

**KNOWLEDGE, ATTITUDES AND PRACTICES
OF HEALTHCARE WORKERS ABOUT HEALTHY
LIFESTYLES: A STUDY IN AN
URBAN - BASED DISTRICT HOSPITAL
IN KWAZULU-NATAL**

by

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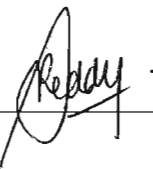
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Master of Public Health

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DECLARATION

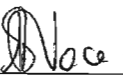
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TABLE OF CONTENTS

DECLARATION.....	2
TABLE OF CONTENTS	3
LIST OF TABLES	6
LIST OF FIGURES.....	8
LIST OF APPENDICES	9
DEFINITION OF TERMS.....	10
ACRONYMS AND ABBREVIATIONS.....	11
ACKNOWLEDGEMENTS	12
ABSTRACT	13
CHAPTER ONE: INTRODUCTION	14
Overview of chapter	14
Introduction	15
Background.....	16
Study Aims	19
Specific objectives of the study.....	19
Overview of research report	20
CHAPTER TWO: LITERATURE REVIEW	21
Overview of chapter	21
Search strategies	21
SECTION A: BURDEN OF CHRONIC DISEASES OF LIFESTYLE	23
SECTION B: MAJOR CONTRIBUTING FACTORS TO THE INCREASE IN PREVALENCE OF CHRONIC DISEASES OF LIFESTYLE	28
Cardiovascular disease	28
Diabetes	28
Hypertension.....	31
SECTION C: LIFESTYLE FACTORS INFLUENCING THE INCREASE IN CHRONIC DISEASES OF LIFESTYLE	33
Obesity, diet and nutrition	33
Physical activity.....	35

Use of tobacco products	36
SECTION D: EFFECTS OF KNOWLEDGE, ATTITUDES AND PRACTICES ON LIFESTYLE RISK FACTORS.....	37
SECTION E: ECONOMIC TRENDS INFLUENCING LIFESTYLE CHOICES.....	43
Urbanization	43
Globalization	45
SECTION F : ROLE OF THE WORKPLACE IN PROMOTING A HEALTHY LIFESTYLE	47
SECTION G : MODELS FOR PROMOTING HEALTHY LIFESTYLES	51
Chapter summary.....	55
CHAPTER THREE: METHODOLOGY.....	56
Overview of chapter	56
SECTION A: STUDY SETTING	57
SECTION B: STUDY PERIOD.....	58
SECTION C: STUDY DESIGN	58
SECTION D: STUDY POPULATION.....	59
Inclusion criteria:.....	59
Exclusion criteria:.....	59
SECTION E: SAMPLING STRATEGY AND SIZE	60
SECTION F: DATA COLLECTION METHODS	60
Variables.....	60
Data collection instruments	61
Data collection process.....	61
Measures to ensure validity and reliability.....	61
SECTION G: DATA MANAGEMENT	62
SECTION H: DATA ANALYSIS	62
Overview of data analysis	62
Data classification.....	63
Significance testing	66
SECTION I: ETHICAL CONSIDERATIONS	66
Respect for persons.....	67
Principle of beneficence	67
Principle of justice.....	67
Chapter summary.....	68
CHAPTER FOUR : RESULTS.....	69
Overview of chapter	69
SECTION A: Descriptive profile of respondents.....	70
SECTION B: Knowledge of the staff with regards to healthy lifestyle issues	73
SECTION C: Attitudes of the staff	74
SECTION D: Practices of the staff	75
SECTION E: Weight perception and body mass index	76

SECTION F: Comparative presentation of knowledge, attitude and practice indices..	80
SECTION G: Staff perceptions about how the workplace should encourage the adoption of healthy lifestyles.....	84
Chapter summary.....	89
CHAPTER FIVE: DISCUSSION	90
Overview of chapter	90
Section A: Application of the conceptual framework	91
Section B: Demographic profile	92
Section C: Knowledge of the staff with regards to healthy lifestyles issues.....	92
Section D: Attitudes of staff.....	94
Section E: Practices of staff.....	95
Section F: Body mass index and weight perception.....	99
Section G: Staff suggestions about needs in the workplace to support the adoption of healthy lifestyles.....	101
Section H: Limitations of the study.....	103
Study design	103
Missing values	103
Response rate.....	103
Data collection tool.....	104
Chapter summary.....	107
CHAPTER SIX: RECOMMENDATIONS.....	108
REFERENCES	112
APPENDICES.....	126

LIST OF TABLES

Table 1: List of the main causes of death by broad income group.....	23
Table 2: Estimated DALY's per income level country	24
Table 3: Response rates by staff category	70
Table 4: Frequency distribution of gender by staff category	71
Table 5: Frequency distribution of marital status by staff category:.....	71
Table 6: Frequency distribution of highest educational level by staff category.....	72
Table 7: Knowledge index by gender distribution	73
Table 8: Knowledge index by educational level	73
Table 9: Percentage of staff agreeing with each knowledge statement.....	73
Table 10: Attitude index by gender distribution.....	74
Table 11: Attitude index by educational level.....	74
Table 12: Percentage of staff responses for each attitude statement	74
Table 13: Practice index by gender distribution.....	75
Table 14: Practice index by educational level.....	75
Table 15: Percentage of staff that supported the practice statements.....	75
Table 16: Frequency distribution of weight perception by staff category:	76
Table 17: Frequency distribution of body mass index per staff category:	76
Table 18: Analysis of variance of the males BMI.....	77
Table 19: Multiple comparison Bonferonni test of the BMI for males.....	77
Table 20: Analysis of variance of the BMI for females	77
Table 21: Multiple comparison Bonferonni test of BMI for females.....	78
Table 22: Cross tabulation of staff BMI and weight perception	78
Table 23: Chi-square test of BMI and weight perception	79
Table 24: Ranges of knowledge, attitude and practice percentage scores.....	81
Table 25: One way analysis of variance of knowledge, attitude and practice percentage scores	82
Table 26: Post-hoc Bonferroni test.....	83
Table 27: Responses to: "I will do exercise if there is a gym facility at work".	84

Table 28: Responses to: “There should be healthier choices of meals available for the staff” .	85
Table 29: Responses to: “ The present meals at the dining room are healthy” .	85
Table 30: Responses to: “I am prepared to pay a small fee to start being healthy” .	86
Table 31: Responses to: “There should be a health program at our workplace to help staff lead a healthy lifestyle”	86
Table 32: Responses to: “Having a workplace health-monitoring program would NOT interest me”	87
Table 33: Responses to: “We should not rely on the work environment to provide us with a healthy lifestyle”	87
Table 34: Responses to: “The support and motivation from colleagues will encourage us to use the facility /attend the programme at work” .	88

LIST OF FIGURES

Figure 1 : Deaths by broad age group and sex (Bradshaw 2000 p11).....	26
Figure 2 : Provincial estimates of age-standardised death rates as a result of CDL diseases, 2000 (Bradshaw p13)	27
Figure 3: Precede-proceed planning framework	52
Figure 4: Adaptation of the precede-proceed model.....	54
Figure 5: Box plots of knowledge, attitude and practice percentage indices.....	80

LIST OF APPENDICES

Appendix A:	Provincial migration statistics	44
Appendix B:	Aerial photograph of Wentworth Hospital	57
Appendix C:	Post-graduate approval	58
Appendix D:	Biomedical Research Ethics Committee approval	58
Appendix E:	English questionnaire	61
Appendix F:	Zulu questionnaire	61
Appendix G:	Classification of questions.....	61
Appendix H:	Index scoring syntax.....	64
Appendix I:	Permission from hospital management	66
Appendix J:	Consent form	66

DEFINITIONS OF TERMS

Body mass index

A measure of body fat that is the ratio of the weight of the body in kilograms to the square of body height in meters. A body mass index in adults of 21 – 24.9 is considered to be within average range and 25 – 29.9 is considered an indication of overweight, and 30 or more an indication of obesity.

<http://www2.meriam-webster.com/cgi-bin/mwmednlm>

District level hospital

District hospitals provide level 1 (generalist) services to in-patients and out-patients (ideally on referral from a community health center or clinic). The services include diagnostic, treatment, care, counselling and rehabilitation services. The hospital has between 20-200 beds, 24-hour emergency service and an operating theatre.

(Department of Health 2002)

Healthy lifestyle

The positive choices that an individual makes in terms of nutrition, exercise and other personal choices that would result in the individual leading a health promoting way of life in order to enjoy good health and vigor of mind, body and spirit i.e a condition of physical, mental and social well being.

(Compiled from Mosby's Dictionary of Medicine, Nursing and Health Professions 2006)

Obesity

A condition that is characterized by excessive accumulation and storage of fat in the body and that in an adult is typically indicated by a body mass index of 30 or more.

http://www.nlm.nih.gov/cgi/medline_plus/dictionary.pl

ACRONYMS AND ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
BoD.....	Burden of disease
BMI.....	Body mass index
CDL	Chronic diseases of lifestyle
CHW	Community health worker
CVD.....	Cardiovascular disease
DALY	Disability adjusted life-years
DoH	Department of Health
EAP.....	Employee assistance program
EWP.....	Employee wellness program
HDL.....	High density lipoprotein
HPH	Health promoting hospital
KABP	Knowledge, attitudes, beliefs and practice
KAP	Knowledge, attitude and practice
LDL	Low density lipoprotein
MI	Myocardial infarction
PYLL	Person years of life lost
SADHS	South African Demographic Health Survey
WHO.....	World Health Organization
YLL	Years of life lost

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*Success is to be measured not so much
by the position that one has reached in life
as by the number of obstacles
which one has overcome
while trying to succeed.*

ABSTRACT

Background: There is global concern about the impact of lifestyle related diseases which have been on a steady increase in recent years. Poor nutrition, reduced physical activity and cigarette smoking have been documented as the main lifestyle behaviours that result in an increase in prevalence of the three most common occurring chronic diseases of lifestyle namely: diabetes, hypertension and cardiac diseases. Healthcare workers are frontline personnel and are seen as role models by their family, friends and the community they serve. It is therefore important that positive healthy lifestyle behaviors are practiced and encouraged by healthcare workers themselves. **Objectives:** To develop an initial descriptive profile of hospital employees with regards to their general knowledge, attitudes and practices about healthy lifestyles and to make appropriate recommendations to the hospital management on how the workplace can support the adoption of healthy lifestyles. **Methods:** The study was conducted at one health institution using the permanently employed staff as the study population. An exploratory descriptive study design was used in context of the precede-proceed planning framework. Self-administered questionnaires and consent forms were distributed in English and isiZulu. Collection boxes were placed in all wards and departments. Data was captured using the SPSS version 13 statistical package. **Results:** The response rate was 42%. Respondents were classified into the administrative, general staff and health professional categories. There was a significant difference ($p=0.03$) between the staff body mass index and their weight perception. Knowledge and attitude had mean indices of greater than 70% and the practice indices were lower for all three categories at less than 45%. A significant difference was found between certain staff categories in the knowledge and attitude indices but no significant difference existed in their practices. **Conclusion:** All categories of staff possessed adequate knowledge and attitudes but this is not transferred into positive health promoting practices. The possibility of workplace health promoting interventions was well supported by staff especially with regards to healthier meal choices at the staff dining room and an onsite gym facility. The main limitations of the study were the non-standardized data collection tool, and the poor response rate, which make the generalization of the study findings difficult.

CHAPTER ONE: INTRODUCTION

Overview of chapter

There is global concern about the impact of lifestyle related diseases, which have been on a steady increase in recent years. The promotion of healthy lifestyles and the prevention of lifestyle related diseases are considered important health care priorities. Healthcare workers are frontline personnel and are seen as role models by their family and friends and the community they serve. It is therefore important that positive healthy lifestyle behaviors are practiced and encouraged by healthcare workers themselves. This has been the motivating factor and the rationale for this research project, which aimed to provide a baseline profile of the knowledge, attitudes and practices with regards to healthy lifestyles of the health care workers in an urban-based district / level one hospital in the eThekweni Municipality in KwaZulu-Natal.

Introduction

The World Health Organization's (WHO) 2005 global report, entitled "Preventing Chronic Diseases: A vital investment" highlights the worldwide impact of chronic diseases of lifestyle. The disease profile of the world is changing at an astonishingly fast rate, especially in low and middle income countries. The effect of chronic disease is viewed as a significant contributing factor to the increase in the global burden of disease. In this report, WHO estimated that, of a total of 58 million deaths from all causes in 2005, chronic diseases accounted for 35 million, double the number of deaths that occurred from all infectious diseases (including HIV/AIDS, TB and malaria), maternal and perinatal conditions and nutritional deficiencies (*Ibid*). The report also indicated that 20% of chronic disease related deaths occurred in high income countries, while 80% occurred in low and middle income countries, where most of the world's population lives (*Ibid*).

Lifestyle related diseases have major impact on the quality of life of individuals and, according to the WHO, the threat is growing (*Ibid*). Deaths from infectious diseases were projected to decline by 3% over the subsequent 10 years but deaths due to chronic lifestyle diseases were projected to increase by 17%. This means that of the projected 64 million people who will die in 2015, 41 million will die of chronic diseases of lifestyle (*Ibid*).

South Africa, classified as a middle income, developing country, is experiencing an increase in chronic diseases of lifestyle (Bradshaw and Steyn 2001). This is described as a group of diseases that share similar risk factors as a result of engaging, over many decades, in unhealthy diets, smoking, lack of exercise and possibly stress. The major risks factors are high blood pressure, tobacco addiction, high blood cholesterol and diabetes (*Ibid*). These diseases are different from other diseases because they are potentially preventable and are as a result of an inappropriate relationship with the environment. They can be controlled through changes in diet, lifestyle and environment.

The onset of these lifestyle diseases is insidious, they take years to develop. However, once encountered they do not lend themselves easily to cure.

The South African National Burden of Disease Study (Bradshaw et al 2006) presents a list of the twenty leading single cause of deaths. According to this study, HIV/AIDS accounts for the highest (41.5%), followed by strokes with 6%. Ischaemic heart disease, hypertensive heart disease and diabetes ranged between 3% and 5% (*Ibid*). The report indicates that a minimal difference in the number of deaths was observed between males and females, with regards to HIV/AIDS, but there were a higher proportion of female deaths as a result of cardiovascular disease, stroke and diabetes. Strokes and ischaemic heart disease was ranked higher in KwaZulu-Natal than nationally. In the presentation of the deaths per disease according to the different age and gender groups, a trend/pattern could be observed with regards to deaths related to chronic diseases. As the population grew older, there was a corresponding increase in the percentages of deaths related to chronic diseases of lifestyle (CDL) in both the male and female groups.

Background

Promoting healthy lifestyles is first on the list of objectives in the KwaZulu-Natal Strategic Health Plan (Department of Health 2005). This is in accordance with the health sector strategic framework, 2004-2009 (Andrews and Pillay 2005). The introduction of the employee assistance program (EAP) within the Department of Health (DoH), is gaining impetus with the appointment of employee assistance practitioners in many hospitals. By definition the EAP is “a worksite programme designed to assist in the early identification and resolution of productivity problems associated with employees impaired by personal concerns including, but not limited to: health, marital, family, financial, alcohol, drug, legal, emotional, stress or other personal concerns which may adversely affect employee job performance” (Department of Health 2004 p5).

The EAP is a positive contribution and a step towards a comprehensive and quality service for managers, supervisors, worker organizations, employees and their families. However, in specific relation to this research the question arises about the wellbeing of staff that does not have any problems and does not require the service of the EAP at the present moment. What social support does the organization afford them as a preventative measure in terms of maintaining and promoting a balanced lifestyle?

The implementation of employee wellness programs (EWP) and workplace health promoting interventions are directed towards promoting a balanced and healthy lifestyle among the staff (Galvin 2005, Moher 2006, Oura 2001). They have similar objectives as the EAP, but focus on activity participation and promotion of a healthy lifestyle program. There should be a combining of the EAP and EWP which would then provide a holistic and comprehensive program to the employee. The organization could then be considered as being proactive in looking after the wellbeing of employees in terms of the complete definition of health i.e. mental, physical, social and spiritual wellbeing (WHO 1986).

Health promotion is defined as the process of enabling people to increase control over, and to improve, their health (WHO 1986). The WHO Health Promoting Hospital (HPH) project incorporates the concepts, values and standards of health promotion into the organizational structure and culture of the hospital, improving health of patients and staff, supporting healthy environments and actively cooperating with the community. It provides the hospitals with an opportunity to contribute to overall public health goals and objectives (Grone et al 2004). It is a core quality issue and should therefore be part of one's daily work by including aspects of health education, disease prevention and rehabilitation services. Health promotion also incorporates health enhancement by empowering patients, relatives and employees to improve their overall health i.e. mental, physical and social wellbeing (*Ibid*).

Hospitals play an important role in promoting health, preventing disease and providing rehabilitation services. These activities are often included as part of the essential services offered by hospitals but may have not been made explicit or documented in detail. In

order to advocate good health, the hospital should be a healthy workplace and hospital staff should enjoy a high quality of working life in order to achieve their role as health promoters. The increasing prevalence of lifestyle-related and chronic diseases requires a more definite and committed approach towards health promotion.

The Health Promoting Hospital (HPH) initiative presents five standards that, if met, will contribute to the improvement of working conditions of staff and to improving the quality and efficiency of service delivery. Each standard has a set of substandard with each of these sub standards having one or more measurable elements which require demonstrable evidence. These standards are:

- Standard 1: Management policy
- Standard 2: Patient assessment
- Standard 3: Patient information and intervention
- Standard 4: Promoting a healthy workplace
- Standard 5: Continuity and cooperation

(Grone et al 2004)

Promoting healthy lifestyles in the workplace is vital towards preventing chronic lifestyle related diseases (Addley 2001, Campbell 2000, Oura 2000). It is important that the consequences of lifestyle related diseases are anticipated and understood, which would support the implementation of health promotion initiatives. This situation is of two-fold concern. Firstly, in terms of the role-model function that health workers play and secondly, in terms of the productivity of personnel and the effect this has on already stretched financial budgets. The improvement of employees' quality of life would also be an added benefit of workplace health promotion initiatives.

Studies done among community healthcare workers (Puoane et al 2002), primary healthcare physicians (Abramson et al 2000), cardiac nurses (Jaarsma 2004), primary healthcare professionals (Jungjohann et al 2002), and among a group of health professionals (Talip et al 2003, 2005), have indicated that there is a definite problem of poor lifestyle choices among the different categories of healthcare workers, which in turn contributes to the increase of chronic diseases of lifestyle.

The increasing global concern around the issue of lifestyle related diseases, the documented data on the increasing burden of disease in South Africa (Bradshaw et al 2004) and the inclusion of promoting healthy lifestyles in the National Health Priority Plan and the potential for integration of both EAP and EWP have been the key factors providing the rationale for this research.

Study Aims

The overall aims of this study were to develop an initial descriptive profile of hospital employees with regards to their general knowledge, attitudes and practices about healthy lifestyle issues and secondly, to make appropriate recommendations to the hospital management on how the workplace could encourage staff to lead healthy lifestyles.

Specific objectives of the study

1. Compare the general knowledge of the different categories of staff with regard to healthy lifestyles.
2. Compare the general attitudes of the different categories of staff towards healthy lifestyles.
3. Compare the general practices of the different categories of staff in relation to healthy lifestyle issues.
4. Describe the body mass index of the respondents:
 - 4.1. per staff category
 - 4.2. per gender
 - 4.3. in comparison to their own weight perception
5. Identify staff perceptions of a workplace that should support the adoption of healthy lifestyles.
6. Make appropriate recommendations to the hospital management based on the outcome of the study.

Overview of research report

- Chapter 1 presents the introduction and rationale of the research project – as outlined above.
- Chapter 2 presents an overview of the literature and the conceptual model used to underpin the study.
- Chapter 3 presents a detailed description of the methodology used in the execution of this study.
- Chapter 4 presents the results of the study.
- Chapter 5 presents the interpretation and discussion of the results.
- Chapter 6 presents the recommendations and conclusions of the study.

CHAPTER TWO: LITERATURE REVIEW

Overview of chapter

A literature review was performed on issues related to chronic diseases of lifestyle (CDL). These issues included the local and global factors influencing CDL, CDL mortality rates, the global burden of disease inflicted by CDL, factors influencing the increase of lifestyle related diseases and CDL intervention programmes, which could be either primordial or preventative.

This chapter will be presented in the following sections:

Section A	Global burden of chronic disease of lifestyle
Section B	Main contributing factors to the increase in prevalence of CDL
Section C	Lifestyle risk factors influencing the increase in chronic diseases of lifestyle
Section D	Effects of knowledge, attitudes and practices on lifestyle risk factors
Section E	Economic trends influencing lifestyle choices
Section F	Role of the workplace in promoting healthy lifestyle
Section G	Models for promoting healthy lifestyles

Search strategies

Electronic databases (EBSCO Host, PubMed, CINAHL and Medline) were searched using the search words: chronic lifestyle diseases, lifestyle behaviours, healthy lifestyles, disease burden, healthcare workers and workplace programmes. A hand search for relevant articles was performed in the: The South African Journal of CPD (CME), The South African Medical Journal, and The Journal of Natural Medicine. Additional literature was obtained from the List of References and List of Publications in related articles. Contact was made with academic personnel who possess experience in this field

of interest. A limitation in the literature search was that only English language literature was accessed.

The Harvard referencing system was used in this study, which requires both in-text references and a list of references arranged alphabetically at the end of the report.

SECTION A: GLOBAL BURDEN OF CHRONIC DISEASES OF LIFESTYLE

Burden of Disease (BoD) is defined as “a comprehensive measure of the health status of the nation by assessing ill health and causes of death which includes fatal and non-fatal injuries” (Bradshaw et al 2003 p1). A worldwide health transition is occurring as a result of the combined effects of the demographic ageing of populations and a changing epidemiological profile (Bradshaw et al 2004). It was predicted that globally, deaths from non-communicable diseases would increase by 77% between 1990 and 2020 and that most of these deaths would occur in the developing regions of the world (Murray et al 1996). The WHO Report (2005) indicated that 80% of deaths and 87% of disability due to cardiovascular disease occurred in developing countries. The table below was compiled from the WHO list of top ten causes of death per income group.

Table 1: Leading causes of death by broad income group (WHO 2004)

	2002		2005 projections	
	Death in millions	% of deaths	Death in millions	% of deaths
High Income Countries				
Coronary heart disease	1.34	17.1	1.38	16.9
Stroke and other cerebro-vascular diseases	0.77	9.8	0.77	9.5
Chronic obstructive pulmonary disease	0.30	3.9	0.32	3.9
Diabetes mellitus	0.22	2.7	0.24	2.9
Middle Income Countries				
Stroke and other cerebro-vascular diseases	3.02	14.6	3.14	14.8
Coronary heart disease	2.77	13.4	2.90	13.7
Chronic obstructive pulmonary disease	1.57	7.6	1.72	8.1
HIV/AIDS	0.62	3.0	0.75	3.5
Low Income Countries				
Coronary heart disease	3.10	10.8	3.29	11.4
Lower respiratory infections	2.86	10.0	2.72	9.5
HIV/AIDS	2.14	7.5	2.06	7.2
Stroke and other cerebro-vascular diseases	1.72	6.0	1.83	6.4

Table 1 indicates that coronary heart disease was responsible for the highest percentage of deaths in high and low income countries, and was ranked as the second leading cause of death in middle income countries. HIV/AIDS features in the top four leading causes of deaths in the middle and lower income countries, but has not featured as one of the leading causes of death in the high income countries.

The DALY is a health gap measure that extends the concept of potential years of life lost (PYLL) due to premature death to include equivalent years of ‘healthy’ life lost by virtue of being in states of poor health or disability. The DALY combines in one measure the time lived with disability and the time lost due to premature mortality. One DALY can be thought of as one lost year of ‘healthy’ life and the burden of disease as a measurement of the gap between current health status and an ideal situation where everyone lives into old age free of disease and disability (Murray et al 2002). DALYs for a disease or health condition are calculated as the sum of the years of life lost (YLL) due to premature mortality in the population and the years lost due to disability (YLD) for incident cases of the health condition. The following figures pertaining to selected different income level countries were extracted electronically from the World Health Organisation (WHO 2004).

Table 2: Estimated DALY’s per income level country (WHO 2004)

	USA HIC	SWEDEN HIC	UK HIC	Brazil MIC	South Africa MIC	BOTSWANA MIC
Population (‘000)	291,038	8,867	59,068	176,257	44, 759	1,770
All causes	14,266	11,023	12,790	20,721	45,936	71, 591
Communicable, perinatal, maternal and infectious	941	430	855	4,361	30, 507	61,153
Non- communicable diseases	11,939	9763	11,192	13,113	11, 530	8,017
• Diabetes mellitus	440	222	169	388	379	134
• Cardiovascular disease	2,115	2113	2,196	2,299	2, 141	1,106
* Ischemic	1,016	971	1,016	732	559	350
* cerebro-vascular disease	504	592	619	835	720	371

MIC: middle income country

HIC: high income country

Table 2 presents the differences that exist in morbidity patterns between the HIC and MIC. The DALYS are significantly higher in the MIC countries for all causes and communicable diseases. Lifestyle related diseases specifically ischemic heart disease is higher in all the HIC.

