

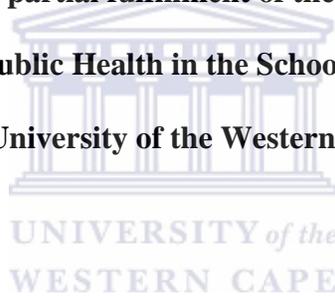
Comparison of physical activity practices and dietary habits of health club members and community controls in Khayelitsha, Cape Town

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A minithesis submitted in partial fulfillment of the requirements for the degree of

Masters in Public Health in the School of Public Health,

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Abstract

Comparison of physical activity practices and dietary habits of health club members and community controls in Khayelitsha, Cape Town.

Background: Chronic diseases pose public health concerns globally with an increasing trend in developing countries. The development of interventions to minimize or prevent the burden associated with chronic diseases has therefore become a necessity. In 2002 the School of

Public Health of the University of the Western Cape developed a health club intervention in Khayelitsha. This intervention focuses on promoting healthy lifestyles particularly improved diet and physical activity. To date there has been no evaluation of the effectiveness of the

health club in influencing healthier choices among its members. **Objectives:** (1) To determine whether members were more physically active than non-members. (2) To determine whether members made healthier dietary choices than non-members. (3) To identify barriers to

increasing physical activity and improving dietary habits for members and non-members.(4)

To identify enhancing factors to improving physical activity and dietary habits for members

and non-members. **Methodology:** A non- experimental post intervention study was carried out

on an intervention group (n=26) and on a control group (n=60). Data was collected on

demographics, physical activity and dietary habits as well as on barriers and enhancing factors

to improving physical activity and dietary habits. Frequencies and percentages were calculated

and chi-squared tests were used to test for association between variables and whether the two

groups differed significantly from each other. **Findings:** Health club members participated

more actively and were less sedentary than non-members in all areas of physical activity

examined with the exception of the light activity of daily walking and moderate physical

exercise. Members mostly made healthier dietary choices than non-members and consumed more legumes, less red meat, less fatty foods and less sugar. More members also removed fat and/or skin from their meats and incorporated less frying of meats in oil. However, more members also consumed more hard margarine, more sweets, more bread and the same amount of fat cakes than non-members. **Conclusion:** This study indicates that the health club may have a positive effect in influencing healthy living among its members. However; behavioural, socioeconomic and environmental factors pose significant barriers in the adoption of healthy behaviours.



Declaration:

I declare that *Comparison of physical activity and dietary habits of health club members and community controls in Khayelitsha, Cape Town* is my own work, that it has not been submitted before for any degree or examination at any other university, and that all the sources I have used or quoted have been indicated and acknowledged as complete references.



Ms Roshan Isaacs

November 2007

Signed:

Keywords

urban township

Khayelitsha

health club

health club members

healthy lifestyles

physical activity

dietary habits

barriers

enhancing factors

behaviour change



Definition of terms

Chronic diseases of lifestyle are a group of diseases that share similar risk factors as a result of exposure, over many decades to unhealthy diets, smoking, lack of exercise and possibly stress. The major risk factors include high blood pressure, tobacco, obesity, high cholesterol, diabetes and stress. These diseases are also called non-communicable or degenerative diseases. Available online at <http://www.mrc.ac.za/chronic/cdloverview.pdf>.

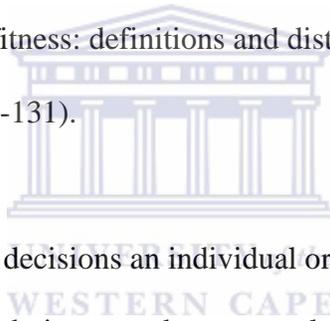
Lifestyle refers to the way a person lives. This includes patterns of social relations, food consumption, behaviours and dress. A lifestyle typically also reflects an individual's attitudes, values and worldview. Available online at <http://en.wikipedia.org/wiki/Lifestyle>

Physical activity refers to any form of bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level. Physical activity can be categorized in various ways, including type, intensity and purpose. The physical activity of a group is frequently categorized by the context in which it occurs. Common contexts include occupation, household, leisure or transportation. Leisure is further subdivided into categories such as competitive sport, recreational activities, and exercise training (US Department of Health and Human Services 1996). **Physical inactivity/ sedentary lifestyle** refer to one where minimal physical activity (exercise) is present. There are no health benefits of this lack of regular physical activity (The Heart and Stroke Foundation 2007).

Light physical activity in this study consists of 'daily walking' and 'daily meal preparation and cleaning up after meals'. *Moderate physical activity* in this study consists of 'weekly moderate

structured exercise’ and ‘moderate daily routine dusting and cleaning’. *Vigorous household activity* involves work such as ‘washing windows, chopping wood, scrubbing floors, fetching water and sweeping the yard’.

Physical exercise refers to planned bouts of physical activity usually pursued for personal health and fitness goals. Exercise is a subset of physical activity, which is volitional, planned, structured, repetitive and aimed at improvement or maintenance of any aspect of fitness or health. Exercise is often described in terms of its principal dimensions – frequency, time, intensity, mode and volume (Caspersen CJ, Powell KE, Christensen G (1995). Physical activity, exercise and physical fitness: definitions and distinctions of health-related research. *Public Health Reports*; 100:126-131).



Dietary habits are the habitual decisions an individual or culture makes when choosing what foods to eat. Individual dietary choices may be more or less healthy. Proper nutrition requires the proper ingestion and equally important, the absorption of vitamins, minerals, and fuel in the form of carbohydrates, proteins, and fats. Dietary habits and choices play a significant role in health and mortality, and can also define cultures and play a role in religion. Available online at:[http://en.wikipedia.org/wiki/Diet_\(nutrition\)](http://en.wikipedia.org/wiki/Diet_(nutrition))

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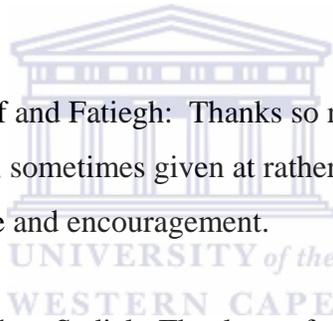
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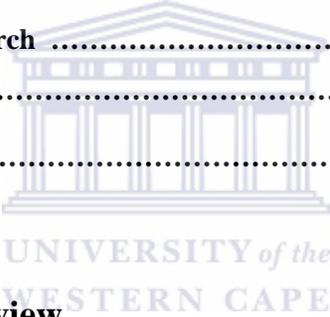


My beloved family: My late father, Sedick: Thank you for passing on a love of learning to many. My mother, Roseda: Words can't express my gratitude for your kindness especially for standing in for me with the many meals I did not have time to cook. My husband, Mogamad, and children Sadiq Zayd, Nur- Jehan and Muhammad Ridha: Thank you and thank you for just supporting me and for tolerating the many times I could not participate in doing things with you. This is so much your achievement too. I love you and I am back now!

The ladies and gentlemen of the health club: Thank you for reminding me of the resilience of the human spirit. Despite enormous odds, you strive towards creating a better reality.

Thank you!

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Appendix 2 – Questionnaire (English)

Appendix 3 – Information sheet

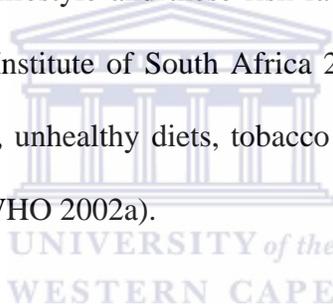
Appendix 4 – Consent form

Chapter 1

Introduction

1.1 Overview

Chronic diseases are the largest cause of death globally, led by cardiovascular disease, followed by cancer, chronic lung diseases and diabetes mellitus (WHO 2003a; Yach 2004). It was predicted that by 2020 chronic diseases will account for 80 percent of the global burden of disease, causing seven out of every ten deaths in developing countries compared to less than half today (WHO 1997). Eighty one percent of South Africans have one or more of the risk factors of chronic diseases of lifestyle and these risk factors contribute to 26% of deaths in South Africa (Sports Science Institute of South Africa 2007). Key risk factors are physical inactivity, high blood pressure, unhealthy diets, tobacco use, high blood cholesterol, alcohol use and psychological stress (WHO 2002a).

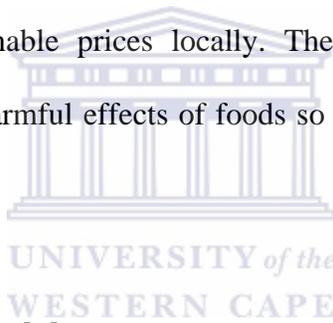


Physical inactivity and unhealthy diets contribute substantially to this global burden of disease, death and disability (WHO 2004). Physical activity appears to be protective of chronic diseases, acutely lowering serum triglyceride concentrations, improving tissue sensitivity to insulin, increasing fibrinolytic activity and high density lipoprotein (HDL) cholesterol, and decreasing clotting activity and blood pressure (Lambert et al 2001b). Diets high in fruit and vegetables and low in meat are also protective against the development of chronic diseases (Maunder et al 2001 cited in Vorster, Love & Bourne 2001).

In South Africa in 2003, 62% of men and 48% of women 15 years or older followed a sedentary lifestyle (The heart and stroke foundation 2007). With urbanization the growing

urban black population who originally came from rural areas face many new challenges and problems including fast foods. Staple traditional foods are often replaced by western foods which are high in fat and sugar and have low nutrient value (Steyn 2006).

In response to this growing epidemic the WHO developed a global strategy for diet, physical activity and health to be implemented within the integrated prevention and control of chronic diseases. The strategy seeks to promote and protect health by developing healthier, more sustainable and enabling environments to promote healthy lifestyles (food choices and an increase in physical activity). It emphasizes that nutritious food, especially fruit and vegetables should be available at reasonable prices locally. The strategy further promotes simpler labelling of the benefits and harmful effects of foods so that people can make informed food choices (WHO 2004).



1.2 Development of the health club

In 2002 the School of Public Health at the University of the Western Cape took up the challenge to implement the WHO strategy of promoting healthy lifestyles. As part of this initiative a health club focusing on diet and physical activity was developed in Khayelitsha, an urban township of Cape Town. It was named Masiphakame Ngempilo Yethu! (Let's stand up for our health!) Health Club. Community health workers were trained and they in turn recruited members from the areas where they lived and worked. When the club was established in 2005, members came together once a week in a community hall for exercises and education sessions. Whilst gyms/ health centres are commonplace in more affluent areas, community based health clubs in poorer areas are novel concepts in South Africa.

In June 2006, Virgin Active, a South African health and fitness enterprise, donated a large container filled with gym equipment to the club. During week days, early mornings were set aside for the club members to work out on the machines as they pleased and late mornings and afternoons were left for the wider community, mainly supported by young men. Wednesday mornings attracted the largest number of members as this weekday session was specifically dedicated for them. Here knowledge is shared on healthy eating, food hygiene and the importance of engaging in physical activity. During such sessions physical exercises were done in a group while members were seated and stretching was emphasized. Education around nutrition was not organised according to a set programme but broadly followed the 2001 South African Food Based Dietary Guidelines document (Vorster et al 2001).

From observation it appeared that the programme was run in a fairly informal manner.

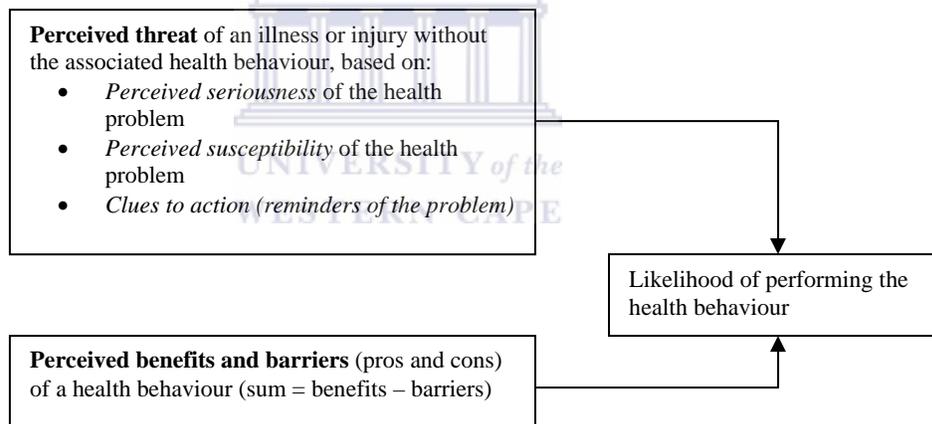
Activities to highlight the importance of healthy lifestyles included lectures, cooking demonstrations, big walks and street theatre. In addition, the weight, height and blood pressure of members were taken at the time of joining and these were monitored monthly thereafter. No information was collected on baseline physical activity and dietary habits of members.

1.3 Theoretical basis for this research

For the purposes of this research understanding of members' practices will partly be presented within a theoretical model i.e. The Health Belief Model (HBM) which is a psychological model that attempts to explain and predict health behaviors. This is done by focusing on the attitudes and beliefs of individuals (Glanz 2002). The HBM is based on the understanding that a person will take a health-related action if that person feels that a negative health outcome can

be avoided, has a positive expectation that by taking a recommended action he/she will avoid a negative health outcome and believes that he/she can successfully take a recommended health action (Glanz 2002).

Accompanied with efforts to modify behaviour are perceptions of seriousness of the disease, susceptibility of getting the condition, benefits of taking action, barriers to taking action and lastly perceived enhancing factors (which are also called ‘cues to action’) (Glanz 2002). These concepts are depicted in figure 1 below and further discussion hereof will be found in Chapter 5 (See 5.1.3).



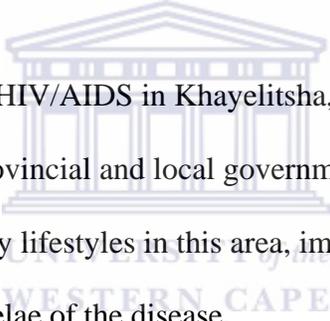
Source: Sarafino 2006

Fig 1. Diagrammatic representation of the Health Belief Model

1.4 Research setting

The study took place in Khayelitsha (meaning ‘our new home’) which is a sprawling black township located about 40km south east from the centre of Cape Town. It is spread

over 30 square kilometres and is home to between 500 000 and 1 million (Wikipedia: Khayelitsha). The township is made up of a combination of formal low-cost housing and informal housing. The population is relatively young with approximately 76% of the population younger than 29 years of age. Over 71% of the population lives below the poverty line (Dept of provincial and local government 2006). Fifty one percent of the economically active population is unemployed with more females than males being unemployed. The rate of unemployment increased by 10.6% from 1996-2001. The majority of households (72%) earn less than R1600 per month, and 69.3% of households consist of 4 people or less (Information and knowledge management department 2005).



There is a strong prevalence of HIV/AIDS in Khayelitsha, with approximately 25% of the population infected (Dept of provincial and local government 2006). This highlights the importance of promoting healthy lifestyles in this area, important not only for prevention but also for reducing negative sequelae of the disease.

While it is populated mainly by those who have left rural Eastern Cape to seek jobs in Cape Town, the residents of Khayelitsha remain in a very large economically, spatially and racially marginalised centre from the city (du Toit & Neves 2007).

1.5 Purpose of this research

Because members attend the health club regularly it can be hypothesized that they implement knowledge they have acquired and practice healthier lifestyles, such as increased physical activity and improved dietary habits, when compared to non-members. The purpose of this study therefore was to determine whether the club members were actually able to make

healthier choices of increasing physical activity and improving dietary habits. Current practices of club members were compared with practices of a control group from the community. Quantitative data was collected through interviews. Barriers and enhancing factors to increasing physical activity and improving dietary habits were also collected from all participants.

1.6 Significance of this research

The development of health club interventions are regarded as very important in raising the health consciousness of communities in order to combat the increasing epidemics of chronic diseases. However, there is very little international and local literature on the effectiveness of these interventions particularly in communities of lower socio-economic status. This study will contribute to the understanding of the effectiveness of the health club and will inform programme managers should they consider implementing changes in order to improve the quality of the intervention in the future.

1.7 Aim of the study

The main aim of this study was to determine if health club members are more physically active and practicing healthier dietary habits than community controls.

1.8 Objectives

1. To determine if health club members were more physically active than non-members.
2. To determine if health club members were practicing healthier dietary habits than non-members.

3. To identify barriers to increasing physical activity and improving dietary habits for all members and non-members.
4. To identify enhancing factors to improving physical activity and dietary habits for members and non-members.

Chapter one starts with a brief overview of chronic diseases and mention is made of the WHO strategy on diet, physical activity and health. This was followed by a description of the development of the health club, the Health Belief Model, the research setting, purpose and significance of the research as well as the aim and objectives of the study.



Chapter 2

Literature review

2.1 Global picture of the epidemic of chronic diseases

Chronic diseases are a major cause of global morbidity and mortality, with an increasing trend in developing countries (Boutayeb & Boutayeb 2005). Despite this increasing trend and its disproportionate effect on poor populations, the control of chronic diseases is generally not given high priority in poor populations (Puoane et al 2006). In 2002 chronic diseases caused 29 million deaths worldwide (Yach et al 2004). Sixty percent of all deaths and 47% of the global burden of disease was attributable to chronic diseases (WHO 2002a). By 2020 it is predicted that chronic diseases would have accounted for 80% of the global burden of disease, causing seven out of every ten deaths in developing countries compared with less than half today ((WHO 1997).

However, 66% of the deaths occurred in developing countries, where those who were affected were younger and thus lived with disease or died at an earlier age (WHO 2002a). Also, despite experiencing 90% of the world's disease burden, people in developing regions only have 10% of global health care funds at their disposal (WHO 2002b).

Africa itself is experiencing one of the most rapid demographic and epidemiological transitions of world history (Mosley et al 1993). The urban growth rate in Africa is estimated at 4.3 % annually, compared to 0.5 % in Europe (Sobngwi et al 2002). This could play a role in the prevalence of hypertension, diabetes and other chronic diseases rising more rapidly in

African countries than in western countries (Doll et al 2002). These diseases occur predominantly in urban populations as compared to rural populations (Sobngwi et al 2002). South Africa, in turn, is itself undergoing enormous transition and chronic diseases of lifestyle account for nearly 37% of adult deaths, and the majority of South Africans have at least one modifiable risk factor for chronic disease (Bradshaw et al 2003).

This changing shift in disease patterns globally is called the *epidemiological transition* created by the transformation of social, economic and demographic structures (Omran 1983). This transition has resulted in vast inequalities of wealth, health service provision and the consequent coexistence of infectious and non-communicable diseases associated with urban industrial lifestyles (Omran 1983). This ongoing urbanization with changes in especially dietary habits and physical activity patterns continue to contribute to the ever increasing prevalence of chronic diseases (Sobngwi et al 2001). In addition, South Africa is experiencing a quadruple burden of disease i.e. a combination of the pre-transitional diseases and conditions related to poverty, the emerging chronic diseases, injuries and HIV/AIDS (MRC 2003). For both males and females there is a considerable amount of early loss of life due to HIV/AIDS (MRC 2003). It is estimated that by 2010, HIV/AIDS will account for 75% of premature loss due to mortality compared to 39% in 2000 (MRC 2003).

