activity patterns and health status of these two generations of black professional women. The following questionnaires were administered: a demographic information questionnaire (including the measurement of height and weight); the Breslow and Belloc (1972) lifestyle index; the Health-Promoting Lifestyle Profile (HPLP) (Walker *et al.*, 1987); the Global Physical Activity Questionnaire (GPAQ) (Bull, 2003) and the FIT (Frequency, Intensity, Time) Index of Kasari (Heyward & Stolarczyk, 1996). A

random sample of 70 participants was selected to wear a motion sensor, the ActiGraph GT1 accelerometer. A random sample was selected based on the results of the GPAQ scores which indicated that 100% of the OG and 95% of the YG were sedentary or minimally active.

The collection of qualitative data commenced after the completion of quantitative data collection. The objective of the qualitative data collection was to explore and describe the psychosocial context and socio-cultural influences on physical activity in the lives of the participants, and to investigate their attitudes to and perceptions of physical activity and motivations and constraints related to it. In-depth qualitative interviews were held with the participants who wore the ActiGraph, and a group of 47 was interviewed (sample size determined by data saturation from the interviews).

Pertinent information from the questionnaires was used, as well as the themes and sub-themes from the interviews. The purpose was to triangulate the qualitative data with the quantitative data to obtain a broad picture of the socio-cultural context of women's lives so that their physical activity patterns might be understood against social and personal imperatives, leading to a greater understanding of the role of physical activity in the lives of black South African women.

A summary of the results of this study is presented below.

The results from the quantitative data indicate that:

- The prevalence of overweight and obesity among both the YG and OG was high. The mean BMI for the YG and OG were 24.71 kg/m<sup>2</sup> and 31.27 kg/m<sup>2</sup>, respectively, with 41% of the YG and 86% of the OG falling into the overweight/obesity category. BMI was significantly greater for the OG than for the YG.



- Perceived weight in relation to BMI was significantly different between the YG and the OG. In respect of perceived weight and BMI, 65% of the OG and 76% of the YG correctly perceived their weight category. Thirty two percent (32%) of the OG and 16% of the YG underestimated their weight, while 3% of the OG and 9% of the YG overestimated their weight.
- The present study showed an awareness of overweight and obesity among the OG and YG, with perceived overweight reported at 57% and 33%, and measured overweight at 87% and 41%, respectively. This was greater than the SADHS (1998), which reported perceived overweight among African women at 15% and measured overweight at 57%.
- The overall HPLP (measures health-promoting behaviours with an overall measure along with a measure of six subscales, namely, self-actualisation, health responsibility, exercise, nutrition, interpersonal support and stress management) for both the YG and OG were satisfactory, 53% and 57% respectively. These scores, however, were lower than the various groups in the American studies, as well as groups of white South Africans.
- Significant differences were reported for health responsibility and the overall HPLP score with the OG scoring higher than the YG in both areas, indicating that the OG were engaging in more health promoting behaviours than the YG.
- The highest scores obtained in the HPLP were for the subscales of self actualization and interpersonal support. The high scores on self-actualization is in keeping with the UCT Unilever Institute of Strategic Marketing's gender survey – *The Bending of Gender in the new South Africa* (Rutter, 2007), which found that young, black, mostly urban women have moved furthest away from traditional gender roles, they feel they can “achieve anything” and value independence. The high scores on interpersonal support are supported by the qualitative interviews

which highlighted the supportive role of the women's groups (mainly church related) in the lives of the participants.

- In the Breslow and Belloc (1972) lifestyle index which measures compliance with 7 health habits (non-smoking, taking little or no alcohol, getting adequate sleep, moderate exercise 2-3 times a week, maintaining a moderate body weight, eating breakfast and taking regular meals with no snacks in between), 68% of the OG and 72% of the YG followed a healthy lifestyle (compliance with 4 or more lifestyle habits). Importantly, 100% of the OG and 97% of the YG reported not smoking. The only significant difference between the OG and YG was reported for maintaining a moderate body weight, with only 43% of the OG as compared to the 64% of the YG maintaining a moderate body weight.
- All the physical activity measurements (the FIT Index of Kasari, the GPAQ and the ActiGraph data) confirmed that both the YG and OG were not sufficiently physically active. They did not meet the Centre of Disease Control (CDC) and American College of Sports Medicine recommendation of engaging in at least 30 minutes of moderate-intensity physical activity on most, or preferably all, days of the week.
- The YG were significantly more active than the OG in all the physical activity measuring instruments. They were still, however, not reaching the HEPA level ( $\geq 7$  days of any combination of moderate and vigorous activity,  $\geq 3000$  METmins/week).
- Most of the physical activity for the YG was accumulated in the transport domain (walking to get to places), and less in the work and leisure domain.
- The leisure time physical activity scores were low for both the YG and the OG. The score for the exercise subscale in the HPLP was the lowest for both the YG and the OG, 20% and 22% respectively; only 22% of the YG and 25% of the OG

reported participating in moderate exercise at least 2-3 times a week in the Belloc and Breslow Lifestyle Index and only four percent of the YG and zero percent of the OG were sufficiently active to fall in the HEPA category of the GPAQ. All the data confirmed the sedentary nature of the participants' lifestyles.

- There was a significant difference between the OG and YG in the amount of time spent sitting, with the mean score being 446 and 630 minutes a day, respectively. Both the OG and YG spent a lot of time watching television daily, 130 and 146 minutes respectively, more than the comparative groups in the national time use survey (Table 20).
- The correlational analyses highlighted a good cross-validation of the various measures of physical activity. There was a significant correlation between the measures of leisure time physical activity, that is the FIT Index and the leisure domain of the GPAQ. There was also a significant relationship in the area of walking or steps taken, that is the ActiGraph steps and the GPAQ transport domain. There was also a significant relationship between the overall measures of physical activity, that is the GPAQ total score and the ActiGraph calories.
- The correlations between the various physical activity and health related measures revealed that only the leisure related physical activity measurements, that is, the FIT index and the GPAQ leisure domain had a significant correlation with the two health related measures, namely the Belloc and Breslow Lifestyle Index and the HPLP.

The results from the qualitative data indicate that:

- Both the OG and YG had narrow perceptions of physical activity, that is physical activity was synonymous with exercise and playing sport, to the exclusion of other bodily movement related to household, travel or other daily activity. A broadened

perspective of physical activity was gleaned from specific questions to participants during the interviews.

- The YG and OG generally had a positive attitude towards physical activity. They recognized the importance of exercise to physical health and mental well-being, stress reduction, and the maintenance of a moderate body weight, even though the majority of them were not physically active on a regular basis.
- None of the participants in the present study identified “fun and enjoyment” and “companionship, socializing and meeting others” as benefits of exercise.
- Both the YG and OG expressed their intention to start exercising, and could be categorized into the Dishman *et al.* (2004) contemplation stage (individuals who are inactive, but who intend to become more active in the near future). In addition, the recognition by some of the participants that it was a personal choice and that it required self-motivation to start exercising reinforced their being in the contemplation stage.
- Some participants recognized that exercise was a personal choice. It was up to the individual to make the choice to be active.
- The OG encouraged their own children (and the YG expressed a determination to encourage their future children) to exercise and play sport, motivated by not wanting their children “to be lazy like their parents”.
- “Sedentary but busy” is an apt description for the OG. By physical activity standards, they were sedentary, but their lives are filled with activities, related to work, family and community responsibilities.

- The popular leisure and recreation activities for both the OG and YG were sedentary in nature: watching television, visiting, chatting and socializing with friends and family, listening to music and attending church gatherings.
- The church played an important part in the lives of most participants. For many, their involvement with the church went beyond attending the Sunday service; they were involved in the choir, various church committees, women's groups and events.
- Even though the majority of the OG stayed in former white suburbs and sent their children to former Model C schools in these suburbs, their spiritual needs were being met by churches in their former black neighbourhoods. It is also in their former black neighbourhoods that they socialized with friends and attended cultural ceremonies and rituals.
- Many participants participated in different women's groups, mostly church related, where they gave and received a lot of support, and these groups were situated in their former black neighbourhoods. These women's groups would meet regularly and socialize, and they would rally together to support and help a member in need.
- Stress relief and weight loss were the most common personal motivators for those who regularly engaged in some form of exercise (OG, 15% and YG, 22%) or who exercised occasionally (OG, 25% and YG, 11%).
- Of the OG who exercised regularly, all lived in historically white suburbs which they found conducive to walking and exercise. The participants started exercising when they came to live in historically white neighbourhoods. It was not only the aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment without the disruption of taxis, the wide grassed or tarred

sidewalks, and no people loitering), but also seeing many people (mainly white), walking and running regularly.

