WORKPLACE HEALTH PROMOTION: A CASE OF RHODES UNIVERSITY SUPPORT STAFF

A thesis submitted to **RHODES UNIVERSITY** in fulfilment of the requirements

for the degree of

MASTER OF PHARMACY

By

TINATSEI GABRIELLA CHIGUMETE

February 2017

Faculty of Pharmacy

Rhodes University

Grahamstown

South Africa

Abstract

Background:

Non-communicable diseases are rapidly advancing as leading causes of morbidity and mortality across social classes, exerting pressure on existing financial, organizational, and human resources. Health promotion is a common practice in the prevention of non-communicable diseases, but workplace health promotion has not yet been well established in many workplaces. Identification of past workplace initiatives and exploring their facilitating and limiting factors is thus important to take into consideration when planning future initiatives. Well-informed and guided workplace health promotion initiatives are essential to improve the general health of staff, and these also need to take the broader cultural, socio-economic, and environmental factors influencing non-communicable diseases in the target population into account. This two-phase study was conducted at Rhodes University. A needs assessment was conducted to identify current policies and practices of workplace health promotion and to identify any shortcomings of the initiatives that have previously been attempted to raise awareness of non-communicable diseases at Rhodes University. The second phase of this project aimed to address concerns raised in the first phase through a health promotion initiative for support staff that focuses on the prevention of non-communicable diseases through heart healthy diets and physical activity.

Method:

The first phase of the current study involved working with the support staff and key stakeholders. Using the participatory action research approach and the PRECEDE-PROCEED model to guide the research, 11 semi-structured interviews with key stakeholders and 10 focus group discussions were conducted with support staff members to identify factors affecting workplace health promotion. Participant opinions on how to improve these initiatives were sought. The participants were asked to identify areas on which the intended intervention should focus, as well as to identify their preferred means of communicating health messages. During this phase, a group of support staff members who volunteered their involvement in the design and delivery of the educational intervention was also identified. They chose to go by the name, the Health Awareness Group.

In an interim phase of the study, three health information leaflets informed by the results from the above activities were designed. These leaflets underwent a series of qualitative evaluations by other health professionals, a culture and African languages expert, and the Health Awareness Group, to assess content validity, context specificity, and cultural appropriateness for the target group. A series of quantitative tests for readability, suitability, and actionability was also conducted. The health information leaflets were then used as written materials in the educational intervention of the project.

Members of the Health Awareness Group were also trained as peer educators through a series of workshops. This enabled them to promote and raise awareness of heart healthy diets and physical activity to others in the workplace. Workshops were participatory in nature and were guided by the Social Cognitive Theory. They were also equipped with the completed health information leaflets to distribute to their peers and to use as reference sources of information when needed.

Results:

Participants in the semi-structured interviews reported that some health promotion initiatives have previously been attempted and advertised to support staff, but the turnout was poor and most staff did not seem to understand the health benefits of these initiatives. The support staff, in turn, stated that most health talks were conducted in English, contained medical jargon, and that they would have preferred these initiatives either to be simplified or presented in their home language, and to display cultural sensitivity.

Support staff have also reported that advertisements were too cliché to elicit their interest. They also suggested incentivising initiatives for better participation. Another key suggestion was to facilitate these initiatives in the university departments they work or other convenient venues, rather than at central venues. It was also suggested that these initiatives be part of the work calendar, as they are often 'impromptu' and, as a result, staff members did not have enough notice to take time off work. Several staff members requested 're-runs of these initiatives because one-time show cases are often inadequate'. Colourful visual representations on posters or leaflets, short plays or films were also proposed as modes of delivering health information.

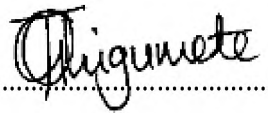
During the design of the material to be used for this project's intended intervention, the health information leaflets were deemed readable, suitable, actionable, context-specific, and culturally appropriate. Workshops conducted during Phase 2 of the study proved to be valuable in training peer educators. Members of the Health Awareness Group also deemed the workshops useful, and reported their readiness to be agents of change in the workplace.

Conclusions:

Based on the input of key stakeholders and support staff, health promotion policies and protocols for non-communicable diseases have not yet been developed. Health promotion initiatives, especially for support staff, that address non-communicable diseases have previously been attempted at the university but were not well-received. Factors affecting workplace health promotion were identified. Knowledge of these factors was useful in designing and tailoring the written educational materials and the educational intervention to the needs of the support staff and to redress the deficiencies of previous initiatives. The health leaflets were deemed appropriate for use by the target population. They addressed pertinent information needs. The health information leaflets and workshops were useful in equipping the Health Awareness Group with knowledge on heart healthy diets and promotion of physical activity. Continued the involvement of representatives from the Human Resources and Wellness offices will assist in ensuring the sustainability of this workplace health initiative.

Declaration

I declare that this thesis, titled **"Workplace health promotion: a case of Rhodes University support staff"**, is my own work and that it has not been submitted for any degree or examination at any other university. All sources of information that I have used or quoted from have been indicated and acknowledged in a complete reference section.

Signature: 

Date: 16/02/2017

Acknowledgements

I am ever grateful to God the Creator and Guardian for being my strength and guide in the writing of this thesis. I owe an enormous debt to a range of people who in far-reaching ways contributed to this study. Their contributions, both direct and indirect, proved enormously valuable.

My appreciation and sincere thanks go to my principal supervisor Professor Sunitha Srinivas and co-supervisor Dr. Nick Townsend, both of whom have been central to this study. Their constructive criticism, advice, patience, and encouragement shaped this thesis in significant ways. Special thanks to Professor Srinivas, who wrote the first proposal that made this study possible, and took on the laborious task of guiding me through every step of the research process.

I am also thankful for the financial support offered by the Rhodes University Research Office through the Research Development Grant awarded to Prof. Srinivas by the Deputy Vice Chancellor- Research. Mr John Gillam and his colleagues from the Rhodes University Post-Graduate Funding Office for the timely processing of these funds.

I acknowledge my appreciation to Mr Thandi Mzizi, Mr Schalk van der Merwe and Sr. Heather Ferreira who were always supportive. I am infinitely grateful to them, as they generously passed on archival material that proved extremely valuable in filling the gaps and clarifying a range of issues related to this study. A particular word of gratitude also goes to Sean James Bosman who methodically and meticulously proofread the entire thesis.

I am grateful to all participants in this research, without whom it would not have been possible.

I would like to express my sincere gratitude the Health Awareness Group, who willingly volunteered and saw the first year of this project through. May you continue guided in the work that we have started. The legacy lives on.

I'm especially indebted to colleagues and friends, who on various occasions were willing to proofread sections of this thesis. I gratefully thank my friends Chipiwa, Farisai, Mellisa, and Shingirai, the sisters I never had, for their support, advice, and humour over the period of my Master's studies. I have been extremely privileged to benefit from these ladies who, at different times and sometimes without even knowing it, provided invaluable input into this study.

A special note of appreciation goes to Fadzai Mushoriwa. Thank you for your selflessness, for sharing your learning experiences with me, and for letting me share mine with you. Most of all, thank you for helping me stay sane! You helped me through some difficult times.

I would like to acknowledge my special friends Reginald Tsvetu, Rumbie Muzondidya, and Kudzai Mtambanengwe. Thank you for all the support over the years - not only as I pursued my educational goals, but all my ambitions. You have proven true to form, and from the very beginning, you were both summer and winter weather friends.

To my brother and best friend, Takavada Chigumete, who continuously prompted and enquired into my progress, and for his unending interest in my life pursuit. You have always believed in me without a doubt, emboldened me, and your lack of self-pity has been my source of inspiration.

Lastly, I am profoundly indebted to my loving parents, Otilia and Rhodrick Chigumete, who over the years were at all times selfless and untiring in their encouragement and unwavering in their support. In all that I have done, their prayers and unconditional love are the keys to all my achievements, and for that I am forever thankful. This accomplishment would not have been possible without them. Special thanks to both of them, who readily took on the arduous task of reading through and formatting this thesis, ensuring the presentation was up to standard.

Dedication

This thesis is dedicated to my beloved parents, Rhodrick and Otilia Chigumete, and my brother, Takavada Chigumete, who have always loved me unconditionally and whose good examples have taught me to work hard for the things that I aspire to achieve.

Concise table of contents

Detailed table of contents

Research outputs

PUBLISHED ARTICLES

Chigumete TG, Rath S, Bosman SJ, Srinivas SC. **Healthy diets and sustainable development goals**. (2016). *Indian Journal of Pharmacy Practice* 9(2), 102-105 Special Edition. doi:10.5530/ijopp.9.2.7.

Rath, S., Tariq, M., Mushoriwa, F., **Chigumete, T.**, Morobi, T., & Srinivas, S. (2015). **Economics of Non-Communicable Diseases: Case Study of South Africa and India**. *Indian Journal of Pharmacy Practice*, *8*(3), 90–97. http://doi.org/10.5530/ijopp.8.3.2

Rath, S., Morobi, T., **Chigumete, T.**, Mushoriwa, F., & Srinivas, S. (2015). **Diet, obesity and non-communicable diseases in South Africa and India**. *World Journal of Pharmacy and Pharmaceutical Sciences*, *5*(2), 554–563.

MANUSCRIPT IN REVIEW

Chigumete TG, Townsend N, Srinivas SC. **Facilitating and limiting factors of workplace health promotion at Rhodes University, South Africa.** (2016). Submitted to *Work: A Journal of Prevention, Assessment, and Rehabilitation*. (Reviewed, now in communication, March 2017).

CONFERENCE PRESENTATIONS

Chigumete TG, Srinivas SC. **Development and pilot testing of the 'Fats and your heart' health information leaflet**. *MEC Healthcare Summit and Excellence Awards*, East London International Convention Centre, East London, South Africa. 12- 13 May 2016.