The *demographic transition* occurs in societies where populations change from high birth rates and high death rates to low birth rates and low death rates as part of the economic development of a country from a pre-industrial to an industrialized economy (Wikipedia: demographic transition). This happens in stages and most developed countries are now

projected to experience population shrinkage in the future. In developing countries mortality decline accelerated and this led to a surge in population growth which was later followed by a drop in birth rates. This transition is accelerating and it appears it will happen in less than one century (Institute for Food and Development Policy 1998).

The *nutrition transition* can similarly be observed in large shifts which have occurred in dietary and physical activity and inactivity patterns. These changes are reflected in nutritional outcomes, such as changes in average stature and body composition. Modern societies seem to be converging on a pattern of diets high in saturated fat, sugar, and refined foods and low in fibre, often termed the "Western diet." Many see this dietary pattern to be associated with high levels of chronic and degenerative diseases and with reduced disability-free time (Nutrition transition programme 2006). In South Africa, shifts in dietary intake to a less prudent pattern are occurring with apparent increasing momentum, particularly among blacks, who constitute three-quarters of the population (Bourne et al 2000). Data have shown that among urban blacks, fat intakes have increased from 16.4% to 26.2% of total energy (a relative increase of 59.7%), while carbohydrate intakes have decreased from 69.3% to 61.7% of total energy (a relative decrease of 10.9%) in the past 50 years (Bourne et al 2000). Similar trends towards a Western diet among blacks living in rural areas are apparent too (Bourne et al 2000).

The following risk factors of chronic diseases in South Africa will briefly be described below: hypertension, tobacco, diabetes and overweight/obesity. As mentioned previously many of the risk factors are due to lifestyle factors such as physical inactivity, unhealthy diets rich in

saturated fats and low in fibre, and smoking (Boutayeb & Boutayeb 2005). The lifestyle risk factors of physical inactivity and dietary habits will obviously receive more attention (see 2.3).

2.2 Hypertension, tobacco, diabetes and obesity

2.2.1 Hypertension

Hypertension is extremely common in South Africa and is inadequately treated and poorly controlled (Connor et al 2005). In a cross sectional cardiovascular disease (CVD) risk factor survey of 9731 persons 30 years or older attending private sector primary health services in South Africa, hypertension was found to be the most common of the CVD risk factors among all the study participants (55%) and the prevalence was highest in the black African population(59%)(Connor et al 2005). It was also found that in Cape Town the duration of urbanization independently predicted the presence of hypertension (Connor et al 2005). Dietary factors related to hypertension are an increased salt (sodium) intake and a decreased fruit and vegetables intake (potassium) (Seedat 1996).

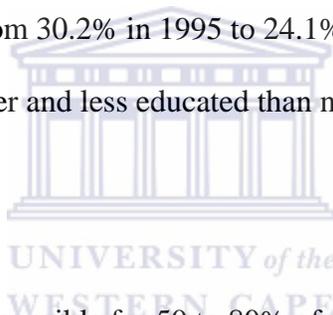
In spite of the association between hypertension and salt intake; salt is regarded as so essential in the preparation of food as it is used to preserve food, it makes food tastier and facilitates the baking of bread (Seedat 1996).

2.2.2 Tobacco

Tobacco use remains a major health risk and a conservative estimate is that in South Africa in 1998 about 8% of adult deaths were attributable to smoking (Sitas et al 2004). Yet in 2000,

this figure had escalated to 12% of men and 4% of women, aged 30 years or older, who died as a result of tobacco related diseases (Groenewald et al 2007).

While tobacco consumption is falling in most developed countries, it is increasing in developing countries by about 3, 4% per annum (Boutayeb & Boutayeb 2005). Today, 80% of the 1, 2 billion smokers in the world live in poorer countries where smoking prevalence among men is 48% and 50% of the 5 million deaths attributed to smoking in 2000 occurred in developing countries (Boutayeb & Boutayeb 2005). South Africa has however made significant progress in the past decade in reducing tobacco use, with daily adult prevalence rates decreasing by one fifth from 30.2% in 1995 to 24.1% in 2004 (Saloojee 2006). Tobacco users were also found to be older and less educated than non-users (Sitas et al 2004).



2.2.3 Diabetes

Cardiovascular diseases are responsible for 50 to 80% of deaths in people with diabetes (Boutayeb & Boutayeb 2005). The number of diabetes in the world is expected to increase from 194 million in 2003 to 330 million in 2030 with three in four living in developing countries (Boutayeb & Boutayeb 2005). Diabetes increases with age and the prevalence hereof varies among the South African population groups. The Indian population group had the highest levels, Coloureds and Whites were equal and the smallest prevalence was amongst African people with a rural rate of 3% and urban rate of 6% (Bradshaw et al 2007).

Approximately 1, 5 million South Africans have diabetes which also causes 3% of deaths in men and 6% of deaths in women 30 years and older (Bradshaw et al 2007). Diabetes also

causes a great burden of disabling conditions e.g. leg amputations and blindness (Bradshaw et al 2007).

2.2.4 Overweight / Obesity

Overweight advances adverse metabolic changes such as insulin resistance, increasing blood pressure and cholesterol which promote cardiovascular diseases, diabetes and many types of cancers (WHO 2003b; Kenchaiah et al 2002). Obesity has become a global epidemic with an estimated 1, 2 billion people overweight and 300 million clinically obese. In developed countries such as the United States its prevalence is as high as 60% and is becoming an increasing problem in developing countries too (WHO 2003b; Kenchaiah et al 2002). In a large, national, quantitative cross sectional study of 13 089 South African men and women, it was found 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 (Puoane et al 2002).

2.3 Lifestyle risk factors

Although discussed separately, lifestyle factors overlap considerably with other risk factors including those mentioned above. Lifestyle refers to patterns of behaviour that a person adopts from those available in the context of his or her life circumstances. It reflects personal attitudes and preferences which are aspects of personal choice influenced by a number of factors i.e. biological, environmental and social (Saris 1992). Exposure, over many decades, to risk factors of unhealthy diets, smoking, lack of exercise and possibly stress lead to the development of chronic diseases of lifestyle (Reddy 2002). Up to 80% of cases of coronary

heart disease and up to 90% of cases of type 2 diabetes could potentially be avoided through changing these lifestyle factors (Steyn 2006). For the purposes of this research, the lifestyle factors of physical activity and dietary habits are further explored below.

2.3.1 Physical In/activity

Physical activity refers to any form of bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above the basal level. Physical activity can be categorized in various ways, including type, intensity and purpose. The physical activity of a group is frequently categorized by the context in which it occurs. Common contexts include occupation, household, leisure or transportation. Leisure is further subdivided into categories such as competitive sport, recreational activities, and exercise training (US Department of Health and Human Services 1996, Armstrong et al 2006). Physical activity should include the domain of housework for older women as these household activities are frequently reported in this population (Lawlor et al 2002).

Physical exercise refers to planned bouts of physical activity usually pursued for personal health and fitness goals. Exercise is a subset of physical activity, which is volitional, planned, structured and repetitive and is aimed at improvement or maintenance of any aspect of fitness or health. Exercise is a subset of physical activity, which is volitional, planned, structured, repetitive and aimed at improvement or maintenance of any aspect of fitness or health (Caspersen et al 1995).

Although both physical activity and physical exercise is important, it is preferable to encourage people to become more physically active rather than to become physically fit, since sedentary people will be likely to achieve the latter if they do the former (Blair et al 2001).

Physical activity can improve the quality of life for people of all ages (Kaplan 2000). People who engage in regular physical activity live longer than those who are sedentary and may be better able to perform activities of daily living and enjoy many aspects of life (Kaplan 2000). Physical activity is therefore recognized as being 'protective' for chronic diseases (Lambert et al 2001b). Regular physical activity has a positive effect on the primary and secondary prevention of several chronic diseases (e.g., cardiovascular disease, diabetes, cancer, hypertension, obesity, depression and osteoporosis) and premature death (Warburton et al 2006). A graded linear relation exists between the volume of physical activity and health status, such that the most physically active people are at the lowest risk and the greatest improvements in health status are seen when people who are least fit become physically active (Warburton et al 2006).

Further benefits of regular physical activity include improved physical function and independent living in the elderly (Antero Kesaniemi et al 2000). Physical activity also improves muscle endurance and flexibility, preserves reaction time and neurological functioning and improves self esteem (Carter & O'Driscoll 2000). It is also associated with lower feelings of stress and anxiety; improved work performance as well as enhanced attitudes (Sarafino 2006).

Engaging in physical activity has been found to have a positive impact on the mental wellbeing of individuals (Stephens 1998). In a survey done in the US and Canada to examine the association of physical activity and various aspects of mental health in households, levels of physical activity was shown to be positively associated with general well-being, lower levels of anxiety and depression, and positive mood (Stephens 1998). This was particularly strong for women as well as for both women and men 40 years and over. This relationship was independent of the effects of socioeconomic status and physical health (Stephens 1998).

Furthermore, there is growing evidence that involvement in properly guided physical activity and sports can foster the adoption of other health seeking behaviours including the avoidance of tobacco, alcohol and drug use and violent behaviour among youth and / or young adults (WHO 2002b). In addition, healthy eating, sufficient rest and better safety practices are also fostered (WHO 2002b). Play, games and other physical activities give young people opportunities to have social interaction and integration as well as learning the spirit of solidarity and fair play (WHO 2002b). Active lifestyles through physical activity provide people of all ages with opportunities to make new friends, maintain social networks and interact with other people of all ages (WHO 2002b). Sport also mobilizes volunteers and promotes active community involvement, helping to build social capital and strengthen the social fabric (United Nations 2003).

Economic consequences of physical inactivity affect individuals, businesses and nations (WHO2003d). Physical activity, in turn, also has economic benefits especially in terms of reduced health care costs, increased productivity, healthier physical and social environments (WHO2003d). Physically active individuals save an estimated US\$ 500 per year in health care

costs according to 1998 data. In Canada, physical inactivity costs about 6% of total health care cost. In companies with employee physical activity programmes/initiatives, the benefit of US\$ 513 per worker per year can be reached (from changes in productivity, absenteeism, turnover and injury) (WHO2003d).

In a US study, Perkins & Clark (2001) measured the association between walking and health services use and costs among men and women who were chronically ill, from a lower socioeconomic status and aged 55years and older. Walking was chosen as a measure of physical activity because it was the most commonly performed activity among older adults. It was found that walking 120 or more minutes weekly was associated with a lower risk of emergency room visits and hospital stays in the subsequent year.

Recent estimates suggest that at least 60% of the world's population do not undertake sufficient activity to gain health benefits (Bull et al 2005). The third American National Health and Nutrition Examination Survey (NHANES III) for the period 1988 to 1994 examined the prevalence of physical activity during leisure time in a national representative sample of 18 825 adults aged 20 years and older (Crespo et al 2000). The results showed that nearly one quarter of US adults were physically inactive with more women (28%) than men (17%) reporting being inactive in their leisure time. Inactivity was more common in persons who were less educated, living in households with annual income below 20 000 dollars and who were retired (Crespo et al 2000).

A study to determine association between migration to cities and cardiovascular disease risk factors among rural and urban young individuals who were born in the same villages and shared similar childhood experiences in Guatemala City, found that migration to a city

increased sedentarism and undesirable eating habits among men and women; men became fatter and their lipid profile worsened (Torun et al 2002). Urban residents ate/drank more saturated fats, red meat and sweetened beverages, and fewer legumes (Torun et al 2002).

Little data is available on the prevalence of physically active lifestyles of older adults in Sub-Saharan Africa. In a study to investigate the prevalence of Type 2 diabetes mellitus and its risk factors in a working class peri-urban community of mixed ancestry (coloured) men and women in South Africa, it was found that approximately half of the subjects did not participate in the recommended 150 minutes or more per week recommended to achieve health benefits (Levitt et al 1999).

In another study done among black men living in the Cape Peninsula to determine association between physical activity and coronary heart disease risk factors, it was found that 57% were employed in occupations requiring minimal physical activity and 43% of the sample was employed in jobs which required moderate to strenuous amounts of exercise (Sparling et al 1994). Those aged between 45-64 years participated predominantly in light intensity activities (Sparling et al 1994).

Similarly, data reviewed on the prevalence of physical activity in South Africa suggest that individuals over the age of 55 years have the lowest levels of self reported moderate and vigorous physical activity and that these South African seniors spent 65% less energy than in a sample of North Americans of the same age (Lambert & Kolbe-Alexander 2006). It does appear that in South Africa physical activity decreases with increasing age (Lambert & Kolbe-Alexander 2006; Levitt et al 1999).

2.3.2 Perceived barriers and enhancers/ facilitators to improved physical activity

On a larger level, both developed and developing countries are experiencing challenges in implementing the Global strategy on Diet, Physical Activity and Health (Bull et al 2006).

These challenges are: - a lack of awareness about benefits; lack of government support and national health, sport, educational and related policies; lack of leadership; lack of perception of the value of sport in society; prevailing local culture; economic and other competing pressures; personal motivation; lack of support from family and friends; lack of access to sports facilities; lack of past experience; lack of availability of local physical programmes and a lack for training guidelines and programme examples (Bull et al 2006).

Barriers could be associated with age and gender, with women and older people less likely to participate in vigorous leisure time activity. Negative behaviours like smoking and obesity is associated with sedentary living and decreased participation in physical activity (Lambert et al 2001a).

In a US study to evaluate perceived social and environmental supports for physical activity and walking among households, it was found that environments rich in resources such as good street lighting, sidewalks, recreational facilities, parks, playgrounds, and sports fields encouraged physical activity (Addy 2004). More locally, unsafe neighbourhoods, a fear of crime and a lack of sports facilities have also previously been mentioned as barriers to participation in physical activity in Khayelitsha (Chopra & Puoane 2003).

Socially it was also found that trusting neighbours and perceiving neighbours as being active were associated with regular walking (Addy 2004). In another US survey which examined whether perceptions of physical activity differed by gender among adolescents, it was found that having an exercise partner and programmes involving group activities were important in promoting physical activity participation among all respondents (Tegeron & King 2002).

In summary the above discussion centred on the benefits, prevalence, barriers and enhancing factors of participating in physical activity. Focus will now be placed on dietary habits.

2.3.3 Dietary Habits

Nutrition underlies many of the public health problems and societal challenges in the world today (Vorster 1999). The nutrition transition mentioned above is a sequence of characteristic changes in dietary patterns and nutrient intakes associated with social, cultural and economic changes occurring during demographic transitions (Boutayeb & Boutayeb 2005; Shetty 1997; Drewnowski 1997). This nutrition transition describes a change from a traditional, indigenous, rural, high-fibre, low-fat diet that is eaten by poorer people to a diet more rich in animal fats and low in fibre which is eaten by those better off economically (Vorster et al 1999). In addition, an important factor of the nutrition transition is that urbanization in more industrialized countries was associated with economic growth but in many developing countries it results in urban poverty (Yach et al 1990).

More locally, the nutrition transition has especially affected the growing urban black population. As people migrated towards the cities they changed their lifestyles including their

dietary habits (Steyn 2006). More staple traditional foods are often replaced by unhealthy foods which are easily accessible in the townships, many of which are high in fat and sugar and have low nutrient value (Steyn 2006). This is confirmed by Bourne et al (1993) who also suggest that black South Africans who have migrated from rural to urban areas tended to increase their fat, saturated fat, and sugar intake and decreased their fibre and carbohydrate intakes resulting in very unhealthy diets.

In a study conducted in Khayelitsha which explored perceptions about body weight and body image among community health workers, unhealthy foodstuffs very high in fat were easily accessible for purchase in the community. Cooking methods involved lots of frying of foods in oil and food portion sizes were very large (Puoane et al 2005).

2.3.3.1 The South African Food Based Dietary Guidelines

To help reduce the burdens associated with diseases, the Department of Health developed the South African Food Based Dietary Guidelines as a strategy to optimize the nutritional status of all South Africans and promote appropriate nutritional intake and healthy lifestyles. More specifically the guidelines aim for the global elimination or substantial reduction of malnutrition, micronutrient malnutrition and diet-related communicable and non-communicable diseases (Vorster et al 2001). The guidelines are regarded as positive, practical, affordable, sustainable, and culturally sensitive to help South Africans over the age of 5 years to choose adequate but prudent diets (Vorster et al 2001). It consists of 10 short, clear and simple messages which have been tested for comprehension, appropriateness and applicability

in consumer groups of different backgrounds in both rural and urban areas (Vorster et al 2001).

The guidelines are summarised as the following messages:

- enjoy a variety of foods
- be active
- make starchy foods the basis of all meals
- eat plenty of fruit and vegetables
- eat dry beans, lentils and soya often
- meat, fish, chicken, milk and eggs can be eaten every day
- eat fats sparingly
- drink lots of clean water
- drink alcohol sensibly (Vorster et al 2001).

The health club being studied in this research based their dietary education programmes largely on the above guidelines.

2.3.4 Barriers and enhancers/ facilitating factors to improved dietary habits

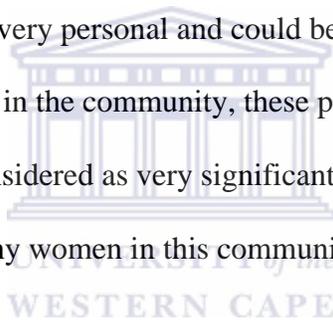
Barriers to improving dietary habits are often linked to personal issues regarding body image.

In a study utilizing a participatory approach to determine personal barriers to healthy living amongst community health workers residing in Khayelitsha, 42 of 44 community health workers were overweight, obese or extremely obese. It was found that many of these women may have misconceptions about their large body size (Chopra and Puoane 2003). They underestimated their level of overweight because they compared it to their peers rather than against medical standards. Most also perceived moderately overweight women as attractive, associating them with dignity, respect, confidence, health, wealth, strength and being treated

well by one's husband. One participant stated that she was scared of losing weight as people may think that she was HIV+. Another health worker revealed her own perceptions of what food should look like and had very limited knowledge about nutrition by stating that people who boil food were backward and not civilized as she regarded fried food as attractive and tasty (Chopra & Puoane 2003).

In another qualitative study which explored perceptions of overweight black women in Cape Town it was found that although women expressed the desire to lose some weight, there was no social pressure to motivate this (Mvo et al 1999). These perceptions and misconceptions (described above) appear to be very personal and could be socio- culturally entrenched.

Should they be commonly held in the community, these perceptions would be very difficult to shift and therefore could be considered as very significant barriers to improving dietary habits and hence overall health of many women in this community.



The lack of access to healthy food can also be regarded as another barrier to healthy eating.

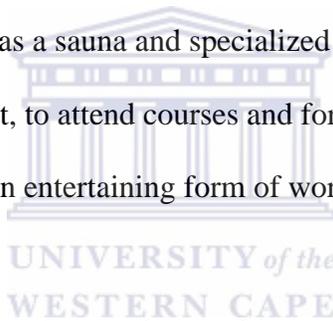
The shortage of healthy, low-fat food and the lack of fresh fruit and vegetables in the townships were also highlighted by Chopra & Puoane (2003). The majority of the local shops sell cheap fatty foods and street vendors sell fatty meat and sausages and low fat milk is not available in the shops (Chopra & Puoane 2003).