- Of the YG who exercised regularly, all lived on either the North Campus or South Campus residences of the NMMU, where they had access to sports facilities, a safe environment, and exercise companions. None of the participants who lived in the townships and who commuted to their classes were involved in any form of sport or exercise.
- The barriers to physical activity participation that were identified as personal factors arose, to a large extent, from participants' personal circumstances and personal choices, whether real or perceived.
- Time constraints due to family and work commitments were cited as one of the main barriers to physical activity participation by the OG. The personal circumstances of the OG were such that they led very busy lives which included work, family and various community commitments.
- Many women in the OG reported that they had no choice, "I have to come home and cook", "You have to look after the family", and "We have lots of responsibilities". They see these commitments as their duty and responsibility. Many are self-sacrificing, "I always put other people first, then I come second", "we are focused so much on bringing up our children that we forget ourselves". Even though they have full-time jobs like many men, these domestic chores are still their sole responsibility, and are not shared with their male partners. "Females have to clean, males just put their things down and go straight to the gym", "men have all the time, but women are to bear the children and be responsible for the house".

- The participants from both the YG and OG frankly noted a lack of motivation due to laziness, or lack of interest, and stated that they did not make an effort in relation to physical activity participation.
- Many participants of the OG and of the YG who attended historically black schools were exposed to very limited opportunities for participation in exercise and sport while at school. If they were not interested in netball and athletics, there was very little else on offer. Body shape, size and ability influenced participation, and those who did not make the school's only team were neglected.
- Exercising and playing sport had to compete with many exciting options for the YG, who had "so many better things to do", like watching television, going to the cinema, socializing with friends and going to nightclubs. The physical exertion and the accompanying sweatiness of exercise was a deterrent to many of the YG.
- Financial constraints were reported by both the YG and OG. However, in relation to physical activity, the financial constraints reported by both the YG and OG were related to the high costs of exercising at private gyms like Virgin Active, that many of the participants aspired to join.
- A few participants from the YG who attended former black schools, expressed insecurity about not knowing where to go and who to ask in relation to sports facilities and opportunities at the university, as well as a lack of knowledge on how to go about exercising.
- All of the participants who exercised regularly (OG, 15% and YG, 22%) and those who exercised occasionally (25%, OG and 11%, YG), lived in historically white suburbs (the YG lived in the university residences situated in a historically white suburb) which they found conducive to walking and exercise. They all started exercising when they came to live in these neighbourhoods. It was not only the

aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment and wide grassed or tarred sidewalks, low traffic volumes, and the absence of loiterers), but seeing many people (mainly white) walking and running regularly. They were motivated by seeing elderly people exercising and taking their dogs for a walk, and many were encouraged by their neighbours to join them.

- Crime and violence against women was reported as a constraint by both the OG and YG. Participants feared being attacked and raped while exercising. Participants living in black townships were more wary of crime than participants in the suburbs, who felt safer walking and exercising.
- The majority of the participants (both YG and OG) reported very little social support for physical activity participation. There was no support and encouragement for many of the participants while growing up, and the majority of their current friends and family members (excluding children) were not involved in any form of exercise.
- Many participants from the present study grew up in a community where exercise for women was not culturally supported: “not in my culture”, “with us, the sport is cooking, cleaning and doing the washing”, “black women aren’t meant to exercise, it’s for white people”.
- Exercise was associated with the young, and was not acceptable for women. Those women who did exercise were subjected to “destructive talk” by the community, accused of wanting to be white, called “mad” or “crazy” and ridiculed.
- There were many participants from the OG and YG who felt they needed to exercise only if they wanted to lose weight: exercise was important for fat people, and there was no need for thin people to exercise.



- Some participants were discouraged from exercising and losing weight by older family members because “African ladies are not skinny” and “black girls are supposed to be nice and heavy”. A serious implication with regard to weight loss was its association with HIV/AIDS. Loss of weight through exercise would possibly have been associated with HIV/AIDS, and people were scared of being accused of being HIV positive.

### 6.3 CONCLUSIONS

From these results, the conclusions below pertaining to the various objectives of the study were made.

Conclusions based on the findings from the quantitative data:

- The high levels of overweight and obesity among the participants in the present study is reason for great concern (86% of the OG and 41% of the YG falling into the overweight/obese category). These results have reinforced the predictions of early South African studies conducted in the nineties (Steyn *et al.*, 1991; Sparling *et al.*, 1994; Mollentze *et al.*, 1995) that as the black community became more urbanized, job related physical activity and physical activity for daily living would decline, and – coupled with the adoption of lifestyles of typical industrialized populations, including western diets – chronic diseases of lifestyle would begin to manifest.
- The health related behaviour of the OG and YG – as measured by the Health-Promoting Lifestyle Profile (Walker *et al.*, 1987) and the Breslow and Belloc (1972) lifestyle index – revealed satisfactory scores, though lower than expected from professional women.
- All the physical activity measurements confirmed that both the OG and YG were not sufficiently physically active, with very few participants meeting the

CDC recommendations of 30 minutes of moderate exercise on most, preferably all, days of the week (0% for the OG and 4% for the YG).

- Most of the physical activity expended by the YG was accumulated through the transport domain. None of the YG had their own cars and they had to rely on walking to get to places, as well as on public transport (buses and mini-bus taxis). It can be concluded that once the YG have qualified in their various professions and have found employment, they, like the OG, will use cars to get to and from places. The transport domain – their biggest source of energy use – will not play the major role it presently does.
- The leisure domain is the only area which the professional women in the study can use to improve physical activity participation rates. Paid work and the unpaid work at home doing domestic chores do not allow for sufficient energy expenditure. The transport domain is a temporary outlet for energy expenditure for the YG due to the necessity they have of walking to get to and from places, and this should diminish when they qualify in their respective fields. Like the OG, they will then use their own cars, and do very little walking.
- The correlation analyses revealed a good cross-validation of the various measures of physical activity.
- The correlation analyses showed that those who participated in leisure time physical activity were more likely to engage in health-promoting behaviours.

Conclusions from the qualitative data are based on the themes and sub-themes that emanated from the data analysis and the consensus discussion between the researcher and the independent coder. Based on the findings, the following conclusions were drawn in relation to the themes:

- The narrow definition of physical activity by participants – defined in relation to exercise and sport, to the exclusion of other bodily movement related to household, travel or other daily activity – is problematic.
- The positive attitudes by participants towards physical activity participation (displayed by their awareness of the many benefits, their expressed intention to start exercising, the encouragement given to their children in relation to physical activity participation) highlights a change in attitude from the past. Participants have recognized the educational, recreational and developmental importance of being physically active, a shift in attitude from their own upbringing and lifestyles.
- The women (particularly the OG) led very busy lives, with many work, family and community commitments, and they were self-sacrificing in always looking after the needs of others before their own, to the detriment of physical activity participation.
- Women have been socialized into domestic roles from a young age, and even though they have full-time jobs like many men, these domestic chores are still their sole responsibility, and are not shared with their male partners. “Females have to clean, males just put their things down and go straight to the gym”, “men have all the time, but women are to bear the children and be responsible for the house”. Women, particularly the black women of South Africa, have been liberated from the many unjust laws and legislation of the past and have constitutional guarantees of equality, but are still constrained by cultural norms and values in a patriarchal society.
- The church played an important part in the lives of most participants. In addition, many participants belonged to women’s groups, mostly church related, where they gave and received a lot of support. These groups were situated in their former black neighbourhoods.

- Recognition of the importance (and implementation) of physical education as an essential school subject is fundamental to lifelong engagement in regular physical activity. In addition, qualified teachers, basic equipment and facilities, as well as an emphasis on recreation and lifetime physical activity and sports is lacking in historically black schools.
- Financial factors (in relation to joining a gym) were cited as a barrier to physical activity participation, highlighting a very limited view of physical activity.
- The environment plays an important role in motivating and encouraging people to exercise. Historically white suburbs were found to be conducive to walking and exercise. It was not only the aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment and wide grassed or tarred sidewalks, with few taxis and loiterers), but the social environment: seeing men and women, mainly white, walking and running regularly; being encouraged by neighbours, rather than criticized for exercising as happens to women in historically black townships.
- The high levels of crime and violence against women in South Africa had a detrimental affect on physical activity participation among the participants. Participants living in black townships were more wary of crime than participants in the suburbs, who felt safer walking and exercising.
- Physical activity participation is hampered by negative attitudes and misconceptions about exercise. Negative attitudes included exercising and playing sport associated with physical exertion and the accompanying sweatiness; undesirable weight loss, and negative comments from people in the community. The misconceptions included: exercise was only important for fat people and there was no need for thin people to exercise; exercise and playing sport was for children, and not for adult women.

- Cultural perceptions towards women's participation in sport and exercise had a detrimental effect on participation rates. Women had to contend with the perceptions that exercise is "not in my culture", exercise is for children, young people and men, "black women aren't meant to exercise", "exercise is for white people". In addition, some participants were discouraged from exercising and losing weight by older family members because "African ladies are not skinny" and "black girls are supposed to be nice and heavy". For many black women, particularly those living in black townships, they would be going against cultural norms and traditions, should they participate in an exercise programme.