Chigumete TG, Srinivas SC. **Workplace health promotion: Exploring past health promotion initiatives at Rhodes University**. *2nd Rhodes University Community Engaged Learning Symposium*, Rhodes University, Grahamstown South Africa. 3- 5 May 2016.

Chigumete TG, Srinivas SC. **Workplace health promotion: Policies and practices at Rhodes University**. *Faculty of Pharmacy 16th Annual Research Symposium*, Rhodes University, Grahamstown, South Africa. 24 November 2015.

Chigumete TG, Srinivas SC. **Workplace Health Promotion: Policies and practices at Rhodes University**. *36th Conference of the Academy of Pharmaceutical Sciences of South Africa*

(APSSA), CedarWoods of Sandton Conference Centre, Woodmead, Johannesburg, South Africa. 17-19 September 2015.

COMMUNITY ENGAGEMENT PRESENTATION

Chigumete TG, Srinivas SC. **Healthy Living- How a mother can keep her family healthy**. St Mary's DCC Women's Month brunch, St Mary's DCC, Grahamstown, South Africa. 29 August 2015.

AWARD

Chigumete TG, Mushoriwa F. Joint runners-up for the **Student Researcher of the Year award**. *Community Engagement Awards Evening*, Grahamstown, South Africa. October 2015.

List of tables

List of figures

List of abbreviations

ARI	Automated Readability Index
CDC	Centers for Disease Control and Prevention
CLI	Coleman-Liau Index
FGD	Focus Group Discussion
FKGLS	Flesch-Kincaid Grade Level Score
FRES	Flesch Reading Ease Score
HCC	Health Care Centre
HIV/AIDS	Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome
HP	Health Promotion
HPU	Health Promoting University
MDG	Millennium Development Goal
MRC	Medical Research Council
NCD	Non-Communicable Disease
NDoH	National Department of Health
NGO	Non-Governmental Organisation
PEMAT	Patient Education Material Assessment Tool
RU	Rhodes University
SAM	Suitability Assessment of Materials
SCT	Social Cognitive Theory
SDG	Sustainable Development Goal
SMOG	Simplified Measure of Gobbledygook
SSI	Semi-Structured Interview
UN	United Nations
UNDP	United Nations Development Program
USA	United States of America
WHO	World Health Organisation
WHP	Workplace Health Promotion

Glossary of terms

Context specificity	tailoring of materials or a program to suit a particular setting.
Culture sensitivity/ appropriateness	tailoring of materials or a program such that it is suitable, acceptable, sensitive and respectful towards the culture of the people to whom it will be delivered.
Health Awareness Group	a group of support staff who volunteered to be the project pioneers to be trained as peer educators.
Health Care Centre (HCC)	A facility located at the Rhodes University campus staffed by a group of nurses and a sessional doctor available on weekday mornings. It serves to provide health care services to all students and staff at the university. Some of the medical services provided include but are not limited to treatment of minor ailments, e.g. flu and tonsillitis, long term treatment of chronic illnesses, e.g. hypertension and diabetes, HIV testing, counselling and initiation of treatment and screening tests, e.g. blood pressure and cholesterol. The HCC also offers information services such as health education on a range of health topics, awareness campaigns e.g. breast cancer and substance abuse, and free literature on health issues.
Key stakeholder	non-academic Rhodes University staff who work as managers of the support staff.
Rhodes University	a tertiary education institution located in the Eastern Cape province of South Africa.
Support staff	non-academic Rhodes University staff who work across the university campus in various departments such as catering, gardening, cleaning, and laundry services.
Workplace health promotion	the combined efforts of employers, employees, and society to improve the health and well-being of people at work. This can

be achieved through a combination of: improving the work organisation and the working environment, promoting active participation, and encouraging personal development (WHO, 2015f).

1. CHAPTER 1: INTRODUCTION

1.1 Background and Problem Statement

One of the facts of non-communicable diseases (NCDs) highlighted by the World Health Organisation (WHO) is that they account for 63% of all deaths worldwide: that is, 36 million of the 57 million global deaths per year (WHO, 2013a). NCDs are rapidly advancing as the leading cause of morbidity and mortality across social classes in developing countries. While the burden of NCDs is evident in both rural and urban areas, it is distinctly affecting the predominantly poor areas and is exerting pressure on existing financial, organizational, and human resources (Abegunde, Mathers, Adam, Ortegon, & Strong, 2007). In 2014, 80% of NCD deaths (28 million) occurred in low and middle-income countries (WHO, 2014c). There is therefore a dire need to address this with multi-levelled interventions, including policy and community-centred educational reforms.

The epidemic increase of NCDs such as hypertension, diabetes, cancers, and chronic respiratory diseases has resulted in a multitude of complications, including increased health issues resulting in greater financial burdens on individuals, families, and organizations. NCDs have adversely affected individuals, workplaces, and communities globally, as more than 9 million of the annual NCD related deaths occur before the age of 60; which is the most economically productive age (WHO, 2013a). NCDs are not only a health challenge, they are also a developmental challenge, as they force many people into poverty as a result of catastrophic expenditures on treatment, compounded by a loss of productivity (WHO, 2013a). Living and working environments play a critical role in contributing towards this epidemic of NCDs, therefore health promotion centred on a particular population group is recommended as a coordinated multi-sector community effort to bring about a reformed way of life, which makes it easier for members of this community to adopt and maintain healthy living (Paton, Sengupta, & Hassan, 2005).

People, from advice and health campaigns, may know that they should eat and live healthily, eliminate alcohol and tobacco from their daily lives, as well as participate in physical activity, but their jobs may require long hours of sedentary positions. Fresh and healthy foods may be expensive, whilst inexpensive fast food meals are readily available and promoted more by advertisements. The media not only promotes unhealthy habits like excessive drinking and

smoking, but also markets gadgets, such as cell phones and computers, that further discourage physical activity (Woolf, Dekker, Byrne, & Miller, 2011). Behaviours associated with health are based on choice, and these choices are shaped by the opportunities and constraints that people are exposed to in the environments where they live and work. Without changing the conditions to which people are exposed, their environments become the largest obstacle to progress (Wagemakers, Vaandrager, Koelen, Saan, & Leeuwis, 2010).

NCDs are triggered by modifiable risk factors, and this rising epidemic may be prevented through a reduction of the underlying risk factors, early detection, and timely treatments (Department of Health South Africa, 2013b). It is a common misconception that NCDs are not preventable, when in fact they are largely preventable by interventions that effectively tackle risk factors such as tobacco use, the harmful use of alcohol, unhealthy diets, and physical inactivity (WHO, 2013a). According to the WHO fact file, eliminating major risk factors for NCDs will reduce disease burdens significantly, as almost three-quarters of cardiovascular disease, stroke, and type-2 diabetes would be prevented; and at least 40% of cancers would be prevented (WHO, 2013a).

The WHO has also identified universities as key players in research-oriented initiatives involving NCDs. It has therefore become a priority for universities to focus research activities on person-centred primary health care systems, by allocating resources to plan and implement health promotion interventions that focus on prevention of NCDs and the promotion of self-care (WHO, 1995a).

1.2 Rationale of research

Despite South Africa being a middle income country, it faces multiple health and social challenges, including the quadruple burden of disease: HIV/AIDS epidemic alongside a high burden of TB; high maternal mortality, child mortality, and other communicable diseases; high levels of violence and injuries; and a growing burden of NCDs (Bradshaw et al., 2003). This therefore requires that cost-effective strategies to strengthen health systems be adopted. NCDs have been neglected in developing countries partly due to a more urgent focus on infectious diseases (Beaglehole, Bonita, Horton, et al., 2011). An emphasis on health promotion initiatives with the specific aim of improving NCD control, such as those which concentrate on health promotion in homes and in the workplace, therefore needs to be

addressed (De Jager, Hofman, Khan, Volmink, & Jina, 2012). Considering the prevalence of NCDs in South Africa and the high failure rates of health promotion attempts at most workplaces, this study may provide insight into the manner in which to improve health promotion materials in order to generate participant interest and to increase the participation of employees. The information materials and activities developed in response to contributions from the support staff and key stakeholders at Rhodes University, may increase knowledge on how to improve workplace health promotion initiatives and could inform future research on ways to design appropriate intervention materials.

1.3 Field of study

Pharmacists have great potential to prevent and reduce the prevalence of NCDs by promoting health within the communities in which they serve (Crawford, 2005). It is a common misconception that the role of a pharmacist is only to dispense medications, however they also serve as educators and agents of health promotion (Higgins & Field, 2012; Thamby & Subramani, 2014; WHO, 1997b). It is indisputable that prevention of disease is more affordable than treatment and also has the potential to reduce drug related side effects and adverse events (Adams, 2015; WHO, 2011). It is also through health promotion activities that the health focus shifts from treatment to prevention of diseases, particularly in the case of NCDs, where lifestyle risk factors can be prevented (Awad & Abahussain, 2010). The role of pharmacists in preventing and controlling NCDs is not limited to the provision of appropriate medications, but should also include identifying those factors contributing to NCDs in the context of social and behavioural settings. This study therefore falls under the field of research of health promotion in Pharmacy Practice.

1.4 Study aim and objectives

Phase 1 of the study aims to identify and document previous and current workplace health promotion policies, practices, and interventions at Rhodes University, together with their facilitating and limiting factors. This phase also aims to identify key focus areas for the intervention to follow. In the second phase of the study, this research project aims to initiate a participatory, collaborative, culturally sensitive, and context specific health promotion initiative at Rhodes University for the support staff, by following a social learning approach and a participatory action research approach.