South Africa, a middle income country, has moved from a triple burden of disease to a quadruple burden, which comprises poverty-related communicable diseases, the emerging non-communicable chronic diseases, traumatic injuries and AIDS. This quadruple burden of diseases has serious consequences for the prevention and cost-effective management of chronic diseases and the unhealthy lifestyles and risk factors that precede them (Bradshaw et al 2004). Our country is inhabited by people with different social classes. The more affluent segments of the population tend to pass through the stages of epidemiological transition first and are then followed by the poor, resulting in a protracted bipolar transition with the co-existence of both infectious diseases and chronic diseases of lifestyle (CDL) in the population (Frenk et al 1989). This polarized transition is an expression of combined and uneven development (Chopra et al 2004).

In the Chronic Diseases of Lifestyle in South Africa report, an estimated 40% of South Africans in the economically active group (24-64 years) die from chronic disease, which include ischemic heart disease, tobacco and nutrition related cancers, lung diseases and cerebro-vascular diseases (Bradshaw et al 2006). The report adds that the death rate from heart disease in developed countries is decreasing, but this trend is changing in the developing countries, with a projection that over the next few decades these countries will experience a significant increase in premature deaths due to CDL. The report from the South African National Burden of Disease Study highlighted the impact of HIV/AIDS as a cause of death and the quadruple burden of disease experienced in South Africa (Bradshaw et al 2004). Although CDL usually presents in middle age or even later in life, the establishment of unhealthy lifestyles and the emergence of CDL risk factors occur much earlier.

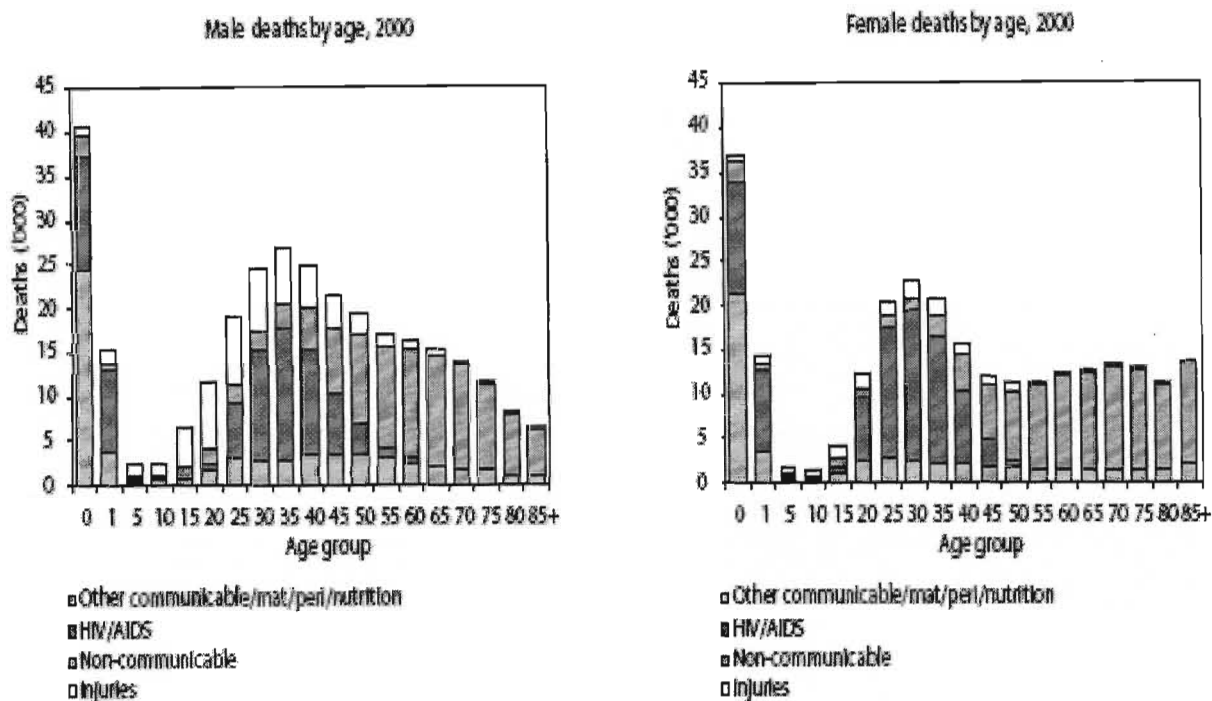


Figure 1 : Deaths by broad age group and sex (Bradshaw 2004 p11)

Figure 1 highlights the quadruple BoD and presents the leading causes of adult deaths in South Africa in the year 2000 for men and women by age group. HIV/AIDS was the main cause of death in the young adults and non-communicable diseases featured as a main cause in the older age group. In adults aged 15-45 years, HIV/AIDS, TB, homicide and road traffic accidents were the common causes of death. However, in the over 45 years age group cardiovascular disease (CVD) and lifestyle related cancer feature among the leading causes of death. The patterns differ by sex, with the proportion of deaths related to HIV/AIDS greater among young adult women.

Estimates from the National Burden of Disease Study indicate that the all cause mortality rates differ substantially between population groups, with those amongst Africans being much higher than the other groups. The death rates from CDL were much higher in the Indian and Coloured population groups compared to the other groups. Diabetes and CVD were extremely high in the Indian group (Bradshaw et al 2004).

Figure 2 presents the provincial mortality rates related to CDL. Provincial mortality rates showed little differences in the age-standardised death rate from CDL between provinces. CVD was the leading cause of death in all provinces including KwaZulu-Natal. The richer provinces of the Western Cape and Gauteng had higher cancer mortality rates. Eastern Cape and Northern Cape had higher mortality rates from respiratory diseases. Diabetes as a cause of death was the highest in KZN as compared to other provinces. The authors state in the report that the lack of reliable data made it difficult to examine the urban and rural differences in mortality patterns.

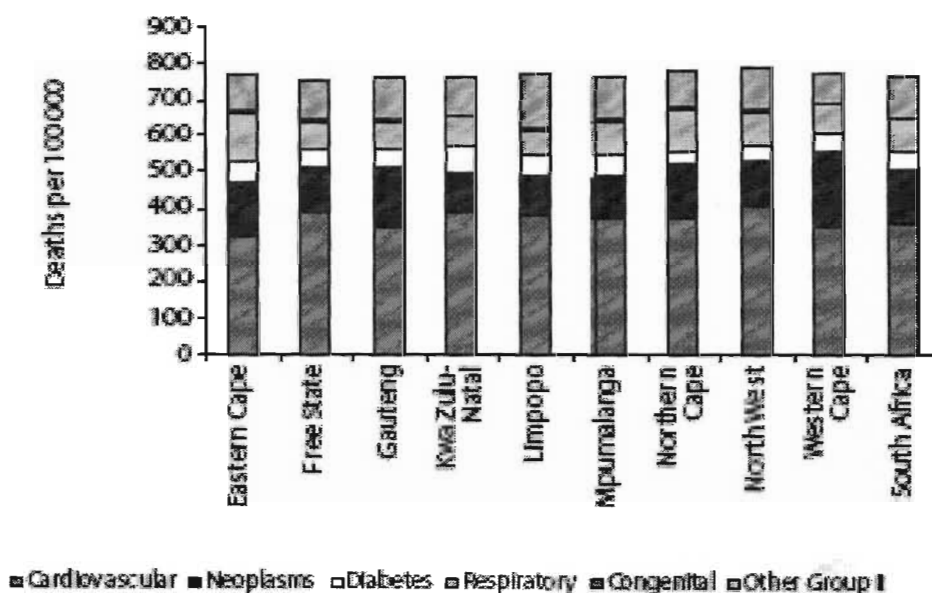


Figure 2 : Provincial estimates of age-standardised death rates as a result of CDL diseases, 2000 (Bradshaw 2004 p13)

This section has shown that the global burden of disease is increasing steadily with a large proportion attributed to lifestyle related chronic diseases. South Africa, and KwaZulu-Natal in particular, has to deal with an increase in lifestyle related conditions, in addition to the compounding effect of HIV/AIDS.

SECTION B: MAJOR CONTRIBUTING FACTORS TO THE INCREASE IN PREVALENCE OF CHRONIC DISEASES OF LIFESTYLE

The previous section discussed that the three main contributors to the increased burden of chronic diseases of lifestyle are cardiovascular disease, diabetes and hypertension. This section will discuss these three factors in greater detail.

Cardiovascular disease

Cardiovascular disease (CVD) is one of the more commonly known lifestyle related disease. Observational cohort studies show that cigarette smoking, physical inactivity and increased body mass index (BMI) are associated with increased risks of premature CVD and death (Emberson et al 2005). Emberson et al conducted a study on lifestyle factors and CVD in middle-aged men, and found that the above three lifestyle characteristics are strongly related to the potential risk of major CVD (*Ibid*). The study discusses that CVD risk was highest among inactive men and decreased progressively with increasing levels of physical activity, but up to moderate levels of physical activity after which no further decreases on risk were observed. The risk for CVD increased by 6% for each 1kg/m² increase in BMI and with the number of cigarettes smoked per day. Men with no adverse lifestyle characteristics had a 53% lower risk of major CVD than men with one risk factor (*Ibid*).

Yusuf et al (2002) further discuss the global crisis around CVD. They project that by 2025 over 80 - 90% of all the CVD in the world will occur in developing countries. They attribute this increase to a number of causes which include among them the lifestyle related factors of increasing levels of obesity and the increasing use of tobacco as a result of urbanization.

Diabetes

The prevalence of type-2 diabetes is twice as high in the Indian population in South Africa compared with the Black and Coloured population, whereas coronary artery disease is more common in the white population group (Bradshaw and Steyn 2001).



A study was done on the global burden of diabetes in order to estimate the worldwide prevalence of this lifestyle disease in people older than twenty years, for three points in time i.e. 1995, 2000 and 2025 (King et al 1998). The research findings indicated that worldwide the prevalence of diabetes in adults was estimated to be 4.0% in 1995 and will increase to 5.4% by 2025. The number of adults with diabetes in the world will rise from 135 million in 1995 to 300 million by 2025. This projection is also supported in the article by Green et al (2003). The estimation represented a 42% increase in developed countries i.e. 51 million to 72 million. There would be a 170% increase in developing countries i.e. 84 million to 228 million. Thus by the year 2025, more than 75% of people with diabetes are estimated to reside in developing countries, as compared to 62% in 1995. The research also states that more women than men will have diabetes and that the disease will be increasingly concentrated in urban areas. South Africa's estimates for the three points in time were 1.4% in 1995, 1.4% in 2000 and 1.6% in 2025 (King et al 1998).

Urbanization as a risk factor for type-2 diabetes is supported in studies by King et al (1998), Green et al (2003), Motala (2002) and Aschner (2002). They maintain that a major part of this increase will occur in developing countries where the nation is undergoing socio-economic development including urbanization, an increased life expectancy of the population and lifestyle changes. Similar findings were also found in a study on diabetes prevalence in India (Ramachandran 2002).

Studies about practices and perceptions regarding diabetes found poor compliance in terms of prescribed eating habits and proper management of their medications (Mayekiso 2004, Khoza and Kortenboud 1995). The study in Eastern Cape (n=60) found that most patients understood that they should use their anti-diabetic drugs daily; however 63% of them supplemented their treatment with different remedies, mostly from traditional healers. Fruit and vegetable were not consumed by 58% and 45% respectively (Mayekiso 2004). The smaller study (n=30) in KwaZulu-Natal was conducted to assess factors that may influence compliance. Of the respondents 30% reported that financial problems

affected their ability to follow the prescribed diet. The cost of traveling to hospital, the side effects of the multiple drugs and forgetfulness especially among the older people in particular were some of the main factors. Compliance to dietary recommendations was poor and 33% of the respondents used alcohol daily (Khoza and Kortenboud 1995).

A cross sectional study described the knowledge, attitudes and practices (KAP) among 100 patients attending a diabetic clinic in face-face interviews using a structured questionnaire (Ambigapathy et al 2003). The results revealed that 87% of the respondents were able to answer 50% or more on knowledge correctly, while 98% of them had 50% or more score for the attitude questions. Ninety-nine percent of them reported 50% or more score for the practice questions. However, only 56% of them practiced all four of the practices that were asked i.e regular exercise, healthy diet, monitoring of blood glucose level and monitoring body weight. The study found a significant positive correlation between knowledge and attitude but there was no significant correlation between attitude and practice. The results indicate that an increase in knowledge will increase attitude however this is not necessarily the case between attitude and practice (*Ibid*).

A study in Limpopo Province on how health professionals manage their patients showed that 56-72% diabetic patients (n=288) had a special diet explained to them by a doctor, 12-27% by a nurse and only 4-16% had seen a dietician (Nthangeni et al 2002). Less than half of the patients had received food exchange lists and they had many complaints about the dietary advice that they had received, including cost, food not being tasty, food not being traditional and that certain recommended foods were not available (*Ibid*).

A report focusing on the knowledge, attitudes and practices of staff caring for patients with diabetes in Cape Town indicated that very few staff had in-house training in diabetes care after their basic training, yet their knowledge about chronic diabetes complications was reasonable (Goodman et al 1997). A qualitative study in the Eastern Cape about knowledge of diabetes care used in-depth interviews as a data collection method (Matwa 2001). Most of the participants could recognize the symptoms of hyperglycemia but few

knew the symptoms of hypoglycaemia or what to do when these symptoms were present. In addition the participants demonstrated limited knowledge of chronic diabetic complications (*Ibid*). The relevance of including this study and other studies about the management of these chronic lifestyle conditions is based on the premise that when individuals have sufficient knowledge about a disease, which includes the long term consequences of the condition, then this could serve as a deterrent and encourage people to put practices in place that might reduce their chance of acquiring the disease.

Hypertension

The report of the WHO states that about 62% of cerebro-vascular disease and 49% ischaemic heart disease are attributable to high blood pressure (WHO 2005). The impact of hypertension as a cause of increased morbidity and mortality is worsened by its high prevalence and inadequate control in all populations worldwide. The rule of halves coined in the United States in the 1960's describes the observation that only half of those with hypertension were aware of it and of those who were aware of it, only half were receiving treatment and only half of those on treatment had their hypertension under control (Erdine 2004). Hypertension has a higher prevalence in urban than rural communities (Erdine 2004, Ala et al 2004).

A situational analysis was conducted in Limpopo Province using a random sample of 24 clinics from six hospitals within the six districts (Sekokotla et al 2003). Doctors (n=62) and professional nurses (n=6) involved in the treatment and management of hypertension were given a clinician questionnaire. The knowledge of the staff particularly the professional nurses regarding hypertension management was less than optimal. Few staff were aware of the fact that patients needed to sit for at least five minutes before their blood pressure readings were taken and only 13% of the staff had received training about the management of this condition in the past two years.

Two qualitative studies were conducted using semi-structured interviews with a purposeful sample of doctors, professional nurses and pharmacists regarding *practices* for hypertension and diabetes management in the public health sector in Cape Town to gain

insight about the care delivered to patients with these conditions (Stollman 2004, Carpay 2004). Both these studies showed that healthcare providers perceived diabetes and hypertension care as important, yet the quality of care provide was not optimal. Staff perceived their working conditions as being demanding. Barriers included increasing patient numbers, dramatic budget cuts, acute staff shortages, inadequate equipment and insufficient medication (*Ibid*).

A study was done in Brazil to describe the prevalence and risk factors associated with hypertension in an adult urban population (Ala et al 2004). Participants (n=400) were selected by systematic random sampling and adults 25 years and older, excluding pregnant women, were included in the study. Information about health and lifestyle was obtained from a structured interview followed by assessment of blood pressure and skin fold thickness. The mean BMI was 25.6 for males and 25.7 for females. The prevalence of hypertension in this sample population was 31.8%. Hypertension was independently associated with older age, central obesity and living in a high socio-economic residential area. This research study also attained information on weight and age, however no definite associations could be suggested as this was a descriptive study.

Another study at a community health centre found that patients had little knowledge of either the consequences of hypertension or the actions needed to ensure that complications were prevented (Steyn et al 1999). Home remedies were suggested by 31% of the patients as being effective to control their hypertension.

Nutrition knowledge about hypertensive patients attending day hospitals was determined in a study in Cape Metropole (Becker et al 2004). Overall patients' knowledge regarding their diet was poor. More than 34% of them believed that they could use flavour enhancers with monosodium glutamate instead of salt. Furthermore, 23,5% believed that smoked and tinned meat and fish have a low sodium intake. Only 15% of the group knew what their daily salt allowance should be (*Ibid*).

SECTION C: LIFESTYLE RISK FACTORS INFLUENCING THE INCREASE IN CHRONIC DISEASES OF LIFESTYLE

There is numerous documented evidence to support the finding that the consumption of an unhealthy diet over many decades, the lack of regular aerobic exercise during adult life and the long term use of tobacco products are the three most relevant elements of an unhealthy lifestyle predisposing people to the development of CDL (Bradshaw and Steyn 2001, Bradshaw et al 2006, Goedecke et al 2006).

This section discusses these three main lifestyle risk factors in more detail.

Obesity, diet and nutrition

Obesity has become a global epidemic with an estimated 1.3 billion people overweight or obese (WHO 2005). In South Africa, where under nutrition, poverty and infectious diseases such as HIV/AIDS and tuberculosis are realities, the problem of obesity could be viewed as less pressing. However, obesity and its co-morbidities negatively affect the lives of many South Africans and the consequent burden of disease contributes to the increasing cost of health care both at a state level and in the private sector (Bradshaw et al 2003).

The global nutrition dynamic is shifting from traditional healthy diets to diets dominated by higher fat content and energy dense content which is linked to non-communicable diseases (Popkin 2006). This increased energy content of the diet and/or reduced habitual energy expenditure is referred to as nutritional transition (Pasquet et al 2003). South Africa has not escaped the current global trend towards obesity (Dugas and Noakes 2005). In reference to the results from the National Demographic and Health Survey, which was published in 2002, Puoane et al (2002) state that over 57% of South African adult women were overweight or obese and double the proportion of the men. Twenty nine percent (29%) of the total population was either overweight or obese. Besides nutritional factors, physical inactivity also contributes to obesity (Ibid).

In South Africa and some neighbouring countries (Botswana, Namibia, and Zimbabwe) the effect of urbanization, the rise in socio-economic status, urbanization and diminished physical activity has resulted in an increased prevalence of obesity (Walker et al 2001). Cape Town has an 8% rise of obesity in men and a 34% rise in females. Obesity as an underlying risk factor for chronic conditions has also been documented by Caballero (2001). The rural to urban transition contributes significantly to the increase of the obesity epidemic in South Africa and obesity is associated with a large number of clinical problems which includes CHD, hypertension, type-2 diabetes and certain types of cancer (Goedecke and Jennings 2005). The 1998 South African Demographic and Health Survey (SADHS) examined the pattern of malnutrition among 13 000 South Africans between the ages 15 and 95 (DoH et al 1998). The main finding of the study was that there was a pattern of over nutrition rather than under nutrition (*Ibid*). The study found that the overall prevalence of overweight (BMI>25) and obesity (BMI>30) in South Africa was high, with more than 29% of men and 56% of women classified as overweight or obese. Central obesity, which is excess body fat around the abdominal area, was found in 42.2% females and in 9.2% of males. The most at risk were the urbanized black females (58% overweight or obese) and white men (54.5% overweight or obese). In females a higher BMI was found in those who were Black, older and living in urban areas (*Ibid*).

The Directorate of Nutrition Intervention of the National Department of Health acknowledges the importance of nutrition in the development of chronic diseases in their Integrated Nutritional Policy (Department of Health 1998). The young and the upwardly mobile population are moving to cities in large numbers and their fast paced lifestyles encourage them to consume energy-dense fast foods regularly. Dietary studies in South Africa have shown that that the Coloured, Asian and White population consume a typical western diet that predisposes them to the development of nutritional induced chronic diseases (Steyn et al 2006). Although the African community still consume a more prudent diet compared to other groups, those who have lived in the city for a longer period are at risk of developing nutrition related chronic diseases. They have also adopted the more western way of food preparation together with the increasing use of fast foods (Goedecke et al 2006).

The newly urbanised African population is exposed to the more accessible unhealthy Western food which reduces their intake of their healthy traditional diet. While the more affluent groups are influenced by these promotions, the poorer communities, even in the urban areas, seek out cheap food products which frequently contain high levels of fat and salt. These foods are freely available at reduced prices from street vendors and the small spaza shops in the townships (Bradshaw and Steyn 2001). In disadvantaged communities where food availability is low, the concept of voluntarily regulating one's food intake or be specific with what to eat, may not appear acceptable (Goedecke and Jennings 2005).

Physical activity

The practices of sixty percent (60%) of the American public do not meet the minimum recommended 30 minutes of exercise per day, whilst 46% of South Africans are equally physically inactive (Dugas and Noakes 2005). One of the earliest studies to suggest that physical inactivity may be an important risk factor for coronary artery disease was reported by Morris et al (1953). The study compared the physical activity patterns, blood pressures, blood cholesterol levels and smoking patterns of two groups of people namely; conductors and bus drivers of the London Transport System. They found that the conductors had a 30% lower incidence of heart disease than did the sedentary bus drivers. The differences between the groups were their levels of physical activity; the bus drivers were more overweight, had higher blood pressures, had higher blood cholesterol levels and smoked more than the conductors (*Ibid*).

In a report on the historical perspective of physical activity and disease prevention, the author states that in addition to obesity prevention and weight loss, physical activity has numerous health benefits, of which the most important is that people with a high risk of developing type-2 diabetes can reduce their risk by more than 50% (Haskell 2003).

Use of tobacco products

Tobacco was smoked mainly in pipes or as cigars during the 19th century, but during the first few decades of the 20th century the consumption of manufactured cigarettes increased greatly, which eventually led to the increase in male lung cancer (Doll et al 2004). A 50 year prospective study was carried out between 1951 and 2001, in order to observe the mortality patterns in relation to smoking practices among 34 439 British male doctors. A questionnaire was sent out periodically (1951, 1957, 1966, 1971, 1978, 1991 and 2001) and the response rate after reminders varied between 98% initially and 94% finally. The study found that those who continued to smoke cigarettes lost on an average about 10 years of life compared with non-smokers, whilst those who stopped smoking at around 60, 50, 40 or 30 gained 3, 6, 9 or 10 years respectively. The researchers added that on average cigarette smokers die about 10 years younger than non-smokers (*Ibid*).

A case control study was done to investigate how the practice of smoking was linked to myocardial infarction in young men and women (Panagiotakos et al 2007). One hundred cases who survived their first myocardial infarction (MI) before the age of 36 years was compared with 100 controls matched for age and sex and without having a history of CVD. The smoking patterns, physical activity levels, BMI and blood lipid levels were measured in all participants. The study found that 96% of the patients with early onset of MI and 55% of the control cases were currently smoking. In addition the patients also had high cholesterol levels (both HDL and LDL). The study concluded that pack-year of smoking was the most important determinant among all the other factors, with regards to the potential risk of having a MI under the age of 36 years (*Ibid*).

SECTION D: EFFECTS OF KNOWLEDGE, ATTITUDES AND PRACTICES

ON LIFESTYLE RISK FACTORS

Many studies investigated the effects of knowledge, attitude and practices about healthy lifestyles issues in general and with regards to their effects on the contributing risk factors of the main chronic diseases i.e diabetes, hypertension and cardiovascular disease.

Socio-cultural perceptions regarding obesity are a challenge in the management of this lifestyle factor (Goedecke and Jennings 2005). In reference to the South African Demographic and Health Survey, the author states that there was a major difference in the weight perceptions of the individuals as compared to whether they were actually overweight or obese. Attitudes about weight varied according to culture and gender. Perceptions regarding obesity are largely driven by socio-cultural norms, with the black population having a greater tolerance for a larger body size. Only 9.7% of men and 22.1% of women perceived themselves as overweight, whereas 29.2% of men and 56.6% of women were actually overweight or obese. These perceptions varied according to ethnicity and gender. Only the white women were able to accurately approximate their weight classification, whilst only 16% of black women perceived themselves as overweight (*Ibid*).

Similar results were found in a recent study on urban black community health workers (CHW), who are trained in health matters and play a role in educating the community (Puoane et al 2005). Less than half of CHW's perceived themselves as overweight or obese, although 42 of the 44 women studied were either overweight or obese, with an average BMI of 40 (23-64). Although the CHW's were aware of the negative factors associated with obesity, they preferred to be slightly overweight, regarding a BMI of 27 as ideal and being scared of doing physical exercises owing to the association between thinness and HIV/AIDS. In addition their food preparation methods were unhealthy and excessively large portions of food were usually served. These CHW's associated overweight with happiness, dignity, respect, health, wealth as well as being treated well by their husbands (*Ibid*).