In summary, dietary habits were placed in a context of the nutrition transition with people in urban areas eating foods rich in animal fats and sugar and low in fibre. The South African Food Based dietary Guidelines were outlined. Barriers to improving dietary habits were

discussed which are so linked to individual and communal perceptions around issues such as acceptable body size. As these factors are so bound within cultural, community and economic contexts, the barriers really challenge community efforts to reduce obesity and any reversal hereof could be enhancing or facilitating of healthier dietary habits. Focus will now be placed on the concept of a health club in an urban township.

2.4 Health club participation

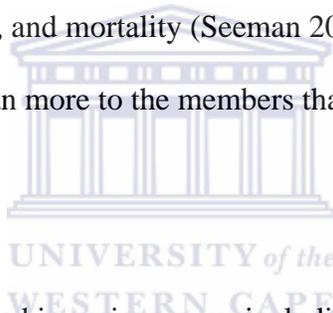
A health club, traditionally also called a fitness studio or exercise centre, is a place which houses exercise equipment for the purpose of physical exercise. Often courses such as aerobics and the like are offered as well as a sauna and specialized areas. They generally charge a fee for visitors to use the equipment, to attend courses and for the other services provided. Health clubs offer a collective and often entertaining form of workout (Wikipedia: health club).



However, the health club which is focussed on in this report functions more as a group of individuals coming together to learn about healthy lifestyles and provide support to each other irrespective of whether they have had a dedicated area for the group or not. When the club started the group met in a common community hall used for various functions such as a disability grant collection point. Thereafter they moved premises to the donated container which currently also houses the exercise equipment. Activities of the club's programme have previously been mentioned. 'Club' currently means the group of members as well as the clubhouse.

There is a lack of relevant information about the benefits of health clubs particularly in poorer communities. Apart from the physical health benefits, participation in community organisations such as the health club could provide members / attendees with the opportunity to build on social supports, improve social networks, companionship and caring for the wellbeing of others (personal opinion).

Social support includes real or perceived resources provided by others that enable a person to feel cared for, valued, and part of a network of communication and mutual obligation (Stroebe 2000). There is an association between increased levels of social support and reduced risk for physical disease, mental illness, and mortality (Seeman 2000, Stroebe 2000). Being part of the health club could therefore mean more to the members than only the prevention of chronic diseases.



Social support has been measured in various ways including perceived emotional or tangible support from family/ friends, community involvement, marital status, number of friends and frequency of social contacts. Research has consistently cited the beneficial health - related outcomes of social supports as well as the underlying effects including changes in cardiovascular, immune and endocrine systems (Uchino et al 1976). The Alameda County study which assessed the relationship between social and community ties and mortality among a random sample of 6928 adults in Alameda County, California, with a subsequent nine-year mortality follow-up underscores the importance of social support in maintaining health. They illustrated that low social integration (as measured by a summary index reflecting ties with a spouse, close friends and relatives, and participation in church and organizations) was

associated with mortality from all causes, and particularly from heart disease (Berkman & Syme 1979). This association between social ties and mortality was found to be independent of self-reported physical health status at the time, year of death, socioeconomic status, and health practices such as smoking, alcoholic beverage consumption, obesity, physical activity, and utilization of preventive health services as well as a cumulative index of health practices (Berkman & Syme 1979).

In summary, South Africa is experiencing an exacerbation of chronic diseases. This is occurring within the context of a global epidemiologic transition which has disproportionate effects on poor populations. Of concern is the growing contribution of physical inactivity and poor dietary habits to the epidemic. The Masiphakame Ngempilo Health Club was started in Khayelitsha in response to this overwhelming epidemic. The club focuses on education as well as on social support in promoting behaviour change towards more healthy lifestyles. Because members voluntarily attend the health club, it has been hypothesized that they were engaged in healthier practices of increased physical activity and improved dietary habits than community controls. Behaviour change is never easy and to confirm this hypothesis, physical activity practices and dietary habits were compared between members and non-members. Barriers and enhancing factors to increasing physical activity and improving dietary habits were also collected from all participants.

Aim of the study

The main aim of this study was to determine if health club members are more physically active and practicing healthier dietary habits than community controls.

Objectives

1. To determine if health club members were more physically active than non-members.
2. To determine if health club members were practicing healthier dietary habits than non-members.
3. To identify barriers to increasing physical activity and improving dietary habits for members and non-members.
4. To identify enhancing factors to improving physical activity and dietary habits for members and non-members.



Chapter 3

Methodology

This chapter outlines the study design; target population; sampling procedure and sample size; gaining of access; training of fieldworkers; development of data collection tools; data collection methods; data management and analysis; validity, reliability, generalisability and limitations of the study.

3.1 Study Design

The design is a non- experimental post intervention study in which the intervention and the control groups are compared.

As baseline data on physical activity and dietary habits of club members (the post intervention group) had not been collected, it was assumed that at the beginning of the intervention both populations (health club members and non-members) were equally at risk of developing chronic diseases.

3.2 Target Population

The target population was Xhosa speaking health club members (aged 37 to 87 years) and non-members (aged 40 to 80 years) from Khayelitsha.

3.3 Sampling procedure and sample size

Due to the small number of members of the health club, all 26 regular women club members participated in the study. In order to obtain the control sample, community health workers

invited a comparison group of similar demographics to the club on a particular day for data collection. However, due to heavy rain none of the people arrived. The four fieldworkers then went out into the surrounding areas on two days and recruited participants from the community. The control group of non-members were from the same community and it was made up of approximately twice the number (60) of the members group in order to increase the statistical power of the sample and to be able to detect a difference between the two groups based on outcome measures.

The five male health club members were not included in the study as it was felt that their practices of physical activity and dietary habits would differ too greatly from that of the women.



3.4 Gaining Access

The members group meets weekly on Wednesday mornings at the club. The researcher initially accessed the sample by arranging a first meeting with the coordinator and other community health workers and a second meeting with all the members and staff to inform them of the study, to seek permission to conduct the study and to explain the procedures of the planned research.

3.5 Training of field workers

Four Xhosa speaking field workers, who were familiar to the area, were trained in conducting interviews and completion of the questionnaires for efficient quality control and consistency of data collection. They were also involved in pilot testing of the questionnaire.

3.6 Data collection tools

A questionnaire was designed (appendix A) with questions extracted from a community survey used in Khayelitsha in 2005 (unpublished). Additional questions were added which were appropriate for the objectives of the study and target population. The questionnaire was not validated. The questionnaire was translated (and back-translated) by a professional translator into Xhosa, a local language within the area. Piloting of the questionnaire was completed with eight respondents of a similar population to determine its duration, flow, clarity and social acceptability. Questions were mostly structured. Simple language was used to facilitate easier understanding of the questions being asked.

3.7 Data Collection

Data was collected through face to face interviews wherein questionnaires were completed by the fieldworkers. The interviews were conducted in isiXhosa under supervision of the researcher and project coordinator. Members were interviewed at the club and non-members at their homes. Interviewing took place in November 2006 and February 2007 and each interview lasted approximately 10 to 15 minutes.

Data collected included:

- I. Frequency and/or duration of various physical exercises and activities. Participants were also asked to list other physical and non-physical activities they engage in.
- II. Types, quantities and frequencies of consumption, as well as preparation of various foods such as vegetables and sugary foods.

III. Factors which inhibited and enhanced increased physical activity.

IV. Factors which inhibited and enhanced improved dietary habits.

3.8 Data management and data analysis

Questionnaires were checked and completed on site before interviewers departed. Data cleaning and coding ran concurrently with data collection. Data was captured by means of Excel and imported into the SPSS programme for analysis. Analyses included calculations of frequencies and percentages.

Cross-tabulations and chi-squared tests were done to test for association between variables.

Because the independent variables consisted of more than one category, a single p- value was represented to indicate whether the two groups (health club members vs. non-members) differed significantly from each other. The results of this analysis are presented in Chapter 4 of this report.

3.9 Validity, reliability and generalisability

Validity

The questionnaire was translated and back-translated by a professional translator.

Use of isiXhosa, the local language, enabled easier communication. General matching along area and age was employed in obtaining the control group.

Reliability

The questionnaire has been discussed with specialists who are experts in this field about the data collection tools and methods.

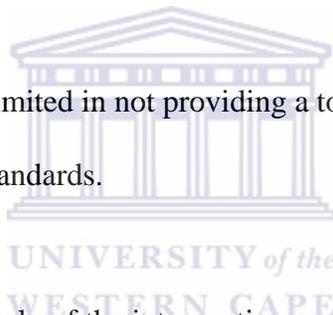
Generalisability

The results of this study are generalisable to the local community of Khayelitsha as well as other urban townships of similar demographic profiles. However due to the specificity of the health club, generalizing these results is less of an issue in this study.

3.10 Limitations

A validated questionnaire was not used and should have been considered when conceptualising the study. This would have made future monitoring of progress standardised and easier.

The questionnaire design was limited in not providing a total measure of physical activity comparable to recommended standards.



The small sample size, particularly of the intervention group, makes it less easy to assess for significant differences between the two groups (health club members vs non-members).

Results must therefore be treated with some caution.

Membership duration, attendance, other health conditions and whether participants gain health related information elsewhere were not measured and could confound the study's findings.

No baseline data comparable to the post intervention data was collected which could be a further confounding factor.

Being face to face has the disadvantage in that respondents may have felt the need to provide correct answers to please the interviewers.

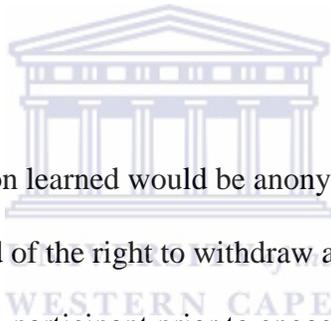
Reporting of practices could have been subject to oversimplification or exaggeration.

3.11 Ethics, confidentiality and privacy protection

The research proposal was approved by the ethics committee and the senate of the University of the Western Cape and thereafter permission was requested from coordinators of the health club. The nature, aims and importance of the research was explained to all participants prior to commencement of the research.

It was explained that information learned would be anonymous, confidential and voluntary.

Participants were also reassured of the right to withdraw at any stage. Signed informed consent was obtained from each participant prior to engagement in the study. No names or other identifying information appeared on the instrument and each questionnaire was assigned a number code for ease of data analysis.



Chapter 4: Findings

4.1 Demographic characteristics of members and non-members

A total of 86 participants were recruited consisting of 26 health club members and 60 non-members. All female club members participated in the study with a response rate of a 100%. Age distribution, employment status, education level and the number of adults in the household of participants are shown in table 1.

Table1. Demographic characteristics of all participants (n=86)

Variables	Club members		Non-members	
	Frequency	%	Frequency	%
Age				
50 years and younger	3	12	12	20
51-60 years	9	35	24	41
More than 60	14	54	23	39
Employment status				
Unemployed	23	92	46	78
Part-time	1	4	7	12
Full time	0	0	3	5
Self-employed	1	4	3	5
Education level				
No schooling	7	29	20	35
Primary school	13	54	22	39
High school	4	17	15	26
Number of adults living in household				
One	6	23	6	11
Two	11	42	18	32
Three or more	9	35	32	57

From the above table it can be seen that members are slightly older than non-members. Ninety two percent of members and 78% of non-members were unemployed. None of the club

members and 3 non- members were in full-time employment. With regards to education level, 29% of members and 35% of non-members had never had any schooling and 17% of members and 26% of non-members received some high school education. Home language in almost all cases was Xhosa and only two of the non-member group stated that Sotho was their home language. There were less adults living in the households of members than non-members. Twenty three percent of members and 11% of non-members lived in single adult households and 35% of members and 57% of non-members lived in households with three or more adults.

4.2 Participation in physical activity of members and non-members

Physical activity in this study is of light, moderate and vigorous intensity.

4.2.1 Participation in light physical activity

Participants were asked how many minutes they walked daily. Responses are shown in figure 1 below.

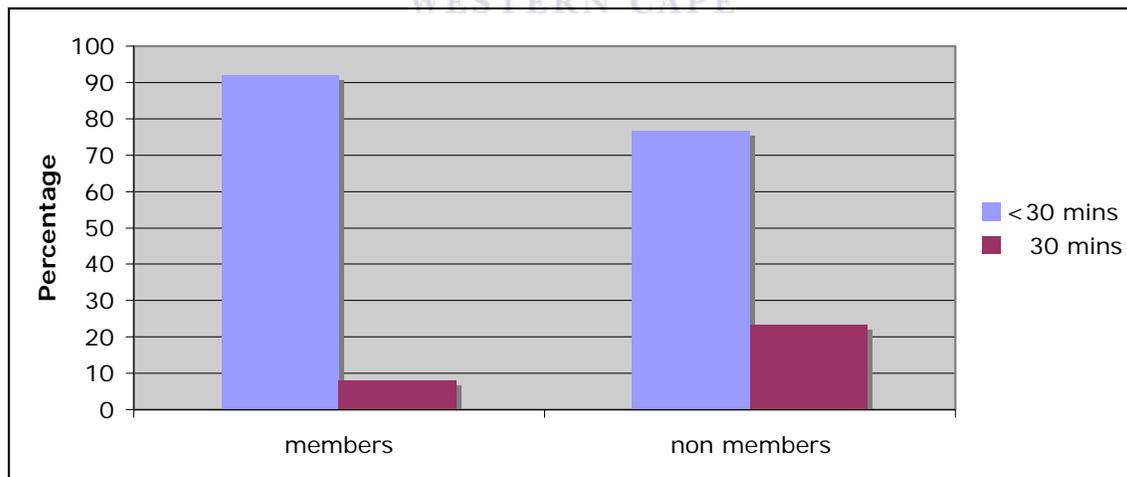


Fig 1. Time spent walking (in minutes) by members and non-members

From figure 1 it can be seen that 92% of members and 77% of non-members walk for less than 30 minutes daily and 8% of members and 23% of non-members walk for more than 30

minutes. Non-members walk significantly more than members with a p value = 0.025.

Participants were asked how many hours they spent on meal preparation and cleaning up after meals daily. Responses are shown in figure 2 below.

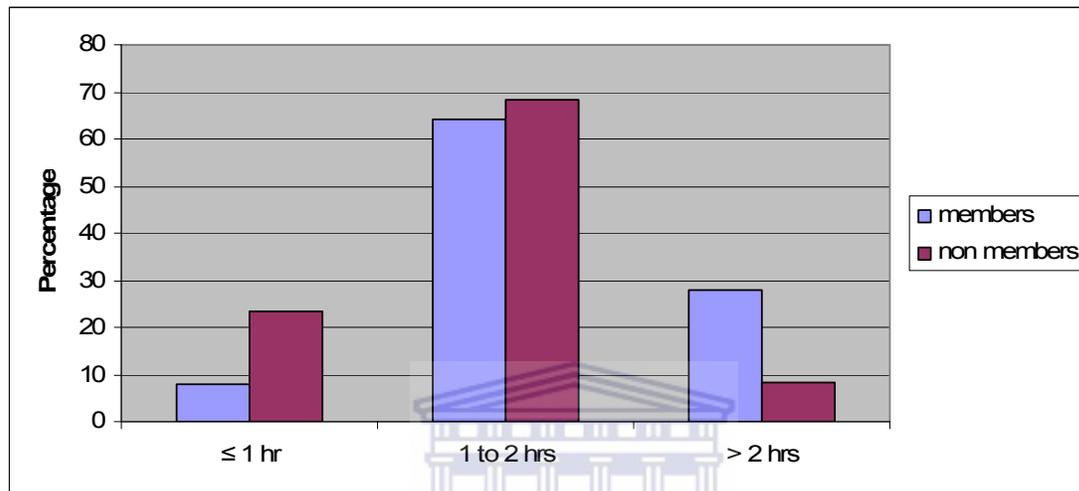


Fig 2. Time spent in meal preparation and cleaning up after meals (in hours) of members and non-members

Club members spent more time engaged in meal preparation and cleaning up after meals daily than non-members. Figure 2 shows that 28% of club members spent more than 2 hours daily involved in these activities compared to 8% of non-members. Club members spent significantly more time in meal preparation and cleaning up after meals than non-members with a p-value= 0.029.

4.2.2 Participation in moderate physical activity

Participants were asked how many hours they spent in moderate structured weekly exercise which was described as ‘exercises like brisk walking, playing sports with children or similar moderate intensity activities’. Responses are shown in figure 3 below.

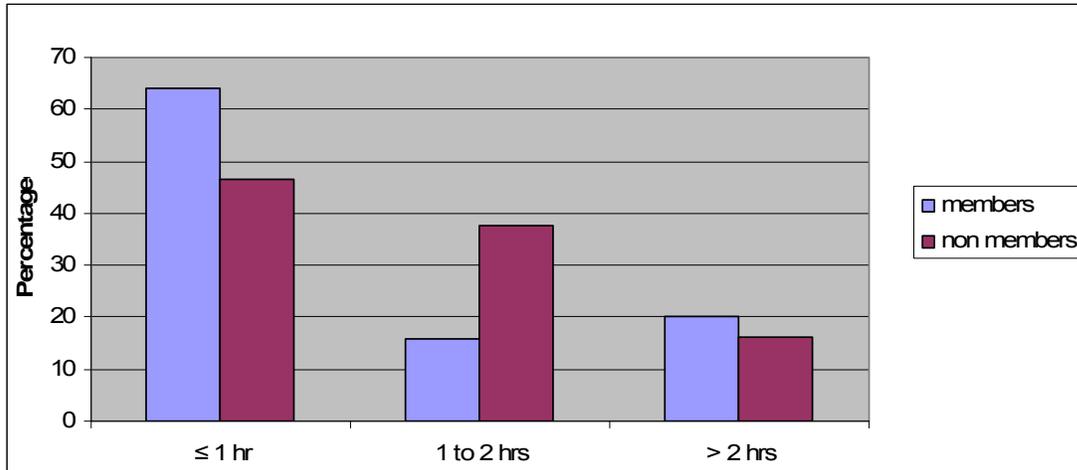


Fig 3. Participation in moderate exercise per week (in hours) of members and non-members

Sixteen percent of members and 38% of non-members spent 1-2 hours and 20% of members and 16% of non-members spent more than 2 hours in moderate exercise weekly.

Members and non-members spent similar lengths of times engaged in moderate exercise.

Participants were asked how many hours per day they spent doing routine dusting and cleaning like laundry, sweeping, changing bed sheets and grocery shopping. Responses are shown in figure 4 below.