1.4.1 Objectives for Phase 1

- To identify and document previous and current policies, protocols, events, and promotions with regards to health promotion for support staff, based on documents supplied by the Human Resources Department.
- To document the current personal, social, and environmental factors at the workplace that may influence the incidence of NCDs.
- To understand and evaluate the support staff's current beliefs, cultural practices, peer pressures, and other information or misinformation that may influence the lifestyle risk factors that contribute to NCDs.
- To investigate the facilitating factors that contributed to the success of previous workplace health promotion initiatives at RU.
- To investigate the limiting factors that contributed to the failure of previous workplace health promotion initiatives at RU.
- To identify the improvements that the support staff wish to be incorporated in future initiatives.
- To work collaboratively with consenting support staff, health champions and Wellness Program leaders at Rhodes University, to address the current workplace health promotion as they see it and to identify one modifiable risk factor triggering NCDs, that forms the educational intervention in Phase 2 of this study.

1.4.2 Objectives for Phase 2

- To work collaboratively with a group of consenting support staff to initiate a health promotion initiative guided by feedback from the support staff on suggestions and improvements that they wish to see in the future.
- To facilitate a series of participatory focus group discussions with the Health Awareness group on healthy living, to gather context-specific and culturally appropriate examples for inclusion in the health information leaflets.
- To design and evaluate the health information leaflets.

1.5 Research questions

The following research questions, established from the aim and objectives, will guide this project:

- What are the previous and current policies and practices in place at Rhodes University to promote a healthy workplace, especially with regards to NCDs and their risk factors?
- What factors influenced the success and/or failure of past health promotion interventions?
- What are support staff members' current beliefs, cultural practices, peer pressures, and other information/misinformation that may influence NCDs and their risk factors?
- What possible interventions could be devised as part of a policy guiding workplace health promotion at Rhodes University?

1.6 Overview of chapters

Chapter 2 is a literature review that begins with a description of the burden of non-communicable diseases and describes strategies that have been implemented in an attempt to reduce the prevalence of these diseases both globally and in South Africa. The concept of workplace health promotion is then introduced, with literature on its development and context in health promotion, and its benefits to both the employees and the organisation. Health literacy and its impact on the target population is presented. The chapter ends with a focus on health information materials for low-literate populations, as well as the design and use of information leaflets.

Chapter 3 describes the study setting and the methodology used. It provides details of ethical considerations, the study population, the theoretical framework employed, and data collection and analysis. The use of focus group discussions, semi-structured interviews, and workshops as the main research tools is also described.

Chapter 4 describes the design and evaluation of the health information leaflets designed and used in Phase 2 of the study. A detailed account of the techniques used and the role-players is also provided.

Chapter 5 reports on both the qualitative and quantitative results associated with the two phases of the study, starting with support staff and managers' perceptions of workplace health promotion and the factors that contributed to the success and failure of previous health promotion initiatives. The results of the tests performed on the health information leaflets are presented, and the chapter ends with support staff members' perceptions of the usefulness of the leaflets and booklet.

Chapter 6 discusses the findings of the study and contextualizes them within the literature. Lastly, the limitations of the study are described.

Chapter 7 concludes this thesis by reflecting on the aims and objectives of the study in relation to its findings, explores practical application of the findings, and provides recommendations for future research.

2. CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to introduce the topic of non-communicable diseases and the resultant cost of morbidity, as well as to describe the global and national efforts to curb their burden. The relevant literature pertaining to the importance of health promotion, particularly workplace health promotion (WHP), is also discussed.

This literature review was conducted through an initial review of health promotion and WHP literature available on the World Health Organisation, the Centers for Disease Control and Prevention, the Medical Research Council and the South African National Department of Health websites. From these websites, journals such as *The Lancet*, from which the available information was obtained were gathered. Thereafter, the snowball method was used to build up other references over the study period.

2.2 Non-communicable diseases

Non-communicable diseases (NCDs) are non-infectious diseases of long duration and generally slow progression. The four main types of NCDs are cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes (WHO, 2015b). These diseases are driven by forces that include ageing, rapid unplanned urbanization, and the globalization of unhealthy lifestyles. Although some factors that influence NCDs, such as genetics, are unavoidable, these diseases are largely preventable through lifestyle modifications (Lombard, 2013).

NCDs are triggered by four major modifiable risk factors: unhealthy diets (consumption of foods high in salt, fat and sugar); physical inactivity; tobacco use; and excessive alcohol consumption (WHO, 2015b). NCDs are rapidly advancing as the leading cause of morbidity and mortality across social classes, especially in developing countries. They are distinctly affecting predominantly poor areas and are exerting pressure on existing financial, organizational, and human resources (Gaziano & Pagidipati, 2013). Based on current trends, the World Health Organization (WHO) predicts that these diseases will be accountable for 73% of deaths and 60% of the disease burden by the year 2020 (Beaglehole et al., 2011).

There are four main types of NCDs: cardiovascular diseases (CVDs) (such as heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes (WHO, 2015b). CVDs are currently the number one cause of death

globally: there are more CVD-related deaths than from any other cause. Out of the 16 million deaths under the age of 70 due to NCDs, 37% are due to CVDs (WHO, 2016). According to the *Global report on diabetes*, the global prevalence of diabetes among adults over has risen from 4.7% in 1980 to 8.5% in 2014 (WHO, 2015a).

2.2.1 Non-communicable diseases in South Africa

South Africa is currently suffering from a quadruple burden of diseases: HIV/AIDS epidemic alongside a high burden of TB; high maternal mortality, child mortality and other communicable diseases; high levels of violence and injuries; and a growing burden of NCDs (Bradshaw et al., 2003). This has resulted in increased poverty, increased financial burdens, and stifled developmental goals, including the Millennium Development Goals (MDGs) - a set of development targets agreed on by the international community, which aims to improve the welfare of developing countries by addressing health-oriented and social determinants of health-oriented goals and targets by 2015 (International Monetary Fund, 2015). Despite South Africa's middle-income status, it has poor health outcomes when compared to other middle-income countries with similar health spending as a percentage of GDP, such as Brazil (Office of the Presidency of the Republic of South Africa, 2015; Statistics South Africa, 2014).

NCDs impose a large and continuously growing burden on the health, economy, and development of South Africa, and currently accounts for an astounding 44% of all recorded deaths (WHO, 2014e). Despite South Africa being a middle income country, multiple challenges, including the quadruple burden of disease, require that cost-effective strategies to strengthen health systems be adopted. NCDs have been neglected in developing countries, partly due to a more urgent focus on infectious diseases (Robert Beaglehole, Bonita, Horton, et al., 2011; Hofman, 2014); therefore an emphasis on health promotion initiatives with the specific aim of improving NCD control needs to be addressed, such as those which concentrate on health promotion in homes and in the workplace (De Jager et al., 2012).

2.2.2 Cost of morbidity

As economies grow and mature, demand for skilled manpower rises. Additional workforce is required globally to sustain economic growth. However, it is forecasted that there will be an emergence of significant global talent gaps, as workplaces are being adversely affected by NCDs. The epidemic of NCDs is increasingly significant to morbidity and mortality rates (Bloom et al., 2011). Globally, the lost output resulting from only five NCDs over the period between

2011 and 2030 is predicted to be nearly US$ 47 trillion, accounting for around 4% of the annual global GDP (Bloom et al., 2011). An estimated US$ 2 trillion is lost annually due to absenteeism and to underperformance, related to the four major risk factors (Martinez, Matheson, Martin, & Silverstein, 2010). A Harvard-led meta-analysis reported that the average return-on-investment for every dollar invested in workplace wellness programs may result in a US$ 3.27 savings (Baicker, Cutler, & Song, 2010). Several studies show the positive health and financial results yielded from promoting health at work. Workplace wellness programs may therefore become value-generating investments that reduce health costs and improve productivity at the workplace (Naydeck, Pearson, Ozminkowski, Day, & Goetzel, 2008).

2.2.3 Prevention and control of non-communicable diseases

An important way to reduce NCDs is to introduce and initiate goal-focused programs and action plans to lessen the risk factors associated with these diseases. Preventing and postponing NCDs is appreciably more effective and considerably less costly than treating those who fall ill (Cecchini et al., 2010). One such action plan is WHO's Global Action Plan for Prevention and Control of NCDs, which aims to achieve a 25% decrease in premature mortality (under the age of 60) due to NCDs and their risk factors by 2025 (WHO, 2013b). In line with this plan, South Africa aims to reduce its relative premature mortality rate by 25% by 2020 (Department of Health South Africa, 2013b). Another such initiative is the Sustainable Development Goals (SDGs), which also attempt to lower the incidence of NCDs (UNDP, 2015).

2.2.3.1 WHO Global NCD Action Plan (2013-2020) and South Africa's NCD Declaration

The global burden of NCDs has to be reduced for sustainable development to progress. WHO, together with the General Assembly, has therefore found it necessary to establish policies and plans of action to tackle the control and prevention of NCDs (United Nations, 2011). In 2013, to speed up national efforts to address NCDs, the World Health Assembly adopted a comprehensive global monitoring framework, the Global Action Plan for Prevention and Control of NCDS, with 25 indicators and nine voluntary global targets to be achieved by 2025. The objective of this action plan is to reduce the preventable and avoidable burden of morbidity, mortality, and disability due to NCDs, by means of multi-sectoral collaboration and cooperation at local, national, regional, and global levels (WHO, 2013c).

Table 2-1 below shows the targets set by WHO and those set by South Africa, as well as the action plans to be implemented or reinforced to achieve the set targets.