A study done on dietary intake and body weight perceptions conducted among Black females in a rural village in South Africa showed that most of these women did not think that a person's health was linked to the food eaten and they disagreed that overweight or obese people were more likely to eat more than normal weight people. Only a few of them believed that obesity was caused by behavioural factors such as over eating and not exercising. Most of the overweight women in the study did not think they were too fat but actually preferred their size and weight. In addition most of the obese women had high blood pressure, which predisposes them to CHD and stroke (Faber 2005).

The association between HIV/AIDS and thinness was also documented by Kruger et al (2005). Black females are therefore facing a dilemma: on one hand their culture and traditions perceive being overweight as a positive indicator of social standing and on the other hand Western norms and urbanized lifestyles place increasing pressure to attain a thin figure (Goedecke and Jennings 2005).

A study on the prevalence of overweight and obesity among urban adults was carried out in Cameroon, where the urbanization rate is considered to be one of the highest in sub-Saharan Africa (Pasquet et al 2003). The study setting was in the capital of Cameroon, Yaoundé, from where a sample of 771 adults (519 women and 252 men) was taken. The participants were assessed on their body composition, blood pressure, resting heart rate, smoking habits, physical activity and self-perception of body weight and health status. The researchers found that the BMI increased with age and peaked in the mature years, with one woman in two being overweight and one woman in five being obese. In addition cultural perception of body weight which may have influenced the prevalence of obesity since only 46% of obese men and 54% of obese women perceived themselves as overweight (Pasquet et al 2003).

Dietary fat intake is considered to be an important factor contributing to the increasing prevalence of obesity, as there is a positive correlation between increased fat intake and increased body fat composition (Lambert 2005). The author argues further that the social norms for portion sizes have steadily increased over the past two decades with restaurants

and fast food outlets serving meals and a-la-carte items that are twice or thrice times greater in energy than previously. Besides nutritional factors, physical inactivity also contributes to obesity and these authors maintain that South Africa's population is also experiencing the global trend towards obesity (Dugas and Noakes 2005).

Health professionals and patients' knowledge about nutrition and chronic diseases are important factors to encourage the practice of a healthy lifestyle. A nutrition-based knowledge test was developed and validated to evaluate the knowledge of health professionals in Cape Town (Talip et al 2003). The main findings were that health professionals remarkably identified the mass media as their main source of information on lifestyle modification. They also identified lack of client compliance, lack of time and lack of knowledge as barriers that prevent them from counseling on lifestyle modification. There were also physical barriers such as lack of equipment and space at health facilities (*Ibid*).

A study was conducted in Mmasechaba, an informal settlement in Gauteng, South Africa to measure the physical activity levels and health profiles of adult females living in informal settlements (Ezera et al 2001). The women were found to be fairly active as they were involved in daily chores of carrying water, chopping wood, cleaning the house and walking to and from work. The average informal settler was involved in approximately 30 minutes of vigorous activity (chopping wood, carrying water) and was engaged in 150 minutes of mild to moderate activity. The prevalence of diabetes among these women was 2% and the prevalence of hypertension was 17%. However, 61% of the population ranged from moderately obese to severely obese, which the researchers maintain would at a later stage impact negatively on their health. Although their high activity patterns might serve as a preventative factor for now, as females age their physical activity levels decrease which would predispose them to other health problems.

Health workers are frontline personnel and are often seen as role models to family, friends and the communities they serve. A study was done in Netherlands, Europe to determine if the cardiac nurses practiced what they taught their patients (Jaarsma 2004).

The fieldwork was carried out at a European cardiac nursing conference from which a sample of 122 nurses from 19 countries were taken. The study evaluated the BMI, smoking choices and exercise patterns of the participants. Most participants were female (89%) with an age range of between 23 to 60 years. The findings of the study were that cardiac nurses heeded their own advice on lifestyle modifications and therefore provide a good role model for the promotion of primary and secondary prevention initiatives.

Primary care physicians were involved in a cross-sectional study in America which was designed to obtain information about personal exercise practices and counseling techniques of these healthcare workers and to evaluate the relationship between their personal and professional practices. The findings were that physicians who exercise are more likely to counsel their patients to exercise (Abramson et al 2000).

The knowledge and attitudes of primary care physicians regarding the promotion of healthy lifestyles was conducted in Riyadh, Saudi Arabia (Al-Shahri et al 1997). A validated self-administered questionnaire was distributed to and recollected which resulted in a response rate of 99%. Most of the physicians were shown to have satisfactory knowledge while only 20% possessed reasonably positive attitudes. Physicians above 40 years of age were more knowledgeable than the younger age group. There was a general pessimism about compliance of patients to lifestyle advice. The relatively acceptable knowledge possessed by physicians was not properly translated into positive attitudes towards promotion of healthy lifestyle. The researchers recommended that a greater emphasis should be placed on health promotion during undergraduate and postgraduate training of the physicians (*Ibid*).

A sample of 194 primary health care professionals was used in the assessment of lifestyle changes and knowledge regarding healthy diet and physical activity in Chile (Jungjohann et al 2002). The sample included physicians, nurses, nutritionists, midwives and social workers, of which 86% were women. The majority reported to have made positive changes in their lifestyle: more than 80% stated that they consumed less fat and ate more vegetables; two thirds said that they ate less sugar; around half reported that they drank

less alcohol and 45% that they were more physically active. Negative changes like increasing the consumption of soft drinks, alcohol and tobacco use were highest in the youngest of all age groups. Eight percent correctly answered the knowledge questions about healthy diet and physical activity. Significant differences among the professional groups were identified with the nutritionists showing healthier attitudes and lifestyle habits (*Ibid*).

A validated questionnaire was used by Talip et al (2003, 2005), to evaluate the knowledge and practice of doctors and nurses regarding healthy lifestyles with a focus on nutrition, physical activity and smoking cessation. A random sample of 61 doctors, 149 nurses and 9 health promotion officers working in a public community health centre was surveyed. The overall knowledge score of the health professionals for the three aspects of healthy lifestyle was low. They identified mass media as their main source of information on smoking (36%) and physical activity (27%), while 33% identified textbooks as their main source of nutrition information. Only 18% reported that they were aware of any smoking cessation services in the community, only 39% indicated that they have access to dietitians and 26% indicated that they actually consult dietitians. Further analyses of the knowledge tests indicate that while the health professionals had sufficient knowledge on broad-based information, however their practical knowledge for counseling patients was very limited (*Ibid*).

Smoker's knowledge and beliefs about the health risks of smoking and use of low-tar cigarettes were assessed in a nationally representative random digit dialed telephonic survey of 1046 adult (aged 18 years and older) smokers (Cummings et al 2004). The respondents were found to be least knowledgeable about low-tar and filter cigarettes and most knowledgeable about the health risks of smoking. They also indicated that they wanted more information about ways to reduce their health risks.

Socioeconomic differences in attitudes and beliefs about healthy lifestyles were assessed in a stratified probability sample of 2728 households, where one adult from each household was interviewed (Wardle and Steptoe 2003). The researchers found that higher

socioeconomic status (SES) respondents were less likely to smoke and more likely to exercise and eat fruit and vegetables daily. The lower SES respondents were associated with less health consciousness (thinking about things to do to keep healthy), stronger beliefs in the influence of chance on health and lower life expectancies. These attitudinal factors were in turn associated with unhealthy behavioural choices, independently of age, sex and self-rated health (*Ibid*). Although this variable was not assessed in this research study, it provides an area for future investigation within this study setting.

This literature review highlights the importance of empowering not only healthcare workers but the general population, in how these risk factors can influence the early onset of chronic diseases of lifestyle.

SECTION E: ECONOMIC TRENDS INFLUENCING LIFESTYLE CHOICES

The epidemiological and economic changes that South Africa is undergoing, have contributed to the increase in CDL. The two main influencing factors are urbanization and globalization.

Urbanization

South Africa is experiencing different levels of provincial migration and has resulted in many people moving from the rural areas to urban and peri-urban areas. Appendix A presents the internal provincial migration patterns, which show a shift to three main areas. Gauteng, Western Cape and KwaZulu Natal had a positive net migration with the largest number of persons expected to migrate to Gauteng (519 000) for the period 2001 – 2006. Eastern Cape and Limpopo are expected to have the largest negative net migration being 323 000 and 249 000 respectively (<http://www.statssa.gov.za/publications>).

Urbanization is a universal problem known to many developing countries, which have undergone epidemiological and demographic transitions (Bradshaw and Steyn 2001). This affects a person's lifestyles, which also contributes to the increase in lifestyle diseases owing to the modern western diet, reduced exercise patterns and the increasing amount of tobacco products consumed. The technical report further explains that the diet of migrants is often energy dense, with high fat and salt content as a result of an increased intake of processed food. The easy access to fresh food and vegetables in the rural areas is reduced to them in the urban areas (owing to higher costs and transportation to shops) which results in a reduced intake of fibre and potassium in their diet. In the urban areas the people tend to be more sedentary, as the result of using public or private transport, reducing labour intensive work and increasing the amount of time in stationary activities like watching television (*Ibid*). The rural to urban transition has also affected the intake of dietary fibre, which has reduced from 20-25g to 15-20g in rural and urban areas respectively (Walker et al 2001).

A study was done to examine the differences of adult female weight in rural and urban areas and to determine if any differences exist by socio-economic levels. Body Mass Index (BMI) data was collected from 36 countries for the period 1999 – 2000 using a nationally representative cross-sectional survey of women aged between 20-49 years. The associations between nutritional statuses, level of urbanization and socio-economic level was measured. The outcome indicated that the ratio of overweight to underweight was 5.8 in urban to 2.1 in the rural areas. The results further showed that, in the more developed countries, 38% were overweight in the rural areas and 51% in the urban areas, indicating that the socio-economic level of the country influenced the participants' weight classification (Mendez 2005). A similar result was found in a prevalence study conducted in Pakistan where socio-economic status was directly associated with obesity, regardless of the residence of the participants. The prevalence of obesity ($BMI \geq 25$) in 25-44 year olds in rural areas was 9% for men and 14% for women. In urban area the prevalence was 22% and 37% for men and women respectively. In the 45-64 year age group, prevalence was 11% for men and 19% for women in rural areas, and 23% and 40% in urban areas for men and women respectively (Nanan 2002).

In India, men from three different geographical locations (149 rural, 142 slum dwellers and 150 urban middle class), were included in a study to determine body fat and CVD risk factors. The mean BMI was 21.0, 22.3 and 24.3 kg/m² respectively. A 75g glucose tolerance test showed no diabetes in rural subjects, 4% of urban dwellers and 10% of the urban middle class men were diabetic. Hypertension (blood pressure $\geq 140/90$ mmHg) was present in 2% of the rural, 4% of the urban slum and 10% of the urban middle class men. The glucose and the blood pressure results were related to the geographic location independent of the BMI and were found to be highest among the urban middle class, followed by the urban slum dwellers and then the rural men. The researchers concluded that the results of the study suggest that urbanization increases the risk of diabetes and hypertension, independent of body fat percentage (Lubree et al 2002).

A similar study done in Brazil by Ala et al (2004) found that hypertension presented with a high prevalence in urban areas and that these differences were related to socio-economic status. Secondly, 9% of those diagnosed with hypertension were under 35 years of age, which is an indication that CVD tends to develop at a younger age as a result of the effects of the urban transition and the westernization of lifestyles (Ala et al 2004).

Globalization

The influence of globalization and the media on developing countries, which includes South Africa, is of importance to the emergence of CVD risk factors (Bradshaw and Steyn 2001). This is most observable in the tobacco industry. The global increase in tobacco control initiatives resulted in the industry focusing its marketing strategies in developing countries, by portraying the image that smokers are successful in many spheres of life. Globalisation also influences nutrition patterns in South Africa with the establishment of activities such as Coca-Cola sales and the replacement of traditional beer with industrial beer of westernized countries (*Ibid*). South Africa, having imposed stricter control measures and higher taxation on the smoking industry, attempts to protect the country from being an easy accessible market for these multi-national companies (*Ibid*).

Globalisation has also opened the door to free trade, resulting in many international fast food franchises being established in South Africa. An example is McDonalds which opened its first outlet in 1995 and by the end of 2002 had close to a 100 branches in the country (Bradshaw 2004). The media and extensive advertising are probably most influential in terms of getting people of Africa to move towards Western preferences. Supporting the media are large multi-trans-national corporations whose influences on the local market are enormous, resulting in the importation of cheaper products and nutritionally poor, salt laden, processed foods. These products are often selected over organic and healthy home produced products as the locally manufactured products are often more expensive (*Ibid*).

As the HIV/AIDS epidemic unfolds, the impact of this on the CDL needs to be addressed. The Actuarial Society of South Africa developed a model in 2000, to project the effect of the AIDS epidemic on mortality. The model projected a large increase in the deaths among young adults, with an increase of 77 deaths per day in 1996 to 2184 in 2010. In the same period deaths from chronic diseases was projected to increase from 487 per day to 583 deaths per day (Bradshaw and Steyn 2001). Previous sections in the literature review have highlighted the perceptions regarding weight loss, thinness and HIV/AIDS.

SECTION F: ROLE OF THE WORKPLACE IN PROMOTING A HEALTHY LIFESTYLE

The role of healthy workplaces in the prevention of occupational disease and injury and the promotion of positive lifestyle behaviours, is gaining increasing recognition (Addley et al 2001). Workplace health promotion is the promotion and maintenance of physical, mental and social well-being of workers in all occupations and includes any activity based in the workplace which is aimed at increasing the health of the employees and is one of a number of settings approaches that are being used globally to contribute to improvements in general health and social well being (*Ibid*).

The types of health promotion programmes usually found in workplace settings include those which address healthy lifestyle behaviours for example smoking cessation, sensible drinking, heart disease prevention, mental health issues, employee fitness programmes, promoting healthy eating in canteens and screening tests for various other diseases like cancer (Campbell 2000, Yassi 2001, Oura 2001, Addley et al 2001). The three main contributors to chronic diseases of lifestyle that were previously discussed in detail are coronary artery disease, diabetes and hypertension. Each of these have common lifestyle risk factors (poor dietary habits, lack of physical activity, smoking) that contribute to the early onset of these lifestyle diseases. This implies that these modifiable lifestyle risk factors, which are targeted in many health promotion interventions, have also become important aspects of workplace health promotion interventions. The rationale for workplace health promotion is to promote a positive change in lifestyle health related behaviour practices. This is targeted not only towards the employees but to extend this to families and friends. In this way they are empowered to make healthy and sustainable behaviour changes.

The settings approach to health promotion focuses on the population or systems required to support changes in health behaviour, as opposed to individual based interventions which focuses on individual behaviour change (Woan 1998). The settings approach addresses the environment, resources and lifestyle which may facilitate or hinder the

development of peoples' health potential. After being endorsed by The Ottawa Charter in 1986, the settings approach became a valid method of incorporating health promotion into the culture and business of organizations, which was supported by WHO (*Ibid*). Organizations are usually complex structures made up of large groups of individuals who have different perceptions and beliefs about health. One needs to define health in a meaningful context to the individual, which large organizations might experience difficulty in achieving owing to the effect of cultural diversity. In order for the settings approach to health promotion to be effective, coordination and cooperation from all individuals within the organization is essential.

Literature reviewed indicated that there is a growing trend of employers investing in the health of their workforce and providing the support necessary to promote healthy lifestyles (Campbell 2000, Yassi 2001, Oura 2001, Addley et al 2001).

Two studies were done in Sydney, Australia, in two different government departments to evaluate the prevalence of unhealthy lifestyle behaviours and to examine the employees' perception of the role of the workplace in promotion of lifestyle change (Richmond et al 1998a, Richmond et al 1998b). The surveys were conducted among the police and postal employees, who were screened for five unhealthy lifestyle factors. These lifestyle behaviours were self-reported using a self administered questionnaire and were about their alcohol consumption, cigarette smoking, inadequate exercise, perception of overweight and stress symptoms. The study indicated that in the police department there was a high prevalence of alcohol consumption among the males and females and this was especially higher among the younger age group. More than one-fifth of men and less than one-quarter of the women reported that they did not exercise. Less than 15% of both groups reported feeling moderate to severe symptoms of stress. The second study was carried out among postal employees. In this group 36% of men and 11% of women consumed high amounts of alcohol, 33% of men and 25% of women smoked cigarettes and 51% of the men and 62% of the women thought that they were overweight. The common finding among both the studies was that both groups held the perception that the workplace played an important role in promoting healthy lifestyle among the staff (*Ibid*).

A Cochrane (meta-analysis) review of “workplace interventions for smoking cessation” was done by Moher et al (2006). They found that the group programmes, individual counseling and nicotine replacement therapy increased the cessation rate as compared to the groups receiving minimal treatment. Self-help materials were found to be less effective in any behaviour modification. Those studies that were supported by workplace tobacco policies and bans indicated that smokers showed decreased cigarette consumption during the working day; however their effect on total consumption per day was less certain (*Ibid*).

An investigation as to whether health promoting activities were useful in the prevention of lifestyle related diseases and for promoting good health was undertaken in Japan using a sample of 1167 (Oura et al 2001). The participants were evaluated according to the total health promotional plan (THP) protocol developed by the Japanese Ministry of Health, Labor and Welfare. The purpose of this plan is to promote the achievement of healthy lifestyles in individual subjects, both from mental and physical perspectives. The THP statistically correlated the relationship between maximum oxygen uptake and performance on health check items. The maximum oxygen uptake was positively correlated with the duration between the workers ability to stand on one leg and on the frequency with which they performed upper body weight lifting. Negative correlation was found with age, body weight, BMI, total cholesterol levels and resting heart rates (*Ibid*).

An observational study was carried out on 2595 Northern Ireland civil servants who attended a workplace lifestyle and physical assessment programme involving self-reported lifestyle history, measurement of physiological factors, and a six month follow-up postal questionnaire survey (Addley et al 2001). Almost two-thirds of participants did not engage in regular moderate physical activity, females twice as likely not to as men. Approximately one in six participants were smokers and three-quarters were found to have a high BMI, with more being females. In the follow-up survey 83% needed to make one or more changes to their lifestyle. Smoking was difficult to change with only 14% remaining abstinent after six months. Almost two-thirds improved their dietary habits and

exercise daily, around one-half moderating their alcohol intake and achieving weight reduction. The researchers concluded that brief lifestyle and physical assessment programmes are effective interventions in getting employees to modify their lifestyles (*Ibid*).

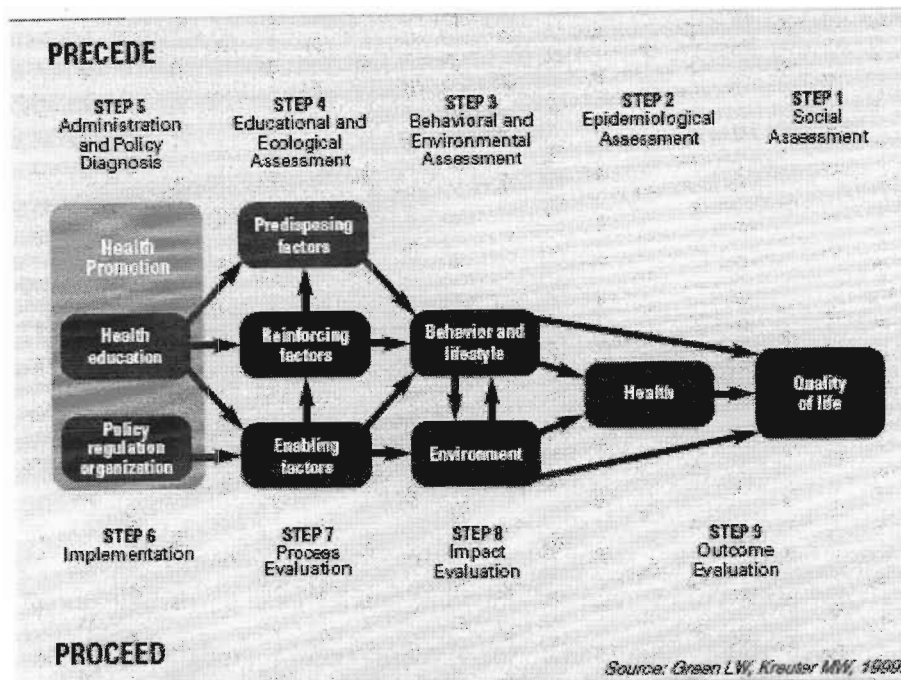
SECTION G: MODELS FOR PROMOTING HEALTHY LIFESTYLES

According to Green and Kreuter 2000 many health promotion projects and programs are developed and implemented without overt reference to theory. However, there is substantial evidence from the literature on health promotion to suggest that the use of a model or framework will significantly improve the chances of success in achieving pre-determined program objectives (*Ibid*). A framework for a research study helps to organize the study and provides a context in which to examine a problem, to gather and to analyze the data (Brink 2000). Most health promotion theories and frameworks have their roots in the behavioural and social sciences (Green and Kreuter 2000). This combination highlights the fact that health promotion practice is not only concerned with the behaviour of individuals but also with the effect that the community and the policy structure could have on the health promoting behaviour of these individuals. Health promotion interventions are generally designed to short-circuit illness or to enhance quality of life through behavioural and/or environmental change. Insufficient and inadequate planning often result in an intervention being misdirected and ineffective (Green and Kreuter 2000).

Issues about healthy lifestyle are multidimensional, multi-factorial and culture specific. This study which examined the general knowledge, attitudes and practices about healthy lifestyles amongst healthcare workers, was conducted as the preliminary stage in the planning of future evidence-based health promotion intervention. It was therefore essential to develop a descriptive baseline profile of the community in question i.e the staff of Wentworth Hospital, in order to objectively determine their knowledge, attitudes and practices and their suggestions in terms of a work-based health promotion initiative.

The precede-proceed planning framework consists of two phases namely the precede (planning) phase and the proceed (implementation and evaluation) phase, with each phase made of relevant steps. This framework was considered to be a comprehensive tool to use as a theoretical base in the underpinning of this research study, as it takes into account the

multiple factors that shape health status and helps the planner arrive at a highly focused subset of factors as targets for intervention (Green and Kreuter 2000).



**Figure 3: Precede-proceed planning framework
(Green and Kreuter 1999 in Rimer 2005 p40)**

A practical understanding of the above planning framework requires the reader to approach the figure with reference to the direction of the arrows as opposed to the numerical order of the steps. The model emphasizes that the ultimate goal of health promotion interventions is focused on having a positive impact on the quality of life. Health promotion interventions have two main foci namely: health education and ensuring a favourable policy environment. Health education targets individuals to affect three broad groups of factors namely: predisposing¹, reinforcing² and enabling³ factors which either individually or collectively influence behaviour and lifestyle. Policy interventions for health promotion are seen as influencing enabling factors. The figure

¹ Predisposing factors include knowledge, attitudes, cultural beliefs and readiness to change.

² Reinforcing factors include social support, praise, and reassurance and provide the incentives for behaviour change.

³ Enabling factors include availability of resources, supportive policies, assistance and services

shows that the three groups of factors have a direct impact on behaviour and lifestyle choices which in turn are linked to both health status and quality of life.

The precede section of the framework comprises five steps, which constitute the detailed planning and preparation stage. Conducting this five-step assessment ensures that an in-depth understanding of the problem is attained prior to the implementation of a health promotion intervention. The social goals (hopes and concerns) are identified first. Through an epidemiological assessment the problem is then broken down into specific health issues, which the planner ranks using available data and information. The health problem which is most deserving and most significant for the community is selected for the commencement of an intervention. Once the health problem is prioritized then individual health behaviours and environmental aspects specific to the problem (external to the individual) are identified. Further analyses of these two aspects then identify the specific factors that have the potential to influence a given health behaviour. The model groups them broadly into predisposing, reinforcing and enabling factors. These factors are focused on in the health promotion intervention.

The proceed section of the framework is the implementation and evaluation of the intervention. The evaluation can be ongoing during intervals of the intervention (process), based on any changes in behaviour (impact) and to determine the final benefit of the implementation (outcome).

This framework has been successfully used in the following studies: planning a child pedestrian injury program (Howat et al 1997), in the identification of factors that predict fat intake behaviours (Chang 2003), an investigation into the relationship of the predisposing and enabling factors used in tobacco control initiatives (Daniel 2003) and use of the model to increase productivity in an health education faculty (Ransdell 2001).