In conclusion, this study shows that the advent of democracy has brought change into the lives of both generations and offers more career and lifestyle choices, including choices relating to physical activity.

Many participants from the YG have been advantaged by attending Model C schools and tertiary institutions like the NMMU which were formerly reserved for whites. These offer better facilities and more opportunities in relation to sport and physical activity, and a better activity environment. This has allowed many to aspire, even if rather superficially, to the more narrowly, fashionable concept of physical activity and gyms. Many participants from the OG have been able to move to formerly white suburbs which are aesthetically and socially more conducive to physical activity participation. Both generations perceived that the cross-cultural interaction with whites in relation to physical activity had a positive influence on their own behaviour.

However, those participants from the YG who attended historically black schools and those participants who are still residing in the townships are still detrimentally affected by the legacy of apartheid in relation to the provision of sports facilities and opportunities. The sharp divide of responses seem to indicate that, although personal choices and responses are important, these might be over-ridden by environmental and socio-cultural factors. The environment is influential in relation to physical activity

participation, and the more traditional socio-cultural barriers have far-reaching influences.

Based on circumstances, both the OG and YG are at various levels on the physical activity continuum. Education, the universal health message related to physical activity, wider choices, opportunities, suburban residential areas, improved financial situation, the empowerment of women and positive attitudes towards physical activity have allowed some women to lean towards the positive side of the continuum. Negative socio-cultural constraints, historically black townships and schools, traditional roles of women, misconceptions about sport and exercise, levels of overweight and obesity all impact negatively, pulling certain participants to the other side of the continuum. Ultimately, women have more opportunity and choices for exercise, yet a tendency to obesity is still a problem. Further education and targeted interventions, and further normalization of society through increased interaction of citizens and access to and provision of resources, are necessary to improve the physical activity of both groups.

#### **6.4 LIMITATIONS**

- The study sample consisted of two generations of black professional women, 111 from the OG and 69 from the YG. The study sample was initially set at 100 for the YG and 100 for the OG. This was, however, not possible for the YG due to the declining number of black students studying the traditional professions of teaching, nursing and social work at the University and at colleges in the Nelson Mandela Bay Municipality. Consultations with the relevant academic departments at the NMMU revealed that due to the widening of career opportunities, fewer black students are now attracted to these traditional professions, which at one stage were amongst the limited career options for the majority of black women in South Africa.
- The study sampling method was purposive and criterion based, and limited to professional women residing in the Nelson Mandela Metropolitan Municipality.

- Given the specific nature of the study and the use of the qualitative method, the results cannot be generalised to the general population of black women. Even though the data management and analysis process was conducted according to the stages described in Creswell (2003:196-199), and the data verification done according to Guba's model of trustworthiness (Krefting, 1991:215-222), the data analysis is interpretive, and it is open to the subjective interpretation of the researcher. The services of an independent coder were enlisted to counter this effect, but subjectivity could still be a factor.

## **6.5 GUIDELINES**

Based on the findings and conclusions from the present study, the guidelines below seek ways to promote physical activity participation among professional black women, the focus group of this study:

### **6.5.1 Specifically Targeted Interventions**

- Research has indicated that leisure time physical activity is determined by many factors: age, education, rural/urban living, race/ethnicity, culture, among others (Sallis *et al.*, 1996; Crespo, Smit, Andersen, Carter-Pokras, Ainsworth, 2000; Henderson & Ainsworth, 2000; Eyler *et al.*, 2003; Sanderson *et al.*, 2003). Targeted interventions to suit specific needs are recommended (Wilcox *et al.*, 2000; Banks-Wallace & Conn, 2002). Effective health interventions must be consistent with the shared beliefs, values, and practices of the target population (U.S. Department of Health and Human Services, 2000). A one-size-fits-all strategy is not effective. Physical activity interventions should use multilevel approaches that incorporate personal, social environment and physical environment factors related to participation in physical activity (Ainsworth *et al.*, 2003).

- The black women in the present study faced specific barriers and enablers to physical activity participation, therefore, specifically targeted interventions to suit their needs are necessary. Exercise programmes need to be flexible, tailored to individuals' interests and capabilities (Thurston & Green, 2004).
- Personal factors (time constraints, stress and tiredness, lack of motivation, negative school experiences, negative associations with exercise, financial constraints, lack of knowledge), environmental factors (residential areas, availability of recreation and sports facilities, safety), and socio-cultural factors (lack of social support, traditional roles of males and females, dress codes, negative cultural perceptions and misconception about sport participation and exercise), need to be taken into consideration when designing an intervention.

### **6.5.2 The Church and Women Groups as Intervention Sites**

- The church and various women's groups (mainly church related) are an important part of women's lives, providing spiritual, social, emotional and financial support to group members. These sites could be used to recruit, initiate, promote and implement physical activity programmes. Current evidence provides strong support for community-wide interventions which include social support and individually tailored health behaviour change programmes (Estabrooks, Glasgow, Dzewaltowski, 2003; Kahn, Ramsey, Brownson, Heath, Howze, Powell, Stone, Rajab & Corso, 2002). Building on the social environment of the church and creating accessible physical activity programmes at churches was highlighted in a study on African-American men and women (Bopp, Wilcox, Laken, Butler, Carter, MsClorin & Yancey, 2006).
- These sites can be used to educate women about the importance of leading an active lifestyle. Misconceptions surrounding physical activity and barriers to participation can be workshopped.



- These sites will have the social support necessary for the promotion of physical activity. Research has shown that relations between social support and physical activity behaviour tend to be more consistent for women than for men (Marcus & Forsyth, 1998). Social support can be instrumental (e.g. providing transport to an exercise facility), informational (e.g. providing information about a physical activity programme), motivational (e.g. giving feedback and reinforcement for learning a new skill), and modelling (e.g. demonstrating exercise behaviours) (Marcus & Forsyth, 1998).
- Even though the majority of the OG stayed in former white suburbs and sent their children to former Model C schools in these suburbs, they still belonged to the churches and women's groups in their former black townships. Using these sites to recruit, initiate, promote and implement physical activity programmes would be an avenue for creating awareness in the townships of the importance of physical activity. These women are role models, so such an intervention would also have a ripple effect.

### **6.5.3 Empowerment of Women**

- The empowerment of women is necessary to counteract the negative cultural perceptions of physical activity, and in particular the sport and exercise participation of women.
- Black women would have to be able to withstand the “destructive talk” of the community (accused of wanting to be white, called “mad” or “crazy” and ridiculed). It would require a great deal of determination, self-belief and motivation to go against these cultural norms, values and expectations.
- Black women also need to liberate themselves – from the kitchen and their domestic restrictions, their self-sacrificing ways, traditional gender roles and patriarchal environment – and look after their own needs.

- The energy that women used to fight for gender recognition and equality during the constitution-making process and the dawn of South Africa's democracy should now be directed towards the domestic and socio-cultural emancipation of women.
- Schools would be the best sites to instil confidence and self-belief.
- Women should encourage and motivate each other in relation to physical activity participation. The support given to each other in their various womens' groups should also be visible in the physical activity domain.
- Black women role models in sport would inspire young girls to pursue their dreams. South Africa needs its own Venus and Serena Williams to inspire young girls and open them to career and self-fulfilment possibilities in the sport and recreation fields.

#### **6.5.4 School Physical Education**

- The implementation of the physical development component of life orientation in schools is essential. This will require a willingness and commitment from schools, qualified teachers and basic equipment and facilities for the successful implementation of the programme. This is particularly important in historically black schools which are still disadvantaged from the legacy of apartheid.
- Schools should offer a wider range of sports for girls, beyond netball and athletics which are the codes typically offered in many black schools.
- In addition to the competitive sports on offer (the school's A team), social sport should be emphasized, and schools should make provision for "E", "F" and "G" teams where necessary. The fun and enjoyment of participation should be the basis of social sport.

- A greater interest and commitment from teachers in relation to school sport is required, particularly in black schools. This might require the re-education of teachers.
- Body shape, size and ability of pupils should not preclude them from participation. All pupils should be encouraged and motivated to lead an active lifestyle.
- The curriculum should emphasize life-time sports activities which pupils could carry over into adulthood. Green, Smith and Roberts (2005) have suggested that developments in the physical education curricula in relation to multi-activity physical education programmes have facilitated the development of wide sporting repertoires among young people in England and Wales, introducing them to a broad range of sports as well as “lifestyle activities”. The resultant increase in participation in sport and physical activity has become a part of present-day youth cultures (Green *et al.*, 2005).
- Schools should determine what the barriers are to sport and exercise participation, and should workshop solutions to their particular problems.
- Research has shown that socialization into sport is a complex process. However, sport involvement in early youth affects the development of an active pattern in late adolescence, which in turn has a bearing on activity patterns in adulthood (Vanreusel, Renson, Beunen, Claessens, Lefevre, Lysens & Vanden Eynde, 1997).