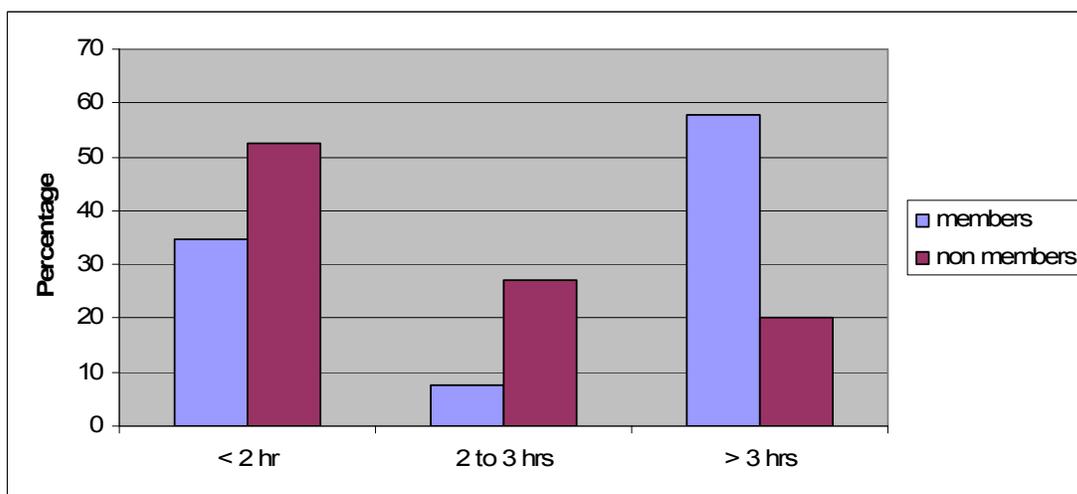


Fig 4. Participation in moderate daily cleaning activities (in hours) of members and non-members

Fifty eight percent of members and 20% of non-members participate in these tasks for more than 3 hours daily. Members spent more time with daily moderate cleaning tasks than non-members. The difference is statistically significant with a p-value=0.002.

4.2.3 Participation in vigorous activities

Participants were asked how many times per month they engaged in activities such as ‘washing windows, chopping wood, scrubbing floors, fetching water and sweeping the yard’. Responses are shown in figure 5 below.

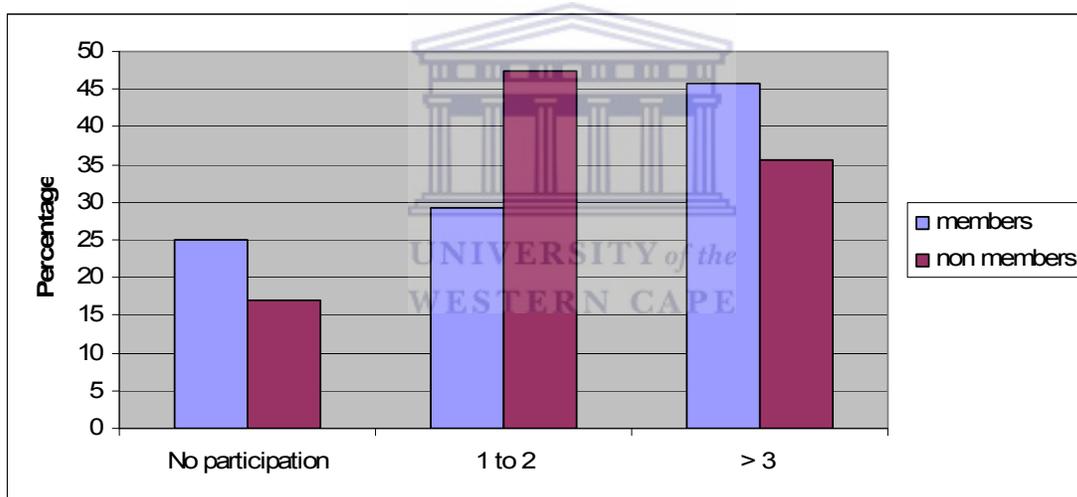


Fig 5. Number of times engaged in vigorous cleaning per month by members and non-members.

Forty six percent and 36% of members and non-members respectively engaged in vigorous household activities 3 or more times monthly. Members and non-members spent similar times engaged in vigorous monthly activities. However, although there is no statistical significance, more members spent a greater number of times involved in these activities.

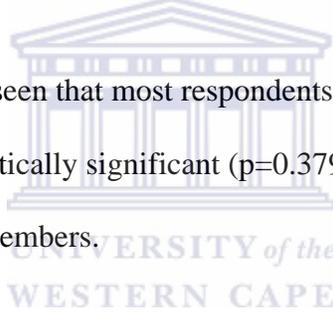
4.2.4 Time spent watching television by members and non-members

Television watching is used as a proxy of a sedentary lifestyle. The 92% and 95% of members and non-members respectively who watch television were asked how many hours they spent watching television daily. Members and non-members responses are shown in table 2 below.

Table 2- Hours spent watching television daily by participants

<i>Daily no. of hours spent watching television</i>	<i>Members</i>		<i>Non-members</i>	
	<i>frequency</i>	<i>%</i>	<i>frequency</i>	<i>%</i>
Less than 1 hour	7	28	11	19
Between 1-2 hours	14	56	30	52
More than 2 hours	4	16	17	29

From the above table it can be seen that most respondents watch television for 1-2 hours daily. Although not statistically significant ($p=0.379$), members spent less time watching television than non-members.



4.2.5 Participation in other physical activities by members and non-members

Respondents were asked to list other (than the ones mentioned above) physical activities they participated in. Twelve percent of members and 3% of non-members reported that they also take care of other people. This involved bathing, lifting, feeding, dressing and transferring them. None of the members and 5% of non-members reported that they are involved in selling of goods which involves transporting, carrying, lifting and packing of goods.

4.2.6 Participation in other non-physical activities by members and non-members

Respondents were asked to list non-physical activities they participated in. Examples were given of reading and attending church services. Sixty nine percent of members and 62% of

non-members stated that they participated in church and religious activities. Also, 15% of members and 20% of non-members spent time reading and 39% of members and 10% of non-members were involved in sewing and knitting activities.

4.3 Barriers and enhancing factors to increasing physical activity among all participants

Participants were given a list of perceived barriers and perceived enhancers for physical activity some of which were drawn from previous studies done in Khayelitsha (Puoane et al 2005 & 2006). They were asked to choose those that applied to them and add any that were not on the list. Results were not statistically compared between the two groups. Their responses are tabulated in tables 3 and 4 below.

Table 3. Members and non-members perceived barriers for physical activity

<i>Perceived barriers</i>	<i>Members %</i>	<i>Non-members %</i>
Health problems	23	7
Family commitments	15	5
Personal problems	15	0
Feeling too tired	15	17
Pain associated with exercise	12	13
Laziness	4	37
Lack of exercise facilities	0	30
Feeling unsafe	4	22
Fear of losing weight	0	2
Financial problems	0	0
Feeling insecure	0	3
Not interested	0	2
Forgetfulness	0	2
Transport and distance problems	0	3
Feeling upset	0	2
Too old for gym	0	3

Note: Participants may have more than 1 response. Totals may therefore exceed 100%.

More common barriers perceived by members were: health problems, family commitments, personal problems, feeling too tired and pain associated with exercise. Those perceived by non-members were: laziness, a lack of exercise facilities, feeling unsafe, feeling too tired and pain associated with exercise.

Table 4. Members and non-members perceived enhancing factors for physical activity

<i>Perceived enhancers</i>	<i>Members %</i>	<i>Non-members %</i>
Own motivation and confidence	31	25
Having sufficient time	23	37
Health benefits	23	3
Having community support	12	28
Feeling good after exercise /gym	19	2
Having an exercise partner	4	13
Interest/curiosity	4	0
Excitement	4	2
Being happy	0	2

Note: Participants may have more than 1 response. Totals may therefore exceed 100%.

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The common enhancing factors to improved physical activity perceived by members were: own motivation and confidence, having sufficient time, the health benefits, feeling good after exercise and visiting the gym and having community support. Those perceived by non-members were: having sufficient time, having community support, own motivation and confidence and having an exercise partner.

4.4 Summary of physical activity

In summary members have walked significantly less than non-members. Members have; however, participated more in all areas of physical activity examined but in the areas of moderate exercise and vigorous monthly cleaning those differences were not statistically

significant. Members have watched less television and are more involved in other physical and non-physical activities within their communities than non-members.

4.5 Dietary habits of members and non-members

4.5.1 Foods rich in fat consumed by all participants

Consumption of food rich in fat in this study included: trimming of fat and/or skin from red meat and chicken, cooking methods of meats and the consumption of sour milk, margarine, fat cookies, offal and pork.

Preparation of red meat and chicken among participants

Participants were asked whether they remove the fat (and/or skin) from red meat and chicken. They were provided with responses of ‘never’, ‘sometimes’ and ‘always’ and they were asked to choose the response that apply to them. These results are depicted in figures 6 & 7 below:

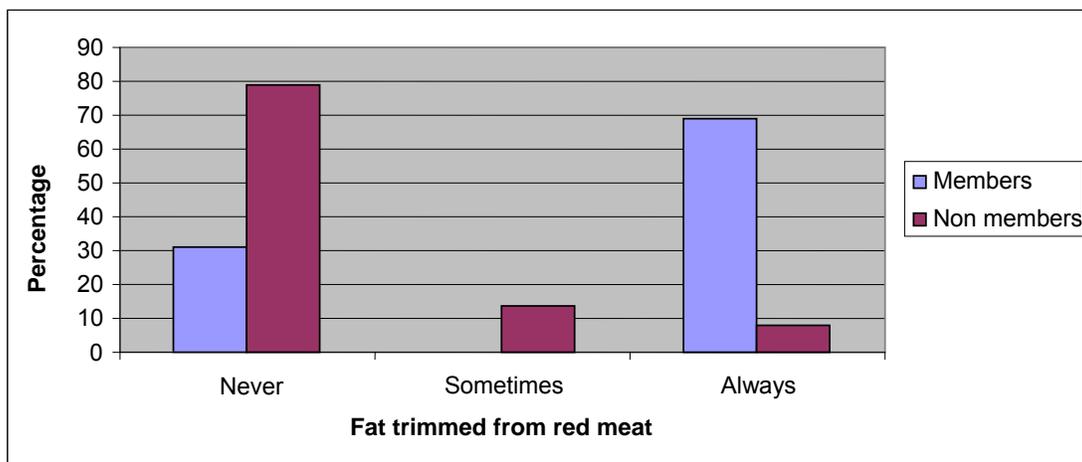


Fig 6. Fat trimmed from red meat by participants

From the above figure it can be seen that 69% of members always trimmed fat whereas 79% of non-members never trimmed fat. More members trimmed fat from red meat than non-members and this difference is statistically significant with p-value = 0.000.

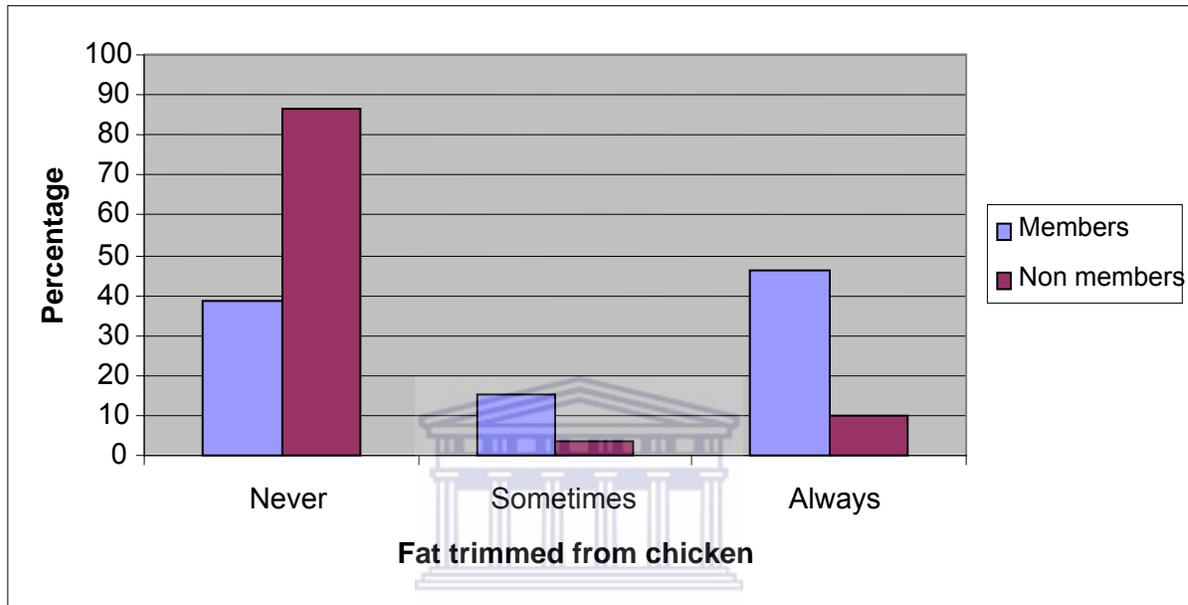


Fig 7. Fat and skin trimmed from chicken by participants

From the above figure it can be seen that 46% of members always trimmed fat and skin from their chicken whereas 86% of non-members never did this. More members trimmed fat and skin from chicken than non-members and this difference is statistically significant with a p-value = 0.000.

Cooking methods of meats among participants

Participants were asked how they usually cooked their red meat, chicken, sausage and fish. They were given the following responses to choose from: fry, grill, boil and bake. Boiling red meat is the most common method for both members (92%) and non-members (90%). Similarly it is also the most common method for cooking chicken with 85% of members and

71% of non-members preferring this method of preparing chicken. With sausage, 50% of members fry it compared to 67% of non-members. With fish preparation, 53% of members vs. 77% of non-members fry and 24% of members vs. 4% of non-members bake their fish. Although there was no statistical difference in the methods of cooking of meats, fewer members fried their meats in oil than non-members.

Consumption of sour milk among participants

Participants were asked how often they drank or ate sour milk per week. Non-members drank more sour milk than members. Seventy six percent of non-members and 44% of members ate/drank sour milk once or twice weekly (data not shown). This difference is statistically significant with a p-value = 0.016.



Consumption of margarine among participants

Participants were asked what type of spread they commonly used and to indicate whether they used soft or hard margarine. The most used spread was margarine with 50% of members and 43.5% of non-members stating that they ate this on their bread. Of those that ate margarine, 38.5% of members and 96% of non-members use soft margarine instead of hard margarine (data not shown). This difference is statistically significant with a p-value = 0.000.

Consumption of fat cookies among participants

Fat cookies are white bread rolls fried in oil, similar to doughnuts. Participants were asked how often they ate fat cookies per week. Approximately 60% of all respondents reported that they do not eat fat cookies at all while 12% of members and 3% of non-members respectively

reported that they ate fat cookies 3 or more times a week (data not shown). Although not significant, members ate more fat cakes than non-members.

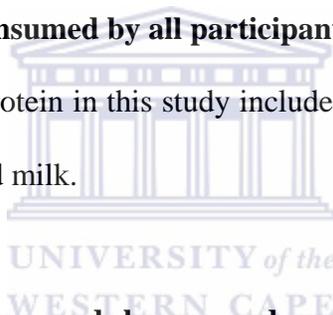
Consumption of offal and pork among participants

Participants were asked how often they ate offal and pork/ pig feet per month.

Fifty two percent of members and 39% of non-members never ate offal and 64% of members and 51% of non-members did not eat any pork/ pig feet. The differences in members and non-members consumption of offal and pork were not statistically significant.

4.5.2 Foods rich in protein consumed by all participants

Consumption of food rich in protein in this study include: 'lentils, samp and beans', red meat, chicken, sausage, fish, eggs and milk.



Consumption of lentils; samp and beans; red meat; chicken and sausage among participants

Participants were asked how many times per week they ate lentils, samp and beans; red meat; chicken and sausage. See table 5 below.

Table5. Weekly consumption of lentils, samp and beans; red meat; chicken and sausage

<i>Weekly lentils</i>	<i>Members</i>		<i>Non-members</i>	
	<i>frequency</i>	<i>%</i>	<i>frequency</i>	<i>%</i>
No lentils etc	5	19	19	33
Once per week	11	42	33	57
Twice or more	10	39	6	10
<i>Weekly red meat</i>				
Hardly ever or no red meat	15	58	11	19
Once per week	8	31	27	46
Twice or more per week	3	11	21	35
<i>Weekly chicken</i>				
Once a week	6	24	9	16
2-3 times per week	15	60	36	63
4 or more times per week	4	16	12	21
<i>Weekly sausage</i>				
Hardly ever or never	8	31	8	16
Once per week	11	42	29	57
2 or more times per week	7	27	14	27

As can be seen from the above table a large percentage of respondents consume lentils, samp and beans but members ate more of these products than non-members with a statistically significant difference $p\text{-value} = 0.009$.

Fifty eight percent and 19% of members and non-members respectively never eat red meat. This difference in red meat consumption with members eating less than non-members is statistically significant with a $p\text{-value} = 0.001$.

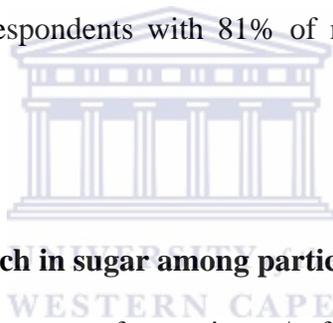
It can be seen that there is little difference between members and non-members consumption of chicken. Although more members (31%) do not eat any sausage as compared to non-members (16%), this difference is not statistically significant.

Consumption of fish, eggs and milk among participants

Members ate less fish than non-members with 39% of members who never ate fish at all and 70% of non-members who ate fish 1-2 times per month. This difference in fish consumption with members having eaten less than non-members is statistically different with a p-value = 0.009.

Members and non-members consumption of eggs was similar with no statistically significant difference. Twenty percent of members and 32% of non-members did not eat eggs at all. Twenty eight percent of members and 14% of non-members ate 3 or more eggs per week.

Only one club member reported that she does not drink milk at all. Full cream milk is most commonly consumed by all respondents with 81% of members and 83% of non-members consuming this.



4.5.3 Consumption of foods rich in sugar among participants

Foods rich in sugar include: teaspoons of sugar in tea/coffee, number of sweets and sweetened beverages.

Respondents were asked how many teaspoons of sugar they added to their tea/coffee and results are shown in table 6 below.

Table 6. Number of teaspoons of added sugar by members and non-members

<i>No. of teaspoons of sugar added to tea/coffee</i>	<i>Members</i>		<i>Non-members</i>	
	<i>frequency</i>	<i>%</i>	<i>frequency</i>	<i>%</i>
Less than 2 teaspoons	9	36	3	5
2-2.5 teaspoons	8	32	16	27
3 or more teaspoons	8	32	41	68

Table 6 shows that members consume less sugar with 36% of members vs 5% of non-members using less than 2 teaspoons and 68% of non-members vs 32% of members using 3 or more teaspoons in their hot beverages. This difference is highly significant with a p-value = 0.000.

Respondents were asked how many times per week they ate cakes, sweets, chocolates and puddings. Members ate more sweets than non-members with 24% of members and 3.5% of non-members who ate sweets 3 or more times weekly. The difference is statistically significant with a p-value = 0.015.

Respondents were asked what the main type of cold beverage was which they usually drank daily. They were then asked how many glasses of this cold drink they would usually drink in summer. Carbonated drinks (Coke, Fanta, Sprite, etc) and sweetened juice and were more commonly consumed. Of the members, fifty percent drank carbonated soft drinks and 23% drank sweetened juice. Of the non-members, 56 % drank soft drinks and 19% drank sweetened juice. However, 62% of club members drank 1 glass of their preferred beverage compared to non-members, of whom 66% drank 3 or more glasses daily in summer. This difference in consumption is highly significant with a p-value = 0.000.