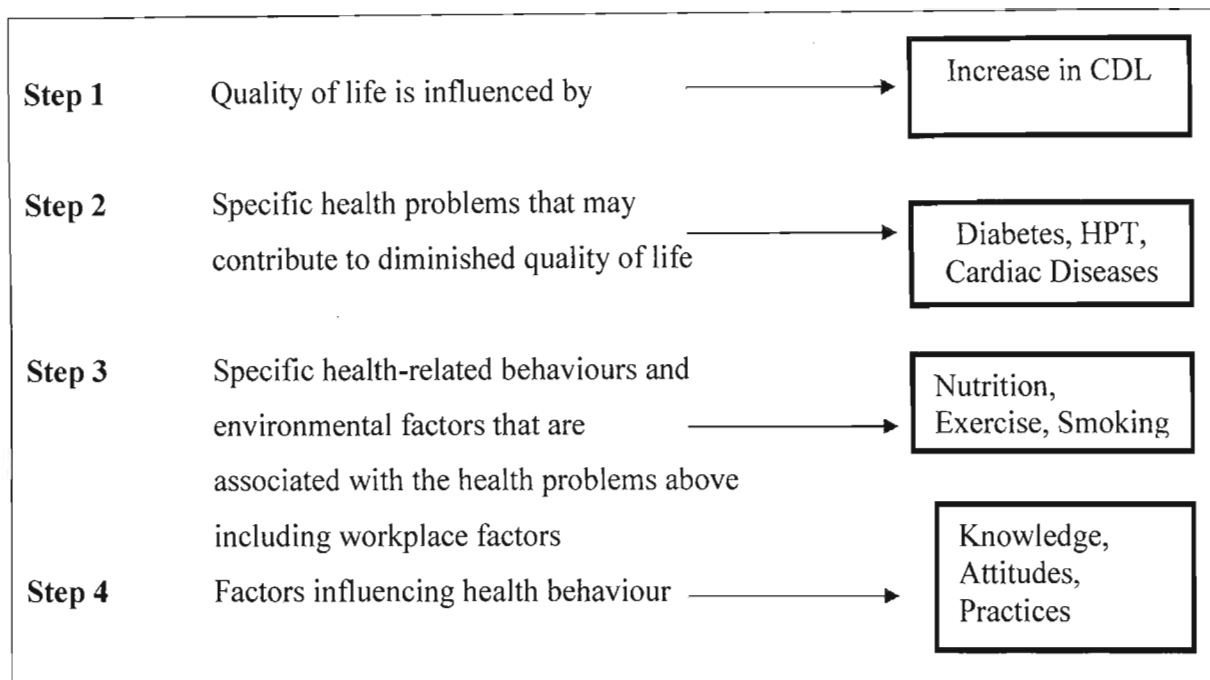


Figure 4: Adaptation of the Precede - Proceed model

Figure 4 presents an adaptation of the precede-proceed model which more accurately reflects the influence of the conceptual framework on the line of inquiry in this study. The focus of this study was on determining the knowledge, attitudes and practices of staff at Wentworth Hospital, as these were perceived to be important factors that would influence health behaviour choices, which in turn influence health status and quality of life.

Knowledge, attitude and practices with regards to nutrition, exercise and smoking were elicited from the study participants. In addition information was obtained to compute the BMI as a proxy measure of health status. Suggestions were elicited from employers as to what would constitute enabling factors for them in the workplace towards maintaining healthy lifestyles. The implementation of these suggestions will ultimately be influenced by the policy environment within the employing organization.

Chapter summary

The global burden of disease is increasing as a result of the increase in chronic diseases of lifestyle also referred to as non-communicable diseases. This increase is largely due to the increase in the prevalence of CVD, diabetes and diseases related to hypertension. The modern western diet, reduced physical activity and the increased consumption of tobacco related products are the three main lifestyle factors that are responsible for the increase in CDL. Numerous studies were referenced to highlight the effects of knowledge, attitudes and practices on individuals' lifestyle choices. In addition the influence of urbanization and globalization contributes immensely to this global burden of disease. However, there is an increasing awareness that the workplace has a significant role to play in promoting and encouraging healthy lifestyle behaviour. Thorough assessment and planning of the staff's needs and wants have to be done prior to any implementation, to ensure that the intervention is designed in consultation with the employees. This detailed planning in conjunction with an appropriate theoretical framework will encourage participation and commitment to the programme.

CHAPTER THREE: METHODOLOGY

Overview of chapter

This chapter presents the methods used in planning and conducting the fieldwork and includes the following subsections:

Section A	Study setting
Section B	Study period
Section C	Study design
Section D	Study population
Section E	Sampling strategy and size
Section F	Data collection methods
Section G	Data management
Section H	Data analysis
Section I	Ethical considerations

SECTION A: STUDY SETTING

Wentworth Hospital is located within the eThekweni Municipality, specifically on the Bluff (Appendix B). The hospital was officially designated as a level one district hospital in November 2003. Prior to this date the hospital functioned as a level three hospital. Although a number of previous staff are still on the current establishment, there has also been a large intake of new staff to provide the skills and expertise required to offer an adequate level one package of service.

Current status of Wentworth Hospital regarding health promotion

The hospital has been actively involved in the Employee Assistance Program (EAP) since 2003 and in the Health Promoting Hospital Initiative since September 2007.

With regards to the EAP: there are 6 employees from the different staffing categories who have undergone training and are EAP practitioners. A wide variety of problems are dealt with, the most common being substance abuse, financial and social problems, health issues and work related conflict management problems. Most of the employees consult the EAP practitioners on their own initiative or are referred from the staff occupational health clinic.

With regards to the Health Promoting Hospital initiative (HPH): the hospital was assessed in September 2007 by the district support team regarding its compliance with the five HPH standards. However feedback from this assessment has not yet been received. In order to meet the requirements of each standard, a task team was set up to ensure that the necessary documents and evidence were compiled. New forms were drawn up or existing forms were amended in order to meet the assessment criteria. For example the out patient assessment form now includes the section of 'generic risk factors' as per the HPH norms and standards. This section is completed by the attending doctor and an appropriate referral is made to ensure that patient's present problem or potential future problems are addressed. One staff member from the nursing division coordinates health promoting events according to the national health calendar. In addition all wards and departments are involved in some level of health promotion at their service

delivery point and according to the relevant standards. Reports and feedback about these health promoting events are presented and discussed at monthly meetings. Minutes of these meetings are circulated throughout all wards and departments within the hospital.

SECTION B: STUDY PERIOD

The study protocol finally received the necessary approvals from the Postgraduate Education Committee and the Biomedical Research Ethics Committee on the 10th August 2006 (refer Appendix C and D respectively). The fieldwork began in September 2006 and took 5 weeks to complete. Data analysis commenced in November 2006. The preparation of the research report commenced in January 2007.

SECTION C: STUDY DESIGN

This research used an exploratory descriptive study design. The knowledge, attitudes, beliefs and practices (KABP) survey method was used to describe and present a baseline profile of the respondents with regards to their maintenance of healthy lifestyles. The most common approach to measuring both attitudes and beliefs is to determine to what extent the respondents agree with selected statements using Likert scales (Richter and Kuhn 1999). For the purposes of this study attitudes and beliefs were considered to be closely interrelated, therefore this study combined these two variables. “Descriptive designs are used to give service providers and planners information about a current situation that will help them design services and allocate resources efficiently” (Joubert and Katzenellenbogen 1999 p66). “The knowledge, attitude, behaviour and practice survey is based on the theory that an individual’s health-related behaviour is influenced by the following aspects: their knowledge of the disease, the necessary health promoting actions to prevent the condition, as well as their attitudes (positive or negative feelings) towards the health promoting actions. KABP questionnaires aim to measure these psychological variables of knowledge, attitudes, and the health related behavior these variables are believed to predict” (Richter and Kuhn 1999 p170).

SECTION D: STUDY POPULATION

The study population includes all categories of staff permanently employed at Wentworth Hospital.

Inclusion criteria

All staff on the permanent post establishment, including the staff that is on the night shift rotation, were included in the study. The reason for including the night shift workers was that they would also be rotated to a day duty schedule. They would thus be affected by the outcome of the study, especially with regards to any possible intervention programme that may be implemented in the future.

Exclusion criteria

The staff employed on a contract basis (session or temporary) was excluded from the study. Owing to the temporary duration of their employment these staff would not benefit from the outcome of this research, as they most likely would not be in this current place of employment, should an intervention programme be implemented.

Staffing categories

The staff was classified into categories according to the nature of their work. The classification is in accordance to the system being used by the human resource department.

The five categories indicated on the questionnaire are:

- a. Medical
 - i. Management (hospital, medical, nursing and finance managers)
 - ii. Medical officers
- b. Paramedical (occupational therapy, physiotherapy, social work, librarian, x-ray, laboratory, dietetics)
- c. Administrative (all administrative personnel and clerks from revenue, stores, out-patients department)
- d. Nursing
 - i. Professional nurses
 - ii. Staff nurses
 - iii. Enrolled nursing assistants

- e. General staff
 - i. Porters
 - ii. Cleaners
 - iii. Orderlies

For the purposes of this research similar categories of staff were collapsed in order to facilitate comparisons between groups. Initially five staff categories were identified. However after data collection the categories were further grouped to obtain a meaningful number of respondents in each category in order to facilitate analysis. Thus the medical, paramedical and the nursing staff were grouped and named the health professional category. This new classification was used in the results and discussion chapters.

SECTION E: SAMPLING STRATEGY AND SIZE

The total population in each stratum was used to conduct the research with a target overall response rate of a minimum of 70%. The use of the total population was intended to reduce the effects of sampling error.

SECTION F: DATA COLLECTION METHODS

Variables

The questionnaire (Appendix E) was designed to present a descriptive profile of the hospital staff's responses on their general knowledge, general attitude/beliefs and general practices about healthy lifestyle issues. Data was collected on the demographic variables of age, gender, educational level and category of employment.

Knowledge questions were related to nutrition, benefits of exercise, effects of smoking and disease prevention.

The attitude/belief questions were related to the respondents' general attitudes/beliefs about healthy lifestyles and their perceptions about a supportive workplace program.

The practice questions were included to provide an indication of positive and negative health promoting behaviours. These included personal medical screening initiatives, stress management, alcohol and smoking habits and nutritional intake.

Data collection instruments

A self-administered questionnaire, which was administered both in English (Appendix E) and isiZulu (Appendix F), was designed specifically for the purposes of this study. The questionnaire was translated from English into isiZulu by a first language isiZulu user. The isiZulu questionnaire was then back translated into English in order to ensure content validity. The questions were classified into knowledge, attitude/beliefs and practice questions but this was not indicated on the questionnaire given to the respondents as this classification was only used in the data analysis process (Appendix G).

Data collection process

The researcher presented the questionnaire at an extended management meeting which was attended by all the different departmental heads and supervisors. This was to ensure that the study was introduced using appropriate channels of communication. Thereafter, the researcher made appointments with each department within the hospital to deliver the questionnaire and to explain the purpose of the study and the expectations from them as respondents. The participants were requested to complete the questionnaires within a week and to leave them with the supervisor in a sealed envelope or to place them in the marked and sealed collection boxes provided in each ward and department. The researcher collected the completed questionnaires from these collection points personally. The consent forms were separated from the response forms in order to ensure and respect the anonymity of the participants. The overall duration of the data collection process was 5 weeks.

Measures to ensure validity and reliability

Pilot study: The questionnaire was administered in another hospital to one person from each of the paramedical, medical and administrative categories. This was to assess for content validity and to determine the need for any amendments to the tool. There were no amendments made to the questionnaire.

Reliability of the study was maintained through the following means:

- The researcher was personally responsible for arranging meetings and presentations with all the supervisors and heads of the different departments. This was to ensure standard methods of introducing the questionnaire.
- A briefing session was conducted with each group of participants to explain the objectives of the study and to review the questions to ensure that the participants understood the questions.
- A translator was used in certain departments (maintainence, linen room) when the researcher felt that this would benefit the participants' understanding of the study. The researcher explained the purpose of the study in small paragraphs and then allowed the interpreter to translate what was presented.

SECTION G: DATA MANAGEMENT

The 147 returned questionnaires were stored in a locked cupboard in the researcher's office. Each questionnaire was given a number. Data was captured using Excel software and analyzed using the SPSS version13 statistical package under the supervision of a qualified statistician. Random double entries were done to check for errors in data capturing. Data quality was assessed within each table / statistical analysis to determine the percentage of missing data. All frequency distributions showed less than 10% of data missing.

SECTION H: DATA ANALYSIS

Overview of data analysis

The results of the study are presented as an explorative descriptive profile highlighting the comparisons between the categories of staff, with regards to their general knowledge, attitude/beliefs and practices.

The Likert scale was used for the attitude, practice and workplace related questions. This scale is an example of a summated rating scale which is frequently used to test attitudes or feelings. It is summative in that item scores are added to obtain a final score. It consists of a number of declarative statements about a topic and five or seven responses for each statement ranging from strongly agree to strongly disagree (Brink 2000).

The knowledge, attitude/beliefs and practice (KABP) values were expressed as a median percentage index. This was done in order to be able to express KABP as one quantitative variable to enable statistical comparisons between the staff categories as per main objective. Thus, we combined all knowledge, attitude and practice questions into an index and composed indices for each of these constructs. In general the higher the index the more positive the category's performance on that particular construct was viewed.

Thus the following were calculated:

- Median knowledge percentage index for each staff category.
- Median attitudes percentage index for each staff category.
- Median practices percentage index for each staff category.

The dependent variables of knowledge, attitude and practices (KABP) were described in relation to each to the independent variables of gender, educational level and staff category.

The data analysis section is presented in two sub-sections. The first is data classification which is presented according to the objectives of the study and the second is significance testing.

Data classification

1. Demographic data

- This data was classified as nominal categorical data.
- The data was presented in frequency distribution tables.

2. Knowledge questions

- These were questions numbers 2 to 7 in the questionnaire
- Data was classified as numerical data. Each knowledge response was awarded 1 point if correct and 0 points if incorrect. Appendix H refers to the index scoring syntax. This details exactly how the questions were statistically grouped and scored. This was used to calculate a knowledge index. The maximum possible index for each respondent for this dependent variable was 23.
- Summary measures included measures of central location (median) and variability (range, inter-quartile range) using box-plots as a graphical presentation.
- The knowledge questions were reported by gender, educational level and the percentage of respondents that agreed with selected questions. This was presented using frequency distributions.

3. Attitude questions

- These were questions numbers 1,13-19, 36-45 in the questionnaire.
- Data was collected by means of Likert Scales and classified as discrete numerical data.
- A five level Likert scale was used to ranging from strongly agree to totally disagree. The scale was scored 1 to 5.
- The questions were divided into positively and negatively phrased questions. Scores were reversed for the negatively phrased questions so that totally disagree ended with the lowest score of 1 point. This pertains to questions 5, 18, 36-39, 41- 43, 45
- The raw scores were calculated and expressed as an attitude index. The maximum possible index for each respondent was 85.
- Summary measures included measures of central location (median) and variability (range, inter-quartile range) using box-plots as a graphical presentation.

- Appendix H refers to the index scoring syntax. This details exactly how the questions were statistically grouped and scored.
- The attitude questions were reported by gender, educational level and the percentage of respondents that agreed with selected questions. This was presented using frequency distributions.

4. Practice questions

- These were questions numbers 8-12, 20-35 in the questionnaire.
- Data was collected by means of Likert Scales and classified as discrete numerical data.
- These questions were awarded 1 point for every positive health promoting behaviour. The maximum possible practice index for each respondent was 35.
- Summary measures included measures of central location (median) and measures of variability (range, inter-quartile range) using box-plots as a graphical presentation.
- Appendix H refers to the index scoring syntax. This details exactly how the questions were statistically grouped and scored.
- The practice questions were reported by gender, educational level and the percentage of respondents that agreed with selected questions. This was presented using frequency distributions.

5. Body mass index

- This is numerical continuous data.
- Respondents were required to complete information on their weight and height and to indicate how they perceived themselves in terms of their weight i.e overweight, underweight or normal.
- An excel formula to automatically calculate body mass index was included in the data capturing process.
- The question about weight perception was cross-tabulated with the respondents' body mass index.

6. Workplace questions

- Relevant questions related to the workplace were selected and reported on their own as they were considered to have a more significant interpretation independently as opposed to being part of a total score. These questions were also considered to be important with regards to the recommendations.

Significance testing

Two tests were performed to determine if there were statistically significant differences among the different staff categories with regards to their KABP.

The one-way analysis of variance (ANOVA) test was used to compare the mean of a numerical outcome variable with a single exposure. It is called one-way exposure as the groups are classified by just one variable. The method is based on assessing how much of the overall variation in the outcome is attributable to differences between the exposure groups means: hence the name analysis of variance (Kirkwood 2003). The ANOVA test was used for determining if there was a significant difference in the mean knowledge, attitudes and practices percentage indices between the three occupation groups.

The post-hoc bonferoni test is a multiple comparison test performed after the ANOVA to reduce type 1 error rate. It has a degree of correction factor which presents a more reliable statistical analysis of the differences between the various groups (Kirkwood 2003). This test was used when the null hypothesis was rejected (as in the case of knowledge and practices) in order to determine exactly where the differences lie between the different occupational groups.

SECTION I: ETHICAL CONSIDERATIONS

Full ethical approval for the study was obtained from the University of KwaZulu-Natal Biomedical Research Ethics Committee on the 10th of August 2006 (Appendix D).

Written permission to conduct the study was obtained from the hospital management (Appendix I). The consent form was distributed to all participants (Appendix J).

Three basic ethical principles relating to human subjects were maintained during this research. These were: principle of respect for persons, principle of beneficence and principle of justice (Brink 2000).

Respect for persons

The participants were given autonomy and self determination with regards to their participation in the study without being prejudiced in any way. Complete disclosure of information about the research study was presented to all participants, who then were requested to sign a declaration form / informed consent. This document was separated from the actual questionnaire in order to maintain the individual's anonymity (Appendix J).

Principle of beneficence

The research study is of benefit in that information was obtained from the participants about their KAP with regards to healthy lifestyles. The research is directed at improving the well-being of the participants through a self-administered data collection tool. Their suggestions and recommendations will be considered if an intervention programme is implemented.

Principle of justice

The study sample was selected fairly, since all staff that met the inclusion criteria were allowed to participate in the research. Their privacy was protected through the anonymity of the questionnaire. All participants were treated respectfully and courteously at all times. Although the participants shared private information about their KAP, this was kept confidential through the anonymity of the questionnaire. Data was reported in staff categories /groups and not individually.

Chapter summary

This study was carried out at Wentworth Hospital, which is a district hospital situated within the eThekweni Municipality. Full ethics approval was received after which the fieldwork took five weeks to complete. This research used an exploratory descriptive study design encompassing the KABP survey method to present a baseline profile of the respondents with regards to their KAP relating to healthy lifestyle. The study population included all permanently employed staff and the total population was used as the sample. A questionnaire was used as the data collection tool, which was analyzed using the SPSS version 13 statistical package. The questions were classified into knowledge, attitude and practice questions and the responses were analyzed according to each staff category in order to make statistical comparisons. Ethical principles relating to human subjects were maintained during the study.

CHAPTER FOUR : RESULTS

Overview of chapter

The results section is presented in accordance with the objectives of the study and includes the following subsections:

- Section A: Descriptive profile of respondents
- Section B: General knowledge of the staff with regards to healthy lifestyle issues
- Section C: General attitudes/beliefs of the staff
- Section D: General practices of the staff
- Section E: Comparative presentation of knowledge, attitude and practice indices
- Section F: Weight perception and body mass index of the respondents
- Section G: Staff perceptions about the workplace

SECTION A: Descriptive profile of respondents

The results are based on 147 responses, which represents an overall response rate of 42%. Three categories of staff were identified namely: administration, general staff and health professionals. The health professional category comprised of doctors, nurses and paramedical staff. These were grouped together with the assumption that they all have some form of tertiary education in the health field.

The distribution of gender, marital status and highest educational level attained is presented and disaggregated per staff category.

The profile of the respondents is presented in table form, with information on the frequency of observations per demographic variable. The frequency is presented according to count, the percentage based on all the respondents and the valid percent, which is the percentage of only those respondents that provided data for the variable being reported on. The missing data for each variable is also reported and refers to the number of respondents who did not provide data for that particular variable.

Table 3: Response rates by staff category

CATEGORIES	NUMBER of QUESTIONNAIRES DISTRIBUTED	RESPONSES RECEIVED	RESPONSE RATE	OVERALL PERCENTAGE RESPONSE
Administration	66	31	46.9%	21.1%
General staff	80	48	60%	32.7%
Health professional	204	57	27.9%	38.8%
Missing data		11		7.5%
TOTAL	350	147	42%	

Table 3 presents the frequency distribution of the staff per occupational category. The respondents comprised 21% from the administration category, 33% from the general staff category and 39% from the health professional category, while 8% of respondents did not indicate in which staff category they belong to.

Table 4: Frequency distribution of gender per staff category

		Gender		Total
		Male	Female	
Administration	Count	9	22	31
	% within staff category	29.0%	71.0%	100.0%
General staff	Count	32	15	47
	% within staff category	68.1%	31.9%	100.0%
Health professional	Count	4	52	56
	% within staff category	7.1%	92.9%	100.0%
Total count		45	89	134
% per gender		33.6%	66.4%	100.0%
Total number of responses		134		91.2%
Total missing data		13		8.8%

Table 4 presents the gender distribution per staff category. Ninety one percent respondents indicated both their staff category and their gender. Overall, one third of respondents were male and two thirds were female. Roughly this proportion is maintained in the administration category where 29% were male and 71% female. However, in the general staff category just over two thirds were male and under one third were female. In the health professional category over 90% were female and fewer than 10% were male.

Table 5: Frequency distribution of marital status per staff category:

		Marital status				Total
		Married	Single never married	Divorced	Widowed	
Administration	Count	17	9	3	2	31
	% in staff category	54.8%	29.0%	9.7%	6.5%	100.0%
General staff	Count	29	8	5	4	46
	% in staff category	63.0%	17.4%	10.9%	8.7%	100.0%
Health professional	Count	30	16	4	6	56
	% in staff category	53.6%	28.6%	7.1%	10.7%	100.0%
Total	Count	76	33	12	12	133
% of each marital status		57.1%	24.8%	9.0%	9.0%	100.0%
Total number of responses		133				90.5%
Total number of missing data		14				9.5%

Table 5 presents the distribution of the respondents by marital status. Ninety one percent of respondents completed information on both their marital status and staff category. Over half of the respondents indicated that they were married. Less than one third were single. Fewer than 10% of the respondents were either divorced or widowed. Within each category there appears to be a similar trend in that most respondents were married, followed by single/never married and then almost the same numbers in the widowed and divorced status.

Table 6: Frequency distribution of highest educational level per staff category

		Highest education level					Total
		Primary school Gr 0 to 7	Secondary school Gr 8 to 11	High school Gr 12	Diploma	Degree	
Administration	Count	0	5	17	7	2	31
	% in staff category	0.0%	16.1%	54.8%	22.6%	6.5%	100.0%
General staff	Count	7	9	25	5	1	47
	% in staff category	14.9%	19.1%	53.2%	10.6%	2.1%	100.0%
Health professional	Count	0	4	20	19	13	56
	% in staff category	0.0%	7.1%	35.7%	33.9%	23.2%	100.0%
Total count		7	18	62	31	16	134
% within staff category		5.2%	13.4%	46.3%	23.1%	11.9%	100.0%
Total number of responses		134					91.3%
Total number missing data		14					9.6%

Table 6 presents the distribution of the respondents' highest educational level per staff category. Ninety one percent respondents completed this question. Almost half of all respondents had high school education as their highest qualification except in the health professional category in which just over half had either a diploma or degree. Thirty-six percent of the health professional category indicated that the highest educational level attained was a high school pass. These are possibly the enrolled nursing assistants who are still in training.

SECTION B: Knowledge of the staff with regards to healthy lifestyle issues

There were 23 knowledge questions. Table 9 below presents 12 of the more important statements and the percentage of respondents who agreed with the statement.

Table 7: Knowledge index by gender

	Males	Females	Total
Median	69.57	78.26	73.91
Minimum	43	43	43
Maximum	91	96	96

Table 8: Knowledge index by educational level

	Primary	Secondary	High	Tertiary	Total
Median	69.57	69.57	73.91	78.26	73.91
Minimum	43	43	43	52	43
Maximum	87	87	96	96	96

Table 9: Percentage of staff agreeing with each knowledge statement

Knowledge statement	% of respondents
Smoking does not affect a persons life in any way	0.7%
Smoking is harmful to one's health	86.4%
Fruit and vegetables must be eaten everyday	88.0%
We should eat an average 3 -5 portions of fruit and vegetables daily	81.3%
Exercising helps to reduce cholesterol and blood pressure	53.1%
Exercising allows us to eat more and not gain weight	9.5%
Exercising helps to maintain a healthy body weight	81.0%
Exercising helps to make a person look bigger and muscular	5.4%
Exercising helps to lower ones metabolism	9.5%
Exercising helps to improve our mood	30.6%
To be healthy we must eat anything we want and exercise	4.8%
To be healthy we must eat balanced meals and exercise	87.8%

SECTION C: Attitudes of the staff

There were 24 attitude questions.

Table 10: Attitude index by gender

	Males	Females	Total
Median	71.76	75.88	75.29
Minimum	42.35	27.06	27.06
Maximum	97.65	92.94	97.65

Table 11: Attitude index by educational level

	Primary	Secondary	High	Tertiary	Total
Median	65.88	74.11	73.53	79.41	74.12
Minimum	56.47	60.00	27.06	60.00	27.06
Maximum	81.18	94.12	97.65	92.94	97.65

Table 12 presents 13 of the more important attitude questions and the percentage of staff that supported this statement.