### **6.5.5 Educate People about the Simple Facts Surrounding Physical Activity**

- People need to be alerted to the simple message that 30 minutes of moderate intensity activity on most days of the week can decrease the risk of chronic diseases of lifestyle. It is not necessary to exercise at a high intensity to experience health benefits (Lee, 2003; Matsudo *et al.*, 2002). However, greater

duration and increased intensity can bring additional benefits to those willing to do more.

- The accumulation of physical activity in intermittent, short bouts is recommended (CDC & ACSM, 1995). The goal of 30 minutes per day can be accumulated in bouts of at least 10 minutes (Lee, 2003).
- Energy expenditure is produced by any bodily movement. It includes, but is not limited to, occupational, sports, exercise, household, or other daily and leisure activities.
- Walking is a good physical activity intervention. It is a familiar, convenient and free form of exercise through which many sedentary people could gain the health benefits of moderate intensity physical activity (Ogilvie, Foster, Rothnie, Cavill, Hamilton, Fitzsimons, Mutrie, 2007). Walking interventions need to be tailored to people's needs, targeted at the most sedentary or those most motivated to change, and delivered either at the level of the individual, the household or through groups (Ogilvie *et al.*, 2007).

### **6.5.6 National Initiatives**

National initiatives are needed to speed up “the shift from sports participation as exceptional behaviour to sports participation and exercise as accepted, normative behaviour” (Scheerder, Vanreusel & Taks, 2005). The following initiatives are recommended to do this effectively:

- The development of a “Sports for All” policy (Scheerder *et al.*, 2005), or national physical activity policy framework similar to those found in many Western countries is needed. The involvement of all stakeholders in this initiative is necessary, beyond just the Department of Sport. National departments of Sport, Education, Health, Environment, Transport and other relevant departments,

together with local government structures, corporations, industries and others all have a role to play in the promotion of physical activity through their specific domains.

- The “Vuka South Africa, move for your health” campaign needs to reach all people. Schools need to be involved in this campaign. People need to be alerted to the simple message of “move for your health” and encouraged to accumulate 30 minutes of moderate physical activity on most days (at least 5) of the week.
- South Africa needs a bottom-up approach to support national policy from the Departments of Education, and Sport and Recreation, and the success of the national teams. Initiatives from schools, local government and private/public partnerships need to be encouraged.
- National campaigns should target misconceptions surrounding physical activity participation, such as sport participation and exercise is for children and young people, not adults; exercise is only for losing weight, there is no reason to exercise if you are not overweight and sport participation and exercise is “not part of our culture”.
- National campaigns should target negative cultural perceptions towards women’s participation in sport and exercise, such as “black women aren’t meant to exercise”, “exercise is for white people”, “black girls are supposed to be nice and heavy”.
- Excessive television viewing deters people from being physically active. Children and adults should be alerted to the high statistics of television viewing reported in the time use survey, and encouraged to take 30 minutes (for adults, but more for children) away from their daily viewing for physical activity.

- A strong public health message must be stressed: obesity kills and disables by gradually increasing the risk for diseases like diabetes, heart disease, stroke and cancer.
- Activity friendly environments are needed. Historically white suburbs were found to be conducive to walking and exercise. It was not only the aesthetic appeal of these neighbourhoods (the cleanliness and uncluttered environment and wide grassed or tarred sidewalks, with few taxis and loiterers), but the social environment (seeing men and women, mainly white, walking and running regularly; being encouraged by neighbours, rather than criticized for exercising as happens to women in historically black townships). Much more needs to be done in the townships to create activity friendly environments.
- Crime and violence against women and children should be a national priority. Much more needs to be done to make our neighbourhoods safer for women to pursue leisure time physical activity, without the constant threat of being attacked, robbed or raped.

## **6.6 RECOMMENDATIONS FOR FUTURE STUDIES**

The current study has provided an overview of the role of physical activity in the lives of two generations of black professional women in the Nelson Mandela Metropolitan Municipality. It adds to the growing body of knowledge and research on physical activity in South Africa in general, and to the paucity of data on the determinants and barriers to participation in physical activity, specifically among urban black women. Based on the results from this study, the following recommendations are made for future studies:

- The qualitative findings of this study highlighted the many barriers facing black women in relation to physical activity participation. These findings can be used to devise instruments to quantify the barriers to and participation of physical activity participation among women in a particular socio-cultural context.

- The personal, environmental and socio-cultural barriers need to be taken into consideration in the designs of interventions for the promotion of physical activity participation, and the effect of removing these barriers (singularly and/or collectively) should be determined.
- The effectiveness of targeted interventions for the promotion of physical activity participation using church groups and women's groups needs to be investigated.
- The present study researched professional black women, specifically, teachers, nurses, social workers and public managers. It is recommended that physical activity be investigated in other groups of professional black women and in the many other marginalized women groups in South Africa, namely, coloured and Asian women, women living in urban townships, rural women and women of different economic status.
- Research focusing on the effectiveness of culturally relevant activities as an approach to increasing physical activity is recommended.
- Research is needed on physical activity patterns of children and youth living in historically black townships and attending historically black schools. What do children do, and how are they affected, when in most instances the school, family and community are not "physical activity friendly"? This research could be focussed on girls, who face greater barriers to participation, or could focus on both genders for comparative analysis.
- Research focusing on the comparison between physical activity levels of children attending former Model C schools versus historically black schools, using accelerometers, and generating recommendations for changes where required, is needed.

- Research is needed into cost-effective ways of converting urban township areas into physical activity friendly environments.



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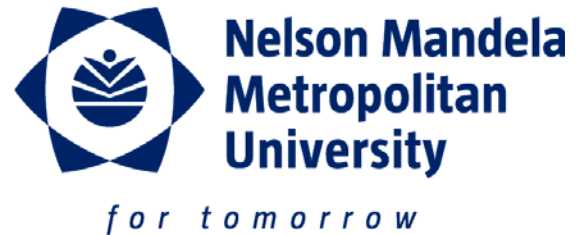
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**APPENDICES**

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**Request for permission to conduct the study**

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[cheryl.walter@nmmu.ac.za](mailto:cheryl.walter@nmmu.ac.za)

**06 June 2005**

The Head  
Lilitha Nursing College  
Park Drive  
Port Elizabeth

Dear Mrs Chetty

REQUEST FOR PERMISSION TO CONDUCT RESEARCH

I am currently a staff member and student in the Department of Human Movement Science in the Faculty of Health Sciences at the Nelson Mandela Metropolitan University. I need to conduct research as a requirement of my D.Phil degree.

Please could I have permission to conduct research with students at the Nursing College for the thesis entitled “**Physical Activity in the Lives of Black Professional Women in the Nelson Mandela Metropole**”. This study has been approved by the Advanced Degrees Committee in the Faculty of Health Sciences and the Human Ethics Committee at the University. This is a group of independent experts whose responsibility it is to help ensure that the rights and welfare of participants in research are protected and that the study is carried out in an ethical manner.

The study is important in that it will assist us in understanding the complexities surrounding physical activity participation, and guide us in programme planning and in the promotion of physical activity.

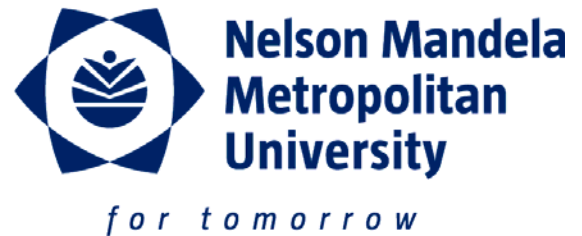
Thirty students (aged 18-21 years) will be requested to complete physical activity and health questionnaires, the duration of which is approximately 20 minutes. Feedback on the physical activity and health status could be given to individual students at their request. A convenient time would be required to conduct the questionnaires. Enclosed please a copy of the research proposal. Your assistance would be greatly appreciated.

Yours sincerely

Cheryl Walter

## Information letter and consent form

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**Department of Human Movement Science**  
 Tel . +27 (0)41 504 Fax. +27 (0)504  
[cheryl.walter@upe.ac.za](mailto:cheryl.walter@upe.ac.za)

**30 January 2005**

Dear Participant

You are being asked to participate in a research study. We are going to give you information that will help you to understand the study, and what you will be asked to do during the study, the risks and benefits, and your rights as a study subject. If anything in the form is not clear to you, please ask the researcher to explain.

You will be asked to give your written informed consent to participate by signing and dating a form and putting your initials against each section to indicate that you understand and agree to the conditions.

You have the right to ask questions concerning the study at any time. You should also immediately report to the researcher any new problems during the study. The telephone numbers of the researcher are provided. Call these numbers if you have any questions or worries about the study.