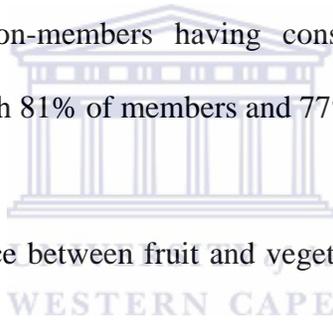
4.5.4 Consumption of fruit and vegetables by participants

Respondents were asked how many fruits and portions of vegetables they usually ate daily. A portion was described as a fist-sized amount of vegetables. Members and non-members responses are shown in table 7 below.

Table7. Daily consumption of fruit and vegetables

<i>Fruits consumed daily</i>	<i>Members</i>		<i>Non-members</i>	
	<i>frequency</i>	<i>%</i>	<i>frequency</i>	<i>%</i>
One portion or less	9	36	18	30
2 - 3 fruits	14	56	38	63
4 or more fruits	2	8	4	7
<i>Vegetables consumed daily</i>				
One portion or less	3	12	7	12
2-3 portions	21	81	46	77
4 or more portions	2	8	7	12

From the above table it can be seen that fruit consumption is similar for both groups with 56% of members and 63% of non-members having consumed 2-3 fruits daily. Vegetable consumption is also similar with 81% of members and 77% of non-members having consumed 2-3 portions daily.



There is no statistical difference between fruit and vegetable consumption between members and non-members.

4.5.5 Consumption of foods rich in starch

Foods rich in starch include: consumption of bread and maize porridge.

Consumption of bread by participants

Respondents were asked what type of bread they ate and were asked to choose from a provided list of: white, brown, whole-wheat and home-made. They were then asked how many slices of their preferred bread they ate daily. Brown bread is preferred by all respondents and only 3 non-members stated that they ate whole-wheat bread. Three members and 12 non-members stated that they ate white bread. Fifteen percent of members and 41% of non-members ate 1-2 slices of bread daily. Twenty seven percent of members and 5% of non-

members ate 3-4 slices daily. Fifty four percent of members and 50% of non-members consume 4 slices of bread daily. Health club members consume more slices of bread than non-members. This difference in consumption is statistically significant with a p-value= 0.016.

Consumption of maize porridge by participants

Respondents were asked how many times per week they consumed soft maize porridge. There is similar consumption of soft maize porridge by members and non-members with 65% of members and 54% of non-members reporting that they ate this 4 or more times per week.

4.5.6 Consumption of water

Respondents were asked how many glasses of water they drank daily. This data is shown in the table 8 below.

Table 8. Comparison of members and non-members daily consumption of water

<i>Glasses of water per day</i>	<i>Members</i>		<i>Non-members</i>	
	<i>frequency</i>	<i>%</i>	<i>frequency</i>	<i>%</i>
Less than 2	6	23	4	7
2 - 3 glasses	10	39	29	48
4 or more glasses	10	39	27	45

From the above table it can be seen that members drink less glasses of water than non-members with 39% of members and 48% of non-members drinking 2-3 glasses daily. This difference was not statistically significant.

4.5.7 Consumption of salt

Respondents were asked whether they usually ate their food very salty, lightly salted,

or not salted and were asked to choose from these responses. They were also asked whether they added salt, Fondor or Aromat while cooking or after cooking. It was found that members and non-members consumed similar amounts of salt although members ate less salt than non-members. None of the club members and 7% of non-members prefer their food to be very salty. Twenty two percent of members and 49% prefer their food lightly salted and 15% of members and 10% of non-members prefer their foods unsalted. Of those who use salt, 68% of members and 81% of non-members add salt to their food while cooking (data not shown).

4.5.8 Comparison of participants' access to refrigeration

Refrigeration for storage of perishable food is available for 62% of members and 83% of non-members. This difference is significant with a p-value of 0.028.

4.6 Identification of barriers and enhancing factors to improving dietary habits of participants

Participants were given a list of perceived barriers and perceived enhancers for improved dietary habits some of which were drawn from Chopra and Puoane (2003). They were asked to choose those that applied to them and to add any that were not on the list. Results were not statistically compared between the two groups. Their responses are depicted in tables 9 and 10 below.

Table 9. Members and non-members perceived barriers for improved dietary habits

<i>Perceived barriers</i>	<i>Members %</i>	<i>Non-members %</i>
Healthy food too expensive	73	80
Healthy food not easy to find	27	15
Available food is too tempting	12	13
Eating healthily makes me isolated from others	8	2
Available food is nutritious	8	2
Health reasons	4	0
Fear of losing weight	0	5
Love meat	0	2

Note: Participants may have more than 1 response. Percentages may therefore exceed 100

The more common barriers mentioned by both members and non-members were: healthy food was too expensive, healthy food was not easy to find and that available food was too tempting.

Table 10. Members and non-members perceived enhancing factors for improved dietary habits

<i>Perceived barriers</i>	<i>Members %</i>	<i>Non-members %</i>
Feeling healthier and confident	54	57
Having more money	27	28
Family / community curiosity and support	8	8
Losing weight	4	12
Eating healthily	4	0
Vitamins and irons	4	0
Be strong by yourself	4	0
Healthy food is accessible	4	0
Personal hygiene	4	0
Food gardening	0	5
Better eyesight	0	2
Feeling strong	0	2

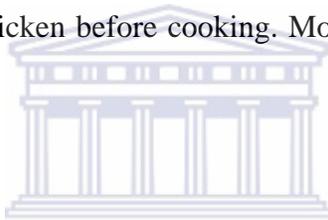
Note: Participants may have more than 1 response. Percentages may therefore exceed 100%.

The more common enhancing factors mentioned by members were: feeling healthier and confident, having more money, good health and healthy lifestyle and having family/ community curiosity and support.

The more common enhancing factors mentioned by non-members were: feeling healthier and confident, having more money, losing weight and having family/ community curiosity and support.

4.7 Summary of dietary habits

In summary, there is statistically significant difference in members and non-members consumption of the following foods with p-values <0.05 :- Members ate more 'lentils, samp and beans'; slices of bread, hard margarine and sweets. Members ate/drank less red meat, fish, sugar in their tea/coffee, sour milk, cold drinks and soft margarine. More members remove fat and skin from red meat and chicken before cooking. More non-members than members have access to refrigeration.



There is no statistically significant difference between members and non-members practices of eating fruit, vegetables, soft maize porridge, chicken, sausage, offal, pork, water, milk, hot beverages, fat cookies, salt, and eggs. However, although not statistically significant, members do eat /drink more maize porridge and less offal, fat cookies, pork, sausage and water. Also, although not statistically significant, fewer members than non-members fry their meat, chicken, fish and sausage.

The more commonly mentioned barriers to improving physical activity are: 'healthy food is too expensive', 'healthy food not easy to find', 'unemployed and not enough money' and 'available food is too tempting'.

The more commonly mentioned enhancing factors are 'feeling healthy and confident', 'having more money' and 'family/community curiosity and support'.



Chapter 5- Discussion, conclusion and recommendations

5.1 Discussion

The aim of this study was to compare health club members' practices of physical activity and dietary habits with those of non-members to determine if members were making healthier lifestyle choices than non-members. Where applicable, discussion of findings will be based on the South African Food- Based Dietary Guidelines (Vorster et al 2001), hereafter referred to as the 'FBDG'. Discussion of identified barriers and enhancing factors for all participants will partly be examined within the context of the Health Belief Model. For easier reading barriers of both physical activity and dietary habits will be discussed together and similarly enhancing factors of both physical activity and dietary habits will also be discussed together.

5.1.1 Practices of physical activity

In terms of physical activity, it was found that health club members participated more actively and were less sedentary than non-members in all areas of physical activity except that they walked less and did not engage in more moderate physical exercise (as would be expected) than non-members. They were also more involved in other physical and non-physical activities and watched less television than non-members.

The FBDG does recommend that people should participate in physical activities of moderate intensity for at least 30 minutes on most days of the week or three times a day for as little as ten minutes at a time. These recommendations refer to those of the US Surgeon General's Report on Physical Activity and Health (1996). Activities that should be encouraged include

brisk walking, working in the yard or garden, sweeping and cleaning the house as well as playing outdoors with children (Lambert, et al 2001a).

It is not possible to fully compare physical activity practices measured in this study to the FBDG as the study does not provide a total measure of weekly moderate physical activity per individual which could easily be compared to the recommended '30 minutes daily for most days of the week' measuring point. However, a low percentage of members and non-members participate in the light activity of daily walking and members walk even less than non-members. A possible reason for this could be that members are slightly older than non-members and may therefore walk less.

Walking does not require any special equipment or facilities and could be seen as an everyday normal activity. Many Khayelitsha residents come from rural areas where they engage in physical activity by walking long distances in lieu of car/bus transportation, working in the fields and collecting water, firewood and foodstuffs (Puoane 2004). However it is possible that residents do not feel safe in the environment. In a previous study, a barrier to improving physical activity practices expressed by residents of Khayelitsha is a fear of crime or violence (Puoane et al 2005a). Members as well as the wider community should be encouraged to do more brisk walking in order to maintain adequate health.

It is also anomalous that there was no statistically significant difference in members and non-members participation in weekly moderate exercise. This could indicate a limitation in the question design or it could reflect the true amount of time spent by members in physical exercise. It is possible that although members do attend regularly, it may be for only one

morning per week which would limit the amount of exercise they do. If the latter were the case; like walking, daily moderate exercise should also be encouraged.

With household tasks, the target population of this study participate in these activities in and around their homes everyday within the contexts of their living environments. In this regard it has been suggested that when determining whether the older adult is meeting minimal PA recommendations, it is advisable to include domains such as housework and yard work as these activities are frequently reported in these older populations (Lawlor, et al 2002). The extended time spent by members doing household tasks of light, moderate and vigorous intensity, as compared to non-members, we assume could be due to the following:

- Members could move slower as some of them are slightly older than the non-members.
- Members also live in homes with fewer adults than non-members which could mean that there are fewer people around to complete the housework required.
- Members may also feel less rushed to do things due to unemployment or retirement and therefore spend extended time doing these chores.
- Members are more relaxed and motivated to engage in these activities and occupations as the importance of this is fostered within the education programme of the health club (personal opinion).

Members, by actually participating in the club's programme and mastering the exercises, may feel more encouraged to initiate new activities and occupations. This is supported by the findings that, aside from the areas of physical activity examined in this study, members were also more involved than non-members in other physical and non-physical activities within the

community. The activities they do include looking after others, religious and church activities, reading and sewing. The repertoire of activities/ hobbies /occupations available does appear to be small. This could be due to the low socio-economic status of the community, environmental constraints as well as the fact that participation in activities were never encouraged historically in these communities by the previous repressive South African government (personal opinion).

Amongst the numerous negative effects of television watching, this study is more concerned with its association with cardiovascular risks and as mentioned previously, for the purposes of this study television watching is a proxy of physical inactivity/ sedentarism.

Although time spent watching television is of similar length and popular among all respondents, members watch less television than non-members. Television watching may be popular in the townships because it provides a means of entertainment /leisure as there may also be a lack of other social things to do as well as a fear of going outside.

Americans have said that the television is the least necessary part of their lives but they devote more and more time to it than any other leisure activity (Robinson & Godbey 1997). A study to assess associations between long-term leisure-time physical activity, television watching, and biomarkers of CVD risk (LDL cholesterol, HDL cholesterol, leptin, apolipoprotein A1) among 468 healthy male health professionals in the USA concluded that physical inactivity and television watching were significantly associated with several biochemical markers of obesity and CVD risk (Fung et al 2000). However, although time spent watching television does provide a measure of inactivity it is a factor which cannot be looked at on its own as

individuals may watch television for a few hours daily but could also be involved in adequate amounts of daily moderate exercise as well.

5.1.2 Dietary habits

As regards dietary habits between members and non-members, it was found that health club members have mostly practiced healthier dietary habits than non-members. They consumed more of the healthier vegetable based legumes and maize porridge; less red meat and foods high in fat such as sour milk, offal, pork and sausage; less sugar in their hot beverages and less sweetened soft drinks. Club members, more than non-members, also practiced healthier food preparation methods of removing fat and/or skin from their meat and chicken and choosing mostly to not deep fry their meats. Contrary to expectation, members consume more hard (rather than soft) margarine, more sweets, more bread, the same amount of fat cakes and less fish than non-members.

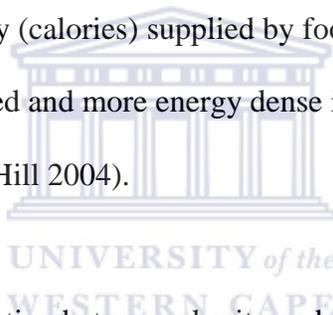
The FBDG recommend that fats be used sparingly. Although this is a vague description, it does appear that club members more than non-members are generally complying with this recommendation and consuming less fat in their diets. This does show an achievement on the part of health club members particularly as fatty and unhealthy foods are so readily available in the community. Chopra and Puoane (2003) assessed environmental influences on obesity in Khayelitsha. They reported that there is a shortage of healthy low fat food and little fruit and vegetables are available in the townships. They further noted that the majority of the local shops sell cheap, fatty foods and street vendors sell fatty meat and sausages. In an

investigation into the association between global availability of cheap vegetable oils and fats and the effect on obesity and diet quality, dietary energy density, and energy costs;

Drewnowski & Popkin (1997) have shown that cheap vegetable fats and oils have become easily accessible globally to poorer communities and this has resulted in increased fat intakes and concomitant increasing risk of chronic diseases in developing countries.

The nutrition transition now occurs at lower levels than the gross national product than it had previously, and that it is accelerated by high urbanization rates (Drewnowski & Popkin 1997).

In examining the epidemics of tobacco and diets and the role of globalisation herein, it has been shown that the total energy (calories) supplied by food and beverages has increased as food has become more processed and more energy dense in both developed and developing countries (Chopra & Darnton- Hill 2004).



In a study reviewing the association between obesity and diet quality, dietary energy density, and energy costs; it was stated that the association between poverty and obesity may be mediated, in part, by the low cost of energy-dense foods and may be reinforced by the high palatability of sugar and fat (Drewnowski & Specter 2004).

Although not statistically significant, members ate slightly more fat cakes than non-members which may be a very palatable product to eat. They also used more hard rather than soft margarine (despite soft margarine being promoted in the programme) than non-members as a spread on sandwiches which could imply that members are poorer than non-members and may therefore not be able to afford to eat the more expensive soft margarine. The township environment too promotes unhealthy food choices (Puoane 2006a). Hard margarine which

contains more unhealthy trans- fatty responsible for increasing cholesterol levels, may therefore be easier to find.

The proportion of fat has increased and carbohydrates have decreased in both rural and urban areas in South Africa (Bourne et al 2000). Club members also consumed less sugar in their tea and coffee but of concern is that they consumed sweetened juice and soft drinks although they drank significantly less of this than non-members. This does appear paradoxical and could imply that either members are unaware of the sugar content of these drinks or are aware yet find it very challenging to not drink it. This is cause for concern as each 340ml can of Coke contains approximately 10 teaspoons of sugar (Chacko & McDuff 2003). It does appear that large companies are advertising forcefully in developing countries which further make their products very difficult to resist consuming. Concern has been expressed by Lang (2000) about the rapid spread of the fast food culture in developing countries. Within a relatively short period after the introduction of Coca-Cola, Pepsi and Nestle into China it was recognized by 65%, 42% and 40% of the population respectively. Global marketing and the systematic moulding of taste by giant corporations is a central feature of the globalization of the food industry (Barnett & Cavanagh 1994). Although they have less sugar in their hot beverages and they drink fewer glasses of sweetened juice/ soft drinks, members do eat more sweets (desserts, chocolates, puddings, cakes and sweets) than non-members.

It appears that members' practices regarding sugar are not consistent and sometimes comply with the FBDG's recommendation that sugar be eaten in small amounts at a time and only as little as possible and other times not. In a study done on 285 institutionalised and community

dwelling black South African men and women aged 60+ years on the association between added sugar and micro and macronutrient intakes, it was demonstrated that added sugar had a diluting effect on macro and micronutrient intakes of the target population (Charlton et al 2005).

Health club members ate less red meat and fish; more vegetable based lentils, samp and beans; and similar quantities of eggs and chicken as non-members. This does generally comply with the FBDG which recommends small portions of animal protein and encourages the eating of vegetable based legumes. Reasons for eating less red meat and fish could be because of increasing health awareness (for the red meat) and/or financial constraints as red meat, especially healthy cuts with less fat, and fresh fish is expensive and therefore probably is unaffordable. As with the hard/soft margarine consumption mentioned above; members, being slightly older than non-members may have less income than non-members to purchase meats. Fresh fish, because of special storage and refrigeration requirements, may also be less easy to purchase in the local area and members may have less accessibility to the larger shopping areas where it would be more available and possibly cheaper too. It would appear that members are also not readily consuming canned fish.

Including legumes in a health-promoting diet is important in meeting the major dietary recommendations to improve the nutritional status of undernourished as well as overnourished South Africans, and to reduce risk for chronic diseases such as cardiovascular disease, diabetes mellitus, cancer and osteoporosis (Venter & van Eyssen cited in Vorster et al 2001). The practice of eating lentils etc is actively encouraged by the health club programme and would compare well with the FBDG's recommendation of eating more of these. Also, full

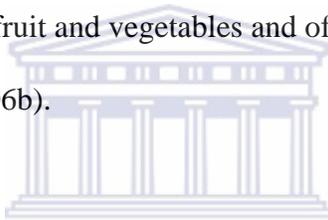
cream milk is the milk of choice for both members and non-members. Low-fat milk is not easily available to purchase in the townships (Chopra & Puoane 2003). However, other behavioural factors may influence the type of milk community members' choose to drink. In a study analyzing milk consumption by type, specifically high-fat milk vs. low-fat milk in the USA from 1994–1996, low-fat milk consumption appeared to be positively related to age, education level, and income level. African Americans and other minorities had a lower probability of consuming low-fat milk when compared with White people in the sample population. Also, those respondents designated as low income or living in the South was less likely to consume low-fat milk (Robb et al 2007).

However, the ratio of plant to animal protein intake has changed dramatically in the diets of urbanizing Africans (Vorster1999). It has been shown that this ratio was 1.13:1.0 in rural African women and 0.58:1.0 in urban women. The corresponding figures for men were 1.0:1.0 (rural) and 0.72:1.0 (urban) (Vorster 1999).

Health club members eat more starchy foods i.e. they eat more bread and similar (although more) amounts of maize porridge than non-members. The FBDG recommends that starchy foods should be the biggest part of each mixed meal and is not fattening as long as too much of it is not eaten and it is not prepared with lots of fat and sugar. This somewhat unclear message may not provide sufficient information to encourage members to reduce the amount of bread they consume. This increased consumption of bread could be related to large portion sizes (i.e. triple the suggested serving size) observed when research was conducted in Khayelitsha which explored community health workers perceptions of body image (Puoane et al 2005b).

There is accumulating evidence to support the increased (daily) consumption of fruit and vegetables as a means of protection against certain cancers, cardiovascular disease, infections and the development of cataracts (Love, Sayed 2001 cited in Vorster et al 2001).