Table 12: Percentage of staff responses for each attitude statement

Attitude statement	% of respondents
What does healthy lifestyle mean to you:	
• To maintain a normal weight	50.3%
• To make time to relax	41.5%
• To do regular exercise	48.3%
• To have a balanced body and mind	71.4%
• To eat out/takeaways often	5.4%
• To dress up in the latest style	6.1
It is extremely important to lead a healthy lifestyle from young age	98%
To be healthy we need to earn more money, as it is costly to buy healthy foods	42.7%
Fatter people are healthier people.	4.3%
Gaining, losing and maintaining weight is entirely up to me	84.7%
Family history determines whether we can lead a healthy lifestyle or not	41.5%
We must learn methods to lead a healthy lifestyle on our own	83.4%
There should be incentives rewards for staff using the healthy lifestyle program	66.2%

SECTION D: Practices of the staff

There were 27 practice questions. Table 16 presents the 20 of the more important questions and the percentage of the staff that complied with that statement.

Table 13: Practice index by gender

	Males	Females	Total
Median	37.14	42.86	42.86
Minimum	14.29	17.14	14.29
Maximum	62.86	80.00	80.00

Table 14: Practice index by educational level

	Primary	Secondary	High	Tertiary	Total
Median	40.00	35.71	41.42	45.71	42.86
Minimum	14.29	25.71	2.86	22.86	2.86
Maximum	51.43	60.00	80.00	62.86	80.00

Table 15: Percentage of staff that supported the practice statement

Practice statement	% of respondents
Staff who knew their blood pressure	71.3%
Staff who knew their glucose level	45.5%
Staff who checked the BP 1 month ago	54.9%
Staff who checked their BP 1 year or more ago	22.5%
Staff who checked their glucose 1 month ago	36.6%
Staff who checked their glucose 1 year or more ago	46.5%
Staff who drank less than 6 glasses of water per day	68.5%
Staff who drank more than 6 glasses of water per day	31.5%
Staff who do not exercise at all	31.6%
Staff who do not eat 3-5 portions of fruit and vegetables daily	47.9%
Staff who take vitamins or supplements	54.3%
Staff who plan what they will eat for the day	59.3%
Staff who eat any food that they find when hungry	58.6%
Staff who buy fried foods more than twice a week	24.8%
Staff who smoke	24.8%
Staff who take alcohol daily	2.8%
Staff that have a medical checkup at least once a year	67.4%
Staff who do not do any cardiovascular training at all	81.5%
Staff who do cardiovascular training for 3-5 times per week	11.6%
Staff who do walking 3-5 times per week	36.3%

Section E: Weight perception and body mass index

Table 16: Frequency distribution of weight perception by staff category

		Weight perception			Total
		Overweight	Normal	Underweight	
Administration	Count	12	18	1	31
	% in staff category	38.7%	58.1%	3.2%	100.0%
General staff	Count	14	26	5	45
	% in staff category	31.1%	57.8%	11.1%	100.0%
Health professional	Count	23	31	2	56
	% in staff category	41.1%	55.4%	3.6%	100.0%
Total count		49	75	8	132
Total percentage		37.1%	56.8%	6.1%	100.0%
Total number of responses		132			90%
Total number of missing data		15			10%

Ninety percent of respondents replied to the question regarding their own weight perception. All three categories presented with a similar distribution. Over 50% of respondents in each category were of the opinion they are of normal weight, followed by an average of 35% who thought they were overweight and the least percentage who felt that they were underweight.

Table 17: Frequency distribution of body mass index by staff category

Gender	Staff category	Mean	Number	Std. deviation
Male	Administration	27.6	5	9.8
	General staff	30.1	26	9.7
	Health professional	27.7	2	5.0
	Total	29.6	33	9.3
Female	Administration	26.9	14	5.5
	General staff	33.0	9	8.1
	Health professional	28.0	33	6.3
	Total	28.5	56	6.6
Total	Administration	27.1	19	6.5
	General staff	30.8	35	9.3
	Health professional	28.0	35	6.2
	Total	28.9	89	7.7
Total responses		89 (60%)		
Missing data		58 (40%)		

Table 17 presents the mean body mass index (BMI) of the male and female respondents in each category. Forty percent (40%) of respondents did not provide the information required to calculate BMI. The average male BMI was 29.6 and the female was 28.5. The overall average for all the respondents in the study was 28.9.

The general staff had the highest BMI for both males and females, followed by the health professional and then the administrative staff. The males in both the administrative and the health professional categories had a BMI of 28. The females in the administrative category had the lowest BMI of 27.

Table 18: Analysis of variance of BMI for males

Males	Sum of squares	df	Mean square	f	significance
Between groups	33.81	2	16.91	0.18	0.833
Within groups	2758.30	30	91.94		
Total	2792.11	32			

Table 19: Multiple comparison Bonferonni test of the BMI for males

Staff category	Staff Category	Mean difference	Std. error	Signif.	Confidence interval	
					Lower bound	Upper bound
Administration	General staff	-2.51	4.68	1.000	-14.38	9.35
	H. professional	-0.14	8.02	1.000	-20.48	20.20
General staff	Administration	2.51	4.68	1.000	-9.35	14.38
	H. professional	2.37	7.03	1.000	-15.46	20.21
Health professional	Administration	0.14	8.02	1.000	-20.20	20.48
	General staff	-2.37	7.03	1.000	-20.21	15.46

Table 18 and Table 19 indicate that there is a no significant difference between the BMI of the males in each staff category ($p=0.8$).

Table 20: Analysis of variance of the BMI for females

Females	Sum of squares	df	Mean square	f	significance
Between groups	224.54	2	112.27	2.70	0.08
Within groups	2202.60	53	41.55		
Total	2427.14	55			

Table 21: Multiple comparison Bonferonni Test of BMI for females

Staff category	Staff Category	Mean difference	Std. error	Signif.	Confidence interval	
					Lower bound	Upper bound
Administration	General staff	-6.06	2.75	0.096	-12.87	0.74
	H. professional	-1.06	2.05	1.000	-6.15	4.01
General staff	Administration	6.06	2.75	0.096	-0.74	12.87
	H. professional	4.99	2.42	0.133	-0.99	10.98
H. professional	Administration	1.06	2.05	1.000	-4.01	6.15
	General staff	-4.99	2.42	0.133	-10.98	0.99

Table 20 and Table 21 indicate that there is a difference of borderline significance in the BMI for females between the staff categories. This slight difference exists between the administration and general staff, where there is an average mean difference of 6.06 at $p=0.096$ (95% CI 12.87 to 0.74).

Table 22: Cross tabulation of staff BMI and weight perception

BMI category	Weight perception			Total respondents
	Underweight	Normal weight	Overweight	
Underweight	3(60%)	2 (40%)	0	5 (6%)
Normal weight	3(10%)	20 (67%)	7 (23%)	30 (33%)
Over weight	1(2%)	22 (40%)	32 (58%)	55 (61%)
Total	7 (8%)	44 (49%)	39 (43%)	90

Table 22 presents the number of respondents for each weight perception classification. This is less than the total number of respondents as 57 respondents did not fill in the required data to compute the BMI. The calculated BMI was cross tabulated against how they perceived themselves to be classified. This represents a paired comparison of each respondent i.e their actual (objective) BMI classification versus their perceived weight classification. Thus, each of the 90 respondents was classified twice, once by each method.

The concordant pairs are shown along the diagonal shaded cells. These are where the respondents have correctly classified themselves i.e. there were 3 underweight respondents who had correctly identified themselves as underweight, 20 respondents who correctly identified themselves as normal weight and 32 respondents who correctly

classified themselves as overweight. Those respondents below the diagonal shaded cells have under classified themselves, whilst those respondents above the diagonal shaded cells have over classified themselves. Under-classification means that the respondents thought they had a lower BMI than what as actually calculated. Over-classification means that they perceived themselves having a higher BMI than what was actually calculated.

Of those who were overweight, 2% classified themselves as underweight, 40% classified themselves as being of normal weight and 58% classified themselves correctly as overweight. Of those who were of normal weight, 10% classified themselves as underweight, 67% classified themselves correctly as being of normal weight and 23% classified themselves as being overweight. Of those who were underweight, 60% classified themselves correctly as underweight, 40% classified themselves as being of normal weight, none classified themselves as being overweight.

Table 23: Chi-square test of BMI and weight perception

	Value	Degree of freedom	Significance testing
McNema-Bowker test	8.959	3	0.03
Number of valid cases	90		

Table 23 presents a p value of 0.03 which indicates a significant difference between the actual BMI of the staff and what they perceive themselves to be (refer to Table 22).

Section F: Comparative presentation of knowledge, attitude and practice indices

Figure 4 presents box and whisker plots of the percentage indices for knowledge, attitude and practice for each category of staff. Percentages were used in order to have a common way of describing the indices so as to facilitate comparison. The plots present the median percentage indices, interquartile range, and minimum and maximum values. The length of the line/ whiskers indicates the minimum and maximum range for that particular set of variables. The figure also presents the extreme values and outliers. Extreme values are those cases with values more than three box lengths from the upper or lower edge of the box. This is indicated by the asterisk in Figure 4. The outliers are cases with values between 1.5 and 3 box lengths from the upper or lower edge of the box, which is indicated by circles in Figure 4 (SPSS version 13).

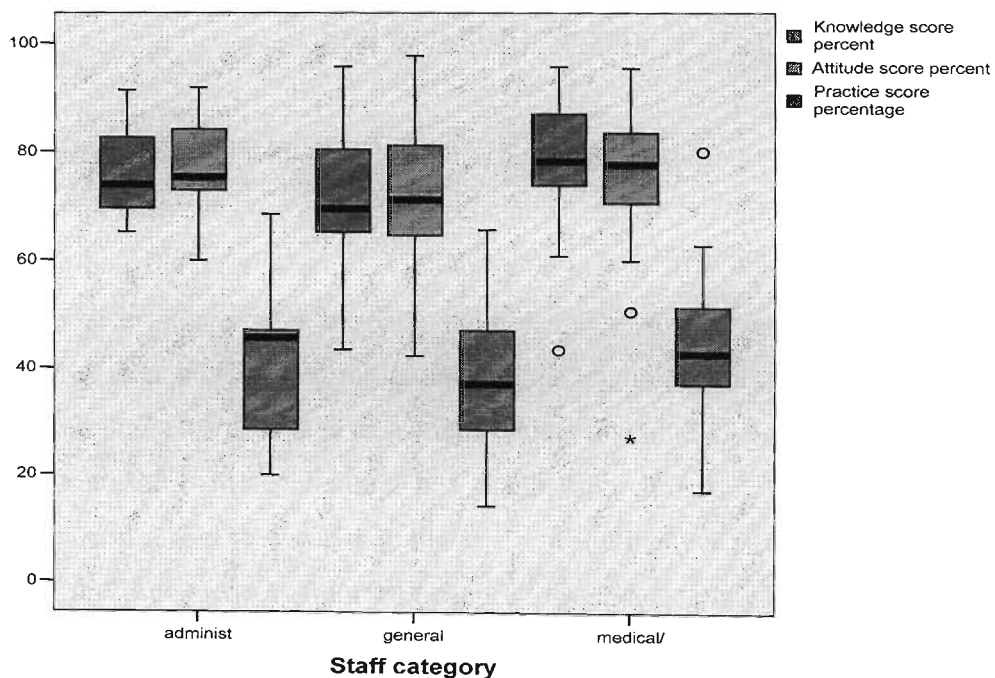


Figure 5: Box plots of knowledge, attitude and practice percentage indices

Table 24 is the tabulated presentation of Figure 5. In each staff category the median percentage indices for knowledge and attitude were fairly close (between 74% and 75%) while the median percentage index for practice was much lower (46%). Staff in the health professional category attained the highest median percentage index for both knowledge and attitudes (78%), while staff in the administrative category attained the highest median percentage index for practice (46%). The general staff attained the lowest median percentage index for knowledge, attitude and practice indices.

Table 24: Ranges of knowledge, attitude and practice percentage indices

Staff category		Knowledge index (%)	Attitude index (%)	Practice index (%)
Administration	Median	73.9	75.3	45.7
	Minimum	65	60.0	20.0
	Maximum	91	91.8	68.6
	25 th percentile	69.6	72.9	28.6
	75 th percentile	88.7	90.4	61.7
General staff	Median	69.6	71.2	30.1
	Minimum	43	42.4	14.3
	Maximum	96	97.7	65.7
	25 th percentile	65.2	64.7	28.6
	75 th percentile	91.3	90.3	60.3
Health professional	Median	78.3	77.6	42.9
	Minimum	43	27.1	17.1
	Maximum	96	95.3	80.0
	25 th percentile	73.9	70.6	37.1
	75 th percentile	91.3	91.9	62.9
Total	Median	76.1	75.3	42.9
	Minimum	43	27.1	14.3
	Maximum	96	97.7	80.0

Table 25 below indicates that there is a significant difference between the staff categories for both knowledge and practice scores, as the ANOVA p values were less than 0.05. There is borderline significance in the difference in the attitude scores between the groups, as the p value is 0.08.

Table 25: One way analysis of variance of knowledge, attitude and practice percentage indices

		Sum of squares	df	Mean square	F	Signif
Knowledge index	Between groups	1803.989	2	901.995	8.600	0.000
	Within groups	13949.931	133	104.887		
	Total	15753.920	135			
Attitude index	Between groups	566.299	2	283.149	2.571	0.080
	Within groups	14647.288	133	110.130		
	Total	15213.586	135			
Practice index	Between groups	1037.973	2	518.987	3.695	0.027
	Within groups	18682.315	133	140.469		
	Total	19720.288	135			

Table 26 below is a presentation of the post hoc Bonferonni multiple comparison test results, which is an indication of exactly which groups are significantly different i.e which staff groups are significantly different from each other with regards to knowledge, attitude and practice.

There is a significant difference in the knowledge scores between the administration and general staff with administrative staff scoring an average 6.28% (CI 0.57 to 12.01) higher than general staff (p= 0.03). A significant difference exists between the general staff and health professional category at $p < 0.01$ (CI 3.26 to 12.99). There is no significant difference between the administration and the health professional categories.

There are no significant differences between the groups with regards to their attitude

There is a significant difference in the practice scores between health professional and general staff at a 95%CI (0.37 to 11.62).

Table 26: Post-hoc Bonferroni Test

Dependent variable	Staff category	Staff category	Mean difference*	Std. error	Sig.	95% confidence interval	
						Lower bound	Upper bound
Knowledge index	Administration	General staff	6.28(*)	2.36	0.03	0.57	12.01
		H.profession	-1.83	2.28	1.00	-7.38	3.71
	General staff	Administration	-6.28(*)	2.36	0.03	-12.01	-.57
		H.profession	-8.12(*)	2.00	0.00	-12.99	-3.26
	H. professional	Administration	1.83	2.28	1.00	-3.71	7.38
		General staff	8.12(*)	2.00	0.00	3.26	12.99
Attitude index	Administration	General staff	4.77	2.41	0.15	-1.09	10.63
		H.profession	0.86	2.34	1.00	-4.81	6.53
	General staff	Administration	-4.77	2.41	0.15	-10.63	1.09
		H.profession	-3.90	2.05	0.17	-8.89	1.07
	H. professional	Administration	-0.86	2.34	1.00	-6.53	4.81
		General staff	3.90	2.05	0.17	-1.07	8.89
Practice index	Administration	General staff	1.21	2.73	1.00	-5.4098	7.83
		H.profession	-4.78	2.64	0.21	-11.2008	1.62
	General staff	Administration	-1.21	2.73	1.00	-7.8330	5.40
		H.profession	-5.99(*)	2.32	0.03	-11.6289	-.036
	H. professional	Administration	4.78	2.64	0.21	-1.6252	11.20
		General staff	5.99(*)	2.32	0.03	0.3698	11.62

* The mean difference is significant at the 0.05 level.

SECTION G: Staff perceptions about how workplace would encourage the adoption of healthy lifestyles

Eight questions related to the workplace were selected to be presented separately as these responses are considered important on their own. These responses identify the opinions, needs and wants of the staff, with regards to comments about the workplace. The responses for each question were cross-tabulated between each group, to determine if there were any differences among the three groups' preferences. During the analysis of the data the Likert scale scores were collapsed from the five options (as indicated in the questionnaire) to three, to facilitate easier comparisons among those that agree, those who were not sure and those who disagreed with the questions.

The table headings reflect the question as indicated in the questionnaire.

Table 27: Responses to: "I will do exercise if there is a gym facility at work".

		Agree	Not sure	Disagree	Total
Administration	Count	20	8	3	31
	% within Staff category	64.5%	25.8%	9.7%	100.0%
General staff	Count	34	6	7	47
	% within Staff category	72.3%	12.8%	14.9%	100.0%
Health professional	Count	42	10	4	56
	% within Staff category	75.0%	17.9%	7.1%	100.0%
Total Count		96	24	14	134
Total %		71.6%	17.9%	10.4%	100.0%

All categories supported this statement with an overall of 72% of the respondents indicating that they would exercise if there was a gym facility at work. 18% were not sure and 10% did not agree. The most support for a gym facility at work came from the health professional category with a 75% positive support followed by the general staff with 72% support of the gym facility.

Table 28: Responses to: “There should be healthier choices of meals available for the staff”.

		Agree	Not sure	Disagree	Total
Administration	Count	28	2	1	31
	% within Staff category	90.3%	6.5%	3.2%	100.0%
General staff	Count	44	1	1	46
	% within Staff category	95.7%	2.2%	2.2%	100.0%
Health professional	Count	50	4	1	55
	% within Staff category	90.9%	7.3%	1.8%	100.0%
Total count		122	7	3	132
Total %		92.4%	5.3%	2.3%	100.0%

All categories agreed that there should be healthier meals available for the staff. There was a 92.4% support in favor of this statement, while 5.3% were unsure if the choices should change and 2.3% disagreed with this statement.

Table 29: Responses to: “The present meals at the dining room are healthy”.

		Agree	Not sure	Disagree	Total
Administration	Count	4	12	15	31
	% within Staff category	12.9%	38.7%	48.4%	100.0%
General staff	Count	23	10	13	46
	% within Staff category	50.0%	21.7%	28.3%	100.0%
Health professional	Count	12	21	20	53
	% within Staff category	22.6%	39.6%	37.7%	100.0%
Total count		39	43	48	130
Total %		30.0%	33.1%	36.9%	100.0%

This statement received an almost evenly distributed response, with 30% of the respondents agreeing that the present meals are healthy, 33.1% unsure and 36.9% of the opinion that the present meals were not healthy. Almost half of the administrative staff disagreed with this statement, whilst half of the general staff thought that the meals were healthy. The health professional category had a high percentage of respondents who were either not sure or disagreed with the statement.

Table 30: Responses to: “I am prepared to pay a small fee to start being healthy”.

		Agree	Not sure	Disagree	Total
Administration	Count	25	3	3	31
	% within Staff category	80.6%	9.7%	9.7%	100.0%
General staff	Count	35	6	7	48
	% within Staff category	72.9%	12.5%	14.6%	100.0%
Health professional	Count	46	4	5	55
	% within Staff category	83.6%	7.3%	9.1%	100.0%
Total count		106	13	15	134
Total %		79.1%	9.7%	11.2%	100.0%

All categories of staff supported the idea of having to pay a small fee to start being healthy. 11.2% of the respondents disagreed with this statement and 9.7% were unsure. The general staff were the least keen to pay a fee.

Table 31: Responses to: “There should be a health program at our workplace to help staff lead a healthy lifestyle”

		Agree	Not sure	Disagree	Total
Administration	Count	28	1	2	31
	% within Staff category	90.3%	3.2%	6.5%	100.0%
General staff	Count	47	1	0	48
	% within Staff category	97.9%	2.1%	.0%	100.0%
Health professional	Count	55	0	1	56
	% within Staff category	98.2%	.0%	1.8%	100.0%
Total count		130	2	3	135
Total %		96.3%	1.5%	2.2%	100.0%

This question received a highly positive response from all the categories in support of having a workplace health program. Only 1.5% of the total respondents were unsure and 2.2% disagreed with the idea of having a workplace health program.

Table 32: “Having a workplace health-monitoring program would NOT interest me”.

		Agree	Not sure	Disagree	Total
Administration	Count	5	2	24	31
	% within Staff category	16.1%	6.5%	77.4%	100.0%
General staff	Count	17	6	22	45
	% within Staff category	37.8%	13.3%	48.9%	100.0%
Health professional	Count	9	3	44	56
	% within Staff category	16.1%	5.4%	78.6%	100.0%
Total count		31	11	90	132
Total %		23.5%	8.3%	68.2%	100.0%

Sixty eight percent (68%) disagreed with this statement, 8.3% were unsure and 23.5% agreed that a workplace program would not interest them. This is a reversed question which actually is interpreted as 68.2% support the need of having a workplace health-monitoring program and 23.5% indicating that they have no interest in such an initiative.

Table 33: Responses to: “We should not rely on the work environment to provide us with a healthy lifestyle”

		Agree	Not sure	Disagree	Total
Administration	Count	19	3	9	31
	% within Staff category	61.3%	9.7%	29.0%	100.0%
General staff	Count	29	7	10	46
	% within Staff category	63.0%	15.2%	21.7%	100.0%
Health professional	Count	34	6	16	56
	% within Staff category	60.7%	10.7%	28.6%	100.0%
Total count		82	16	35	133
Total %		61.7%	12.0%	26.3%	100.0%

Sixty two percent (62%) of the respondents agreed that one should not rely on the work environment, whilst 12% were unsure and 26.3% disagreed with this statement. Since this is a negatively phrased question it implies that these 26% of the respondents are of the opinion that the work environment needs to support them in order to lead a healthy lifestyle.

Table 34: Responses to: “The support and motivation from colleagues will encourage us to use the facility /attend the programme at work”.

		Agree	Not sure	Disagree	Total
Administration	Count	25	3	3	31
	% within Staff category	80.6%	9.7%	9.7%	100.0%
General staff	Count	41	2	3	46
	% within Staff category	89.1%	4.3%	6.5%	100.0%
Health professional	Count	50	6	1	57
	% within Staff category	87.7%	10.5%	1.8%	100.0%
Total count		116	11	7	134
Total %		86.6%	8.2%	5.2%	100.0%

Eighty seven percent (87%) of the total respondents agreed that the support of their colleagues will encourage them to be healthy at work, whilst 8.2% were unsure and 5.2% disagreed with this statement. The category of staff that did not agree the most with this statement was the administration category with a 9.7% respondents disagreeing with this option. The general staff category had close to 90% in agreement of having the support of their colleagues.

Chapter summary

The respondents were classified into three categories namely: administration, general staff and health professionals. Almost two-thirds of the respondents were females and one-third male. The health professional category had the highest percentage of overall responses at 39%, the general staff had 33% respondents and the administration had 21% respondents. Missing data on the response questionnaires accounted for an average of 8%. Knowledge and attitudes were fairly close in their mean percentage indices, whilst the practice indices were much lower for all 3 categories of staff. The health professional category attained the highest index for both knowledge and attitude but the administrative category attained the highest index for practice. There was a moderately significant difference in the female BMI between the general staff and administrative categories. There was a significant difference ($p = 0.03$) between the actual BMI of the staff and their weight perception. The majority of the staff was keen on having a workplace health facility, a program that would encourage a healthy lifestyle and to have healthier meals available at the staff dining room.

CHAPTER FIVE: DISCUSSION

Overview of chapter

This chapter is presented in accordance with the objectives of the study and discussed in context of the literature reviewed and the conceptual framework adopted for the study.

The chapter includes the following subsections:

- Section A: Application of the conceptual framework
- Section B: Demographic profile
- Section C: Knowledge of staff with regards to healthy lifestyles
- Section D: Attitudes of the staff
- Section E: Practices of the staff
- Section F: Body mass index and weight perception
- Section G: Staff perceptions about how the workplace should encourage the adoption of a healthy lifestyle.
- Section H: Limitations of this study
 - Study design
 - Missing values
 - Response rate
 - Data collection tool

Section A: Application of the conceptual framework

Non-communicable disease is increasingly becoming a major cause of death (Jungjohann et al 2002) and a hinderance to attaining optimal quality of life (Bradshaw et al 2006). It is therefore of importance for the public health agenda to place greater consideration on the risk factors such as unhealthy diet, physical inactivity, smoking and alcohol consumption and the impact of these on chronic diseases of lifestyle. Attitudes and beliefs are key determinants of health behaviour (Steptoe et al 2002). A knowledge, attitude/belief and practice (KABP) survey is useful in providing a baseline for evaluating intervention programmes and has been shown to be effective in identifying aspects of education that need to be reinforced (Ambigapathy et al 2003). This study was conducted to develop a baseline profile of the target population with specific reference to their KABP of healthy lifestyle behaviours.