Also, this study has been approved by the Human Ethics Committee. This is a group of independent experts whose responsibility it is to help ensure that the rights and welfare of participants in research are protected and that the study is carried out in an ethical manner. The study cannot be conducted without the Human Ethics Committee's approval. The Human Ethics Committee can also answer any questions about your rights as a research subject. You can call:

Name:..... Telephone no. ....

If after you have consulted the researcher or the Human Ethics Committee, their answers have not satisfied you, you may write to the South African Medical Research Council, P O Box 19070, Tygerberg, 7505.

Participation in the research is completely voluntary. You are not obliged to take part in the research. If you choose not to participate, your present and/or future medical care will not be affected in any way and you will incur no penalty and/or loss of benefits to which you may otherwise be entitled.

If you agree to take part, you have the right to change your mind at any time during the study. You are free to withdraw this consent and discontinue participation without penalty or loss of benefits. However, if you do withdraw from the study, you should return for a final discussion or examination so that the research may be stopped in an orderly manner.

The researcher may choose to dismiss you from the study without regard to your consent if you fail to follow instructions, or if your medical condition changes in such a way that the researcher believes it is not in your best interest to continue in this study, or for administrative reasons. This study may be terminated at any time by the researcher, the sponsor or the Human Ethics Committee that have approved the study where it is being conducted.

Your identity will remain confidential. The results of this research study may be presented at scientific conferences or in specialist publications, but your identity will not be shown.

This informed consent statement has been prepared in compliance with current Medical Research Council guidelines.

Yours sincerely

Cheryl Walter

**INFORMATION AND INFORMED CONSENT FORM (To be completed by participant)**

TITLE OF THE RESEARCH PROJECT: **Physical activity in the lives of two generations of black professional women from the Nelson Mandela Metropolitan Municipality.**

REFERENCE NUMBER: .....

PRINCIPAL INVESTIGATOR: **Cheryl Walter**

ADDRESS: **University of Port Elizabeth  
Department of Human Movement Science  
Summerstrand  
PORT ELIZABETH  
6001**

CONTACT TELEPHONE NO.: **5042628 (w) 3662074 (h)**

<p>DECLARATION BY PARTICIPANT:</p> <p>I, THE UNDERSIGNED,.....(name) [I.D. No:.....] of..... .....(address) in my capacity as a participant:</p> <p>A. HEREBY CONFIRM AS FOLLOWS:</p> <p>I was invited to participate in the abovementioned research project, which is being undertaken by <b>Cheryl Walter</b> of the Department of Human Movement Science in the Faculty of Health Sciences at the University of Port Elizabeth.</p>	Initial
<p>The following aspects have been explained to me: Aim: The investigators are studying: <b>Physical activity in the lives of black women. The study is looking at this concept holistically in terms of physical activity levels, attitudes and perceptions, motivations and constraints, and the social and cultural context in which this occurs.</b></p> <p>The information will be used to: <b>Better understand the complexities and socio-cultural factors that affect participation in physical recreation Compile guidelines to promote physical activity participation among black urban women.</b></p>	Initial
<p>Procedures: I understand that : <b>Information will be collected by means of questionnaires. Based on these results I may be asked to participate in a one-to-one interview; and have my physical activity monitored using an accelerometer. The interviews will be audio-taped by means of a tape recorder. The interviews will take place at home or any other place of my choice. The accelerometer is a personal activity computer that measures daily movement and energy expenditure. It is worn around the waist and is very inconspicuous.</b></p>	Initial
<p>Risks: <b>There are no risks involved, as the project does not require invasive procedures.</b></p>	Initial

Possible benefits: As a result of my participation in this study: <b>Valuable information on my health status will be communicated to me, if I request this. There is no remuneration for participating in the study.</b>	<u>Initial</u>
Confidentiality: My identity will not be revealed in any discussion, description or scientific publications by the investigators.	<u>Initial</u>
Access to findings: Any new information / or benefit that develop during the course of the study will be shared with me.	<u>Initial</u>
Voluntary participation / refusal / discontinuation: My participation is voluntary. My decision whether or not to participate will in no way affect my present or future medical care/ employment / lifestyle.	<u>Initial</u>
The information above was explained to me / the participant by <b>Cheryl Walter</b> In English and I am in command of this language. I was given the opportunity to ask questions and all these questions were answered satisfactorily.	<u>Initial</u>
No pressure was exerted on me to consent to participation and I understand that I may withdraw at any stage without penalization.	<u>Initial</u>
Participation in this study will not result in any additional cost to myself.	<u>Initial</u>
B. I HEREBY CONSENT VOLUNTARILY TO PARTICIPATE IN THE ABOVEMENTIONED PROJECT.  Signed / confirmed at ..... on ..... 20... (place) (date)  ..... Signature of <b>subject</b> Signature of witness	

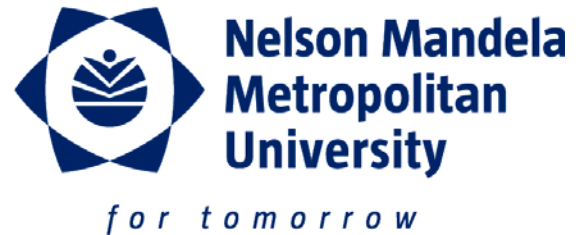
Declaration:

<b><u>STATEMENT BY OR ON BEHALF OF INVESTIGATOR(S):</u></b> I, <b>Cheryl Walter</b> , declare that I have explained the information given in this document to .....(name of the participant). She was encouraged and given ample time to ask me any questions; this conversation was conducted in English and no translator was used.  Signed at ..... on ..... 20..... (place) (date)  ..... Signature of investigator / representative Signature of witness	
<b><u>IMPORTANT MESSAGE TO PARTICIPANT:</u></b>  Dear participant, Thank you for your participation in this study. Should, at any time during the study, an emergency arise as a result of the research, or you require any further information with regard to the study, kindly contact <b>Cheryl Walter</b> at telephone number <b>041 5042628 (W)</b> .	



## Example of feedback letter

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[cheryl.walter@nmmu.ac.za](mailto:cheryl.walter@nmmu.ac.za)

25 August 2006

Dear

Thank you for participating in my study on physical activity in the lives of black professional women. As promised in our meeting, below are the results of the various questionnaires and other measurements taken on you, with recommendations on how to improve where necessary.

The association between physical inactivity, adverse health conditions and hypokinetic diseases has been widely researched. There is an increased risk of some chronic diseases, being overweight and premature death associated with physical inactivity.

Do read the accompanying fact sheet on physical activity, which includes important information regarding physical activity and health, and ways in which you could make it a part of your life.

There has been a change in focus of public health strategies towards a greater emphasis on interventions designed to prevent diseases and promote health. Countries, including South Africa, have adopted health promotion as a policy, and have focused on the modification of lifestyle factors that account for the largest numbers of deaths (e.g. smoking, drinking too much alcohol, eating a fatty diet, leading a sedentary life). Responsibility for health does not rest with the medical profession alone; each of us can have a major impact on the state of our own health. Our health is influenced to a large extent by the way we live.

The following **seven health practices** are associated with positive health status:

1. Sleeping seven to eight hours daily
2. Eating breakfast almost daily
3. Never or rarely eating between meals
4. Maintaining a moderate body weight

5. Never smoking cigarettes
6. Moderate or no use of alcohol
7. Regular physical activity 2 or 3 times a week

By engaging in these 7 health practices, not only will your life expectancy be improved, but also your quality of life, and your ability to lead an active life right into old age without being plagued by pain, infirmity and chronic disease will be much greater.

The results of this test indicate that you are following four of these health habits. You are falling short on eating breakfast, eating regular meals and participating in regular exercise. Remember when we don't eat regularly, we are more prone to eating junk food (oil soaked KFC, burgers, chips). Lack of physical activity and poor food choices is a high risk factor for heart disease, high blood pressure, diabetes, stroke, overweight, obesity and other hypokinetic diseases. Fortunately, all these behaviours can be changed. We should aim to engage in all seven of these health practices.

### Health-Promoting Lifestyle Profile

This questionnaire evaluates your likelihood to engage in health-promoting behaviours. An overall measure of the health-promoting components of lifestyle is obtained along with a measure of six subscales:

- **self-actualisation** (liking yourself, being happy and content, being aware of your strengths and weaknesses, setting realistic goals etc)
- **health responsibility** (e.g. being aware of your blood pressure, cholesterol level, observing body changes, having regular check ups)
- **exercise** (exercising at least 3 times a week, participating in a supervised programme, doing stretching exercises etc)
- **nutrition** (eating regular meals, the 4 basic food groups in your diet, reading labels on food packaging, avoiding junk food etc)
- **interpersonal support** (having meaningful relationships, discussing problems or concerns with others etc)
- **stress management** (having daily relaxation time, being aware of stress sources, using stress control methods etc).