Table 2-1: Targets and action plans set by WHO and South Africa for addressing risk factors triggering NCDs

Risk factor	WHO target	South Africa's target
	Reduce premature mortality for NCDs by 25%	Reduce premature mortality (under 60 years of age) from NCDs by at least 25% (SA NCD Declaration, 2011).
Harmful use of alcohol	Reduce prevalence by 10%	Reduce the per capita consumption of alcohol by 20% by 2020 by means of: • Setting the national legal minimum age for sales of alcoholic drinks at 18 years • Raising excise taxes on alcoholic products • Reducing allowable blood alcohol concentration when driving a vehicle to 0.05% • Restricting on-/off-premise sale times of alcoholic beverages • Imposing greater controls on alcohol packaging (WHO, 2014a, 2014b).
Physical inactivity	Reduce prevalence by 10%	Increase the prevalence of physical activity (defined by WHO as 150 minutes of moderate-intensity physical activity per week, or equivalent) by 10% (SA NCD Declaration, 2011; WHO, 2010).
Tobacco use	Reduce prevalence by 30%	Reduce prevalence by 20% by 2020 by means of: • Banning tobacco advertising and sale to minors • Banning smoking in public areas except in designated smoking areas • Promoting smoke-free workplaces • Raising taxes on tobacco products • More extensive health warnings against tobacco use at points of sale (SA NCD Declaration, 2011; WHO, 2013b).
Unhealthy diet	Halt the rise in diabetes and obesity. Reduce mean population salt intake by 30%	Reduce percentage of obese or overweight people by 10% and reduction of the mean population salt intake to <5 g/day by 2020 by means of: • Improving the current food-based guidelines • Regulating the amount of salt in processed foods (SA NCD Declaration, 2011).

2.2.3.2 Sustainable development goals

The 2030 Agenda for Sustainable Development was adopted by world leaders in September of 2015, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030 (WHO, 2015e). The 2030 targets were set by extending the 25 by 25 targets of the above mentioned Global Action Plan for Prevention and Control of NCDs (WHO, 2013c). The SDGs also build on the successes of the Millennium Development Goals (MDGs) and aim to go further. The MDGs focused primarily on the reduction of poverty, hunger, and infectious diseases, but the SDGs, among other health targets, aim to reduce premature deaths from NCDs by one third by 2030 in SDG 3.4 (UNDP, 2015). The indicator governing SDG 3.4 in particular is: to reduce mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease (United Nations, 2016).

NCDs are also indirectly related to SDG 3.5, which aims to strengthen the prevention and treatment of substance abuse; SDG 3.8 aims at universal health coverage; and SDG 3.9 targets a substantial reduction in the number of deaths and illnesses from pollution and contamination by 2030 (UNDP, 2015). Even though NCDs are a growing major cause of morbidity and mortality, they have long been under documented, and unexposed. They were not accorded special reference in the MDGs, however, they have gained some recognition in the SDGs. Scaling up of health promotion initiatives for NCDs is therefore vital to reduce the prevalence of NCDs and for sustainable human development.

2.3 Health promotion

Health promotion is a process of enabling people to increase their control over and to improve their health, such that a state of complete physical, mental, and social wellbeing is achieved. An individual or group must be able to identify and realise aspirations, to satisfy needs, and to change or cope with the environment (WHO, 1986). This goes above and beyond basic health care. It is an action plan that places health on the agenda of policy makers, and guides them by forcing them to realise the consequences of their decisions regarding health. A health promotion policy combines different but related aspects that contribute to ensuring an awareness of and the creation of healthier environments. Diverse approaches that include legislation, fiscal measures, taxation, and organizational change are coordinated actions that ultimately lead to more efficient health, economic, and social policies (WHO, 2009).

Health promotion is gaining momentum worldwide, not only in the developed countries but also in developing countries, although to a lesser extent. Through the initiatives of the World Health Organization, governments, non-governmental organisations (NGOs), businesses, and communities themselves, health promotion programs are being implemented worldwide (Huiskamp, King, & Hattingh, 2003). The health promotion movement is supported and enforced by public health policy and legislation in South Africa, as is illustrated in, for example, the 'No Smoking' in public places policy (WHO, 2005) and the nationwide salt reduction policy (Department of Health South Africa, 2013a), among others.

The Jakarta Declaration of 1997 sets out the direction of health promotion for the 21st century, with emphasis on multi-sectoral cooperation and partnerships in addressing public health challenges. This Declaration also stresses the settings approach as one of the main strategies for the way forward (WHO, 1997a). According to Chu et al. (2000) workplaces, schools, hospitals, cities, islands, and marketplaces have been established as some of the priority settings for health promotion in the 21st century.

There is currently an underinvestment in social and environmental factors affecting health (UNDP, 2015), and it has therefore been suggested that efforts to promote health be built into policies, specifically at workplaces, and, if utilized efficiently, that these will lead to positive health outcomes (Mathers, Stevens, & Mascarenhas, 2009).

2.3.1 Health promotion as an integral part of health care in South Africa

Health promotion and its importance in today's society is a term encountered in many health related literatures. In South Africa the importance is also evident in that the Department of Health has a Health Promotion Directorate as well as the provincial government sections and National Health Promotion Forum (Onya, 2007).

Health promotion is addressed in Chapter 18 of the White Paper for the Transformation of the Health System in South Africa Notice 667 of 1997 (South Africa, 1997). The paper highlights the principles of the reconstruction and development program as important cornerstones for developing health promotion initiatives. The objectives of health promotion are to:

- contribute to the development and achievement of a healthy nation, national health goals and targets

- promote standards of excellence in health promotion practice, drawing on both international and local experience
- promote and develop health promotion activity in government and civil society
- develop a skilled team of health promoters

2.3.2 Health Promoting Universities

The Health Promoting Universities (HPUs) initiative has become increasingly popular around the world since 1995, when the University of Central Lancashire was launched as the first HPU. It is aimed at maximising integrative and synergistic action for sustainable public health, promoting healthy workplaces, and establishing and improving primary health care as well as encouraging wider academic interest and developments in health promotion (WHO, 1995b).

The Health for All initiative and the Ottawa Charter for Health Promotion (WHO, 1986) states: "Health is created and lived by people within the settings of their everyday life; where they learn, work, play and love." The Charter thus advocates that we move away from focusing solely on risk behaviours, problems, and high risk groups, but also look at health as a broad-based investment outside of health care facilities. It is therefore essential to build a holistic understanding of health as influenced by an interplay of social, environmental, and economic factors. The objectives of this settings-based approach within universities are to integrate health promoting potential and commitment into the university's culture, processes, and structure, and to promote the health and wellbeing of staff, students, and the community on a larger scale. It is imperative that a supportive and empowering workplace be developed to enable staff to take increased control over their lives and to take action for change (Tsouros, Dowding, Thompson, & Dooris, 1998).

As a multi-sector initiative, there is need to build an advocacy role that takes care of the ownership, legitimacy, and accountability of the initiative. Coordinators that take time to meet with people to understand shared and competing agendas and to build trusting relationships will also play a key role in the success of such initiatives. It is also vital to have senior top-level advocates who believe in the idea of a health promoting university (Dooris, 2001).

Universities that become involved in health promoting activities may obtain several benefits, including the improvement of their public image, the university profile, and the welfare of

staff, students, and the surrounding community (Cawood, Dooris, & Powell, 2010). Such projects bring together existing initiatives that cater for the well-being of staff and students by motivating and stimulating greater participation and coordination for future improvements. HPUs create greater links between research and practice, thus affording the university's research projects more credibility (Doherty & Dooris, 2006). Projects such as these present the university increased opportunities to be involved in community engagement, by sharing knowledge and by offering practical experiences and solutions to expand health networks.

Higher education institutions, as major players in the community, have an opportunity to set the example for good health practices and to use their influence to benefit the community on local, national, and even international levels (Tsouros et al., 1998).

2.3.2.1 Global initiatives through universities

Anti-smoking campaign at Shanghai Medical University (China)

In 1995, a study conducted by the Department of Health Education revealed that 12% of students smoked, with 3.3% of them doing so daily. Furthermore, 22% of the university staff were smokers and 18% were daily smokers. In 1996, a 'smoke-free university' campaign began, and the response towards this initiative was positive. Health education and administrative support were the main methods used in promoting the campaign. The prevalence of tobacco use dropped from 12% to 6.2% among students and from 22% to 17% among staff (R. Lu, Mackay, Niu, & Peto, 2012).

Healthy Campus 2020 program (USA and Canada)

A number of universities, such as the University of South Carolina (USA), Simon Fraser University (Canada), and New York University (USA), have joined the Healthy Campus 2020 program – a framework designed to support campuses with improving the health of their students and staff (American College Health Association, 2012). Implementation of their health promotion initiatives has commenced. At the University of South Carolina (USA) activities include: a campus-wide ban on tobacco; fitness buddies – an encouragement and companionship program that supports fitness and physical activity – and a healthy eating initiative, which includes nutrition counselling, meeting a dietician, and personalised eating plans for healthy diets and weight loss (University of South Carolina, 2013).

Healthy eating and physical activity intervention at the University of Sydney (Australia)

Another example is the Healthy Sydney University at the University of Sydney (Australia), where they have "Eat healthy" and "Sit less, move more" group meetings every month. These health projects are aimed at creating an environment where staff and students are able to make informed decisions about the food they consume as well as promote physical activity (University of Sydney, 2015).

2.4 Workplace health promotion

As highlighted by WHO, the workplace has been recognised as a priority setting for health promotion. Workplaces directly influence the physical, mental, economic, and social wellbeing of employees and, in turn, affect the health of employees' families, communities, and societies. It offers an ideal setting and infrastructure to support the promotion of health of a large group of people. It is unfortunate that the concept of workplace health promotion has not yet been very well established and accepted (Chu et al., 2000).