Owing to human and financial resource limitations and time constraints this study collected a broad band of information to develop a baseline picture which may be used to initiate further research and to inform planners for future health promotion interventions.

The precede-proceed planning framework (Figure 3) was selected as a planning tool to underpin this research. The model was adopted only after the data collection process was completed. Thus this study did not benefit from the model in formulating the questionnaire. The information generated touches on some aspects of steps 2-4 of the framework but does not provide an exhaustive assessment of each of these steps.

Knowledge, attitude and practices with regards to nutrition, exercise and smoking were elicited from the study participants. In addition information was obtained to compute the BMI as a proxy measure of health status. Suggestions were elicited from employers as to what would constitute enabling factors for them in the workplace towards maintaining healthy lifestyles. The implementation of these suggestions will ultimately be influenced by the policy environment within the employing organization.

This study forms the basis for further research in order to generate in-depth, more detailed and specific information for each component of the precede-proceed model. For example: a more complete investigation could follow on the quality of life, the health status and on the associated behavioural, environmental and the educational and ecological factors influencing the behaviour and lifestyle choices of the staff at Wentworth Hospital.

Section B: Demographic profile

Educational level is a possible confounder influencing the results obtained per staff category. In the health professional category 57% of staff had a tertiary qualification and this may have influenced the higher scores. The general staff presented with lower educational levels and significant differences were found in the knowledge, attitude and practice scores of this staff category compared to the health professional and administrative categories. Overall two-thirds of the respondents were female and one third was male. There was nothing of additional importance to note in this study regarding gender distribution and marital status.

Section C: Knowledge of the staff with regards to healthy lifestyles issues

The results of the knowledge variable serves to influence the behaviour and lifestyle components within the precede-proceed planning framework. There is a two-way influence between the environment and the behaviour and lifestyle component (Figure 3). The overall knowledge index was >70%. Knowledge indices varied significantly between the general staff and the other two staff categories as indicated in Table 25 ($p < 0,05$).

In this study the 23 knowledge questions had positively and negatively phrased questions of which 12 of the more important ones are tabled and discussed in detail. The

respondents appear to be knowledgeable about healthy lifestyles issues given the fact that both males and females in all categories attained an above average score. Less than 10% agreed with the negatively phrased questions about smoking and exercise, which implies that a very small percentage of the staff is not aware of the consequences of smoking and inadequate physical activity. This finding can be interpreted positively in that majority of the staff are aware of the perceived benefits of these two behaviours. Between 30% and 87% agreed with the various positively phrased questions, indicating that the majority of the staff is aware of what constitutes health promoting behaviour specifically with regards to nutritional intake, the benefits of physical activity / exercise, the harmful effects of smoking and the importance of leading a balanced lifestyle.

Knowledge and attitude have a strong influence over personal health practices and behaviour (Khawla et al 2003). In the study done by Jungjohann et al (2002), lifestyle changes and knowledge regarding healthy diet and physical activity was assessed among primary health care professionals. The study found that the nutritionists possessed greater knowledge than the physicians, nurses, midwives and social workers. However, in the study done by Al-Shahri et al (1997), where primary health care physicians' knowledge and attitudes with regards to promotion of healthy lifestyle was assessed, it was found that the acceptable knowledge possessed by 78% of the physicians were not translated into positive attitudes (20% of physicians had positive attitudes) towards the promotion of healthy lifestyle in their patient populations.

Possible factors that may contribute to this study finding are the influence of educational level, socio-economic status amongst others, which can only be confirmed by taking this study finding further. Implications of this finding is that the staff are fairly knowledgeable about the constituents of healthy lifestyle, indicating that general education and awareness programmes about healthy lifestyle need not feature as priority for future health promotion interventions. Knowledge and attitudes about specific risk factors might be necessary to investigate further, the outcome of which will serve to inform the planning of more specific health promoting programmes at the hospital.

This study did not investigate as to what extent the high knowledge scores influenced the management of the patients and whether this knowledge is transferred to the patients, as discussed in the study by Al-Shahri (1997). Intervention programmes need to be implemented that would encourage the staff to practice and promote a healthy lifestyle in the workplace.

Further research with specific reference to this variable would be to investigate staff knowledge with regards to specific risk factors and the influence of individual demographic (socio-economic status, educational level and gender) variables on their knowledge regarding healthy lifestyle issues. This specific investigation would then provide more detailed information into predisposing, reinforcing and enabling factors within the precede-proceed planning framework.

Section D: Attitudes of staff

The results of the attitude variable also serves to influence the behaviour and lifestyle component within the precede-proceed planning framework.

The staff at Wentworth Hospital has shown to be fairly knowledgeable about healthy lifestyle issues (mean index >70%) and this could be a possible influential factor towards them having a positive attitude. The overall attitude index was >70%. Attitude indices varied significantly between the general staff and the other two staff categories as indicated in Table 25 ($p < 0,05$).

Attitudes are closely related to values, and refer to the inclination to react in a certain manner (Badran 1995). In comparison to the study by Al-Shahri et al (1997) this study found high knowledge and high attitude indices, whilst the former documented study found that the high knowledge did not influence the health workers to have positive attitude. Positive attitudes were also found in a study done among primary health care professionals in Chile, which assessed lifestyle changes, beliefs and knowledge about healthy diet and physical activity (Jungjohann et al 2002).

In this study thirteen of the more important attitude questions were analyzed in detail in order to attain a clearer picture of the staffs' attitude to healthy lifestyle. A high percent (98%) thought that it is important to lead a healthy lifestyle from a young age, which is in keeping with the literature advocating that lifestyle and health beliefs that are established early in life, set the pattern for later years (Steptoe et al 2002). Most of the staff had selected appropriate choices with regards to what healthy lifestyle meant, which can be as a result of their high knowledge indices about healthy lifestyle issues. A small percentage supported extreme options of "dressing up in the latest style, eating out often and that fatter people are healthier people". The last option ought to be considered in the light of the growing perception that HIV/AIDS is linked to thinness (Kruger et al 2005). Over 80% of staff supported the questions that were related to the individual being responsible for his/her own healthy well being, which is an indication that they acknowledge the importance of having an internal locus of control with regards to lifestyle choices.

This finding of positive attitudes about healthy lifestyle amongst the respondents indicates that this should be maintained. However, the greater challenge would be to translate these positive attitudes into sustainable health promoting behaviours.

Areas for further research specific to this variable would be to investigate the relationship or influence of the demographic variables of socio-economic status, educational level and gender on attitudes related to healthy lifestyle issues. Barriers that prevent the transference of these positive attitudes into health promoting practices are another possible area for future research.

Section E: Practices of staff

The results of the practice variable also serves to influence the behaviour and lifestyle component within the precede-proceed planning framework which in turn ultimately has a direct influence on health status (Figure 3). The overall mean practice index for all categories of staff was less than 43% in comparison to the knowledge and attitude mean

indices which was more than 70%. Table 25 presents the significant difference between the general staff and health professional categories ($p < 0.05$).

The literature reviewed showed that tobacco smoking, diet and physical exercise are key aspects of lifestyle that influence the risk for major lifestyle acquired diseases. The importance of taking preventative measures with regards to the above behaviours have been extensively highlighted in chapter two in reporting the studies by Dugas (2005), Ezera et al (2001) and Haskell (2003).

This study finding is in keeping with other literature reviewed in that the overall practice scores were lower than the knowledge and attitude scores. Numerous studies investigated practices with regards to risk factors and main contributors to chronic diseases. This is reflected in the results of the KABP study on diabetes by Ambigapathy et al (2003) in Malaysia, although the sample used in their study was small (100) and not a true reflection of the entire country population. Their main recommendations included structured education programmes at all levels (school, work and public seminars) and for the study to be repeated using a larger sample size, which would also be applicable to this study.

A comparative KABP study of tobacco use among college students in United States and China (Torabi et al 2002) found that the Americans scored higher in knowledge but lower in attitudes and that the Chinese started smoking at 13 years or younger. These findings should be interpreted carefully in light of the study limitations. Samples were not representative of the entire population, cross-cultural differences were not addressed and the self reporting data collection could have resulted in over or under reporting of tobacco use. Another study comparing trends in these above-mentioned lifestyle behaviours among university students from thirteen European countries (Steptoe et al 2002) also found increased knowledge and attitude scores compared to the practice scores. The educated sector (university students) was investigated and findings could not be generalized to the entire population.

Twenty of the more important practice questions were analyzed individually, which presents what the respondents' actually practice in their daily lives. A high percent of staff indicated that they knew their blood pressure (71%) and glucose (46%) readings. However, one of the limitations of this study is that the researcher did not ascertain whether this is really true and if the staff possessed an accurate perception of their status as well. Although the respondents possessed adequate knowledge, 68% of the respondents consumed less than the average amount of water required per adult per day, which is between 6-8 glasses. Possible reasons for this could be habitual and not making a conscious effort to make the time to consume a glass of water. These discrepancies between practices and knowledge can be addressed in educational presentations.

Questions about the respondents' nutritional practices indicated that 48% do not eat between 3-5 portions of fruit and vegetables daily, which is the daily recommended allowance. Studies by Steptoe et al (2002) and Jungjohann et al (2002), found respondents to have a poor dietary intake despite them having adequate knowledge. Many staff (59%) indicated that they eat any food when they are hungry which are most likely energy dense and convenience food that are generally of unhealthier choices as discussed by Popkin (2006) in his article on global nutrition dynamics. The article emphasizes that dietary changes are shifting towards a diet having increased fat content and reduced fiber. Such unhealthy practices contribute to increasing levels of body fat thereby predisposing one to early onset of CDL.

The importance of physical activity has been well documented and the results of this study show varying levels of participation in physical activity. Thirty-two percent (32%) indicated that they do not do physical exercise at all and a high percentage (82%) indicated that they do not do any cardiovascular training at all. The understanding that walking is a cardiovascular activity may have been confusing to certain respondents as 12% of staff indicated that they do cardiovascular training 3-5 times per week, whilst 36% indicated that they do walking between 3-5 times per week. Many staff use public transport to and from work. The distances that they walk to access their mode of transport is in itself light to moderate cardiovascular activity, which some of the respondents may

not have considered. These findings have implications for the future as this highlights the need to present the importance of balanced nutrition and physical activity in context of its long term health promotive benefits.

Twenty-five (25%) smoke daily, 3% take alcohol daily and 54% of staff takes multivitamins or supplements. Although there is a small percentage of staff who consume alcohol daily the amount and type of alcoholic beverage consumed daily needs to be considered in order to determine if this behaviour is a health risk. Studies have indicated that moderate consumption of alcohol particularly red wine may be included among protective measures against cardiac infarcts and disease (Flesch et al 2001, Fernandez J et al 2003, Marfella et al 2006). Studies by Doll et al (2004) and Panagiotakos et al (2007) discussed that pack-year of smoking is an important determinant with regards to the potential of developing myocardial infarction.

The long term consequences of tobacco and alcohol use needs to be brought to the attention of the staff that is not practicing preventative health behaviour patterns together with this recent case-control study by Panagiotakos et al (2007), which suggests that cigarette smoking seems to play the most important role for the occurrence of myocardial infarction in individuals under the age of 36 years. The study compared 100 cases (people having experienced a myocardial infarct at age <36 years) and 100 matched controls (matched for age and sex). Smoking habits, physical activity status, blood lipids and body mass index was measured. This study also collated information on some of the above factors besides blood lipids.

Specific aspects of this variable provide area for further research. Demographic factors that may have contributed (for example educational level, socio-economic status, gender) to this finding were not included in this study's objectives and can the influence of this can only be determined by future research. Of clinical importance would be to investigate the reasons why their high knowledge and attitude indices are not transferred into positive practices. Individual positive health promoting practices and negative practices can be independently investigated across the categories of staff and factors influencing

such choices can be investigated, which can be used to design and implement specific intervention programmes.

Section F: Body mass index and weight perception

Studies have indicated that a high body mass index (BMI) predisposes one to acquiring high blood pressure, diabetes and heart disease, which are the more common factors that contribute to an increase in chronic diseases of lifestyle (Emberson et al 2005; Bradshaw 2000; Ambigapathy et al 2003; Steptoe et al 2002). Goedecke (2005) reported that the 1998 South African Demographic Health Survey assessed 13 000 South Africans between the ages of 15 and 95. The survey found that the overall prevalence of BMI greater than 25 was high, as 29% of men and 56% of women were classified as overweight or obese (*Ibid*). Other studies have found a high urban BMI compared to the rural areas (Lubree et al 2002, Nanan 2002, Mendez 2005).

The current study found that the mean BMI of staff at Wentworth Hospital calculated from weight and height data was 29 (30 for the males and 29 for females). This exceeds the acceptable normal range of between 18.5 and 25 and fits with the finding of the SADHS (1998). The general staff category presented with the high BMI of over 30 in for both the males and females. This is in line with literature reviewed which showed that the poorer population group tend to purchase the basic, cheaper and often fattier options of food, which may contribute to an increase in chronic diseases and perhaps this finding of a high BMI in this staff category. Of importance is that the general staff also had lower educational levels in comparison to the other two categories and are also the more elder age group of the workforce, many of whom are close to retirement.

In reference to Table 23, the calculated BMI was cross tabulated against the respondents' perceptions about their own body weight. The rationale for cross-tabulating the body mass index with weight perception was based on the opinion that the perception one has about weight, may contribute to lifestyle behaviours, specifically with regards to nutritional intake and physical activity. Under-classification (29%) means that, the

respondents thought they had a lower BMI than what was actually calculated. 10% overclassified themselves and thought that they had a higher BMI than what was calculated. The concern about this misperception is that a high percentage of staff is not aware that they are overweight. There was a significant difference of $p=0,03$ between the respondents BMI and their weight perception. 40% of the respondents who were actually overweight were of the opinion that they were of normal weight.

Possible reasons for this underlying misperception are the social connotations and cultural perceptions regarding being overweight as reported in studies done by Goedecke et al (2005) and Pasquet et al (2003). In addition, the association between HIV/AIDS and thinness cannot be ruled out as a possible explanation for preferring to be overweight, as found in the study by Kruger et al (2005).

The findings of the weight perception versus the computed BMI bears important implications for health promotion. But this has to be considered in view of the limitations of the findings as well. A high proportion (40%) of the respondents did not provide all the information required for calculating their BMI and as a result the above mean BMI may not be a true reflection of the overall staff complement. A second problem with regards to the use of BMI in this study is that it was not calculated from objective measurements of height and weight by the researcher but rather from the self-reported height and weight information by the respondents.

An altered weight perception may have implications with regards to utilization and support of health promotion interventions at the workplace especially if respondents are not aware that they actually require, and will benefit from, an intervention related to managing their weight. The respondents who have a BMI >25 but do not perceive themselves to be overweight may engage in unhealthy eating practices with reduced physical activity. These two health behaviours have been shown to contribute to an increase in prevalence of CDL diseases. Future intervention would firstly need to accurately determine those who are at risk based on more accurate BMI calculations and then to target the staff who may unknowingly be at risk of developing CDL diseases.

Future research regarding weight would be to firstly conduct an objective assessment of the staff BMI which may or may not verify this current finding. Knowledge about the negative clinical effects of extreme BMI values i.e too high or too low need to be assessed. Cross tabulation and association analysis of specific practices which directly influence weight management (for example exercise) will serve to identify which of these practices have strong associations with weight management. This will in turn influence the planning and design of intervention programmes.

Section G: Staff suggestions about needs in the workplace to support the adoption of healthy lifestyles

There was a 96% support for a workplace intervention programme. Studies done by Addley (2001), Yassi (2001), Oura et al (2001), Richmond et al (1998a) and Richmond et al (1998b) also presented a strong support for a workplace intervention programme. These authors discuss that there is value in investing in the employees' health (human capital management) and the incorporation of a complete behavioural health program can contribute to increased productivity which can offset medical costs (*Ibid*).

A high percentage (62%) agreed that one should not rely on the work environment, implying that the individual needs to be accountable and responsible for investing in their own health. This response links closely with the attitude question about staff having an internal locus of control with regards to their health issues. The possibility of a gym facility at work received a large positive response, especially from the health professional category and close to 80% of the staff agreed that they would pay a small fee towards an intervention that would encourage them to lead a healthier lifestyle. The easy accessibility and reduced costs to an onsite workplace facility may encourage greater participation in physical activity.

There was general agreement from the respondents, based on the analyses of two differently phrased questions to indicate that the menu at the staff dining room should

allow for healthier choices. The installation of vending machines which had healthy food choices was discussed in the study by Campbell (2000). The need for colleagues' support and motivation received a high percentage response, which might indicate that the staff would be more inclined to participate in purposeful healthy behaviour patterns, because of their colleagues' social and moral support.

Healthy workplaces can help to prevent occupational disease and injury as well as promoting positive lifestyle behaviours (Addley 2001). A public health approach to worksite health promotion requires diverse intervention options, incentives to encourage participation, policy and environmental changes. Central to successful workplace changes are supportive management, supervisors and unions (*Ibid*).

Traditionally workplace health promotion and occupational health and safety are seen separately, however recently there has been an increasing recognition of the need for a more holistic approach that focuses on workplace culture which addresses the need for primary and secondary prevention aimed at both the individual and the organization (Yassi 2001). There is an increasing trend towards comprehensive lifestyle changes with a paradigm shift from the illness (freedom from disease) towards a wellness model (holistic wellbeing) in healthcare (Van Velden 2005). This shift must be considered in the planning of this study's workplace intervention, although this was not included as part of data collection. The five dimensions in health care that needs to be included in a holistic programme are the physical, intellectual, social, emotional and spiritual wellbeing of the employee (*Ibid*).

In reference to the planning framework used in this study (Figure 3), the relationship between the environment and predisposing, reinforcing and enabling factors, with regards to healthy lifestyle, can be investigated in the future. Furthermore, this study can be used as a pilot study to determine if the implementation of the suggestions does have a positive influence on healthy behaviour practices among the staff, which will ultimately influence health status, as indicated in the planning framework (Figure 3).

Section H: Limitations of the study

This study lent itself to certain measurement errors and limitations which had an impact on the overall outcome of the study.

Study design

The proposed sampling strategy had to be changed from stratified random sampling to total population at the implementation stage for reasons explained in the methods section. The respondents were volunteers, which implies that there could be selection bias in the sense that the already converted and more health conscious staff could have completed the questionnaire. The self reporting nature of the data tool allows for recall and reporting bias, with the possibility of responses being either over-or underestimated. The external validity and generalizability of the study are reduced as this study was conducted at only one health institution.

Missing values

Most questions analysed had missing data /values of fewer than 10%. This was not considered serious by the consulting statistician as this percentage is small and would have not had a significant effect on the overall outcome of the results.

The influence of missing values may have been greatest in computing the body mass index where both the weight and height information was necessary. Missing values in either of these aspects resulted in the calculation of 60% of the respondents' BMI.

Response rate

The overall response rate was low (42%), which may be a consequence of using a self-administered questionnaire which relied on the respondents' initiative to return the completed questionnaire. Attempts were made to encourage a better response rate by placing collection boxes in wards and departments and by personally collecting the completed forms. Studies by Miller and Kearney (2001), Olowokure et al (2003) and Danhauer et al (2006) conducted among general practitioners and nurses also had poor response rates of between 43% and 48%.

Similar KAP studies conducted to survey human behaviour, received higher response rates because of the different data collection methods used. These were face to face interviews, personal collection of questionnaires, setting up of appointments, the use of fieldworkers and telephonic surveys (Ambigapathy et al 2003, Al-Shahri et al 1997, Jungjohann et al 2002, Steptoe 2002, Torabi et al 2002). The study by Einarson and Koren et al (2006), which had a 56% response rate, used telephonic surveys as the data collection process. The possible reason for this low rate was not discussed in the study. Richmond et al (1998) suggest that those who are most at risk are probably the least likely to participate in health promotion programmes.

Future studies should take into cognisance the more successful data collection methods as indicated in the above studies. Other methods to reduce measurement error would be to improve the sample design, perhaps by using the originally planned proportionate stratified random sampling technique and strategies that would improve the response rate. The main implication of this low response rate is that the study findings cannot be generalised to the remainder of the population at Wentworth Hospital.

Pilot study

The pilot study sample was too small which may have influenced the non-identification of errors in the data collection tool.

Data collection tool

The long questionnaire and the nature of the research topic, which requires introspection into one's lifestyle, may have been contributing factors to the poor response rate. During the data capturing process, the researcher observed that a few questionnaires were left incomplete in the sections that required more thoughtful responses.

In addition, during fieldwork it was observed that the staff was not too enthusiastic and keen about completing the questionnaire. Possible reasons for this could be that the questionnaire was time consuming, there was reduced interest in the focus of the research or there were no incentives to encourage participation.

The following errors in the design of the tool were identified only at the data capturing stage:

- When requesting respondents to indicate total household income it was not clearly specified as to whether this was annual or monthly income. This would not be a fair demographic indicator to be used in the analysis of the study and this was omitted in the results.
- Unnecessary data was collected – marital status, sole income provider. This created an unnecessarily lengthy questionnaire.
- Participants were required to fill in their own age, weight and height figures. These were not personally measured by the researcher. As a result, the BMI of those for whom it was calculated, could not be confirmed objectively.
- Some of the knowledge questions could be influenced by culture and attitudes. (Question number 6 which reads “to be healthy we must.....”). A religious vegetarian person may choose to select option (a), which is: *eat vegetarian food only*, although the same person may have the knowledge that option (d), which is: *eat balanced meals and exercise*, is a possible answer as well. His/Her answer may be influenced by the religious practice. Respondents were given the choice to select more than one option but the researcher is not clear to what extent this was exercised.
- Weight perception is influenced by cultural beliefs as indicated in the literature review, which must be borne in mind in the interpretation of the study findings.
- The knowledge questions would have been easier to analyze and code if they were given as true and false options.
- There were insufficient practice questions to determine what the respondents actually did. Some of the questions were based on what they “think” is appropriate practice.
- Question number 7 can elicit different responses from different staff categories. The question read: *which of the following diseases do you think can be prevented?* The list of choices was diabetes, cancer, high blood pressure, epilepsy, asthma, blocked blood vessels HIV/AIDS and overweight. The difference in responses could be influenced by the level of knowledge and experience of each participant.

Those respondents that have a medical background as opposed to those that do not, will have a different understanding of the disease and would therefore interpret the question differently. Certain diseases, for example diabetes can be juvenile type-1 diabetes as opposed to type-2 which is a lifestyle related disease.

- Some of the questions may have been ambiguous to the participant and as a result may have elicited different information to what was intended. For example many questions that the researcher thought were attitudes about the workplace could be regarded as perceptions.
- This study was designed to provide a baseline profile of the study setting and therefore only a planning framework was used as a conceptual framework. It is acknowledged that health promotion interventions should be discussed in the context of individual behaviour change models. The most commonly referred to models are the Health Belief Model and the Theory of Reasoned Action.

Chapter summary

The overall findings indicated that staff had mean percentage indices of over 70% for knowledge and attitudes but less than 45% for their practice index. Although the staff possessed adequate knowledge and a positive attitude with regards to leading a healthy lifestyle, their low mean percentage practice scores indicate that they are not being proactive and adopting healthy lifestyle behaviour patterns. The inability of people to translate knowledge into practice has been well documented, which was also found in this study. A workplace intervention programme received much support especially with regards to healthier meal choices at the staff dining room and an onsite gym facility. These two suggestions appear to be the main workplace needs that were highlighted by the majority of the respondents. Limitations were identified in the study which includes the poor response rate and the use of a non-standardised questionnaire. The challenge would be to implement an intervention that can translate the knowledge and attitudes into positive health promoting behaviours.

CHAPTER SIX: RECOMMENDATIONS

Chronic diseases of lifestyle have accounted for an increasing proportion of the global burden of disease. The interrelationships of unhealthy lifestyles, risk factors and the resultant chronic disease emphasise the need to plan integrated comprehensive intervention programmes to manage chronic disease in South Africa (Steyn 2006). However, while acknowledging that each aspect of an unhealthy lifestyle and each risk factor require specific interventions, it would be inappropriate for a country's health service to develop intervention programmes focusing on only one risk factor or chronic disease without considering all the aspects of an unhealthy lifestyle and chronic disease of lifestyle risk factors. The biggest impact will be made by an intergrated approach that promotes all aspects of a healthy lifestyle, including the early diagnosis of risk factors and the cost effective management to reduce and postpone these diseases. It is therefore imperative that individuals become proactive and take preventative measures against risk factors that could predispose them to an early onset of morbidity and an unproductive lifestyle. This study was carried out with the main objective of presenting a baseline profile of the study population and to present the staffs' knowledge, attitude and practice relating to healthy lifestyle behaviour. The interpretations of the results provide the basis to make recommendations in terms of health promotion interventions in the workplace and areas that would benefit from further research.

The following recommendations are based on the outcome of the study.

1. Feedback to respondents on the study results. This may be done at the hospital extended management meeting where the senior management and heads of department meet. A summary of the research can also be distributed to all wards and departments using an internal circular. The occupational health clinic is accessed by staff on a daily basis and can serve as another suitable means of disseminating the research information.