All these factors are important in promoting health. The test indicates that you are within the average or acceptable range for all the subscales except exercise in which you scored low. You can change that. There are so many different ways you could incorporate physical activity and exercise into your life. Remember it does not have to be strenuous to be beneficial – there must be something that you would enjoy.....read the accompanying fact sheet for some ideas. Also, reflect on the six health-promoting components above and how you could incorporate them into your lifestyle.

### Physical Activity Index

This questionnaire quantifies the respondent's participation in any form of leisure time physical activity, taking into account the intensity, frequency and duration of participation in leisure time physical activity. Depending upon their score, subjects are classified into the following categories:

Score	Evaluation	Fitness Category
80 - 100	Very active lifestyle	High
60 – 79	Active and healthy	Very good
40 – 59	Acceptable	Fair
20 - 39	Not good enough	Poor
Under 20	Sedentary	Very poor

In this test your score is under 20. This indicates that your lifestyle is sedentary (which means you spend a lot of time sitting and being inactive). This score reinforces scores from earlier tests. You should begin today to increase your daily activity. Begin by choosing moderate intensity activities (brisk walking is great!), gradually build up the time spent doing the activity, until you can comfortably perform a minimum amount of activity (30 minutes a day). Go for it, you can do it!!

### Global Physical Activity Questionnaire (GPAQ):

The GPAQ was developed by the World Health Organization for physical activity surveillance in countries. It collects information on physical activity participation in three settings and sedentary behaviour. These settings are activity at **work**, **travel** to and from places and **recreational activities**. As students or professional teachers, nurses, social workers and public managers, your activity at work or your tertiary institution entails a lot of either sitting, standing, and or walking for short distances. You therefore do not

expend much energy in your working or learning environment. Many people also do not expend much energy travelling to and from places, they use cars, taxis and buses to travel. The one area where you can participate in physical activity is in your choice of recreation activities.

The recommendation for health-enhancing physical activity is:

30 minutes of moderate activity on most, but preferably all days of the week, or

30 minutes of moderate to vigorous activity 3 to 5 times a week, or

In scientific terms we use the standard metabolic equivalent, or MET, level. This unit is used to estimate the amount of oxygen used by the body during physical activity. The classification criteria in terms of METS are as follows:

- **LOW** level of physical activity: <600 METminutes per week
- **MODERATE** level of physical activity: 600 – 1500 METminutes per week
- **HIGH** level of physical activity: > 1500 METminutes per week

For optimal health we should try and achieve 3000 METminutes per week.

The test indicates that your score is under 600 METminutes per week, and you are classified in the low level of physical activity. It will be to your great benefit to find just 30 minutes a day for some form of regular exercise. Consider taking just 30 minutes from your TV viewing to do some exercise. Walking is an excellent form of exercise. Find a friend who would be willing to do this with you, and find the time to do it regularly.

### Body Mass Index

Body Mass Index (BMI) is a number calculated from a person's weight and height. BMI provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems. The standard weight status categories associated with BMI ranges for adults are shown in the following table.

BMI	Weight Status
Below 18.5	Underweight
18.5 – 24.9	Normal
25.0 – 29.9	Overweight
30.0 and Above	Obese

Your score is **31.5** and you fall into the **OBESE** category. As a health indicator this is not good, but you can do something about it. Being overweight can lead to health problems, particularly later in life, like heart disease, diabetes, high blood pressure etc. Remember the best weight control method is a **combination of diet and exercise**. Physical activity and exercise maintains or builds lean muscle tissue (muscle) that has the capability to burn calories. Diet by itself leads to loss of muscle and a reduction in daily caloric expenditure, resulting in an increased storage of fat. Diet AND exercise is the way to go if you need to lose weight.

### **Conclusion**

Based on these scores it can be seen that you are falling short of the recommendation for health enhancing physical activity. You can, however, do something about it. Do read the accompanying info sheet and remember that physical activity does not need to be hard to provide some benefit. Please feel free to contact me should you wish to be monitored again or if you require any further information.

Best wishes

Cheryl Walter

# Physical Activity is for Everyone

Compiled by C. M. Walter



"The first wealth  
is health."  
Ralph Waldo Emerson

The evidence is **OVERWHELMING**.  
People of all ages who are generally inactive can improve their health and well-being by becoming active at a moderate-intensity on a regular basis.

Results released by the World Health Organization (WHO) in September 2003, in the largest ever global study on heart disease, indicated that more than half (8.6 million) of the 16.5 million of those who die worldwide of heart disease every year are women. Heart attacks and strokes are responsible for twice as many deaths in women as all cancers combined. The Heart Foundation of South Africa confirmed this trend in South Africa as well.

In South Africa, where women constitute the majority of the population, only 23% participate in sport, and this drops down to 10.8% for black women. According to the National Demographic and Health Survey of 1998, about 29% of men and 56% of women are overweight, with the highest rate occurring among African women. According to the Heart Foundation, South Africa has a higher ratio of overweight women than the US.

Regular physical activity substantially reduces the risk of dying of coronary heart disease and decreases the risk for stroke, colon cancer, diabetes, and high blood pressure. It also helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications.

**The good news about regular physical activity is that everyone can benefit from it (USDHHS, 1996).**

- **Older adults**  
No one is too old to enjoy the benefits of regular physical activity. Evidence indicates that muscle-strengthening exercises can reduce the risk of falling and fracturing bones and can improve the ability to live independently.
- **Parents and children**  
Parents can help their children maintain a physically active lifestyle by providing encouragement and opportunities for physical activity. Families can plan outings and events that allow and encourage everyone in the family to be active.
- **Teenagers**  
Regular physical activity improves strength, builds lean muscle, and decreases body fat. Activity can build stronger bones to last a lifetime.
- **People trying to manage their weight**  
Regular physical activity burns calories while preserving lean muscle mass. Regular physical activity is a key component of any weight-loss or weight-management effort.
- **People with high blood pressure**  
Regular physical activity helps lower blood pressure.
- **People with physical disabilities, including arthritis**  
Regular physical activity can help people with chronic, disabling conditions improve their stamina and muscle strength. It also can improve psychological well-being and quality of life by increasing the ability to perform the activities of daily life.
- **Everyone under stress, including persons experiencing anxiety or depression**  
Regular physical activity improves one's mood, helps relieve depression, and increases feelings of well-being.

Physical activity need not be strenuous to be beneficial; people of all ages benefit from participating in regular, moderate-intensity physical activity. Physical activity does not necessarily mean running a strenuous marathon or playing competitive sport. Rather, it is 30 minutes of brisk walking five or more times a week.

## **Make physical activity a part of your life.**

There are 1440 minutes in every day... Schedule 30 of them for physical activity. With a little creativity and planning, even the person with the busiest schedule can make room for physical activity. For many people, before or after work or meals is often an available time to cycle, walk, or play. Think about your weekly or daily schedule and look for or make opportunities to be more active. Every little bit helps.

## **Consider the following suggestions**

- Walk, cycle, jog, etc., to work, school, the shop, or place of worship.
- Park the car farther away from your destination.
- Get on or off the bus /taxi several blocks away (provided it is safe for you to walk from there).
- Take the stairs instead of the elevator or escalator.
- Play with children or pets. Everybody wins. If you find it too difficult to be active after work, try it before work.
- Take fitness breaks-walking or doing desk exercises-instead of taking smoking or coffee breaks.
- Perform gardening or home repair activities.
- Use leg power-take small trips on foot to get your body moving.
- Exercise while watching TV (for example, use hand weights, stationary bicycle/treadmill/stairclimber, or stretch).
- Dance to music.
- Keep a pair of comfortable walking or running shoes in your car and office. You'll be ready for activity wherever you go!
- Make a Saturday morning walk a group habit.
- Walk while doing errands.

### Tips for People Who Have Been Inactive for a While

- Use a sensible approach by starting out slowly.
- Begin by choosing moderate-intensity activities you enjoy the most. By choosing activities you enjoy, you'll be more likely to stick with them.
- Gradually build up the time spent doing the activity by adding a few minutes every few days or so until you can comfortably perform a minimum recommended amount of activity (30 minutes per day).
- As the minimum amount becomes easier, gradually increase either the length of time performing an activity or increase the intensity of the activity, or both.
- Vary your activities, both for interest and to broaden the range of benefits.
- Explore new physical activities.
- Reward and acknowledge your efforts.