The Healthy Living Initiative by the World Economic Forum has been a public program for many years, but progress has been disproportionate. Adoption of a new lifestyle and maintenance of these changes beyond a certain time frame is a huge challenge, especially if larger contextual issues that promote unhealthy behaviours or inhibit new behaviours remain uncurbed (Bloom et al., 2011). Most staff spend the majority of their time at the workplace and the policies, protocols, and practices that exist there therefore tend to determine their health behaviours more than any advancements in a clinical or other settings, where these individuals spend less time. It becomes essential to redesign the workplace in such a way that health is promoted by both employers and employees. Greater health promotion success results are more likely to be yielded by cost effective and efficient workplace health promotion initiatives (Baicker et al., 2010).

Workplace health promotion (WHP) refers to the combined efforts of employers, employees, and society to improve the health and wellbeing of staff (WHO, 2015f). The emphasis of WHP is to improve organizations and work environments by increasing employee participation in the shaping of healthier environments (WHO, 2015c). It is a holistic approach that may be achieved by: improving the working environments of staff; promoting active participation of

key stakeholders and support staff in the WHP; and by encouraging and empowering staff (European Agency for Safety and Health at Work, 2007, 2012).

Internal motivating factors for WHP may include: positive impacts on presenteeism of staff at work; decreased staff turn-over; improvement in staff morale and job satisfaction; and all of these may ultimately lead to significant cost savings, and increased returns on investments for the organisation (Baicker et al., 2010). A well-implemented WHP may also lead to sustainable improvements in social and economic development at workplace and community levels (Mitchell et al., 2012).

At the individual level of employees, WHP may lead to greater health awareness, and promotes or enhances healthy behaviour. This in turn yields healthier workplaces and communities. Developing and sustaining health promotion programs have demonstrated clear benefits for both the organisation and the staff (European Agency for Safety and Health at Work, 2012). WHPs where staff engagement, co-learning, and empowerment are key components are usually well maintained, as staff tend to remain committed to the program (Scanes, 2013).

2.4.1 Benefits to the staff

Health promotion in the workplace benefits not only employees, but also the organisation. Additionally, there is a distinct pass-down effect, as benefits are transferred from employees to their family members (Bates, 2013). Some benefits that have been highlighted by employees include an increased health awareness that results in them making more informed and educated health decisions, e.g. better food choices, and improved morale, as they feel that they are valued by their organisation (CDC, 2013). Other employees also stated that WHP programs improved their health and reduced out-of-pocket expenses for doctor or hospital visits, medications, or procedures related to chronic illnesses (Baicker et al., 2010). Some employees also reported that, through WHP programs, they have built partnerships, and this gives them a sense of ownership, as they work together to form a coordinated action to improve wellbeing at the workplace (De Greef & Van den Broek, 2004).

2.4.2 Benefits to the organisation

Several programs have demonstrated that paying proper attention to employee health has extensive benefits to the organisation. These include:

- reduced staff turnover - reduced cost of replacement for ill employees that are absent and costs for recruiting and training new workers
- reduced absenteeism - helps create a culture of health at the workplace
- increased productivity - improved health status allows for greater efficiency in the workplace
- a positive, caring image - often seen as a reflection of how much the company cares about its employees, which may positively impact job satisfaction and worker morale
- improved public image of the organisation - increased visibility to potential future employees, who will see the company as a desirable place to work due to its commitment to employee health (Bates, 2013; CDC, 2013; Scanes, 2013).

2.4.3 Recommended characteristics of workplace health promotion initiatives

Literature regarding workplace health interventions was also explored and several authors (Cancelliere, Cassidy, Ammendolia, & Côté, 2011; Harris, Hannon, Beresford, Linnan, & Mclellan, 2014; Lowe, 2004; O'Donnell, 2001; Pescud et al., 2015; Pollitz & Rae, 2016; Quintiliani, Sattelmair, & Sorensen, 2007; RNAO, 2002) recommend that WHP should deal with the following aspects:

Relevance: Addresses individual and organisational level priorities for health promotion as identified through employee participation. All stakeholders, including workers unions, have to be involved in the planning, implementation, and evaluation of the program.

Scope: Program activities follow from a clearly stated theory, model or rationale, while having an explicit link to the target audience and work setting.

Attributes: Aims to create opportunities for choice, sustainability, and empowerment, achieved at any level or combination of levels, from the individual to the organisational.

Context: The context, such as employee characteristics, organisational size and type, need to be considered. The program is required to take into account the fact that WHP is embedded in a larger health promotion context, i.e. because of these people, a drip-down effect of information transfer to the communities in which they reside occurs.

2.4.4 Global initiatives supporting workplace health promotion

Table 2-2 below shows certain results from selected global initiatives on workplace health promotion that have been successfully implemented.

Table 2-2: Results of workplace health promotion initiatives

Workplace	Country	Success results
DuPont	Netherlands	A fitness centre was established at the premises, where a physiotherapist was also available. The company also organised courses for those who wanted to quit smoking. As a result, absenteeism fell by 0.5% between 1994 and 1999. The development of a process called the Wellbeing Checkpoint enabled the organisation to analyse the health and wellbeing of its employees. In terms of profits, the company made savings of roughly 1 million euros, increased productivity, gained a more attractive image, and recorded a lower staff turnover (Federal Institute for Occupational Safety and Health, 1999).
The Northern Ireland Court Service	United Kingdom	A Health and Fitness Promotion initiative was started in 2000. Assessments conducted during 2001 were evaluated and results showed that staff had made significant changes to their diet and increased the duration and frequency of physical exercise. There are reports of increasing numbers of staff participating in health and fitness activities (i.e. 35% - 40 %) and improved diet, i.e. a 40% increase in fruit and vegetable intake, and greater awareness of health in general (De Greef & Van den Broek, 2004).
"Have a heart for your heart" Program	Germany	This multi-factorial, company-oriented program to prevent cardiovascular diseases was tested in several companies between 1989 and 1991. High blood pressure levels were discovered for the first time in 29% of all screening participants. In the control screening after 2 years, risk levels of cholesterol were significantly reduced (from 26 to 19%), and the same was true for high blood pressure (from 29 to 17%) (Demmer, 1995).
IBM	United States of America	The programs involved broad health categories like blood pressure and cigarette smoking. Changes were assessed over a five-year period, and participation in these courses was associated with significantly greater improvement in the risk status of employees in the areas of blood pressure

		and smoking cessation. More than 60% of the employees lowered their blood pressure to optimum levels (~140/90 mm Hg). Roughly half of the program participants stopped smoking, compared to only a third for non-participants (Goetzel, Sepulveda, Knight, & al, 1994).
Northeast Utilities	United States of America	In its first 24 months, Northeast Utilities documented a 1.6% return on investment from the WellAware program, including a $ 1,400,000 reduction in lifestyle and behavioural claims and health care costs. On assessment, results showed that the health promotion program resulted in a 31% decrease in smoking, 29% decrease in lack of exercise, and an 11% decrease in cholesterol risk; therefore, decreased cardiovascular incidents and 10% improvement in eating habits (Northeast Utilities, 2001); (De Greef & Van den Broek, 2004).
DaimlerChrysler	United States of America	Savings estimates revealed that participation in the National Wellness Program was associated with significant savings in dollars per employee from 1991 to 1995, with the highest dollar savings achieved in 1995 ($ 16 per employee per month). Evaluation of the program showed that health risk assessment was associated with significant and substantial reductions in health care costs. Employees who completed one, two, or three health risk assessments on average had lower health care costs of $ 112.89, $ 134.22, and $ 152.29 respectively in 1997. Employees who had completed at least one health risk assessment and who had participated in an additional wellness activity had an average cost savings of $ 200.35 per year (Dugmore, 2007).
City Development Limited	Singapore	• Achievement of a participation rate of 40% for annual health screening exercises held in 2008 and 2009 respectively. • 8.5% decrease in proportion of employees with high blood pressure between 2008 and 2009. • 4.1% drop in proportion of employees with high levels of cholesterol between 2008 and 2009. • 7.7% rise in awareness among proportion of employee consciously cutting down on consumption of fatty food between 2008 and 2009. • 11% decrease in average medical cost per employee between 2008 and 2009.

		• 7.6% drop in overall company-wide medical expenses from 2008 to 2009 (Singapore Government Health Promotion Board, 2008).
Nyanang Polytechnic	Singapore	Nyanang is an academic institution that employs over 1300 academic and non-academic staff. Results from the 2007 study were: • The proportion of staff with high blood pressure decreased from 10.6% in 2005 to 9.6% in 2007, by means of various health and fitness promoting programs. • Absenteeism fell from 1.28% in 2005 to 1.11% in 2007. • The average number of medical leave taken is 2.77 days, while the median rate for statutory boards is 4 days. • 50% of staff surveyed in 2007 felt that the WHP Program in NYP has influenced them to adopt a healthy lifestyle (Singapore Government Health Promotion Board, 2008).

2.4.5 Workplace health promotion in South Africa

In South Africa, ongoing economic pressure has pushed people to spend more time at work, but the role of the workplace in promoting better health of the population has often been undermined by people in workplaces and societies (Patel, 2015). Although some organisations have worked hard to safeguard their employees' health, their programs have not been guided by any specific policy or workplace health promotion framework. Although having these programs is not obligatory, there is an increased recognition of occupational health (Eriksson, Axelsson, & Axelsson, 2012). Some workplaces have started implementing health promoting programs, such as employee assistance and HIV/AIDS management programs. It has been highlighted that WHP most often takes the form of wellness programs and other health promotion activities. The problem was that some of these programs were not guided by any specific policy or health promotion framework. Having a clearly identified framework guiding the wellness program would make it easier to evaluate the program outcomes and outputs, and hence to make any adjustments needed (Scanes, 2013).