It has been shown that the consumption of fruit and vegetables increased with urbanization, leading to higher dietary fibre and micro nutrient intakes in urbanizing Africans (Vorster et al 1999). It does appear that health club members and non-members eat sufficient amounts of fruit and vegetables daily and this does seem to comply with the food- based recommendations of 3-5 portions daily. However, it could be assumed that this would be achieved with some difficulty. In a study which collected data from local shops in the same area, it was reported that there are few stalls selling fruit and vegetables and of those which did, the quality thereof appeared poor (Puoane et al 2006b).

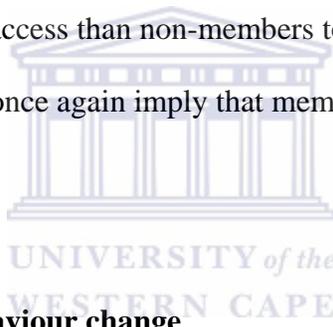


Excessive salt intake leads to an increase in blood pressure in genetically susceptible persons and, if high intake is maintained long term, ultimately leads to sustained hypertension. The FBDG recommends that salt should be used sparingly, if at all, at the table and in the preparation of meals (Charlton & Jooste 2001 cited in Vorster et al 2001). Health club members and non-members used similar quantities of salt, with most respondents' encouragingly stating that they have their foods lightly salted. Although not statistically significant, members consume less salt than non-members. Members practices especially seem to comply with the FBDG's recommendation that salt be used sparingly.

Water is regarded as an essential nutrient and is the most pervasive compound in the human body. It is recommended that adults should consume 2l of water daily. Water consumption can

have an effect on the risk of urinary stone disease, cancers of the breast, colon and urinary tract, child and adolescent obesity, mitral valve prolapse, salivary gland function and overall health in the elderly (Bourne & Seager 2001 cited in Vorster et al 2001). Health club members drank less water than non-members with most respondents drinking less than 4 glasses daily. Both members and non-members took less than the FBDG's recommendation of 8 glasses daily. Drinking more water should therefore be more actively promoted in the programme and the community.

Having access to refrigeration in this study is regarded as a proxy of socio-economic status. Health club members had less access than non-members to refrigeration facilities for storage of perishable food. This could once again imply that members have less available money generally than non-members.



5.1.3 Factors influencing behaviour change

With few exceptions, in the areas of physical activity and dietary habits examined, members are making healthier lifestyle choices than non-members. The exceptions went against what was expected and was surprising and concerning e.g. walking less, not exercising more, eating hard rather than soft margarine, not eating fewer fat cakes and eating more sweets than non-members. This should be viewed in a context of:

1. Changing behaviour towards a healthier lifestyle is a complex phenomenon to understand and even harder to implement for most people.
2. Unlike environments of more affluence, all respondents come from conditions of impoverishment where these choices to improving lifestyles are severely limited.

3. The study is conducted on middle aged and older women who have specific dynamics of changed internal and external status within communities particularly when receiving an old age pension.

4. Although not intending to do so, this study indirectly looks at the successes of the health club in encouraging healthy lifestyles within Khayelitsha.

These factors will be incorporated into further discussion below.

The process of preventing illness and injury, and promoting health, can be thought of as operating as a system, in which the individual, his or her family, the community, health professionals, the private sector as well as government policy and stakeholders each play a role. In this study barriers and enhancing factors expressed by members and non-members are generally not compared with each other unless interesting differences arise. As mentioned previously, these will also be examined partly within a context of the Health Belief Model (HBM) (see 1.3).

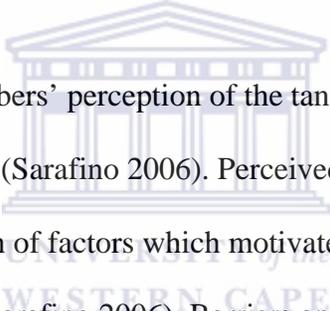
Health club members are participating in healthier lifestyle behaviours than non-members. According to the HBM, this is as a result of members having mentally assessed five key concepts. Each of these five concepts are either regarded as a *threat* (to improving behaviour) or as a measure of the '*pros*' or '*cons*' (of making changes). Members may have taken the preventive action of improving their lifestyle choices by measuring the outcomes of five concepts which are: (1) perceived seriousness (2) perceived susceptibility (3) perceived benefits (4) perceived barriers and (5) perceived cues to action (Sarafino 2006, Glanz 2002). Members who have instituted healthier changes have perceived a threat large enough to

overcome the perceived barriers. This would also have been prompted by the sum of their perceived benefits and enhancing factors according to the HBM.

Due to the delimitations of this research, points 1, 2 and 3 were not examined in this study.

However, it has to be pointed out that the success of increasing members' consciousness of 'perceived seriousness', 'perceived susceptibility' and 'perceived benefits' would significantly depend on the quality of the health education programme being offered at the health club. This will be alluded to later in this chapter.

The perceived barriers to taking recommended action and perceived cues to action (also called 'enhancing factors') are further examined below.



Perceived barriers refer to members' perception of the tangible and psychological costs of taking the recommended action (Sarafino 2006). Perceived enhancing factors or 'cues to action' are members' perception of factors which motivate members' readiness and stimulate the desired behaviour change (Sarafino 2006). Barriers and enhancing factors also often operate in an opposite manner, with reduction of barriers often presenting as an increase in enhancers and vice versa.

5.1.4 Barriers to improving physical activity practices and dietary habits

Barriers to improving physical activity common to all respondents were feeling too tired and pain associated with exercise. However, other barriers to improved physical activity differed. Interestingly, barriers expressed by members appeared to be more serious to them like health, family and personal problems. On the other hand, barriers expressed by non-members seem to place the locus of control outside of themselves. They seem to be

less serious and included factors which are more related to a lack of personal motivation to do physical activity for example laziness, a lack of exercise facilities and feeling unsafe. Barriers to healthy eating for all participants were that healthy food is too expensive and not available and that the available food is too tempting.

Club members also expressed more personal barriers to physical activity such as health problems, family commitments and personal problems. Similarly, in a study by Satariano et al (2000) to investigate reasons given by 2046 older people (55 years and older) for limitation or avoidance of physical exercise in California it was found that the perceived barriers to participation for the women were the absence of an exercise partner, fatigue and health problems. Medical reasons increased with age for women older than 74 years, the main barrier to physical activity was health and functional problems, as well as fear of falling (Satariano et al 2000). Fear of falling could be reduced at the club as the exercises were done while participants are seated or standing next to a chair.

Although not mentioned here directly by members or non-members, but it could have been included in 'family and personal problems' (mentioned by members), it does appear that socio-cultural attitudes towards physical activity, and hence towards obesity and weight loss, can act as barriers to improving physical activity lifestyles. In the Puoane et al (2005b) study with community health workers, they could not understand why people engaged in physical activity if they were not trying to lose weight. and the following comments were made: "If we exercise we will lose weight and what will people think about us", "Once people see you are losing weight they ask if you have problems and start calling you names thinking you have

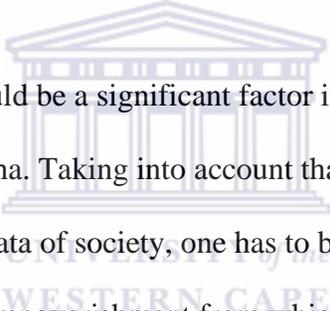
HIV” and “ My husband will not allow me to walk in the streets wearing tight exercising outfits” (Puoane et al2005b).

Socio-culturally in Khayelitsha women may also not feel the need for to be physically active and to eat healthier because being overweight is regarded as acceptable and even admirable. As mentioned previously, in a study amongst community health workers residing in Khayelitsha, 42 of 44 community health workers were overweight, obese or extremely obese. In that study most perceived moderately overweight women as attractive- associated with dignity, respect and confidence and being well cared for by their husbands (Puoane et al 2005b). It does seem that being overweight or obese provides individuals with a sense of affirmation within the community. This sense of affirmation may not be easy to give up and this underscores the enormity of challenging this epidemic.

Non-members expressed a lack of safety as a barrier to improved physical activity. It is possible that members also felt unsafe when they initially started at the club but with regular attendance felt more confident and safer about being part of the programme. This does not negate the fact that the threat of crime and violence is very real throughout South Africa and Khayelisha is regarded as a well known ‘crime hotspot’. A recent survey reported that 16% of families interviewed had either been attacked themselves or a member of their household had been assaulted during the preceding year. Thirty percent of families were exposed to theft or burglary in the previous year and half the women reported being afraid in their homes during the daytime (Duncan 2007).

In Khayelitsha, environmental conditions are also not conducive to healthy physical exercise habits. Like crime; inadequate street lighting, absent or interrupted sidewalks, obstacles, untarred and potholed roads, no dedicated parks or cycling/running lanes and no recreation facilities, also pose a threat to personal safety (personal observation). Although special equipment is not really essential in order to become more active, the lack of equipment and facilities were mentioned by non-members as barriers to improving physical activity.

In a study to determine the association between environmental and policy factors and being overweight in Missouri, people living in areas without much public enabling infrastructure and outdoor recreation facilities were more likely to be overweight (Catlin 2003).



With dietary habits, poverty could be a significant factor in preventing the eating of healthier foods for residents in Khayelitsha. Taking into account that it is difficult to institute healthier lifestyles for people from all strata of society, one has to bear in mind that it would be much more difficult in conditions of impoverishment from which our respondents come. Chronic poverty and all the negative effects thereof should not be underestimated. Meagre incomes would really limit healthier lifestyle choices, more so with dietary habits than physical activity. Both members and non-members overwhelmingly stated that a lack of money and unaffordable healthier foods are significant barriers to improving dietary habits. It has been suggested that although it will be desirable to increase dietary variety in South African diets, particularly of people living in low income households, achieving this goal will be most difficult for this section of the population because of the constraints of poverty creating household insecurity (Maunder et al 2001 cited in Vorster et al 2001). They also stated that

focus group studies in Kwazulu- Natal and the Western Cape identified affordability as a major constraint particularly with regards to fruit, vegetables and foods of animal origin.

Both members and non-members stated that healthy food is not easy to find. This is confirmed in the study by Chopra and Puoane study (2003) in which it was highlighted that in Khayelitsha “there is a shortage of healthy, low-fat food and little fresh fruit and vegetables are available in the townships. The majority of local shops sell cheap fatty foods. Street vendors’ stalls sell fatty meat and sausages. To eat low fat milk is impractical; it is not available in our shops.”

There were two other comments that available food is tempting. Another visible barrier when visiting the club is that just outside of the club there are rows of road-side stalls selling all kinds of fried foods e.g. fat cakes, crackling as well as fatty meat with no stalls in sight selling fresh fruit and vegetables. Due to the close proximity to the club, this factor could therefore be more of a barrier to members than non-members. This excessive availability of fatty foods in Khayelitsha was confirmed by Puoane et al (2005a) in which it was also observed that the majority of local shops sell cheap, unhealthy foods with high fat contents, including tripe, sausages, chicken skin, pig’s feet and fat cakes. Fatty meat was sold at cheap prices and chicken was being cooked in deep oil with the skin attached. Given that preferences for palatable diets are a universal human trait, fat consumption may be governed not by physiological mechanisms but by the amount of fat available in the food supply (Drewnowski & Popkin 1997).

Eating healthily can understandably be a factor which may separate individuals within a community as eating fatty foods may be regarded as normal. However, only two members and two non-members stated that healthy food makes them feel isolated from others.

5.1.5 Enhancing factors to improving physical activity practices and dietary habits

With regards to enhancing factors to doing physical activity, both members and non-members mentioned common factors of needing to have their own motivation and confidence, needing more time as well as family/community support. Members also mentioned more emotional factors like having good health and a healthy lifestyle, feeling healthier, the health benefits and feeling good after exercise/gym as enhancing factors whereas non-members, on the other hand, placed more emphasis on having community support and an exercise partner. In a US study, having an exercise partner as well as programmes involving group activities were important in promoting physical activity participation among all respondents (Tegerson & King 2002). Understandably, members may not feel the need for a partner because they may have so many exercise partners and friends at the club. Non-members too, appear to be seeking more motivation from others outside of themselves to encourage them to do more exercise. With dietary habits both members and non-members mentioned that feeling healthier and confident, having more money and community support are important enhancing factors.

Having sufficient time to participate in physical activity is an important enhancing factor for both groups but less so for members who actually made the time to do exercise. In an Australian study identifying physical activity habits and barriers to physical activity of older

Australians, having insufficient time to be physically active was one of the most frequently cited barriers but was then cited significantly less as age increased (Bauman et al 2002). Two reasons for this could be that firstly older people may have more available time due to retirement and secondly they may experience impending illnesses, disability and death which could increase their perceptions of the seriousness of a condition. Another real fear for this age group could be concern about how they would be cared for if/when they do develop these illnesses.

It does appear that globally people from lower socioeconomic backgrounds experience the same barriers and enhancers to improving their lifestyles. In a study designed by Henderson and Ainsworth (2003) to measure the physical activity habits in a sample of African American and American Indian women, not having sufficient time was regarded as the greatest barrier to planning for a physical activity programme, getting involved in physical activity and continuing physical activity once started. Similarly, Nies et al (1999) in a qualitative study exploring African American women's experience with physical activity in their daily lives identified a lack of time as a perceived barrier and it was ranked third most important after lack of childcare and having a person to exercise with. Other barriers to physical activity found in their study were lack of space in the home, inability to use exercise facilities at work, lack of motivation, fatigue, and unsafe neighborhoods. Facilitators of physical activity in their study were daily routine, practical and convenient activities, personal safety, child care, weight loss, stress reduction, knowledge and commitment, enjoyment, pets, family and peer support, home and work facilities, and daylight and climate conditions (Nies et al 1999).

As regards dietary habits, both groups stated that feeling 'healthier and confident' and family/community support are important enhancing factors to improving dietary habits. The presence and interest of significant others provides both reinforcement of changed behaviour and helps keep the behaviour in question salient (Hunt & Martin 1998). Members also felt that enjoying good health and a healthy lifestyle was important and non-members felt that to lose weight would be an important enhancing factor.

5.1.6 Other considerations

Factors (from the Health Belief Model mentioned above) of perceived seriousness, perceived susceptibility of developing the health problem as well as the perceived benefits of making lifestyle choices would hinge significantly on the quality of the education programme offered at the club. People need appropriate facts, a firm rationale, and clear instructions and guidelines for change. Although knowledge in and of itself rarely leads to lasting habit change, it unquestionably serves a necessary function (Schomer et al 1996). It therefore is of critical importance how information is packaged so that it is meaningful and palatable to the target audience (Schomer et al 1996). Introducing a strong theoretical basis will be needed and creative adult teaching and learning practices has to be applied with consistent monitoring and evaluation of the quality of the service.

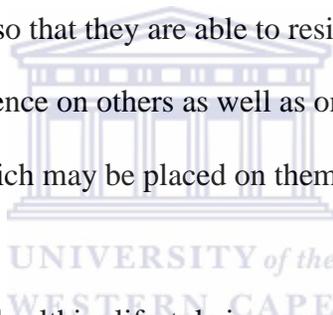
Education would also have to focus on the susceptibility of people, individually and communally, especially from lower socio- economic communities, of developing these health problems. The more serious they perceive the effects of developing a health problem to be and

the more susceptible they believe they are in developing the problem, the more likely members and non-members alike will feel threatened and take action (Sarafino 2006).

Cognisance has to be taken of the fact that health club members are predominantly middle aged and older women. They come with their own dynamics and may have experienced certain personal losses of partners, friends, resources, productive roles as well as access to opportunities and challenging activities. Socioculturally they may also feel some dispossession as their declining function may be less and less supported by the environment (Bandura 1994).

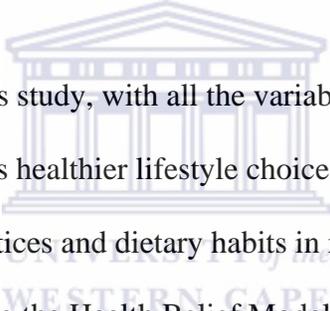
The quality of functioning of an older person may be compromised by uninteresting environments (possibly one's home) whereas it may be enhanced by participating in the health club or social group which would stimulate cognitive and social functioning. It is also possible that older women are more respected in the community and younger family members do more of the chores inside and outside of the house hence minimizing their opportunity to walk and engage in household tasks and errands. This highlights the importance of engaging with family members around these issues. A question also arises around receiving the old age pension and whether this changes the mindset of the pensioner around empowering themselves or increasing a sense of helplessness. Members appear to be poorer than non-members yet more of them would earn some form of income (in the form of the pension) than the largely unemployed non-members. This brings to mind a question of how and on whom this money is being spent. Lund (2006) stated that the old age pension might represent the only hope of income for households in townships like Khayelitsha and it is a means of poverty alleviation but the money seldom solely serves the needs of the intended recipient.

The importance of these health club interventions are even more obvious in the light of the HIV/AIDS epidemic where more grandmothers are assuming parenting roles of young children as they become orphaned by the disease. At 5.5 million, South Africa has one of the highest numbers of people living with HIV. Older people shoulder much of the responsibility for care, with more than 60 per cent of orphans living with their grandparents (Help Age International 2006). It has also been found that in South Africa the extended family networks are fast being saturated (Townsend & Dawes 2004). These grandmothers would have to increase their resilience by among other things, increasing their physical activity and improving their dietary habits, so that they are able to resist communicable diseases, chronic diseases, disability and dependence on others as well as on shrinking state resources in order to meet additional demands which may be placed on them by the epidemic.



Changing behaviour towards a healthier lifestyle is a complex phenomenon to understand and even harder to implement, partly because eating patterns are difficult to correct and are markedly resistant to long term modification (Schachter 1982). Participants could also relapse in their health seeking behaviour. It is common that more than half of the individuals embarking on an exercise programme will either abandon it entirely or only continue to exercise irregularly, with most participants dropping out during the first three months (Belisle et al 1987). This could partly explain why membership of the club is so small. Yet, more significantly, it has been mentioned anecdotally that the reason for the small membership is due to the lack of formal/permanent housing in the township. This results in people having to move home often and they hence lose contact with the health club.

Psychosocial factors which contribute to people making healthier lifestyle choices are not addressed in this study but should not be overlooked in future research. Numerous studies suggest that psychosocial factors can also affect the development and progression of diseases ranging from a simple cold to chronic conditions like cardiovascular disease, cancer and AIDS. Among the psychosocial factors that affect cardiovascular health are socioeconomic status, gender, race, employment, acute and chronic stress, social support versus social isolation, anger and depression (Straub 2002). The impact of these factors often equals or exceeds that of more traditional risk factors such as hypertension, diabetes and even smoking (Straub 2002).



As regards the hypothesis of this study, with all the variables examined, club members are mostly instituting into their lives healthier lifestyle choices than non-members in terms of improved physical activity practices and dietary habits in most areas examined in this study. This highlights that, according to the Health Belief Model, the sum of their perceived ‘seriousness’, ‘susceptibility’, ‘benefits’ (although not examined in this study) together with their perceived enhancing factors outweighed the barriers felt by members at the time. It also highlights that members, more than non-members, may have developed to some extent their own sense of self efficacy i.e. beliefs in their capabilities to exercise control over their own functioning and over events that affect their lives despite the enormous barrier of impoverishment (Bandura 1997).