### Making Physical Activity Part of Your Life: Overcoming Barriers to Physical Activity

"If you can find a path with no obstacles, it probably doesn't lead anywhere." -Anonymous

#### Suggestions for Overcoming Physical Activity Barriers

Lack of time	Identify available time slots. Monitor your daily activities for one week. Identify at least three 30-minute time slots you could use for physical activity.  Add physical activity to your daily routine. For example, walk or ride your bike to work or shopping, organize school activities around physical activity, walk the dog, exercise while you watch TV, park farther away from your destination, etc.
Social influence	Make time for physical activity. For example, walk, jog, or swim during your lunch hour, or take fitness breaks instead of coffee breaks. Select activities requiring minimal time, such as walking, jogging, or stairclimbing.
Lack of energy	Explain your interest in physical activity to friends and family. Ask them to support your efforts.
Lack of motivation	Invite friends and family members to exercise with you. Plan social activities involving exercise.  Develop new friendships with physically active people. Join a group, such as the YMCA or a hiking club.
Fear of injury	Schedule physical activity for times in the day or week when you feel energetic.  Convince yourself that if you give it a chance, physical activity will increase your energy level; then, try it.
Lack of skill	Plan ahead. Make physical activity a regular part of your daily or weekly schedule and write it on your calendar.  Invite a friend to exercise with you on a regular basis and write it on both your calendars.
Lack of resources	Join an exercise group or class. Learn how to warm up and cool down to prevent injury. Learn how to exercise appropriately considering your age, fitness level, skill level, and health status.
Weather conditions	Choose activities involving minimum risk. Select activities requiring no new skills, such as walking, climbing stairs, or jogging.  Exercise with friends who are at the same skill level as you are.

Adapted from "Personal Barriers" - *Promoting Physical Activity: A Guide for Community Action* (USDHHS, 1999).

## Appendix D

### Demographic Questionnaire (Professional)

For office use	
Participant code number	<b>P</b>

1. Name and surname

\_\_\_\_\_

2. Date of birth 19\_\_\_\_ (year) \_\_\_\_\_ (month) \_\_\_\_\_ (day)

3. Age: \_\_\_\_\_

4. Residential Address: \_\_\_\_\_

5. Telephone Numbers: \_\_\_\_\_ (h) \_\_\_\_\_ (w) \_\_\_\_\_ (cell)

6. Home language (indicate with X)

6.1 Xhosa	
6.2 English	
6.3 Afrikaans	
6.4 Other (specify)	

7. Marital status (indicate with X)

7.1 Married		7.4 Separated	
7.2 Single		7.5 Widowed	
7.3 Divorced		7.6 Living with a partner	

8. Number of your own children: \_\_\_\_\_ Ages: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

9. Number of other children under your guardianship: \_\_\_\_\_ Ages: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

10. Current occupation and what it entails:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

11. What is your highest educational qualification?

\_\_\_\_\_

12. Monthly income (indicate with X)

10.1 under R3000	
10.2 R3000 – R5000	
10.3 R5000 – R7000	
10.4 R7000 – R10 000	
10.5 above R10 000	

13. Height: \_\_\_\_\_

14. Weight: \_\_\_\_\_



## Demographic Questionnaire (Student)

For office use	
Participant code number	<b>S</b>

1. Name and surname

\_\_\_\_\_

2. Date of birth 19\_\_\_\_ (year) \_\_\_\_\_ (month) \_\_\_\_\_ (day)

3. Age: \_\_\_\_\_

4. Residential address while at University: \_\_\_\_\_

5. Telephone Numbers: \_\_\_\_\_ (h) \_\_\_\_\_ (cell)

6. Home language (indicate with X)

6.1 Xhosa	
6.2 English	
6.3 Afrikaans	
6.4 Other (specify)	

7. Marital status (indicate with X)

7.1 Married	
7.2 Single	
7.3 Divorced	
7.4 Separated	
7.5 Widowed	
7.6 Living with a partner	

8. Number of children (if applicable): \_\_\_\_\_ Ages: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

9. Course registered for: \_\_\_\_\_

10. Year of study: \_\_\_\_\_

11. What is your highest educational qualification?

\_\_\_\_\_

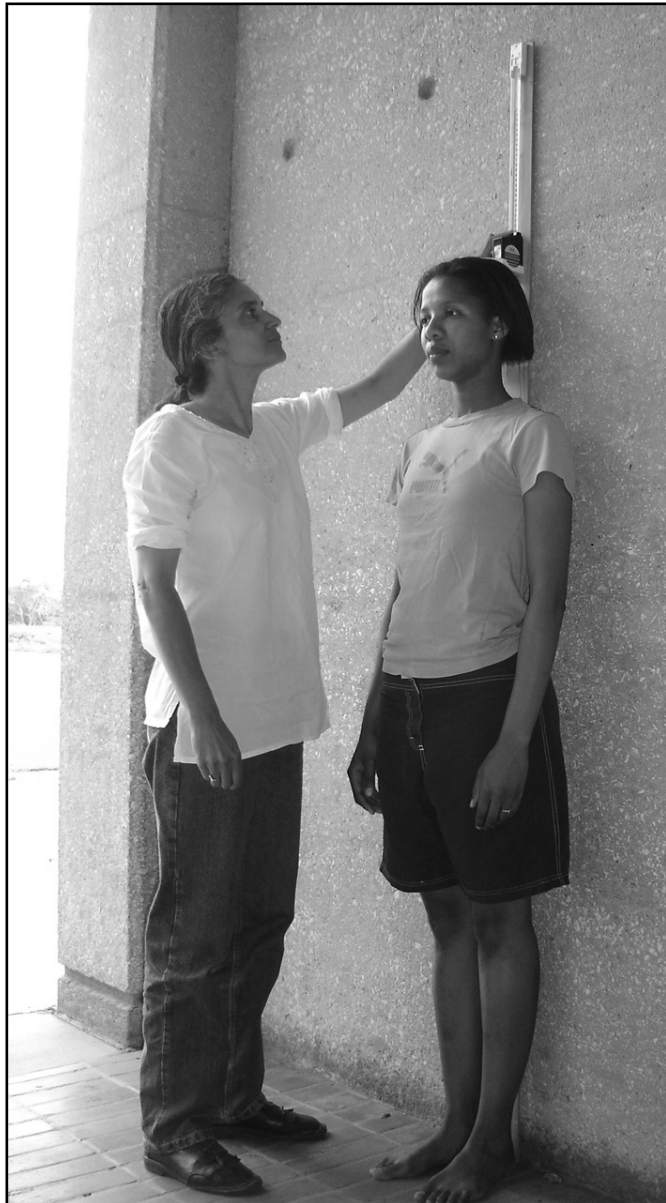
12. Monthly income from any part time employment (if applicable): \_\_\_\_\_

13. Height: \_\_\_\_\_

14. Weight: \_\_\_\_\_

Appendix E

Photographs of height meter stick



## Appendix F

### Belloc & Breslow Lifestyle Questionnaire

For each of the following statements mark the applicable space with an **X (Yes or No)** that indicates your present lifehabits.

	YES	NO
Do you eat three meals a day at regular times with no snacks in-between?		
Do you eat breakfast every day*?		
Do you participate in moderate exercise two or three times a week?		
Do you get 7 to 8 hours sleep a night?		
Do you smoke cigarettes or a pipe?		
Do you maintain a moderate body weight?		
Do you consume little or no alcohol?		

\* **COFFEE OR TEA WITH A RUSK AND/OR TOASTE IS, FOR THE PURPOSE OF THIS STUDY, NOT ACCEPTED AS A BREAKFAST.**

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**BRESLOW, L. & BELLOC, N.B.** 1972. The relation of physical health status and health practices. Preventive Medicine, 1: 46 - 64.

## Appendix G

### Health-Promoting Lifestyle Questionnaire

For each of the following statement mark the choice of 1-4 that best indicates the way you feel about your personal life.

		Never	Sometimes	Often	Routinely
1.	I feel enthusiastic/optimistic about life	1	2	3	4
2.	I like myself	1	2	3	4
3.	I experience growth/change in my life	1	2	3	4
4.	I have long-term goals for my life	1	2	3	4
5.	I feel happy/content	1	2	3	4
6.	I am aware of my strength/weaknesses in life	1	2	3	4
7.	I look forward to the future	1	2	3	4
8.	I set realistic goals for my life	1	2	3	4
9.	I know what is important in life	1	2	3	4
10.	I respect accomplishments	1	2	3	4
11.	I find each day as a challenge	1	2	3	4
12.	My life has purpose and meaning	1	2	3	4
13.	I have a satisfying environment	1	2	3	4
14.	I know what my cholesterol level is	1	2	3	4
15.	I report any health symptoms to my doctor	1	2	3	4
16.	I read books about health	1	2	3	4
17.	I question my doctor/get a second opinion	1	2	3	4
18.	I discuss health concerns with others	1	2	3	4
19.	I have my blood pressure taken regularly	1	2	3	4
20.	I seek information about my health	1	2	3	4
21.	I support environmental programmes	1	2	3	4
22.	I observe my body for abnormal changes	1	2	3	4
23.	I support health care programmes	1	2	3	4
24.	I do stretching exercises	1	2	3	4
25.	I participate in vigorous exercise 3 times/week	1	2	3	4
26.	I participate in a supervised exercise programme	1	2	3	4
27.	I participate in recreational activities	1	2	3	4
28.	I check my pulse rate during exercise	1	2	3	4
29.	I eat breakfast every morning	1	2	3	4
30.	I eat 3 meals a day	1	2	3	4
31.	I don't use any preservatives in my food	1	2	3	4
32.	I read the labels on food before I buy it	1	2	3	4
33.	I eat roughage/fibre	1	2	3	4
34.	The basic 4 food groups are included in my meals	1	2	3	4
35.	I discuss problems with others	1	2	3	4
36.	I praise other people without hesitation	1	2	3	4
37.	I enjoy touching	1	2	3	4
38.	I maintain meaningful interpersonal relationships	1	2	3	4
39.	I spend time with close friends.	1	2	3	4