A 2010 initiative to encourage companies in South Africa to adopt workplace health promotion programs was developed. This was Discovery Health's program, called the Healthy Company Index. It was based on incentivizing healthy behaviours and outcomes. Participation

in the Vitality program is incentivized in a number of ways, including financial incentives such as airline discounts and subsidies for purchases of healthy foods at the grocery store. Such incentives demonstratively motivate healthy behaviours, and lead employees to lower levels of health risk (Lambert & Kolbe-Alexander, 2013).

A study conducted by collecting data from 71 participating employers, where 11,472 workers completed health assessments, showed a grim account of workplace wellness in South Africa. Of the employees surveyed, 43.4% were found to have had five or more risk factors outside of the healthy range. 81% did not meet recommended physical activity guidelines, and 82% did not eat enough fruit and vegetables per day. Additionally, 63% of employees were overweight, and 61% did not have preventive health checks. This research indicated that participation in the Vitality program leads to fewer hospital admissions, shorter hospital stays, and lower costs per patient, as hospital admission rates were 7.4% lower for cardiovascular disease and 13.2% lower for cancers. The Healthy Company Index provided useful baseline data to support employers' efforts to develop and implement effective and impactful health promotion programs (Patel et al., 2013).

2.5 Social learning approach

Workplace health promotion supports a participatory process to help promote a stronger workforce. To be successful, a workplace health promotion program has to involve the participation of employees, management, and other stakeholders in the implementation of jointly agreed initiatives, and is designed to help employers and employees at all levels to improve their health (WHO, 201c). It is recommended that a social learning approach is used to guide the implementation of these initiatives.

Social learning is defined as a change in understanding that goes beyond the individual, and spreads throughout communities, through social interaction between people. Social learning is a reflexive process, where continuous reflection, progress checks, and reviews are undertaken. It is an "assess and amend" process that is always open to changes and improvements (Davis & Luthans, 1980); (Cundill et al., 2014). It is a long-term engagement process that involves the exchange and sharing of knowledge between facilitators and participants, who will then share this knowledge with others in their community. The main principle of this approach is to work **'with'** and not **'for'** the community (Sloane & Zimmer,

1993). It is recommended for all people involved to embrace the concepts of co-learning and co-development, as this approach is collaborative, working towards completing a broader agenda. This approach also works to bring about social change through transformational leadership and empowerment. In the context of health promotion, this approach may be used to train a core group, who will then be agents of change that will work with the communities, as well as their social and work groups, to educate others (Daniels & Walker, 2001).

Evidence advocates that this approach is a learning process, where one needs to be willing to move out of their comfort zone so that they may learn from others, and so they must be willing to participate actively. Members are also required to be realistic in their expectations, honest about their own views, responsive, and guiding, open and receptive to constructive criticism, innovative, and accepting of others' views. It is also essential to make each other feel comfortable within the group, as well as to be supportive of others (Blair, 1993).

2.5.1 Peer Education in health promotion

Peer education has become a common method used to relay health messages and effect important health-related behaviour changes (Posavac & Kattapong, 1999; Ross & Williams, 2002; Seymour, Almack, Kennedy, & Froggatt, 2013). Peer education may be defined as "sharing experiences and learning among people with something in common" (Shiner, 1999). Peers often share a common culture, language, and/or knowledge about the problems and circumstances that their community experiences (Szilagyi, 2002). It is through these shared common experiences of common situations that peer educators are provided the appropriate supportive qualification for health promotion (Harris & Larsen, 2007; Schover et al., 2006).

Peer education typically involves the use of members of a given group to effect change among other members of the same group. It is often used to effect change at the individual level, by attempting to modify a person's knowledge, attitudes, beliefs, or behaviours. Subsequently, peer education may also effect change at the group or societal level, by modifying norms and stimulating collective action that leads to changes in programs and policies (UNAIDS, 1999). Several studies have evaluated the use of peer education in health promotion and reduction of unhealthy behaviours. A wide range of behaviours including diet, physical activity, breastfeeding, and reproductive and sexual health have been targeted (Hope, 2003; Nankunda et al., 2006; Ngo, Ha, Rule, & Dang, 2013; Norr, Norr, McElmurry, Tlou, & Moeti,

2004; Pérez-Escamilla, Hromi-Fiedler, Vega-López, Bermúdez-Millán, & Segura-Pérez, 2008; Warwick & Aggleton, 2004; White, Park, Israel, & Cordero, 2009; Yan, Finn, & Corcoran, 2015).

Peer-based interventions have been found to be advantageous on many fronts, as the targeted groups value peer educators and equip them with the necessary knowledge and skill, making them the change agents, and recognising that they can positively influence and support their peers (Sharif et al., 2010). Involvement can be empowering and may enhance peer educators' confidence and their sense of engagement with their workplaces and communities. They are also a cost-effective way to facilitate improvements in healthy behaviours in both peer educators and the targeted peers (Bagnall et al., 2015; Cade et al., 2009; Neves et al., 2013).

Peer education has thrived for many reasons. Firstly, individuals in the same space, for instance the workplace, rely on their peers as a leading source of information and advice (Djalalinia, Ramezani Tehrani, Malekafzali, & Peykari, 2013). Unfortunately, much of the information and advice is passed on from uninformed or less knowledgeable peers, resulting in the spread of misconceptions or even the proliferation of harmful outcomes (Sawyer, Pinciaro, & Bedwell, 1997). Another reason for the abundance of peer education programs is context specificity and topical sensitivity. When dealing with topics that involve sensitive discussions about things such as people's lifestyles, in which values and beliefs are involved, innovative approaches have proved to be more effective than traditional educational approaches (Sloane & Zimmer, 1993). Such topics are more often effectively addressed by peers, in part because the audience may perceive the peer educator to be on a similar or more accessible level to them (Sloane & Zimmer, 1993). A third significant reason for the popularity of peer education programs is financial. Due to funds being channelled to more immediate organisational costs, funding continues to diminish. In response to tightening budgets and funding constraints, many organisations have sought new and innovative ways to deliver important educational material. Peer education is therefore a cost-effective way of educating large groups of people (Bagnall et al., 2015; Cade et al., 2009; Neves et al., 2013).

2.5.2 Culture in health promotion

Culture refers to the way of life of a group of people and includes the behaviours, beliefs, and values that they have adopted and accepted (Kroeber & Kluckhohn, 1952). Culture is a key factor associated with acceptance and rejection of health promotion materials. Research has

shown that considering the culture of the target group may help with acceptance of programs as well as allow for the integration of health promotion programs into the population's values and norms (McKee & Paasche-Orlow, 2012). Culture is usually assumed to be shared within a group of people, for instance in the workplace, but there are often many disparities, as some individuals may possibly be multi-cultural. It is therefore essential to use a multi-sectoral method in workplace health promotion to enhance cultural appropriateness of the materials produced (Campos, 2015).

According to Kreuter et al. (2003), cultural sensitivity may be categorised to cater for the many cultural groups. Some of the strategies include providing health promotion materials in the local language and including members from the target group in the planning and decision making for the health promotion program as this increases insight as to what is culturally acceptable to them (Kreuter et al., 2003). Identifying cultural beliefs, values, and norms within a target group may also be useful as these may be used as a foundation to reinforce the intended behaviour. It is also suggested that visual health promotion materials include colours and pictures that are easily identifiable to the target group, as familiarity may aid with easier comprehension of the materials (Jenkins, Fakhoury, Marzec, & Harlow-Rosentraub, 2015).

2.6 Health literacy

Health literacy is defined as the capacity to ''obtain, process and understand basic health information and services needed to make appropriate health decisions'' (U.S. Department of Health and Human Services, 2000). Health literacy is well recognized as a challenge for public health, with many adults lacking the requisite skills to engage successfully in their health care. People with limited health literacy often lack knowledge or are misinformed about the body, as well as the nature and causes of disease. Without this knowledge, they may not understand the relationships between lifestyle factors such as diet and exercise and various health outcomes (Institute of Medicine, 2009).

Recent research demonstrates that low health literacy is associated with poor health outcomes, including, but not limited to, poor adherence to medical regimes; poor understanding of the complex nature of their own health; a lack of knowledge about medical care and conditions; poorer comprehension of medical information; low understanding and

use of preventive services; poorer overall health status; and premature deaths (Ross, 2007). It is therefore imperative that health information is tailored to the literacy levels of the intended population.

2.6.1 Health promotion materials

Health-related education or information for the general public is a major element of health care provision and a key strategy to reduce the outcomes of low health literacy (Grime & Ong, 2007; Johnson et al., 2008). It can be achieved through provision of information through written materials, multimedia or visual or audio-visual presentations. Effective communication is the backbone of health promotion and disease prevention (Schwartzberg, Cowett, VanGeest, & Wolf, 2007) as exposure to information increases reader awareness. The reader's understanding of the given information may potentially increase their knowledge on the subject matter. Changes in knowledge influence attitudes, which in turn influence behaviour (Medrano Martínez et al., 2015).

Behaviour change is guided by comprehension and understanding of health information. Most health information, however is too complex for its intended readers (Buckton, Lean, & Combet, 2015; Rhee, Von Feldt, Schumacher, & Merkel, 2013). There is a broad gap between the reading capabilities of the readers and the readability of materials, and at the same time many health professionals also give verbal information that is difficult to understand because of medical jargon (Colledge, Car, Donnelly, & Majeed, 2008). To improve health literacy, it is therefore imperative that health information materials are tailored for the capabilities of target audience.

3. CHAPTER 3: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the research design, data collection, and data analysis procedures applied during this study in order to address the research questions stated in Chapter 1. The sample selection criteria and ethical considerations of the project are also outlined. Practical procedures, as well as the theoretical foundations guiding them, will be discussed in this chapter.