2. Workplace related suggestions are:
 - 2.1. Discussions with the outsourced catering company with regards to providing healthier meals based on the staff needs and what the service provider can offer the institution, taking into consideration staffing and budget constraints.
 - 2.2. As a start to the health promotion intervention, cheaper and more cost-effective programmes could be considered for example walking groups and lunch time aerobics classes. This uptake can be monitored and the intervention can be upgraded to the following recommendation.
 - 2.3. The establishment of an onsite gym facility and a comprehensive workplace wellness programme. This would require motivating for a dedicated budget, an investigation of various resources namely space, human and financial for equipment. An effective monitoring and evaluation tool needs to be in place from the outset in order to evaluate the impact of the service at regular intervals.
 - 2.4. A health awareness screening campaign can be conducted at the occupational health clinic, where the subjective aspects of the study can be verified. This would include blood pressure readings, glucose testing, accurate body mass index measurements or even skin fold thickness.

3. If given the opportunity to implement an intervention, then I would propose a holistic workplace wellness programme that will include the following:
 - 3.1. The translation of the staff's positive knowledge and attitude into health promoting behaviour practices.
 - 3.2. A balanced programmed encompassing physical, psychological, social and spiritual needs of the employee.
 - 3.3. An effective monitoring system must be in place to evaluate the efficacy and utilization of the wellness programme.
 - 3.4. Working with the employee assistance practitioner will ensure that support and stress management programmes are in place for example: weight loss support programme, alcoholics anonymous and holistic alternate programmes for example the Art of Living.

- 3.5. Educational presentations on the long terms effects of specific risk factors on an individual's health and promotive methods that one can implement to reduce the risk of acquiring the conditions.
4. A wealth of knowledge and experience was gained in conducting this research. If this research was to be repeated the following limitations from the current study will be considered:
 - 4.1. The data tool should preferably be a standardized tool or adapted from standardized tools that have been successfully implemented in previous studies.
 - 4.2. Consultation with the statistician prior to fieldwork, to ensure that the tool can generate the necessary information in order to meet the specific objectives of the study.
 - 4.3. Data tool administration and data collection methods must be planned more thoroughly to encourage an increased response rate.
 - 4.4. The needs of the local culture will be considered, as advocated in the settings approach. Their input will be incorporated in the design of health promotion programmes.
5. The results of this study generate areas for future research.
 - 5.1. A more complete investigation is required of the behavioural and environmental influences on healthy lifestyle.
 - 5.2. The influence of educational level, gender and socio-economic status on the knowledge, attitudes and practices of staff with regards to healthy lifestyle issues must be explored.
 - 5.3. A comparative study between body mass index and body fat percentage as a determinant for the development of chronic disease of lifestyle can be investigated.
 - 5.4. Further investigation is needed into the staff needs, with regards to type of meals provided by the catering service.
 - 5.5. A study to determine if healthy lifestyles are influenced by cultural differences.

- 5.6. The relationship between lifestyle behaviour practices and work place productivity.
- 5.7. Investigation of the specific health practices of staff who are more at risk i.e those having a BMI of greater than 25.
- 5.8. Investigation of the knowledge, attitudes and practices of the staff in terms of the relationship between the specific risk factors (physical activity, nutrition and smoking) and main chronic diseases of lifestyle (diabetes, cardiovascular disease and hypertension).

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http://www.nlm.nih.gov/cgi/medline_plus/dictionary.pl

Accessed on 19 June 2008 11h45

APPENDICES

Appendix A:	Provincial migration statistics
Appendix B:	Aerial photograph of Wentworth Hospital
Appendix C:	Post –graduate approval
Appendix D:	Biomedical Research Ethics Committee approval
Appendix E:	English questionnaire
Appendix F:	Zulu questionnaire
Appendix G:	Classification of questions
Appendix H:	Index scoring syntax
Appendix I	Permission from hospital management
Appendix J:	Consent form

Estimated migration streams for the total population, 2001-2006

Origin	Did not migrate	Destination									Total out-migrants	Net migration
		Eastern Cape	Free State	Gauteng	KwaZulu-Natal	Limpopo	Mpumalanga	Northern Cape	North West	Western Cape		
Eastern Cape	6 801 200	-	21 200	100 000	89 600	8 400	13 100	5 400	27 700	175 000	440 400	-323 200
Free State	2 820 100	12 000	-	73 600	10 700	5 800	8 700	8 200	25 000	16 000	160 000	-57 700
Gauteng	8 288 800	35 800	29 400	-	63 500	39 000	41 700	6 400	50 200	67 500	333 500	519 900
KwaZulu-Natal	9 390 600	18 800	10 600	124 200	-	6 300	16 300	2 300	5 900	24 800	209 200	4 000
Limpopo	5 470 900	3 700	5 200	249 100	8 700	-	49 900	1 900	26 900	6 400	351 800	-249 300
Mpumalanga	3 062 000	4 400	7 100	107 500	17 600	22 800	-	1 800	13 900	7 100	182 200	-38 700
Northern Cape	840 400	3 900	9 800	15 000	2 500	2 300	1 900	-	9 700	31 900	77 000	-23 900
North West	3 635 500	6 100	12 600	144 700	7 100	14 600	7 900	17 600	-	8 600	219 200	-55 500
Western Cape	4 350 200	32 500	6 400	39 300	13 500	3 300	4 000	9 500	4 400	-	112 900	224 400
Total in-migrants	-	117 200	102 300	853 400	213 200	102 500	143 500	53 100	163 700	337 300	-	-

All numbers have been rounded off to the nearest hundred

APPENDIX A

Emergency Symbols

General Symbols

Places of Interest

North

Hospital (24hr Casualty)

Hospital

One-way

Entrance

Controlled Access

Traffic Light

Place of Interest

Museum

Police Station

Fire Station

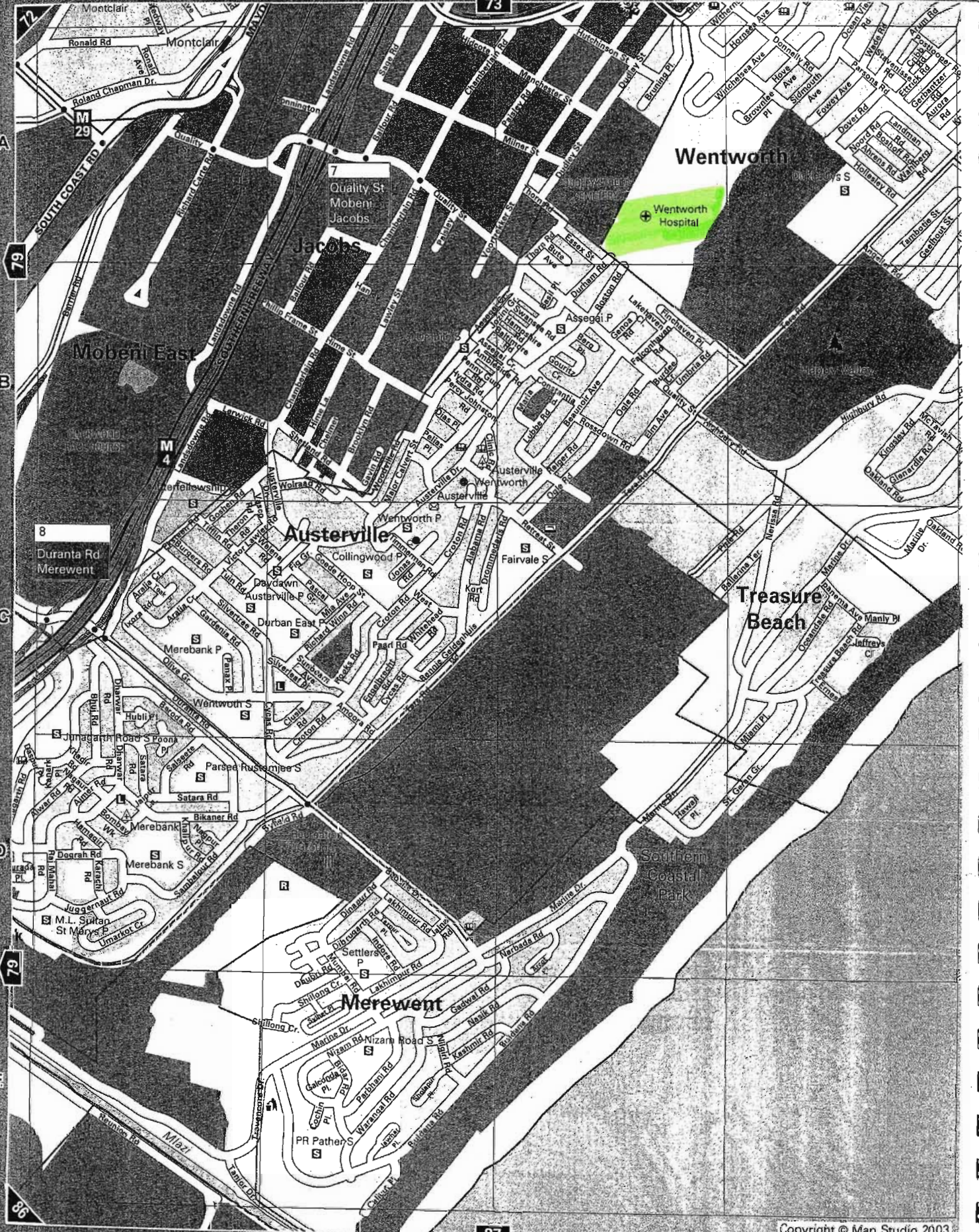
International Airport

Hotel

Railway Station

Historical Monument

Provincial Heritage Site



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On the
WEB

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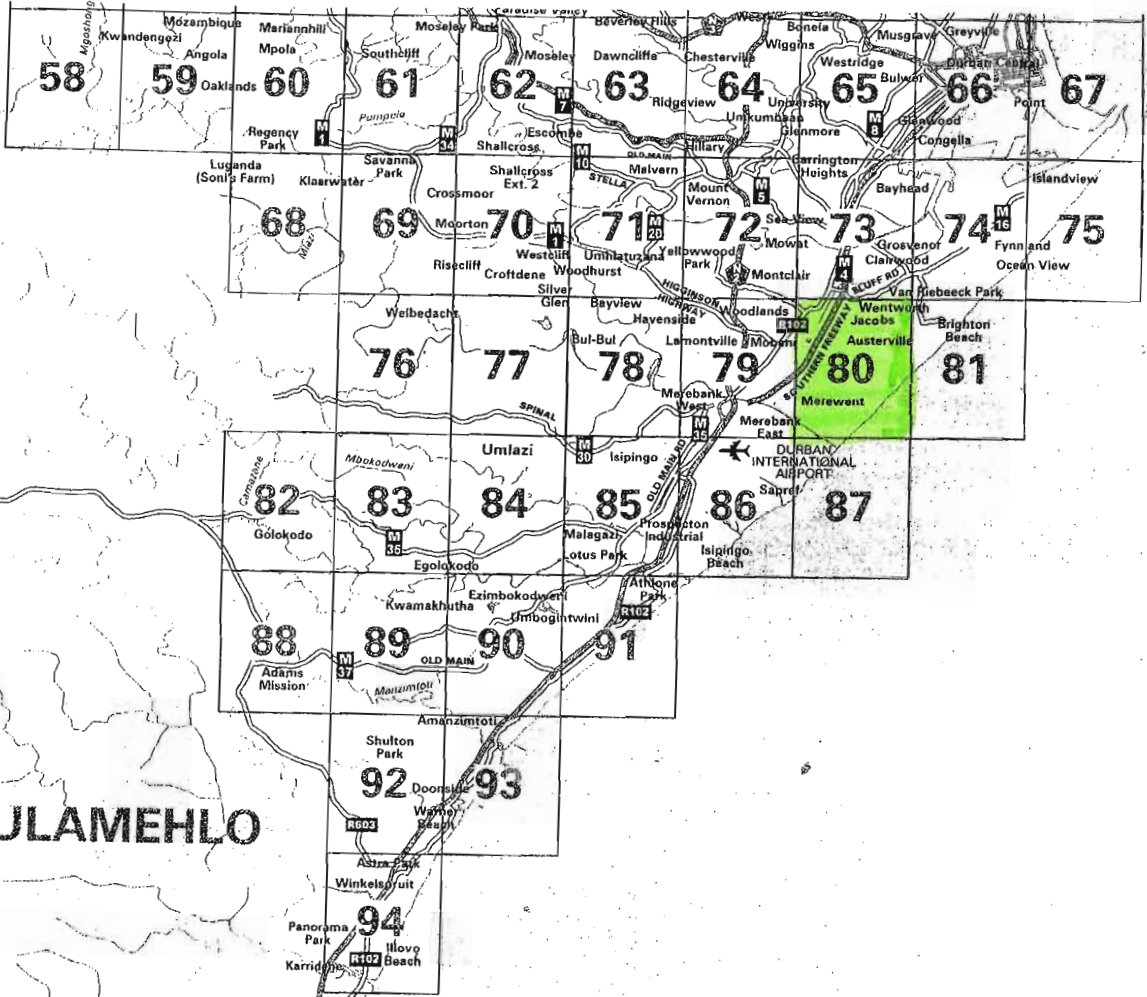
 FREEWAY
 THROUGH ROUTE

LEGEND
 R102
 M6
ROUTE MARKERS

 6
MAP PAGE NUMBERS



APPENDIX B



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HALAL STORES
Chatsworth: 031 401 2691 (Pg 70)
Phoenix: 031 507 6537 (Pg 22)
Umgeni Business Park: 031 263 1839 (Pg 55)
West Street: 031 337 1718 (Pg 67)
Raisethorpe Drive: n/a

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APPENDIX C.



UNIVERSITY OF
KWAZULU-NATAL

18 April 2006

Ms S Reddy
Therapy Department
Wentworth Hospital

e-mail. : projini.reddy@kznhealth.gov.za

Dear Ms Reddy

PROTOCOL : Healthy lifestyles of healthcare workers of an urban-based district hospital in KZN. S Reddy, Community Health. Ref.: H021/06.

The Postgraduate Education Committee considered the abovementioned application and raised a query. This has been addressed and the protocol is given approval for your MPH degree.

Please note that the study may not begin without ethics approval.

May I take this opportunity to wish you every success with your study.

Yours sincerely

PROFESSOR M ADHIKARI
Chair : Postgraduate Education Committee

c.c. Dr A Voce, Public Health Medicine
Mr S Siboto, Postgraduate Education

**Nelson R Mandela School of Medicine, Faculty of Health Sciences,
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Website: www.ukzn.ac.za

10 August 2006

Mrs S Reddy
P O Box 28308
MALVERN
4055

Dear Mrs Reddy

PROTOCOL: Healthy lifestyles of healthcare workers of an urban-based district hospital in KZN. S Reddy, Community Health. Ref: H021/06

Thank you for your response received on 01 August 2008 in response to queries raised on 19 April 2006.

The Biomedical Research Ethics Committee considered the abovementioned application and the protocol was approved at its meeting held on 15 March 2006 pending appropriate responses to queries raised. These conditions have now been met and the study is given full ethics approval and may begin as at **10 August 2006**

This approval is valid for one year from **10 August 2006**. To ensure continuous approval, an application for recertification should be submitted a couple of months before the expiry date. In addition, when consent is a requirement, the consent process will need to be repeated annually.

I take this opportunity to wish you everything of the best with your study. Please send the Biomedical Research Ethics Committee a copy of your report once completed.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J Moodley', written over a large checkmark.

DR J MOODLEY
Chair: Biomedical Research Ethics Committee

HEALTHY LIFESTYLE QUESTIONNAIRE

DEMOGRAPHIC INFORMATION:

If you do not want to fill any question in the section below, you may choose not to!

Male

Female

Marital Status:

married		Single (never married)		divorced		widowed	
---------	--	--------------------------	--	----------	--	---------	--

Are you the sole income provider?

YES		NO	
-----	--	----	--

Total household income

2000-3000	3000-5000	5000-7000	7000-9000	9000-11000	11000-13000	>13000

Highest Educational Level

Primary school	
Secondary School	
High School	
Diploma	
Degree	
Masters	
Doctorate	

Category of Staff:

Administration	
General staff	
Medical	
Nursing	
Paramedical	

Please fill in your:

Age	
Weight	
Height	

Do you think you are?

Overweight	
Normal weight	
Underweight	

GENERAL QUESTIONS ABOUT YOURSELF

Please answer as honestly as possible – there is no right or wrong answer!!

1. What does healthy lifestyle mean to you? Please tick your choice/s.

To maintain a normal weight	
To make time to relax	
To do regular exercise	
To have a balanced body and mind	
To eat ONLY healthy food	
To have lots of fun and laughter	
To eat out /takeaways often	
To dress up in the latest style	

2. Smoking: Please tick your choice/s.

Does not affect a person’s lifestyle in any way	
Helps to relieve a person’s stress and tension	
Is harmful to one’s health.	

3. Fruit and vegetables must be eaten: Please tick your choice.

Everyday	
Once a week	
Twice a week	

4. We should eat on an average: Please tick your choice.

3 portions of fruit and vegetables daily	
5 portions of fruit and vegetables weekly	
3 portions of fruit and vegetables weekly	
5 portions of fruit and vegetables daily	

5. Exercising helps to: Please tick your choice/s.

Reduce cholesterol and blood pressure	
Allow us to eat more and not gain weight	
Maintain a healthy body weight	
Make a person look bigger, muscular	
Lower ones metabolism	
Speed up our aging process	
Improve our mood	

6. To be healthy we must: Please tick your choice/s.

Eat vegetarian food only	
Eat red meat 3 times a week only	
Eat anything we want and exercise	
Eat balanced meals and exercise	

**7. Which of the following diseases/conditions do you think can be prevented?
Please tick your choice/s.**

Diabetes		Asthma	
Cancer		Blocked blood vessels	
High blood pressure		HIV / AIDS	
Epilepsy		Overweight	

8. Do you know what YOUR blood pressure value is?

YES	
NO	

9. Do you know what YOUR glucose value is?

YES	
NO	

10. When was the last time you checked your blood pressure reading?

1 months ago	
3 months ago	
1 year ago	
Can't remember when last	

11. When was the last time you checked your blood glucose level?

1 months ago	
3 months ago	
1 year ago	
Can't remember when last	

12. On an average, how many glasses of water do you drink each day?

0 - 3 glasses per day	
3 - 4 glasses per day	
4 - 6 glasses per day	
6 - 8 glasses per day	
8 - 10 glasses per day	
10 - 12 glasses per day	

13. It is extremely important to lead a healthy lifestyle from a young age and continue through to old age.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

14. We should just enjoy life by doing whatever we want and whenever we want to - we are all going to die someday.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

15. To be healthy we need to earn more money, as it is costly to buy healthy foods.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

16. Fatter people are healthier people

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

17. Stress, problems and worries cannot be controlled.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

18. Gaining, losing and maintaining weight is entirely up to me.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

19. Family history determines whether we can lead a healthy lifestyle or not.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

20. Which of the following relating to exercise is applicable to you?

	Less than 3 times per week	3- 5 times per week	Not at all
I do cardiovascular training for 30 minutes or more. (aerobics, taebo, stepping, running)			
I do cardiovascular training for less than 30 minutes (aerobics, taebo, stepping, running)			
I do swimming.			
I do yoga or pilates.			
I do walking			
I do road running.			
I do weight training			
Any other forms of exercise (please state them)			

21. I do not do any exercise at all.

YES	
NO	

22. Do you eat on average 3-5 portions of fruit and vegetables daily?

YES	
NO	

23. Do you eat on an average less than 3-5 portions of fruit and vegetables daily?

YES	
NO	

24. Do you take supplements /vitamins to keep yourself healthy on a daily or weekly basis?

YES	
NO	

25. Do you make time to relax and destress?

YES	
NO	

26. Describe your sleep pattern.

	YES	NO
I sleep on an average for less than 6 hours a night		
I sleep on an average 6 –8 hours a night		
I sleep on an average more than 8 hours a night		

27. Do you have recreational pursuits to help you relax like sport, craft and hobbies?

YES	
NO	

28. Do you plan what you will eat for the day?

YES	
NO	

29. Do you eat ANY food that you can find when you are hungry?

YES	
NO	

30. Do you buy takeaway and fried foods regularly i.e more than twice a week?

YES	
NO	

31. Do you feel that there is no time for you to relax?

YES	
NO	

32. Do you smoke?

YES	
NO	

33. Do you take alcohol daily?

YES	
NO	

34. Do you take alcohol at parties only?

YES	
NO	

35. Do you have a medical check-up at least once a year?

YES	
NO	

36. I will do exercise if there is a gym facility at work.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

37. There should be healthier choices of meals available for the staff.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

38. There should be a health program at our workplace to help staff lead a healthy lifestyle.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

39. I am prepared to pay a small fee to start being healthy.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

40. Having a workplace health-monitoring program would NOT interest me.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

41. The support and motivation from colleagues will encourage us to use the facility / attend the program at work.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

42. We should /must learn methods to lead healthy lifestyles on our own.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

43. We should not rely on the work environment to provide us with a healthy lifestyle program.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

44. The present meals at the dining room are healthy.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

45. There should be incentives / rewards for staff using the healthy lifestyle center/program. (IF ONE IS AVAILABLE)

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

46. This questionnaire is very helpful as it made me think about my lifestyle.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

47. This questionnaire is not helpful to me in any way.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

48. I would like to know the overall results and outcome of this research study.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

**IDEAS FOR A HEALTHY LIFESTYLE PROGRAMME
FOR WENTWORTH HOSPITAL STAFF**

*Please indicate which one/s of the following you would be interested
in doing if they are offered at the hospital*

TYPE OF ACTIVITY	SLIGHTLY INTERESTED	INTERESTED	DEFINITELY INTEREST
Aerobics / Step class			
Tai-bo			
Gym facility - work			
Swimming			
Relaxation therapy			
Yoga & meditation			
Weight loss class			
Toning class			
Walking group			
Social outings			
Health talks:			
Stress management			
Eating plans			
Financial planning			
Exercise benefits			
Chronic conditions			
Diabetes			
Stroke			
Heart attacks			
Other Suggestions:			
a)			
b)			
c)			
d)			

Many thanks for your time in filling this questionnaire.

IMININGWANE YENCWADI.

Ngingumfundi eNelson Mandela Medical School, Ngisemaphethelweni kwizi fundo zami ze Masters kwi Public Health.

Ukuze ngiphuthule izifundo zami zedegree kumele ngiqedele iprojecti yami yocwaningo.

Ngikhethe ukwenza iproject yami esibhedlela sase Wentworth.

LeProject ibizwa:-

Survey to develop a screening profile of healthy lifestyle inikwe abasebenzi basesibhedlela sase Wentworth.

Inhloso yalolucwaningo

1. Ukubheka ukuthi abasebenzi bethu bayazi ngempilo ngcono.
2. Ukubheka ukuthi abasebenzibathe banazo yini izinkinga ngempilo.
3. Ukuze banike umphathi wesibhedlela imibono uhluahlukene emva kokuphuthula lolucwaningo ukukhuthaza abasebenzi besibhedlela ukophila impilo engcono.

Ungakhetha inxenye yale project njengomsebenzi ozinze kusolesibhedlela okufuneka kune nje kuphela imizuzu eyishuminambili iemibuzo.

Asikho isidingo sokogcwalisa igama lakho, ekekho ozokwazi, lokhu kusho ukuthi uyozaziwena akekho omunye umuntu oyokwazi imininingwani yakho oyibhalile.

Awuphoqelekile ukuba uthathe inxenye kulelucwaningo, **Yisho noma** Iziphi izimpendulo esizitholayo yizona ezizokwenza ukuba ngithathe isinqumo sophenyo lwami.

Inzuzo ongayithola ekuthatheni lenxenye yocwaningo ukuthi ngabe uhlelo lumi ngendlelaokuyi yo yini.

Sizobe sesazi kahle ukuthi yini edingwa izisebenzi ukuze zikhuthazeke ukuthi ziphila impilo egcono.

Lokhu kuzosiza ekutheni imibono yabaphathi, engahlanganisa nemibuzo engavela kubasebenzi.

Akubizi mali ukuba u yingxenye kulolungwaningo futhi ngeke ukhokhe mali kuwukuthanda kwakho ukuba ukwenze.

Noma kuthiwa awufuni ukuthatha enye inxenye kulolucwaningo ngeke kube inkinga.

Wonke amaforms aqediwe azobekwa eMedical School eCommunity Health Department.

Yimina ngedwa engiqondene nalolucwaningo.
Ngisebenza e Occupational Therapy Department eWentworth esibhedlela
Ngingathiteka lezizinombolo ezilandelayo.

Inombolo yocingo (031) 460 5145
(Fax) Isikhahlamezi (031) 468 9654

Ngingaphansi kuka nksz Anna Voce ongumqeqeshi eMedical School.

Ungangithita uma ufuna eminye imininingwane ngalolucwaningo
kulezizinombolo ezilandelayo.