40.	I express concern/love	1	2	3	4
41.	I touch/am touched	1	2	3	4
42.	I have daily relaxation time	1	2	3	4
43.	I am aware of causes stress in my life	1	2	3	4
44.	I use meditation/relaxation	1	2	3	4
45.	I relax my muscles before sleep	1	2	3	4
46.	I have pleasant bedtime thoughts	1	2	3	4
47.	I express feelings	1	2	3	4
48.	I utilise stress control methods	1	2	3	4

## Appendix H

### The FIT (Frequency, Intensity, Time) Index

1. **How often do you exercise and/or play sport as part of your leisure time?** (Mark with X)

Less than once a month	
Few time a month	
1to 2 times a week	
3 to 5 times a week	
Daily or almost daily	

2. **What is the duration of the exercise session?** (Mark with X)

Under 10 minutes	
10-20 minutes	
20-30 minutes	
Over 30 minutes	

3. **How would you describe the intensity of the session?** (Mark with X)



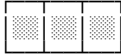




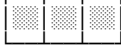
<b>Light</b> : as in fishing, strolling/light walking	
<b>Moderate</b> : as in walking briskly, playing light volleyball, softball	
<b>Moderately heavy</b> : as in recreational club sports and cycling	
<b>Intermittent heavy breathing and perspiration</b> : as in playing league tennis or squash	
<b>Sustained heavy breathing and perspiration</b> : as in running	



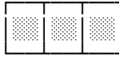


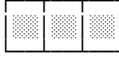


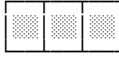

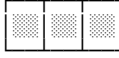
#### SCORING: PAI = Intensity X Duration X Frequency

	Score	Activity
Frequency	1	Less than once a month
	2	Few time a month
	3	1to 2 times a week
	4	3 to 5 times a week
	5	Daily or almost daily
Duration	1	Under 10 minutes
	2	10-20 minutes
	3	20-30 minutes
	4	Over 30 minutes
Intensity	1	Light : as in fishing, strolling/light walking
	2	Moderate: as in walking briskly, playing light volleyball, softball
	3	Moderately heavy: as in recreational club sports and cycling
	4	Intermittent heavy breathing and perspiration: league tennis / squash
	5	Sustained heavy breathing and perspiration: as in running

## Appendix I

## Global Physical Activity Questionnaire

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
	The next questions are about the time you spend doing different types of physical activities. This includes activities you do <b>at home, at work, travelling from place to place and during your spare time</b> . You are requested to answer the questions even if you don't consider yourself to be an active person.		
	<b>Occupation-Related Physical Activity (paid or unpaid work):</b> When answering the following questions, think back over the <b>past 12 months</b> and consider (think of) a <b>usual week</b> .		
1	Does your work involve <u>mostly</u> sitting or standing still, <b>OR</b> walking for very short periods (less than 10 minutes)?	MOSTLY SITTING ..... 1 MOSTLY STANDING STILL ..... 2 MOSTLY WALKING FOR VERY SHORT PERIODS ..... 3 MOSTLY DOING MODERATE/VIGOROUS ACTIVITY ..... 4 NONE OF THE ABOVE ..... 5	→ 4 → 5A
2A	Does your work involve <u>vigorous</u> activities, (like heavy lifting, digging, or heavy construction) for <b>at least 10 minutes</b> at a time?	YES ..... 1 NO ..... 2	→ 3A
2B	In a <b>usual week</b> , how many days do you do <u>vigorous</u> activities as part of your work?	DAYS ..... 	
2C	On a <b>usual day</b> on which you do <u>vigorous</u> activities, how much time do you spend doing such work?	HOURS ..... 1  MINUTES ..... 2 	
3A	Does your work involve <u>moderate-intensity</u> activities (like brisk walking or carrying light loads) for <b>at least 10 minutes</b> at a time?	YES ..... 1 NO ..... 2	→ 4
3B	In a <b>usual week</b> , how many days do you do <u>moderate-intensity</u> activities as part of your work?	DAYS ..... 	
3C	On a <b>usual day</b> on which you do <u>moderate-intensity</u> activities, how much time do you spend doing such work?	HOURS ..... 1  MINUTES ..... 2 	
4	How long is your usual workday?	HOURS ..... 1  MINUTES ..... 2 	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
	<b>Travel-Related Physical Activity:</b> Other than activities that you've already mentioned, I would like to ask you about the way you travel to and from places (to work, to shopping, to market, to church, etc.).		
5A	Do you walk or use a bicycle (pedal cycle) for <b>at least 10 minutes</b> at a time to get to and from places?	YES ..... 1 NO ..... 2	→6
5B	In a <b>usual week</b> , how many days do you walk or cycle for at least 10 minutes to get to and from places?	DAYS ..... 	
5C	On a <b>usual day</b> , how much time do you spend walking or cycling for travel?	HOURS ..... 1  MINUTES ..... 2 	
	<b>Non-Work Related and Leisure Time Physical Activity:</b> The next questions ask about activities you do in your leisure or spare time, for recreation or fitness. Do not include the physical activities you do at work or for travel already mentioned.		
6	In your leisure or spare time do you do any vigorous or moderate-intensity physical activity lasting <b>more than 10 minutes</b> at a time?	YES ..... 1 NO ..... 2	→9
7A	In your leisure or spare time, do you do any <u>vigorous</u> activities ( <u>like</u> running or strenuous sports, weightlifting) for <b>at least 10 minutes</b> at a time?	YES ..... 1 NO ..... 2	→8A
7B	In a <b>usual week</b> , how many days do you do <u>vigorous</u> activities as part of your leisure or spare time?	DAYS ..... 	
7C	How much time do you spend doing this on a <b>usual day</b> ?	HOURS ..... 1  MINUTES ..... 2 	
8A	In your leisure or spare time, do you do any <u>moderate-intensity</u> activities ( <u>like</u> brisk walking, cycling or swimming) for <b>at least 10 minutes</b> at a time?	YES ..... 1 NO ..... 2	→9
8B	In a <b>usual week</b> , how many days do you do <u>moderate-intensity</u> activities as part of your leisure or spare time?	DAYS ..... 	
8C	How much time do you spend doing this on a <b>usual day</b> ?	HOURS ..... 1  MINUTES ..... 2 	
	<b>Sitting / Resting Activity:</b> Now I would like to ask you about the time spent sitting or resting, not including sleeping, in the <b>past 7 days</b> . This may include time sitting at a desk, visiting friends, reading, or sitting down to watch television <b>during working hours and leisure or spare time</b> .		
9	Over the <b>past 7 days</b> , how much time did you spend sitting or reclining (lying) on a <b>usual day (excluding sleeping)</b> ?	HOURS ..... 1  MINUTES ..... 2 	



## Appendix J

### Photographs of ActiGraph



## Appendix K

### Interview Guide

(Main questions in bold)

1. Tell me a little about yourself (used to establish a relationship)
2. Explain how physical activity fits into your life. How have your physical activities changed over the course of your life? Were you active as a young child, at primary school, at high school, as a young adult?
3. **Tell me something about the fun, leisure, recreation activities you like to do, both physical and otherwise. How often? With whom? Where? What enjoyment do you receive?**
4. **Describe a typical week day. Describe a typical weekend.**
5. **What are some of the things that prevent (or motivate you) you from being involved in physical activity Economic? Social? Psychological?**
6. **To what extent do your friends and/or family, society, your community influence the choices you make about physical activity?**
7. What do you think your future physical activity will entail? Realistically? Ideally?
8. What else can you tell me that will help me to understand your involvement or lack of involvement in physical activity?

**Appendix L**  
**Confirmation Letter from Independent Coder**

84 Hudson Street  
Newton Park  
Port Elizabeth  
6045  
05 December 2007

To Whom It May Concern:

I hereby wish to confirm that I served as the independent coder for Cheryl Walter's study entitled "Physical activity in the lives of two generations of black professional women from the Nelson Mandela Metropolitan Municipality". Forty seven interviews were coded (20 from the older generation and 27 from the younger generation). A consensus discussion between myself and the researcher was held in relation to the various themes, sub-themes and categories identified. In addition, I read the results and discussion of the qualitative chapter of the study and confirm that it captures the essence of the interviews.

Yours sincerely



Coleen O'Brien  
MCur, BBibl, BA (Hons), RN, RM  
Independent Coder