3.2 Theoretical framework

A theoretical framework is a group of ideas that provide guidance to a research project. Theoretical frameworks are useful in identifying and providing a lens or perspective through which research takes place. There are various ways to conduct research, and a theoretical framework helps to focus it in the desired direction and to link theories to practice (Green, 2014). It is widely recommended that program designs should be based on a theory and that the behaviour change techniques used should be made explicit in order to improve evidence synthesis (Labaree, 2009). The PRECEDE-PROCEED model was used to guide Phase 1, while the Social Cognitive theory was used to guide Phase 2 of this study.

3.2.1 The PRECEDE-PROCEED model

The PRECEDE-PROCEED model is a planning model developed by Dr. Lawrence Green and his colleagues in the 1970s to address the lack of direction and inadequacy of public health promotion programs, in order to plan sufficiently before implementing interventions (Glanz, Rimer, & Lewis, 2002). Public health issues are often complex and multi-faceted, especially when the intervention aims to create long-term behaviour change. It is therefore imperative to understand the needs of the study population before implementing any intervention (Li et al., 2009).

The PRECEDE-PROCEED model uses an ecological approach to health promotion, meaning that all aspects of a person's environment are considered when assessing the problem at hand (Crosby & Noar, 2011; Nnakwe, 2013). These factors may include a variety of influences including the population's attitudes, beliefs, behaviours, and their environment, including living, working, and social settings, as well as the programs and resources available in these settings. All of these factors influence health related actions and behaviours. Planning models

that use the ecological approach have been shown to be more successful than those that do not (Glanz & Bishop, 2010). This model also involves a participatory approach, which allows for feedback from the target population. By involving the community, it will lead to more and improved ideas about issues and how to resolve them, and build community ownership of the intervention (Glanz et al., 2002).

PRECEDE is an acronym for Predisposing, Reinforcing, and Enabling Constructs in Educational Diagnosis and Evaluation. This part of the model provides the structure for analysing and planning the development of targeted and focused health promotion programs. As its name implies, it represents the process that precedes, or leads up to, an intervention. The PRECEDE component consists of four phases of assessing needs, which includes identifying health problems (Phase 1), behavioural and environmental risk factors (Phase 2), factors affecting behaviour (Phase 3), and resources in terms of policy and organisations (Phase 4). The **PROCEED** component is an acronym for Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development, and assists with the implementation and evaluation of program. Again, as the name suggests, it describes how to proceed with the intervention itself. PROCEED has four phases that cover the actual implementation of the intervention and its evaluation. The phases include: implementation (Phase 5), process evaluation (Phase 6), impact evaluation (Phase 7), and outcome evaluation (Phase 8) (Gielen & McDonald, 1997; Green & Kreuter, 1999).

3.2.1.1 Application of constructs of the PRECEDE-PROCEDE model in Phase 1

In Phase 1 of the study, the four phases of the PRECEDE component were adopted to guide the needs assessment for the workplace health promotion study. Table 3-1 below details how constructs of the model were applied to this study.

Table 3-1: Application of the PRECEDE-PROCEED model in Phase 1

Construct of the model	Application in the study
Phase 1- Social assessment: Determine the social problems and needs of a given population and identify desired results (Green & Ottoson, 2006).	To bring to light the target population's needs and to assess the population's strengths, available resources, and readiness to change, by asking questions in the semi-structured interviews (SSIs) and focus group discussions (FGDs), analysing responses, and through observation during these interactions with the participants.
Phase 2- Epidemiological, behavioural and environmental assessment: Identify the health determinants of the identified problems and set priorities and goals (Boddy et al., 2012).	The following will be identified through the FGDs and SSIs: • Health topics to be focused on by the intervention. • Uncover behavioural and environmental factors that influence NCDs in the target population. • Peer pressures and beliefs that contribute to the occurrence of NCDs, both in their living and work settings. • Personal factors that influence NCDs
Phase 3- Educational and ecological assessment: Analyse behavioural and environmental determinants that predispose, reinforce, and enable the behaviours and lifestyles (Castellanos et al., 2013).	Asking questions with regard to the predisposing, enabling, and reinforcing factors that can affect the healthy behaviours, attitudes, and environmental factors in order to identify the educational focus for the intervention.
Phase 4- Intervention alignment and administrative policy assessment: Identify administrative and policy factors that influence the implementation, and match appropriate interventions that encourage desired and expected changes (Ransdell, 2001).	Asking questions regarding existing or past policies on health promotion in the workplace during the SSIs and FGDs. Resources, organizational barriers and facilitators, and policies that are needed for the implementation and sustainability of the intervention are identified through the FGDs and SSIs.

3.2.2 Social Cognitive Theory

Social Cognitive Theory (SCT) is based on vicarious learning, and was developed by Albert Bandura in 1989. According to this theory, behaviour is learned through observation,

imitation, and positive reinforcement. Role models facilitate learning in that individuals re-enact behaviours that they have observed directly, read about, or have seen in the media. The theory also suggests that people learn by noticing the benefits of the actions that they observe other people performing (Bandura, 1989).

According to SCT, behavioural change is determined by environmental, social, personal, and behavioural elements. Each of these factors influences the other. Behaviour is guided by expected consequences. There are six main concepts in SCT:

1. Reciprocal determinism: the person, behaviour, and environment influence one another
2. Behavioural capability: the knowledge and skills needed to perform a behaviour
3. Expectations: anticipated outcomes
4. Self-efficacy: confidence in one's ability to take action
5. Observational learning: learning by observing others
6. Reinforcements: responses to a behaviour that increase or decrease the likelihood of reoccurrence (Glanz & Rimer, 2005).

The SCT is based on two premises: an environment conducive to change supports the adoption of healthy behaviours; and people learn by observing the actions of others (McAlister, Perry, & Parcel, 2008). It is helpful for understanding and predicting both individual and group behaviour, and for identifying methods in which behaviour can be modified or changed (Raingruber, 2014). Within the workplace, changes to the environment as well as the use of role models could therefore be used to successfully influence healthy behaviours (Glanz & Kristal, 2002). The SCT may therefore be used as a supportive theoretical model upon which to base a workplace health promotion intervention, as it combines both behavioural and social components.

According to Macdonald (2000), SCT is the most widely recognized theory for health education and health promotion programs. It is increasingly cited as an essential component of sustainable promotion of desirable behavioural change in areas such as exercise and dietary behaviours (Ince, 2008; Mahdizadeh, Peymam, Taghipour, Esmaily, & Mahdizadeh, 2013; Michie, Abraham, Whittington, & McAteer, 2009; Miller, Edwards, Kissling, & Sanville, 2002). This theory was therefore used to guide the intervention phase of this research.

3.2.2.1 Application of Social Cognitive Theory constructs

SCT emphasizes the dynamic interaction between people (personal factors), their behaviours, and their environments (Raingruber, 2014). Its constructs were used to guide the intervention phase (Phase 2) of this research. Table 3-2 below provides, in detail, the constructs adopted, and where they were applied in the intervention phase.

Table 3-2: The SCT constructs and their application in the intervention phase

Social Cognitive Theory Construct	Application in Intervention Phase
Reciprocal determinism refers to personal factors, environmental factors, and behaviours continuously interacting by influencing and being influenced by each other. This may be achieved through consideration of multiple ways to change behaviours; for example, targeting both knowledge and attitudes, and also making a change in the environment.	Considering multiple ways to promote behaviour change, including providing information on how adjustments to the environment or personal attitudes that influence unhealthy behaviours might be made.
Behavioural capability refers to the provision of tools, resources, or environmental changes that make new behaviours easier to perform. This may be done by providing both knowledge-based training and skill-based training to intervention participants.	By promoting learning through training peer educators and equipping them with the necessary health promotion knowledge and resources.
Observational learning refers to beliefs based on observing similar individuals or role models perform a new behaviour. This component involves provision of credible role models who reflect the target population and perform the desired behaviour.	By modelling correct behaviours and highlighting the benefits of healthy behaviours by training a group of role models who would be the agents of change.
Expectations refers to beliefs about the likelihood and value of the consequences of behavioural choices. This may be done by demonstrating positive outcomes of performing desired behaviours.	Through modelling the positive outcomes of healthy behaviours.
Self-efficacy refers to the confidence or belief in one's ability to perform a given behaviour. This may be used to break down behaviour change into small, measurable steps, allowing intervention participants to recognize and celebrate small successes along the path to larger behaviour change.	By approaching behaviour change in small steps.
Reinforcements refers to measures to control oneself through self-monitoring, goal-setting, feedback, self-reward, self-instruction, and enlistment of social support. This may be done through built-in goal-setting activities throughout the intervention.	Through providing reminders of healthy behaviours and promoting self-initiated rewards and incentives.

3.3 Study setting

The study took place at Rhodes University in Grahamstown, which is located in the Eastern Cape Province of South Africa (see Figure 1). Rhodes University is a tertiary education institution that currently employs over 2000 staff members, who are categorised as either academic or support staff. Staff at the university are graded into levels from 1 through to 25; with 1 being the lowest and 25 the highest. In this study, the researcher focused mainly on lower level support staff.

University divisions from where participants were recruited for this study included Food Services, Residential Operations, Central Cleaning, Building and Maintenance, Grounds and Gardens, Engineering, and the Campus Protection Unit. Support staff who work in Food Services are responsible for the preparation of meals for students and other staff members. Individuals from Residential Operations are involved in the cleaning of university buildings. Support staff from Buildings and Maintenance erect and repair infrastructure at the University. Those from Grounds and Gardens are responsible for the upkeep of the university grounds, while those from Engineering repair and maintain the university's electrical appliances and vehicles.

Managers to whom the bulk of the support staff reported were also included in the study, to gain management's perspectives on WHP. Perspectives from individuals at different levels in the workplace were valuable in understanding the facilitating and limiting factors experienced by both staff and management.