Health club interventions like these are essential in minimizing the risks of chronic diseases and should be part of a number of strategies aimed at promoting healthy lifestyles. Strong

theoretical and research bases as well as alliances with similar organisations need to be formed to enhance an advocacy role. Governmental support guided by political will is essential for these interventions to expand and further enhance healthy lifestyle choices for their members as well as the broader community. Of particular importance is developing appropriate environmental infrastructure to support physical activity and attention should be given to rising food prices.

5.2 Limitations

Certain limitations have already been mentioned (See 3.10). In addition, the questionnaire design also does not explore more qualitative factors which would have provided meaning to people's experiences. Also, because of the breadth of the topic, questions were delimited and posed in a general way which meant that particular issues could not be examined in finer detail e.g. questions were asked about how much salt people consume but there was no questioning about other foodstuffs they may consume (like chips, bread, flavour enhancers, packeted soup, etc) which also contain lots of salt.

There is no literature around exactly the same topic which meant that discussion centred around wider issues which arose from the data.

Despite its limitations, the study provides a broad overview of members' practices of physical activity and dietary habits. In so doing it therefore also indirectly examines the successes and areas for improvement within the health club's programme. This is the first study to do this

although there has been lots of other ongoing research done at the club particularly during the developmental stages of the intervention.

5.3 Conclusions

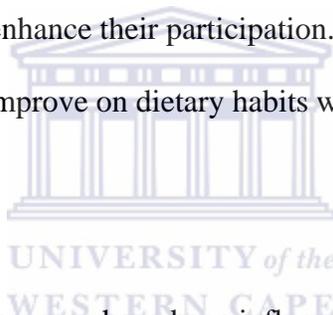
Based on the results of the study certain assumptions about members' practices regarding lifestyle changes as compared to those of non-members were made.

In the domain of physical activity it was found that members were generally more physically active than non-members. They spent more time engaged in household tasks of light, moderate and vigorous intensity than non-members. Members also participated in more physical and non-physical activities within their community and watched less television than non-members. However, members spent less time on daily walking and the same amount of time engaged in weekly physical exercise of moderate intensity as non-members. These results were rather surprising seeing that members are regular attendees of the health club's programme.

According to the FBDG, members practiced healthier dietary habits and food preparation techniques compared to non-members. They ate more vegetable based protein rich foods, less red meat; less fatty foods, less salt and less soft drinks. It is concerning that they drink soft drinks at all considering the high sugar content of these beverages. Members also have more of a penchant for sweet things than non-members.

As regards barriers to improving on physical activity and dietary habits, members expressed more personal reasons (e.g. health problems and family commitments) and non-members expressed more issues outside of their locus of control (e.g. laziness and a lack of exercise facilities) as reasons for not improving their physical activity practices. Barriers to improved dietary habits for all respondents were firstly about the unaffordability of and secondly about the unavailability of health -providing foodstuffs.

Having one's own motivation was regarded as an important enhancing factor for all participants, particularly for members. More non-members felt that having community support and an exercise partner would enhance their participation. Enhancing factors which were highlighted by both groups to improve on dietary habits were feeling healthier as well as having more money.



In summary, health club members may have been influenced positively by membership of the club. Generally, they appear to be more motivated, are more physically active and practice healthier dietary habits than non-members. However, anomalous results emerge and these are related to the difficulties that many individuals experience with personal motivation when intending to engage in healthier lifestyle behaviours. Also, socioeconomic and environmental factors pose significant barriers in a more full adoption of healthy behaviours.

5.4 Recommendations

The following recommendations will be made to further improve practices of members and also enhance the effects the club has in the local community:

For the stakeholders of the health club

- Health club members should be affirmed for the healthier practices they have instituted in their lives despite the many barriers.
- Community health workers should also be commended for the role they have played in these and their own achievements.
- Together with monthly monitoring of members' blood pressure and weight, co-coordinators should include monitoring of physical activity as well as dietary habits in order to properly assess members progress in these areas. The use of validated questionnaires would standardize this monitoring.
- Managers should be critical and positive about the quality of the service they offer. Issues around adult education principles and best teaching and learning techniques could be included here.
- It would be important to network with community food garden programmes, of which there are a few operating in Khayelitsha, to ascertain the feasibility of introducing these within the programme.
- To encourage further networking with other health club interventions, support groups and organizations in this field of promoting healthier lifestyles to enhance civil action around issues like policy development and implementation, infrastructure development and a sense of advocacy. Organisations which come to mind are: (1) the Global Alliance for Physical Activity (GAPA) which was established to provide strategic co-ordination to help countries commence or increase their efforts to address physical inactivity and they recently started a South African chapter, (2) the Community Health Intervention Programmes (CHIPs) which aims to enable previously disadvantaged

communities to begin health promotion projects using physical activity as the vehicle and (3) the Vuka South Africa- Move for your health! community health promotion campaign (4) The Grandmothers Against Poverty and AIDS (GAPA) also based in Khayelitsha to improve social networking and advocacy.

For future research

- To examine the other components of the Health Belief Model not assessed in this study i.e. perceived benefits, perceived seriousness and perceived susceptibility to developing chronic diseases by health club members. It could also be used as a framework to explain and predict health seeking behaviour. Another model like the Transtheoretical model of behaviour change could be used which suggests that individuals pass through different stages when instituting change. Appropriate interventions are introduced depending on the stage the person is at.
- A Logic Model could be introduced which examines many aspects of evaluating any health - providing programme. Components examined are: inputs, influential factors, activities, outputs, initial outcomes, intermediate outcomes and long-term outcomes and ultimately the goal of the programme.
- More qualitative study to understand members' perceptions and experiences of participating in the health club. The meaning the club brings to their lives would also be important to study as reasons for attending may be more than wanting to lessen the chances of contracting any of the chronic diseases.
- Examining the effects of chronic poverty and how this affects how much choice members do have when trying to institute improved lifestyle changes.

- Other lifestyle risk factors should also be explored e.g. smoking, substance abuse (including alcohol), and excessive stress and the role of these in promoting unhealthy lifestyle choices.



References

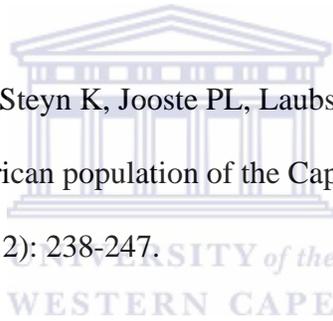
- Addy CL, Wilson DK, Kirtland KA, Ainsworth BE, Sharpe P, Kimsey D (2004). Associations of perceived social and physical environmental supports with physical activity and walking behaviour. *Am J Public Health*. March; 94(3): 440–443.
- Antero Kesaniemi Y, Danforth E, Jensen MD, Kopelman PG, Lefebvre P, Reeder BA (2001). Dose - response issues concerning physical activity and health: an evidence based symposium. Consensus statement. Symposium proceedings held 11-15 October, Ontario, Canada.
- Armstrong T, Bull F (April 2006). Development of the World Health Organization Global Physical Activity Questionnaire (GPAQ). *J Public Health*; 14(2):66-70.
- Bandura A (1977). Self efficacy: toward a unifying theory of behavioural change. *Psychological Review*; 84: 191-215.
- Bandura A (1994). Self efficacy. In Ramachaudran VS (ed). *Encyclopedia of human behaviour*; 4: 71-81. New York: Academic Press.
- Bauman A, Booth M L, Owen N (2002). *Journal of Aging and Physical Activity*; 10(3): 271-280.
- Barnett R, Cavanagh J (1994). *Global dreams: Imperial co-operations and the new world order*. New York: Simon and Schuster.

Belisle M, Roskies E & Levesque J-M (1987). Improving adherence to physical activity. *Health Psychology*; 6: 159-172.

Berkman LF, Syme SL. (1979) Social networks, host resistance and mortality: A nine- year follow- up study of Alameda County residents. *American Journal of Epidemiology*; 109: 684-694.

Blair SN, Cheng Y, Holder JS (2001). Is physical activity or physical fitness more important in defining health benefits? [discussion S419-20]. *Med Sci Sports Exerc* 33: S379-99.

Bourne LT, Langenhoven ML, Steyn K, Jooste PL, Laubscher JA, van der Vyver E (1993). Nutrient intake in the urban African population of the Cape Peninsula, South Africa. The Brisk study. *Cent Afr J Medical*; 39(12): 238-247.



Bourne LT Lambert EV, Steyn K (2000). Where does the black population of South Africa stand on the nutrition transition? *Public Health Nutrition*; 5(1A): 157–162.

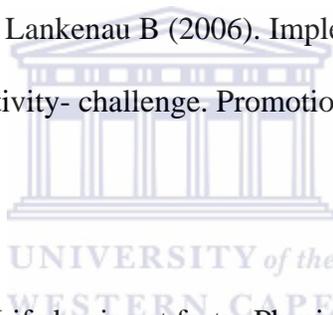
Boutayeb A, Boutayeb S (2005). The burden of non-communicable diseases in developing countries. *International Journal for Equity in Health* 4:2.

Bradshaw D, Groenewald P, Laubsher R, Nannan N, Nojilana B, Norman R et al (2004). Initial estimates from the South African National Burden of Disease Study, 2000. MRC Policy brief 1 of 2004. Cape Town: Medical Research Council.

Bradshaw D, Pieterse D, Norman R, Levitt NS (2007). South African Comparative Risk Assessment Collaborating Group. Estimating the burden of diabetes in South Africa in 2000. *South African Medical Journal*; 97(8): 700-706.

Bull FC, Armstrong T, Dixon T, Ham S, Neiman A, Pratt (2005). Physical inactivity. In Ezzati M, Lopez A, Rodgers A, Murray C (eds). *Comparative quantification of health risks: Global and regional burden of disease due to selected major risk factors*. Geneva: World Health Organization.

Bull FC, Pratt M, Shephard RJ, Lankenau B (2006). Implementation of national population based action on the physical activity- challenge. *Promotion and Education*; 3(2): Research library pg 127.



Carter N, Driscoll MC (2000). Life begins at forty. *Physiotherapy*; 86:85-93.

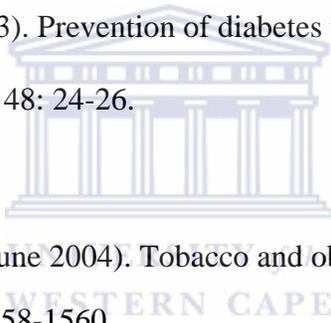
Caspersen CJ, Powell KE, Christensen G (1995). Physical activity, exercise and physical fitness: definitions and distinctions of health-related research. *Public Health Reports*; 100:126-131).

Catlin TK (March 2003). Environmental and policy factors associated with overweight among adults in Missouri. *American jnl of health promotion*; 17(4): 249-258.

Chacko E, McDuff I (24 October 2003). Replacing sugar-based soft drinks with sugar free alternatives could slow the progression of the obesity epidemic – have your coke and drink it too. NZ Medical jnl; 116(1184). Available at <http://www.nzma.org.nz/journal/116-1184/649/>. Accessed 6/09/07.

Charlton KE, Kolbe- Alexander T, Nel JH (2005). Micronutrient dilution associated with added sugar intake in elderly black South African men and women. Eur jnl Clin Nutr 59: 1030-1042.

Chopra M, Puoane T (May 2003). Prevention of diabetes throughout an obesogenic world. Diabetes Voice (Special Issue); 48: 24-26.



Chopra M, Darnton-Hill I (26 June 2004). Tobacco and obesity epidemics: not so different after all? BMJ; 328:1558-1560.

Connor M, Rheeder P, Bryer A, Meredith M, Beukes M, Dubb A etal (2005). The South African stroke risk in general practice study. S Afr Med J: 334-339.

Crespo CJ, Anderson CJRE, Carter-Pokras O, Ainsworth BE (2000). Race/ethnicity, social class and their relation to physical inactivity during leisure time: results from the Third National Health and Nutrition Examination Survey, 1988-1994. Am J Prev Med; 18: 46-53.

Dept of provincial and local government (2006). Khayelitsha -Nodal Economic Development Profile: Western Cape. Available online at:

http://www.btrust.org.za/poverty/Khayelitsha_narrative.PDF Accessed 29/09/07.

Doll S, Paccaud F, Bovet P, Burnier M, Wietlisbach V (2002). Body mass index, abdominal adiposity and blood pressure: consistency of their association across developing and developed countries. *International journal of obesity*; 26: 48-57.

Drewnowski A, Popkin BM (1997). The nutrition transition: new trends in the global diet. *Nutr Rev*; 55 (2): 31-43.

Drewnowski A, Specter SE (January 2004). Poverty and obesity: the role of energy density and energy costs. *American Journal of Clinical Nutrition*; 79(1): 6-16.

du Toit A, Neves D (May 2007). In search of South Africa's second economy: Chronic poverty, vulnerability and adverse incorporation in Mount Frere and Khayelitsha. Prepared for the Living on the Margins Conference, Stellenbosch. Available at

<http://livingonthemargins.org/downloads/Du-Toitand-Neves-dsi.pdf>. Accessed 6/10/07.

Duncan M (August 2007). A theoretical investigation into the occupations of households surviving chronic poverty and psychiatric disability. Unpublished PHD dissertation. University of Stellenbosch.

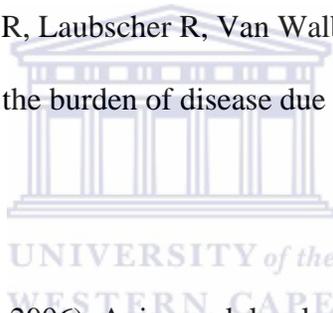
Fung TT, Frank BH, Jie Y, Nain-Feng C, Spiegelman D, Tofler GH, Willett WC, Rimm EB (2000). Leisure-Time Physical Activity, Television Watching, and Plasma Biomarkers of

Obesity and Cardiovascular Disease Risk. American Journal of Epidemiology; 152(12): 1171-1178.

Glanz K, Markus L (1998). Dietary intakes of Africans in transition in the North West Province (dissertation). Potchefstroom: PU vir CHO: 1-542.

Glanz K, Rimer BK, Lewis FM (2002). Health behaviour and health education theory, research and practice. San Francisco: Wiley and Sons.

Groenewald P, Vos T, Norman R, Laubscher R, Van Walbeek C, Saloojee Y, Sitas F, Bradshaw D(2007). Estimating the burden of disease due to smoking in South Africa in 2000. SAfr Med J; 97: 674-681.



Help Age International (August 2006). Aging and development newsletter. Issue 20.

Accessed 4/11/07. Available at:

<http://www.helpage.org/Resources/Regularpublications/AgeingandDevelopment>

The heart and stroke foundation (July2007). Heart disease in South Africa: Media release document. Compiled by Steyn K and edited by Fourie JM. Chronic diseases of lifestyle unit, Medical Research Council.

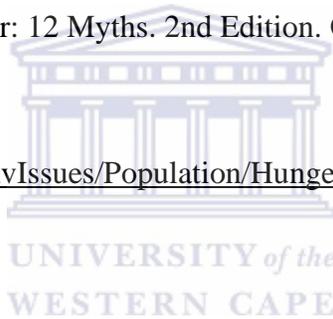
Henderson KA and Ainsworth BE (2003). A synthesis of perceptions about physical activity among older African American Indian women. Am Jnl of Public Health; 93:313-317.

Hunt SM & Martin CJ (1988). Health- related behavioural change- A test of a new model. *Psychology and health*; 2: 209-230.

Information and knowledge management Department (2005). A population profile of Khayelitsha: Socio-economic information from the 2001 Census. Available online at: http://web.capetown.gov.za/eDocuments/A_Population_Profile_of_Khayelitsha_1052006142120_359.pdf (Accessed 5/11/07).

Institute for Food and Development Policy (Oct 1998).Chapter 3. Lappé FM, Collins J, Rosset P, Esparza L eds. *World Hunger: 12 Myths*. 2nd Edition. Grove/Atlantic and Food First Books.

<http://www.globalissues.org/EnvIssues/Population/Hunger/FoodFirst/Transition.asp> Accessed 5/11/07.



Kagwiza JN (2003). Health risk behaviours among adult women in Kigali, Rwanda. Unpublished thesis. University of the Western Cape.

Kaplan MR (2000). Two pathways to prevention. *American Psychologist*; 55:382-396.

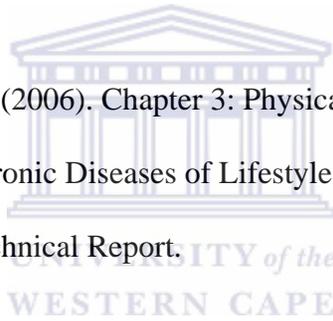
Katzmarzyk PT, Gledhill N, Shephard RJ (November 28 2000).The economic burden of physical inactivity in Canada. *CMAJ*; 163(11).

Kenchaiah S, Evans JC, Levy D, Wilson PM, Benjamin EJ, Larson MG, et al (2002): Obesity and the risk of heart failure. *N Engl J Med*; 346: 305-313.

Lambert EV, Bohlman K, Kolbe- Alexander T (September 2001a). Be active- Physical Activity for Health in South Africa. *SAJCN*; 14 (3): Suppl S12- S16.

Lambert EV, Lambert MI, Hudson K, Steyn K, Levitt NS, Charlton KE, Noakes TD (2001b). The role of physical activity for health in communities undergoing epidemiological transition. *World Review of Nutrition and Dietetics*; 90: 110-126.

Lambert EV, Kolbe-Alexander (2006). Chapter 3: Physical activity and chronic diseases of lifestyle in South Africa. In *Chronic Diseases of Lifestyle in South Africa: 1995-2005*. Medical Research Council- Technical Report.



Lang T (2001). Trade, public health and food. In McKee M, Garner P, Stott R (eds). *International cooperation in health*. Oxford University Press.

Lawlor DA, Taylor M, Bedford C, Ebrahim S (2002): Is housework good for health? Levels of physical activity and factors associated with activity in elderly women. Results from the British Women's Heart and Health Study. *J Epidemiol Community Health*; 56(6):473-478.

Levitt NS, Steyn K, Lambert EV, Reagon R, Lombard CJ, Fourie JM et al (1999). Modifiable risk factors for Type 2 diabetes in a peri-urban community in South Africa . *Diabet Med*; 16: 946-950.

Lund F (2006). Gender and social security in South Africa. In Paddyachee V (ed). *The development decade: Economic and social change in South Africa 1994-2004*:160-179. HSRC Press. CT.

Mbanya JC, Unwin NC, Kengne AP, Fezeu L, Minkoulou EM, Aspray TJ et al (2002). Physical activity and its relationship with obesity , hypertension and diabetes in urban and rural Cameroon. *International Journal of Obesity*; 26:1009-1016.

Mitlin D (2005). Chronic poverty in urban areas. Editorial. *Environment and urbanization*; 17(2).

Mosley WH, Bobadilla JL, Jamison DT. *The health transition: Implications for health policy in developing countries* (1993). Oxford University Press: New York.

MRC (March 2003). *Initial Burden of Disease Estimates for South Africa, 2000*.