Inombolo yocingo (031) 260 44 93
Isikhahlamezi (fax) (031) 260 42 11
E Mail voceas@ukzn.ac.za

Lolucwaningo lwaphunyeleliswa abakwa Biomedical research ethics committee,
ngale reference number H021/06 Ungathita.

Ungathita nksz Suraiya Buccas noma ufuna ukubuza okunye ngalxenye
yalolucwaningo.

Ungamuthita kulezizinombolo ezilandelayo.

Ucingo : 031 260 47 69
Isikhahlamezi (fax): 031 260 4609
E Mail : buccas@ukzn.ac.za

Ukulekelela nokuzinikela kwakho kulolucwangingo lungamukeleka.

IMIBUZO NGENDLELA YOKUPHILA
Iminingingwane Kafishane

Uma ungafuni ukugwalisa imibuzo esigabeni esingezansi ungakhetha ukungayigwalisi!

Owesilisa		Owesifazane	
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Isimo Somshado:

Ushadile	Awushadile	Uhlukanisile	Umfelokazi
----------	------------	--------------	------------

Uwena wedwa osebenzayo?

Yebo	Qha
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Imali Isiyonke engenayo ekhaya

2000 – 3000	3000 – 5000	5000 – 7 000	7 000 – 9 000	9 000 – 11 000	11 000 – 13 000
-------------	-------------	--------------	---------------	----------------	-----------------

Izinga lemfundo ephezulu

Primary School	
Secondary School	
High School	
Diploma	
Degree	
Masters	
Doctorate	

Izinga lomsebenzi

Iziphathi Mandla	
Abasebenzi	
Odokotela	
Abahlengikazi	
Abama Ambulance	

Sicela Ugcwalise Lapha

Iminyaka	
Isisindo	
Ubude	

Ucabanga ukuthi:

Ungaphezulu Kwesisindo esifanele	
Uyisisindo esifanelekile	
Ungaphansi esifanele	

IMIBUZO EJWAYELEKILE NGOBUWENA.

Sicela Uphendule Ngokwethembeka. Ayikho impendulo ekungile noma engalungile!!

1. Kusho ukuthini ukuphila impilo engcono kuwena?

Sicela utshengise ngophawu.

a) Ukugcina isisindo esifaneleyo	
b) Ukuzenzela isikhathi sokuphumula	
c) Ukuhlala uzivocavoca.	
d) Nomqondo okhaliphile Yo	
e) Ukudla ukudla okunempilo kuphela	
f) Ukuba nesikhathi sokudlala ngokunjalo nokuhleka	
g) Ukudla ngaphandle, ukudla osekulungile njalo	
h) Ukugqoka izimpahla zakwa nokusho.	

2. Ukubhema:- Sicela Okuhambisana nawe.

a) Akuyikhinyabezi Indlela yempilo noma ngayiphi ufake uphawu indlela	
b) Isiza ukukulula umuntu ekukhathazekeni, nasengindezelweni	
c) Kuyakhinyabeza empilweni yomuntu	

3.Ketha okuhambisana nawe.

a) Zonke izinsuku	
b) Kanye ngesonto	
c) Kabili Ngesonto	

4. Kufanele umuntu adle (ketha ngezansi) okuvumelana nawe.

a) 3 Izikali zezithelo ngokunjalo nemifino njalo	
b) 5 Izikali zezithelo ngokunjalo nemifino ngesonto	
c) 3 Izikali zezithelo ngokunjalo nemifino ngesonto	
d) 5 Izikali zezithelo ngokunjalo nemifino nsukuzonke	

5. Ukuzivocavoca Kusiza Ekutheni:- Ketha okwakho

a) Ukwehlisa amafutha kanye nesifo senhliziyo	
b) Kuvumela ukuthi sidle kakhulu kodwa singazuzi isisindo	
c) Ukugcina isisindo esikahle somzimba	
d) Ukwenza umuntu abemkhulu futhi abe namamasela	
e) Kwehlisa ukuthumeleka komsoco emzimbeni	
f) Kusheshisa ukuguga kwethu	
g) kukhuthaza izimo zethu	

6. Ukuze sibe nempilo kumele nezithelo:

a) Ukudla ukudla okunemifino kuphela
b) Ukudla inyama ebomvu kathathu ngesonto
c) Ukudla into esiyithandayo ngokunjalo nokuzivocavoca
d) Sidle ukudla okunempilo ngokunjalo sizivocavoce

7. Yiziphi kwezilandelayo izifo/nezimo esicabanga ukuthi zingavikeleka: Sicela Ukhethe

a) Isifo sikashukela
b) Umdlavuza
c) Isifo senhliziyo
d) Isifo sokuwa
e) Isifuba somoya
f) Ukuvaleleka kwemithambo yegazi
g) Ukukhuluphala Ngokwedlulele.

8. Uyasazi isimo sokushaya kwenhliziyo yakho

Yebo		Qha	
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9. Uyalazi izinga likashukela egazini lakho:

Yebo		Qha	
------	--	-----	--

10. Kwakuyinini lapho wagcina ukuhlola isifo senhliziyo?

a) Ngenyanga edlule
b) Ezinyangeni ezintathu ezedlulile
c) Ngonyaka odlule
d) Angisakhumbuli Kwakuyinini

11. Izinga likashukela?

a) Inyanga Eyodwa Edlulile
b) Ezinyangeni Ezintathu ezidlulile
c) Unyaka owodwa odlulile
d) Angisakhumbuli Kwakuyinini

12. Ngokwesilinganiso, zingaki izingilazi zamanzi oziphuzayo ngosuku?

a) Engekho 0 – 3 Kwezintathu ngosuku
b) Ezintathu 3 – 4 Kwezine Ngosuku
c) Ezine 4 – 6 Kweziyisithupha Ngosuku
d) Eziyisithupha 6 – 8 Kweziyisishagalombili ngosuku
e) Eziyisishiyagalombili 8 – 10 kweziyishumi ngosuku
f) Eziyishumi 10 – 12 Kweziyishumi nambili ngosuku.

13. Akuve kusemqoka ukuziholela empilweni engcono eminya – keni yobusha bakho uqhubeke kuze kube ebudaleni bakho.

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko	
Angivumelani	
Angivumelani Nhlobo Nje	

14. Kumele siyijabulela impilo ngokwenza noma yini esithanda ukuyenza nangesikhathi esifuna ukuyenza ngaso – Ngokuba sonke sizokufo ngolunye usuku.

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko.	
Angivumelani	
Angivumelani Nhlobo Nje	

15. Ukuba Nempilo Kudinga Ukubasihole imali eningi, njengoba ukudla okunempilo kubiza kakhulu

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko.	
Angivumelani	
Angivumelani Nhlobo Nje	

16. Abantu abakhuluphele abantu abanempilo ngivumelana

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko	
Angivumelani	
Angivumelani Nhlobo Nje	

17. Izinkinga, nokucabanga, Kakhulu, nokukhathazeka angeke uzivikele.

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko	
Angivumelani	
Angivumelani Nhlobo Nje	

18. Ukukhuluphala, ukugciphisa nokugcina isisindo esejwayelekile.

Ngivumelana kakhulu	
Ngiyavuma	
Anginaso isiqiniseko	
Angivumelani	
Angivumelani Nhlobo Nje	

19. Umlando womndeni ucacisa ukuthi singayiphila impilo engcono noma cha.

Ngivumelana Kakhulu
Ngiyavuma
Anginaqiniso
Angivumelani
Angivumelani Nhlobo Nje

20. Uyazivocavoca kathathu kumbe kahlanu ngesonto.

	LESS THAN 3 TIMES A WEEK	3-5 TIMES PER WEEK	NOT AT ALL
Ngizivocavoca imizuzuz eyamashumi Amathathu nangaphezulu			
Ngizivocavoca nyaphansi kwemizuzu engamashumi amathathu			
Ngiyabhukuda			
Ngenza i yoga ne pilates			
Ngiyahamba			
Ngiyagijima			
Ngizilolonga ngamawezithelo			
Genza ezinye ezihlobo zokuzilolonga			

21. Angizivocavoci nhlobo.

Yebo		Qha	
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22. Udla isikalo esithathu 3-5 wezithelo nemifino zonke izinsuku.

Yebo		Qha	
------	--	-----	--

23. Udla ngaphansi kokuthathu 3-5 kokuhlanu wezikali zezithelo kumbe imifino nsukuzonke

Yebo		Qha	
------	--	-----	--

24. Uyazithatha izakhamzimba, namavithamini ukugcina impilo

Yebo		Qha	
------	--	-----	--

25. Uyazenzela isikhathi sokuphumula

Yebo		Qha	
------	--	-----	--

26. Chaza uhlelo lakho lokulaba.

Ngilala ngaphansi kwamahora ayisithupha ubusuku	
Ngilala chishe amahora ayisithulpha kuya kwayisishiyagalo mbili ubusuku.	
Ngilala amahora angaphezulu kwayisishiyagalombili ubusuku	

27. Kukhona yini okwenzayo njengemidlalo, umsebenzi wezandla, nezinto ozithandayo.

Yebo		Qha	
------	--	-----	--

28. Uyazilungiselela ozokudla ngosuku.

Yebo		Qha	
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29. Udla noma ikuphi ukudla uma ulambile

Yebo		Qha	
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30. Uyakudla ukudla okuthengwa sekulungile noma kuthosiwe ie kabili noma ngaphezulu ngesonto.

Yebo		Qha	
------	--	-----	--

31. Uyazizwa ukuthi awunaso isikhathi sokuphumula.

Yebo		Qha	
------	--	-----	--

32. Uyabhema

Yebo		Qha	
------	--	-----	--

33. Uyaluphuza uphuzo oludakayo zonke izinsuku.

Yebo		Qha	
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34. Uyaluphuza uphuzo oludakayo uma uzijabulisa.

Yebo		Qha	
------	--	-----	--

35. Uye uzicwaninge kodokotela okungenani kanye ngonyaka

Yebo		Qha	
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36. Ngizivocavoca emsebenzini uma kunendawo yokuzivocavoca.

Ngivumelana kakhulu
Ngiyavuma
Anginalo iqiniso angivumelani
Angivumelani nhlobo

37. Kufanele kube nezinhlelo zokudla okunomsoco okubekelwe abasebenzi:-

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

38. Kufanele kube nezinhlelo zempilo emsebenzini, ukusiza abasebenzi ngokuphila impilo engcono.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

39. Ngizimisele ukuKokha imali ukuqalisa ukuba nempilo.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

40. Ukuba esemsebenzini kunohlelo olubhekelela impilo.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

41. Ukuxhasana nokukhuthazana kubasebenzi kuyakhuthazano ekuba mbisaneni, nasekuhambeleni izinhlelo ezikhonamsebenzin.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

42. Kumele sifunde izindlela eziholela emphilweni engcono.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

43.. Akumele sithembele ezindaweni zasemsebenzi ukuzitholela izinhlelo zokuphila impilo engcono.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

44. Ukudla okukhona endlini yokudlela kunempilo

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

45. Kumele kukhuthazwe kumbe imiklomelo yabasebenzi abaphila impilo engcono.

Isizinda / Izinhlelo (Uma eyodwa ikhona)
Ngivumelana ngokunamandla
Ngiyavumelana
Anginaqiniso

46. Lemibuzo ayive ibalulekile njengoba ingenze ngacabanga ukwenza impilo engcono.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

47. Lemibuzo ayinalo usizo kumina nangayiphi indlela

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

48. Ngingathanda ukwazi ngemiphumela yalolucwaningo.

Ngivumelana Ngokunamandla
Ngiyavumelana
Anginaqiniso
Angivumelani
Angivumelani Nhlobo

IMICABANGO EMAYELANA NOKUPHILA OKUNGCONO KWABASENZI
BASESIBHEDLELA SASEWENTWORTH:

*uyacelwa ukuba utshengise kulokhu okulande layo ukuthi ikuphi ongathanda
 ulculcwenza uma kungathiwa kuyenzeka lapha esibhedle la.*

Izinhloblo zokuizilolonga kanye nemi yalezo maye lana nazo	Ukubamba iqhaza Kancane	Ukubamba Iqhaza	Uzimisele Ukubamba Iqhaza
Ukuzivocavoca			
Indawo yokuzivocavoca			
Ukubhukuda			
Indlela yokuphumula			
Enye indlela yokuzivocavoca			
Indlela yokuncipha			
Ukusiza enkuncipheseni amafutha			
Ukuba nabantu enizohamba nabo			
Ukuzijabulisa			
Ukufundiswa			
Ukubkekana nezinto ezikuphethe kabi			
Indlela zokudla			
Ukuhlela ezezimali			
Ukuzivocavoca			
Ukugula kanzima			
Isifo sikashukela			
Isifo sohlangothi			
Isifo senhliziyo			
Eminye Imibono			

HEALTHY LIFESTYLE QUESTIONNAIRE

DEMOGRAPHIC INFORMATION:

If you do not want to fill any question in the section below, you may choose not to!

Male

Female

Marital Status:

married		Single (never married)		divorced		widowed	
---------	--	--------------------------	--	----------	--	---------	--

Are you the sole income provider?

YES		NO	
-----	--	----	--

Total household income

2000-3000	3000-5000	5000-7000	7000-9000	9000-11000	11000-13000	>13000

Highest Educational Level

Primary school	
Secondary School	
High School	
Diploma	
Degree	
Masters	
Doctorate	

Category of Staff:

Administration	
General staff	
Medical	
Nursing	
Paramedical	

Please fill in your:

Age	
Weight	
Height	

Do you think you are?

Overweight	
Normal weight	
Underweight	

GENERAL QUESTIONS ABOUT YOURSELF

Please answer as honestly as possible – there is no right or wrong answer!!

1. What does healthy lifestyle mean to you? *Please tick your choice/s.* **Attitude**

To maintain a normal weight	
To make time to relax	
To do regular exercise	
To have a balanced body and mind	
To eat ONLY healthy food	
To have lots of fun and laughter	
To eat out /takeaways often	
To dress up in the latest style	

2. Smoking: *Please tick your choice/s.* **Knowledge**

Does not affect a person's lifestyle in any way	
Helps to relieve a person's stress and tension	
Is harmful to one's health.	

3. Fruit and vegetables must be eaten: *Please tick your choice.* **Knowledge**

Everyday	
Once a week	
Twice a week	

4. We should eat on an average: *Please tick your choice.* **Knowledge**

3 portions of fruit and vegetables daily	
5 portions of fruit and vegetables weekly	
3 portions of fruit and vegetables weekly	
5 portions of fruit and vegetables daily	

5. Exercising helps to: *Please tick your choice/s.* **Knowledge**

Reduce cholesterol and blood pressure	
Allow us to eat more and not gain weight	
Maintain a healthy body weight	
Make a person look bigger, muscular	
Lower ones metabolism	
Speed up our aging process	
Improve our mood	

6. To be healthy we must: *Please tick your choice/s.* **Knowledge**

Eat vegetarian food only	
Eat red meat 3 times a week only	
Eat anything we want and exercise	
Eat balanced meals and exercise	

7. Which of the following diseases/conditions do you think can be prevented?
Please tick your choice/s. **Knowledge**

Diabetes		Asthma	
Cancer		Blocked blood vessels	
High blood pressure		HIV / AIDS	
Epilepsy		Overweight	

8. Do you know what YOUR blood pressure value is? Practice

YES	
NO	

9. Do you know what YOUR glucose value is? Practice

YES	
NO	

10. When was the last time you checked your blood pressure reading? Practice

1 months ago	
3 months ago	
1 year ago	
Can't remember when last	

11. When was the last time you checked your blood glucose level? Practice

1 months ago	
3 months ago	
1 year ago	
Can't remember when last	

12. On an average, how many glasses of water do you drink each day? Practice

0 - 3 glasses per day	
3 - 4 glasses per day	
4 - 6 glasses per day	
6 - 8 glasses per day	
8 - 10 glasses per day	
10 - 12 glasses per day	

13. It is extremely important to lead a healthy lifestyle from a young age and continue through to old age. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

14. We should just enjoy life by doing whatever we want and whenever we want to - we are all going to die someday. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

15. To be healthy we need to earn more money, as it is costly to buy healthy foods. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

16. Fatter people are healthier people Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

17. Stress, problems and worries cannot be controlled. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

18. Gaining, losing and maintaining weight is entirely up to me. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

19. Family history determines whether we can lead a healthy lifestyle or not
Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

20. Which of the following relating to exercise is applicable to you? Practice

	Less than 3 times per week	3- 5 times per week	Not at all
I do cardiovascular training for 30 minutes or more. (aerobics, taebo, stepping, running)			
I do cardiovascular training for less than 30 minutes (aerobics, taebo, stepping, running)			
I do swimming.			
I do yoga or pilates.			
I do walking			
I do road running.			
I do weight training			
Any other forms of exercise (please state them)			

21. I do not do any exercise at all. Practice

YES	
NO	

22. Do you eat on average 3-5 portions of fruit and vegetables daily? Practice

YES	
NO	

23. Do you eat on an average less than 3-5 portions of fruit and vegetables daily?
Practice

YES	
NO	

24. Do you take supplements /vitamins to keep yourself healthy on a daily or weekly basis? Practice

YES	
NO	

25. Do you make time to relax and de-stress? Practice

YES	
NO	

26. Describe your sleep pattern. Practice

	YES	NO
I sleep on an average for less than 6 hours a night		
I sleep on an average 6 –8 hours a night		
I sleep on an average more than 8 hours a night		

27. Do you have recreational pursuits to help you relax like sport, craft and hobbies? Practice

YES	
NO	

28. Do you plan what you will eat for the day? Practice

YES	
NO	

29. Do you eat ANY food that you can find when you are hungry? Practice

YES	
NO	

30. Do you buy takeaway and fried foods regularly i.e more than twice a week? Practice

YES	
NO	

31. Do you feel that there is no time for you to relax? Practice

YES	
NO	

32. Do you smoke? Practice

YES	
NO	

33. Do you take alcohol daily? Practice

YES	
NO	

34. Do you take alcohol at parties only? Practice

YES	
NO	

35. Do you have a medical check-up at least once a year? Practice

YES	
NO	

36. I will do exercise if there is a gym facility at work. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

37. There should be healthier choices of meals available for the staff. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

38. There should be a health program at our workplace to help staff lead a healthy lifestyle. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

39. I am prepared to pay a small fee to start being healthy. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

40. Having a workplace health-monitoring program would NOT interest me Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

41. The support and motivation from colleagues will encourage us to use the facility / attend the program at work. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

42. We should /must learn methods to lead healthy lifestyles on our own. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

43. We should not rely on the work environment to provide us with a healthy lifestyle program. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

44. The present meals at the dining room are healthy. Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

45. There should be incentives / rewards for staff using the healthy lifestyle center/program. (IF ONE IS AVAILABLE) Attitude

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

46. This questionnaire is very helpful as it made me think about my lifestyle.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

47. This questionnaire is not helpful to me in any way.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

48. I would like to know the overall results and outcome of this research study.

STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	TOTALLY DISAGREE

**IDEAS FOR A HEALTHY LIFESTYLE PROGRAMME
FOR WENTWORTH HOSPITAL STAFF**

*Please indicate which one/s of the following you would be interested
in doing if they are offered at the hospital*

TYPE OF ACTIVITY	SLIGHTLY INTERESTED	INTERESTED	DEFINITELY INTEREST
Aerobics / Step class	1	2	3
Tai-bo	1	2	3
Gym facility - work	1	2	3
Swimming	1	2	3
Relaxation therapy	1	2	3
Yoga & meditation	1	2	3
Weight loss class	1	2	3
Toning class	1	2	3
Walking group	1	2	3
Social outings	1	2	3
Health talks:			
Stress management	1	2	3
Eating plans	1	2	3
Financial planning	1	2	3
Exercise benefits	1	2	3
Chronic conditions	1	2	3
Diabetes	1	2	3
Stroke	1	2	3
Heart attacks	1	2	3
Other Suggestions:			
a)			
b)			
c)			
d)			

Many thanks for your time in filling this questionnaire.

Knowledge index

```

RECODE
  @1a @1b @1c @1d @1e @1f @1g @1h @2a @2b @2c (SYSMIS=0) .
EXECUTE .
RECODE
  @5a @5b @5c @5d @5e @5f @5g @6a @6b @6c @6d @7a @7b @7c @7d @7e @7f @7g
  @7h (SYSMIS=0) .
EXECUTE .
RECODE
  @20a @20b @20c @20d @20e @20f @20g (SYSMIS=0) .
EXECUTE .
RECODE
  @20a @20b @20c @20d @20e @20f @20g (0=SYSMIS) .
EXECUTE .
RECODE
  @20a @20b @20c @20d @20e @20f @20g (SYSMIS=3) .
EXECUTE .
COMPUTE knowledgescore = 0 .
VARIABLE LABELS knowledgescore 'Knowledge score' .
EXECUTE .
IF (@2a = 0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@2c = 1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (q3= 1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (q4= 1 | q4 = 4) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5a = 1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5b = 0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5c = 1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5d =0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5e=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5f=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@5g=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@6a=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@6b=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@6c=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@6d=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7a=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7b=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7c=1) knowledgescore = knowledgescore + 1 .

```



```

EXECUTE .
IF (@7d=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7e=0) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7f=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7g=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
IF (@7h=1) knowledgescore = knowledgescore + 1 .
EXECUTE .
SORT CASES BY
  knowledgescore (A) .
COMPUTE knowledgescore = knowledgescore/23*100 .

```

Attitude index

```

RECODE
  q13 q18 q36 q37 q38 q39 q41 q42 q43 q45
  (5=1) (4=2) (3=3) (2=4) (1=5) INTO q13r q18r q36r q37r q38r q39r q41r q42r q43r q45r
.

```

```

EXECUTE .
COMPUTE attscore = 0 .
VARIABLE LABELS attscore 'Attitude score' .
EXECUTE .
IF (@1a = 1) attscore = attscore + 1 .
EXECUTE .
IF (@1b = 1) attscore = attscore + 1 .
EXECUTE .
IF (@1c = 1) attscore = attscore + 1 .
EXECUTE .
IF (@1d = 1) attscore = attscore + 1 .
EXECUTE .
IF (@1f = 1) attscore = attscore + 1 .
EXECUTE .
COMPUTE attscore =
  SUM(attscore,q13r,q14,q15,q16,q17,q18r,q19,q36r,q37r,q38r,q39r,q40,q41r,q42r,q43r,q45r) .
EXECUTE .
COMPUTE attscore = attscore/85*100 .
EXECUTE .

```

Practice index

```

COMPUTE practicescore = 0 .
EXECUTE .
IF (q8 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q9 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q10 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q10 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q11 = 1 | q11 = 2) practicescore = practicescore+1 .
EXECUTE .

```

```
IF (q12 = 3 | q12 = 4) practicescore = practicescore+1 .
EXECUTE .
IF (q12 = 5 | q12 = 6) practicescore = practicescore+2 .
EXECUTE .
IF (@20a ~= 3) practicescore = practicescore+@20a .
EXECUTE .
IF (@20b ~= 3) practicescore = practicescore+@20b .
EXECUTE .
IF (@20c ~= 3) practicescore = practicescore+@20c .
EXECUTE .
IF (@20d ~= 3) practicescore = practicescore+@20d .
EXECUTE .
IF (@20e ~= 3) practicescore = practicescore+@20e .
EXECUTE .
IF (@20f ~= 3) practicescore = practicescore+@20f .
EXECUTE .
IF (@20g ~= 3) practicescore = practicescore+@20g .
EXECUTE .
IF (q21 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q22 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q23 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q24 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q25 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q26 = 2 | q26 = 3) practicescore = practicescore+1 .
EXECUTE .
IF (q27 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q28 = 1) practicescore = practicescore+1 .
EXECUTE .
IF (q29 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q30 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q31 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q32 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q33 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q34 = 2) practicescore = practicescore+1 .
EXECUTE .
IF (q35 = 1) practicescore = practicescore+1 .
EXECUTE .
COMPUTE practicescore = practicescore/35*100 .
EXECUTE .
```



**PROVINCE OF KWAZULU NATAL
DEPARTMENT OF HEALTH
WENTWORTH HOSPITAL**

APPENDIX I.

Private Bag, Jacobs 4026
Tel: 031 460 5361 Fax: 031 468 9654

Enquiries: Dr. J. Ramdeen Imibuzo: Navrae:	Date: 12 th September 2005 Usuku: Datum:	Reference: Inkomba: Verwysing:
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**MRS. S. REDDY
C/O OCCUPATIONAL THERAPY
WENTWORTH HOSPITAL**

Dear Mrs. Reddy,

RE: RESEARCH – MASTERS IN PUBLIC HEALTH.

Your letter of request dated 2005.09.12th refers.

Please be advised that Management has approved your request for the abovementioned matter.

Yours faithfully

**DR. J. RAMDEEN
MEDICAL MANAGER
WENTWORTH HOSPITAL**

Umyango Wezempilo

Department of Health



**AIDS HELPLINE
☎ 0800-012-322**