Burden of Disease Research Unit. Avail at: <http://www.mrc.co.za/bod/initialestimates.pdf>

Mvo Z, Dick J, Steyn K (June 1999). Perceptions of overweight African women about acceptable body size of women and children. *Curationis*; 22(2): 27-31.

Nutrition transition programme: What is the nutrition transition? Available online:

<http://www.cpc.unc.edu/projects/nutrans> Accessed 5/11/07.

Omran AR. (1983). The epidemiologic transition theory: A preliminary update. *J Trop Paed;* 29: 305-316.

Nies MA, Vollman M, Cook T (1999). African American women's experience with physical activity in their daily lives. *Public Health Nursing;* 16(1):23-36.

Paffenberger RS, Hyde RT, Wing AL (1986). Physical activity, all-cause mortality and longevity of college alumni. *N Engl J Med;* 314:605-613.

Pate RR, Pratt M, Blair SN et al (1995). Physical activity and Public Health: A recommendation from the Centre for Disease Control and the American College of Sports Medicine. *JAMA;* 273: 402- 407.

Perkins AJ, Clark DO (2001). Assessing the association of walking with health services use and costs among socioeconomically disadvantaged older adults. *Prev Med;* 32: 492-501.

Puoane T, Steyn K, Bradshaw D, Laubser R, Fourie J, Lambert V, et al (October 2002). Obesity in South Africa: The South African Demographic and Health Survey. *Obesity Research* 10: 10.

Puoane T. Transforming the health services to respond to the emerging epidemic of NCDs (6-8 June 2004). Paper presented to the Public Health Association of South Africa Conference 2004. Challenging health inequalities: Forging progressive partnerships for public health. Durban, South Africa.

Puoane T, Bradley H, Hughes G (2005a). Obesity among black South African Women. In: Human Obesity: A Major Health Burden. Delhi: Kamla-Raj Enterprises.

Puoane TR, Fourie JM, Shapiro M, Rosling L, Tshaka N, Oelofse A (2005b). “Big is beautiful”: An exploration with urban black community health workers in a South African township. *S Afr J Clin Nutr*; 18(1):6-15.

Puoane T, Bradley H (2006a). Primary prevention of non-communicable diseases by community health workers: a case study of health and development. *AFRICANUS. Jnl of developmental studies*; 33(2): 29-34.

Puoane T, Bradley H, Hughes G (2006b). Community intervention for the emerging epidemic of non-communicable diseases. *South African Journal of Clinical Nutrition*; 19(2):56-62.

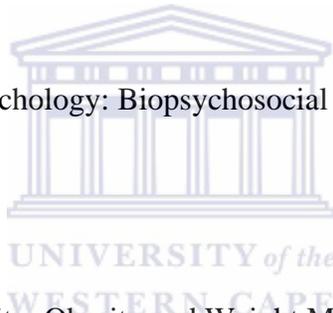
Reddy KS (2002). Cardiovascular Disease in the Developing Countries: Dimensions, Determinants, Dynamics and directions for Public Health Action. *Public Health Nutrition*; 5(1A): 231-237.

Robb CA, Reynolds LA, Abdel-Ghany M (2007). Consumer preference among fluid milks: low-fat vs. high-fat milk consumption in the United States. *International Journal of Consumer Studies*; 31 (1): 90–94.

Robinson JP, Godbey G (1997). *Time for life: The surprising ways Americans use their time*. University Park, PA: Pennsylvania State University Press.

Saloojee Y. (May 2006) Chap 5 - Tobacco control in South Africa. In *Chronic Diseases of Lifestyle in South Africa: 1995-2005*. MRC Technical Report.

Sarafino EP (2006). *Health Psychology: Biopsychosocial interactions*. 5th edition. New York: Wiley and sons Inc: 139-170.



Saris W (1992). Physical Activity, Obesity and Weight Management. In Norgan, NG. *Society for the Study of Human Biology Symposium 34: Physical Activity and Health*. Great Britain: Cambridge University Press.

Satariano WA, Haight TJ, Tager IB (2000). Reasons given by older people for limitation or avoidance of leisure time physical activity. *J Am Geriatr Soc*; 48:505-512.

Sawatzky JV, Naimark BJ. (2002). Physical activity and cardiovascular health in aging women: A health promotion perspective. *Jnl Aging Phys. Act*; 10: 396-412.

Schachter S (1982). Recidivism and self cure of smoking and obesity. *American Psychologist*; 37: 436-444.

Schomer H, Wadlow S, Dunne T (1996). Health behaviour change following persuasive communication. *South African Jnl of Psychology*; 26(1): 23-28.

Seedat YK (1996). Is the pathogenesis of hypertension different in black patients? *J Hum Hypertens*; 10(suppl 3): S35-S37.

Seeman TE (2000). Health promoting effects of friends and family on health outcomes in older adults. *Am J Health Promot*; 14: 362--70.

Shetty PS. Diet, lifestyle and chronic diseases: lessons from contrasting worlds (1997). In Shetty PS, McPherson K, eds. *Diet, nutrition and chronic disease: lessons from contrasting worlds*. Chichester, UK: John Wiley & Sons, 1997; XV- XVI: 269-280.

Sitas F, Urban M, Bradshaw D, Kielkowski D, Bah S, Peto R (2004). Tobacco attributable deaths in South Africa. *Tobacco Control*; 13: 396-99.

Sobngwi E, Mauvais- Jarvis F, Vexiau P, Mbanya JC, Gautier JF (2001). Diabetes in Africans. Part 1: Epidemiology and clinical specificities. *Diabetes Metab (Paris)*; 27: 628-634.

Sparling PB, Noakes TD, Steyn K, Jordaan E, Jooste PL, Bourne LT, Badenhorst C(Jul1994).

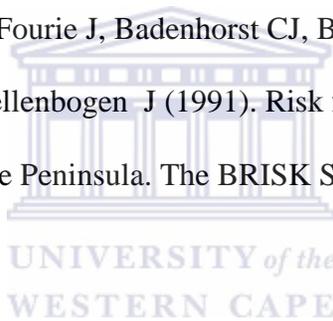
Level of physical activity and CHD risk factors in black South African men.

Med Sci Sports Exerc; 26(7):896-902.

Straub RO (2002). Health psychology. New York: Worth Publishers, 682-705.

Stephens T (Jan 1998). Physical activity and mental health in the United States and Canada: evidence from four population surveys. Prev Med; 17(1): 35-47.

Steyn K, Jooste PL, Bourne L, Fourie J, Badenhorst CJ, Bourne DE, Langenhoven ML, Lombard CJ, Truter H, Katzenellenbogen J (1991). Risk factors for coronary heart disease in the black population of the Cape Peninsula. The BRISK Study. S Afr Med J; **4-20** 79:480-485.



Steyn K, Fourie J, Bradshaw D (1992). The impact of chronic diseases of lifestyle and their major risk factors on mortality in South Africa. S Afr Med J; 82:227- 231.

Steyn N (2006). Chapter 4 – Nutrition and chronic diseases of lifestyle in South Africa. In Chronic diseases of Lifestyle in South Africa 1995-2005. MRC Technical Report.

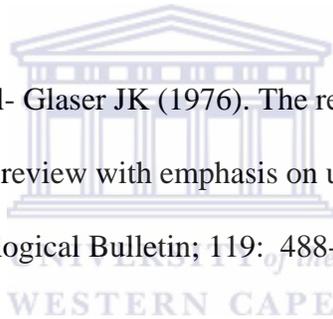
Stroebe W. Moderators of the stress-health relationship. In: Stroebe W. Social psychology and health. Philadelphia, PA: Open University Press; 2000: 236-73.

Tegeron JL, King KA (2002). Do cues, benefits and barriers to physical activity differ between male and female adolescents? *Journal of School Health*; 72:374-381.

Torun WC, Stein AD, Schroeder D, Gradeja R, Conlisk A, Rodriguez M, Mendez H, Martorell (2002). Rural to urban migration and cardiovascular disease risk factors in young Guatemalan adults. *International Journal of Epidemiology*; 31:218-226.

Townsend L, Dawes A (2004). Willingness to care for children orphaned by HIV/AIDS: a study of foster and adoptive parents. *African Journal of AIDS Research*; 3(1): 69-80.

Uchino BN, Cacioppo JT, Cecil- Glaser JK (1976). The relationship between social support and physiological processes: A review with emphasis on underlying mechanisms and implications for health. *Psychological Bulletin*; 119: 488-531.



United Nations Inter-agency task force on sport for development and peace (2003). Sport as a tool for development and peace: Towards achieving the United Nations Millennium Development Goals.

US Department of Health and Human Services (1996). A Report of the Surgeon General: Executive summary. Physical activity and health.

Vorster HH, Bourne LT, Venter CS, Oosthuizen W (1999). Contribution of nutrition to the health transition in developing countries. *Nutrition Reviews*; 57(11): 341-349.

Vorster HH, Love P, Bourne C (Sept 2001). Development of the food-based dietary guidelines for South Africa – The Process. SAJCN (Supplement); 14(3).

Warburton DER, Nicol CWN, Bredin SSD (March 14, 2006). Health benefits of physical activity: the evidence. CMAJ; 174(6).

Wikipedia online dictionary. Demographic transition.

http://en.wikipedia.org/wiki/Demographic_transition. Accessed 1/09/07.

Wikipedia online dictionary. Health club. http://en.wikipedia.org/wiki/Health_club

Accessed 1/09/07.



Wikipedia online dictionary. Khayelitsha. <http://en.wikipedia.org/wiki/Khayelitsha>

Accessed 1/11/07.

WHO (1997). World health report. Conquering suffering, enriching humanity. Geneva.

WHO(2002a). World Health Report. Reducing risks, promoting healthy life. Geneva. WHO.

WHO(2002b). Physical activity and youth: “Move for Health” World Health Day.

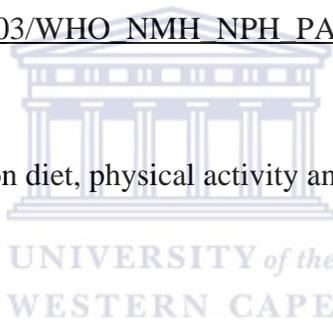
WHO (2003a). The World Health Report - Shaping the Future. Geneva WHO.

WHO(2003b). Diet, Nutrition and the Prevention of Chronic Disease. In Technical Report Series 916. Geneva: World Health Organisation

WHO(2003c). Constraints to the development of regular practice of physical activity: Non-communicable diseases prevention and health promotion. Available at <http://www.who.int/pr/physactiv/women.shtml>. Accessed 6/05/07.

WHO (2003d). Health and development through physical activity and sport. Geneva: World Health Organisation. Available at: http://whqlibdoc.who.int/hq/2003/WHO_NMH_NPH_PAH_03.2.pdf Accessed 6/05/07.

WHO (2004). Global strategy on diet, physical activity and health. 57th World Health Assembly. Agenda Item 12.6.



WHO (2007). Cardiovascular diseases. Available online at <http://www.who.int/topics/cardiovascular-diseases/en/> Accessed 1/11/07.

Yach D, Mathews C, Buch E (1990). Urbanisation and health: methodological difficulties in undertaking epidemiological research in developing countries. Soc Sc Med; 31(4): 507-14.

Yach D, Hawkes C, Linn Gould C, Hofman KJ (2004). The Global Burden of Chronic Diseases: Overcoming Impediments to Prevention and Control. JAMA; 291: 2616-2622.

Survey of physical activity and dietary habits

club	not
------	-----

Case #

--

Section A: General Information

1 Age:

--

 years

2 Gender:

Female	Male
--------	------

3 Employment Status:

Unemployed	Part-time	Full-time	Self-employed
------------	-----------	-----------	---------------

4 Educational Level:

Never went to school	Prim. School	High School	Tertiary
----------------------	--------------	-------------	----------

5 Home Language:

Xhosa	English	Afrikaans	Other.....
-------	---------	-----------	------------

6 How many adults live in your house including yourself?

--

Section B: Physical Activity

The following questions are about the kinds and time you spend doing different types of physical activities. The are no right or wrong answers so please give us your information as it is.

1. You may walk every day to work, school, shops or visiting other people or places. In total, how many minutes do you walk daily?

--

 minutes

2 In a usual week, how many days do you conciously do exercises like brisk walking, playing with children or similar moderate intensity activities?

--

 days

3 On a usual day when you do these activities, how much time do you spend per day doing this?

--

 minutes

4 How many hours do you spend per day preparing meals or cleaning up after meals?

--

 hours

5 Approximately how many hours per week do you spend doing routine cleaning such as dusting, laundry, sweeping, changing bed sheets and grocery shopping?

--

 hours

6 How many times per month do you spend doing vigorous cleaning activities such as scrubbing floors, washing windows, fetching water, sweeping the yard, etc?

--

 times

7 Do you participate in any other similar physical activities not included on the list?

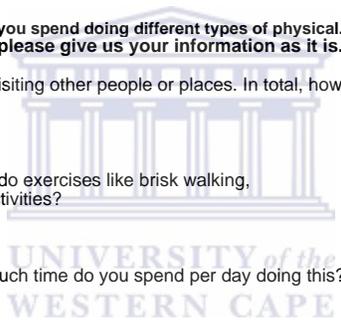
Yes	No
-----	----

8 If yes, please list them.

.....
.....
.....
.....

9 Do you watch TV?

yes	no
-----	----



10 In a usual day how many hours do you spend watching TV?

hours

11 Which other non - physical activities do you enjoy ? Eg. Reading, church service. Please list them.

.....
.....
.....

Section C - Dietary Habits

Now, I would like to ask you some questions about the foods that you eat. There are no right or wrong answers so please feel free to give us your information as it is.

1. What is the main type of milk you use in your household?

none	full cream	2%	skimmed	powdered
------	------------	----	---------	----------

2. What is the main type of hot beverage you drink?

none	coffee	tea	rooibos	herbal
------	--------	-----	---------	--------

3. How many cups of hot beverage do you drink per day?

4. How many teaspoons of sugar do you add to your tea/coffee?

5. How many glasses of water do you drink daily?

6. What is the main type of cold beverage you usually drink daily?

none	sweetened juice	non-sweetened juice	cold tea	powdered drink e.g. Sweet Aid	concentrated drink eg. Oros	marhewu	soft drink	diet soft drink
------	-----------------	---------------------	----------	-------------------------------	-----------------------------	---------	------------	-----------------

7. How many glasses of cold beverage do you drink daily?

8. What type of bread do you usually eat?

none	white	brown	wholewheat	home-made
------	-------	-------	------------	-----------

9. How many slices do you usually eat ?

10. What type of spread do you usually use on your bread?

Name :

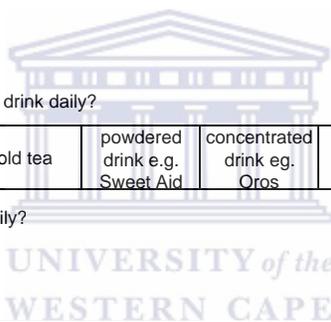
11. How many fruits do you usually eat per day?

12. How many portions of vegetables do you usually eat per day?

13. How many times do you eat soft maize porridge per week?

14. How many times do you eat lentils, samp, beans per week?

15. How many eggs do you eat per week?



16 How often do you eat red meat per week?

17 When you cook red meat, do you usually trim the fat before cooking?

never	sometimes	always
-------	-----------	--------

18 How do you usually cook your red meat?

fry	boil	grill	bake
-----	------	-------	------

19 How many times per week do you eat sausage?

20 How do you usually cook your sausage?

fry	boil	grill	bake
-----	------	-------	------

21 How often do you eat chicken per week?

22 When you cook chicken do you usually remove the skin and fat before cooking ?

never	sometimes	always
-------	-----------	--------

23 How do you usually cook your chicken?

fry	boil	grill	bake
-----	------	-------	------

24 How often do you eat pens,liver,heart,kidney,intestines,feet,head per month?

25 How often do you eat pork/ pig feet per month?

26 How many times do you eat fish per month?

27 How do you usually cook your fish?

fry	boil	grill	bake
-----	------	-------	------

28 How often did you drink or eat sour milk per week?

29 How often do you eat fat cookies per week?

30 Do you usually eat your food very salty, lightly salted, or not salted?

very salty	lightly salted	not salted	don't know
------------	----------------	------------	------------

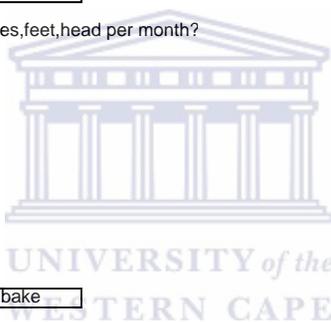
31 Do you usually add salt, Fondor or Aromat while cooking or afterwards?

no salt	while cooking	after cooking
---------	---------------	---------------

32 How many times do you eat cakes, sweets, chocolates, puddings per week?

33 Is a refrigerator available for storing your foodstuff?

yes	no
-----	----



Section D- Influencing Factors (barriers and enhancing factors)

The following questions will look at things that help you or prevents you from improving physical activity and eating habits- more than one answer can be applicable.

1 What are some of the things that stops you from increasing your physical activity?

lack of exercise facilities

lack of time

laziness

pain associated with exercise

feeling tired & need to rest

feeling unsafe in area

fear of losing weight

other :
.....
.....

2 What are some of the things that help you to increase physical activity?

having sufficient time

having community support

having an exercise partner

own motivation & confidence

other :
.....
.....



3 What are some of the things that prevents you from improving your eating habits?

healthy food is expensive

healthier food is not easy to find

available food is very tempting

available food is nutritious

eating healthier makes me feel isolated from others

fear of losing weight

other :
.....
.....

4 What are some of the things that helps you to improve your eating habits?

actually losing weight

feeling healthier & confident

family and community curiosity & support

other :
.....
.....

Information Sheet

Comparison of physical activity and dietary habits of health club members and community controls in Khayelitsha, Cape Town.

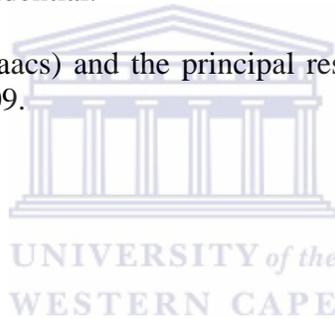
We are from the University of the Western Cape and are doing research in this community to determine physical activity and dietary habits of people in Khayelitsha. We are requesting your participation in this research. This information is important in order to plan future health programmes for this area.

Please note that you will be asked to answer questions and the answers will be completed on the questionnaire by our fieldworkers. This study is completely voluntary and you are welcome to withdraw at any time or refuse to answer any questions if you so wished. Your identity will be kept confidential.

The researcher (Ms Roshan Isaacs) and the principal researcher (Prof Thandie Puoane) can be contacted at 021 9592809.

Thanking you

Roshan Isaacs



Consent Form

Comparison of physical activity and dietary habits of health club members and community controls in Khayelitsha, Cape Town.

I have been informed about the purpose and nature of the study. I understand that the information will be confidential.

Should I withdraw from the study, I can do so at any time without giving reasons. I also have the right to refuse to answer questions and withdraw from the study without any negative repercussions.



Name of participant.....

Signature of participant.....

Date.....