Figure 1: Map of the Eastern Cape showing the study site, Grahamstown

3.4 Research design

The study employed a qualitative research design guided by the PROCEED-PRECEDE model, the participatory action research (PAR) approach, and Social Cognitive Theory. It followed a cyclic and iterative process, and intended to facilitate change driven by support staff at RU. This was done through participatory discussions with the support staff to recognise and build on each other's strengths, using a bottom-up approach to improve health outcomes rather than a top-down approach, where participants would merely be recipients of a program. By adopting the PAR approach, collaborative partnerships were formed between the Rhodes University Faculty of Pharmacy, the Rhodes University Human Resources Office, the Institutional Wellness Specialist, and support staff at the university.

In Phase 1, an exploratory phase, the researcher sought to gain insight into the conceptualisation of WHP and the factors affecting its implementation and progress at RU. This phase was intended to identify the policies and practices with respect to health promotion and health promotion projects that have previously been implemented at RU for support staff. Facilitating and limiting factors that contributed to the success and/or failure of these initiatives were also explored. This was followed by identifying NCDs that affected most of the staff at RU, as well as by identifying one of the four main risk factors that, in their opinion, contributed the most to the prevalence of these NCDs. Possible solutions to improving the delivery of WHP initiatives were discussed with participatory input of the support staff. The full account of Phase 1 is given in section 3.11.

In Phase 2, an educational intervention for the awareness of the role diet plays in the prevention and control of cardiovascular diseases emerged as the action plan to be implemented to reduce the prevalence of NCDs at RU. This intervention was also implemented and evaluated as detailed in section 3.11.

3.4.1 Academic Researchers

Academic researchers who conducted this study are from a health background. Both the principal supervisor and the researcher are pharmacists by training, and are based in the Faculty of Pharmacy at Rhodes University.

3.4.2 Collaborators

A Human Resources representative, whose job description includes overseeing employee assistance programs, was involved in the collaboration. The Institutional Wellness Specialist was also part of the collaboration, and introduced the researchers to the key stakeholders and the support staff who became involved as participants in the research.

3.4.3 Participants

The study participants were:

- Support staff - these are non-academic staff members employed by the University. The study was aimed at the support staff.
- Key stakeholders - these are mainly managers to whom the support staff report and are in regular communication with, and who supervise and/or observe their work.

These also include other personnel who are involved in organisational and staff related wellness.

3.4.4 Mixed methods research

Mixed methods studies allow for the inclusion of both qualitative and quantitative methods of data collection and/or analysis to achieve a range of outcomes. The use of mixed methods has greatly increased (Claasen et al., 2015; Creswell & Plano Clark, 2011; Östlund, Kidd, Wengström, & Rowa-Dewar, 2011; Sandelowski, 2000; Strudsholm, Meadows, Robinson Vollman, Thurston, & Henderson, 2016). In Phase 1 of this study, a mixed method approach was used to allow the initial generation of rich data in relation to the relatively unexplored area of WHP, and then to quantify, through votes, the single risk factor of the four that would inform the educational intervention in Phase 2.

In the second phase of this study, qualitative data was gathered to guide improvements to the HILs and for feedback on the learning activities, and was supported by quantitative data that was gathered through the use of readability tests, the Suitability Assessment of Materials (SAM) tool (Doak, Doak, Miller, & Wilder, 1994), and the Patient Education Material Assessment Tool (PEMAT) (Shoemaker, Wolf, & Brach, 2014). Although this was a predominantly qualitative research project, a mixture of qualitative and quantitative methods were used to improve understanding of and to further explore the research questions.

3.4.5 Participatory action research

Participatory action research (PAR) is a form of action research which is the "systematic collection and analysis of data for the purpose of taking action and making change" by generating practical knowledge (Gillis & Jackson, 2002). There are several definitions of PAR (Chatterton, Fuller, & Routledge, 2007; Grbich, 1999; Greenwood, Whyte, & Harkavy, 1993; Minkler & Wallerstein, 2008; Reason & Bradbury, 2001; Stringer, 2013).

PAR differs from conventional research in that it is concerned with bringing about change and improvement to a situation, in opposition to most research strategies that aim to explore a phenomenon without taking action. It enables action through a reflective cycle of data collection, reflection, and action (Stringer & Genat, 2004).

This approach is characterized by six major criteria. It:

- is participatory;
- is cooperative;
- is a co-learning process;
- involves systems development and local capacity building;
- is an empowering process for participants; and
- achieves a balance between research and action (Israel, Schulz, & Parker, 1998). One of the main characteristics of PAR is that it eliminates the traditional distinction between 'researchers' and the 'researched' (Gaventa, 1981).

3.5 Participant recruitment and sampling methods

Initially, a purposive sampling strategy (Ritchie, Lewis, Nicholls, & Ormston, 2013) was used for the selection of the first two participants of the study: the Head of Human Resources and the Organisational Specialist at Rhodes University. According to Freedman et al. (2007), purposive sampling is a non-probability sampling technique where sample members are selected on the basis of their knowledge, relationships, and expertise regarding a research subject. The first two participants were chosen because of their work experience in the Human Resources department, their active involvement in the policies and practices governing all employees at Rhodes University, and their knowledge and relationships with other key stakeholders, who could be consulted during this research. Criteria for their selection was predetermined by the objectives of the study.

Other key stakeholders were then identified by the first two participants through a snowball sampling strategy (Sadler, Lee, Lim, & Fullerton, 2010). Snowball sampling is sometimes referred to as chain referral sampling (Biernacki & Waldorf, 1981). In snowball sampling, researchers identify a small number of participants who have the characteristics in which they are interested. These participants are then used as informants to identify and/or put the researchers in touch with other participants who qualify for inclusion, and these in turn identify others - thus identifying a chain of potential participants (Cohen, Manion, & Morrison, 2000). Other key stakeholders who were identified were managers to whom the bulk of the support staff reported, the Wellness Officer, and the nurses at the Health Care Centre at RU.

A total of 11 key stakeholders and 78 support staff participated in Phase 1 of the study. Their demographic details are detailed in sections 5.2.1.1 and 5.2.1.2 in the Results chapter.

Participants were recruited if they fit into the following categories:

- Currently employed at Rhodes University
- Employed at Rhodes University for at least one year

Using snowball sampling, the identified key stakeholders in turn identified and put the researcher in contact with 6-8 support staff members within their departments. The support staff were also recruited into the study according to the above mentioned criteria.

3.6 Communicating with the participants

The researcher did not speak isiXhosa and all communication was therefore in English. All key stakeholders were proficient in the English language. All SSIs with the key stakeholders were conducted in English.

The majority of the support staff who took part in the study were not first language English speakers, although all of them did understand the language. Although some participants were not fluent English speakers, they could sustain a basic conversation. An interpreter was not used in this study but, where necessary, colleagues that were part of the FGDs were asked to assist with translations. The researcher used as simple terminology as possible, and explained technical terms where necessary. Commonly used terms such as 'high-high' (hypertension), 'ishukela' (diabetes) and others with which the researcher was familiar were used, as participants were more likely to understand these words than the technical/ English equivalents.

3.7 Pilot testing of data collection tools

Pilot or pre-testing of non-validated data collecting tools is essential in research (Baker, 1994; van Teijlingen & Hundley, 2001) to ensure that the participants would interpret and understand the questions as they are intended by the researcher. Pre-testing of data collection tools allowed the researcher to identify potential problems, such as comprehension of the questions, and to assess the feasibility of data collection techniques and sequence the collection of data. The pilot study also allowed the researcher to gauge the length of the interviews and discussions.

3.7.1 Pilot testing of the semi-structured interview question guide

Pre-testing of the question guide for the semi-structured interviews was carried out with two colleagues from the Faculty of Pharmacy at Rhodes University, who were also involved in health promotion projects. Due to a small sample size, pre-testing of the question guide was not conducted with any stakeholders to prevent biased responses during the main study.

From this pilot phase, it became apparent that some of the questions were repetitive and were revised. On the question guide, questions were grouped in such a way that follow-up questions followed the relevant lead questions for a systematic approach. Questions such as "What are the current and/or past policies and practices at RU" were changed to "What are the current and/or past policies and practices with regards to NCDs at RU" to focus potential responses and to avoid obtaining wide range responses that did not directly address the research questions.

Following interviews, participants were asked for feedback on the process and questions and were also asked how the questions could be improved. Minor changes to the phrasing of some of the questions were made based on feedback from the participants as well as the researcher's identification of questions that needed to be restructured. It was also noted that the SSIs lasted approximately 45 minutes to an hour.

3.7.2 Pilot testing of the focus group discussion question guide

Pre-testing of the question guide that was intended for use during the FGDs was carried out with a group of six participants. All participants were support staff members who worked in the Faculty of Pharmacy at Rhodes University. This sample mimicked that which would be used in the main study.

Participants were asked the questions in the question guide and, where they did not understand, the researcher rephrased the questions. Participants were encouraged to give suggestions on how the questions could be asked in clearer ways. Minor changes were made to the wording of the question guide based on suggestions from the participants and after scrutiny by the researcher. The researcher also assessed whether each question gave an adequate range of responses. The question guide was then revised; a panel to include additional probing questions that could be used to elicit more reflective responses was added to the guide. It was also noted that the pilot discussion lasted approximately 45 minutes.

3.8 Project timelines

The study was conducted from July 2015 to July 2016, and Table 3-3 below shows the project timelines:

Table 3-3: Project timelines

Description	Date
First meeting with supervisor	30 March 2015
Submission of research proposal for Phase 1 to Higher Degrees Committee	15 May 2015
Higher Degrees Committee meeting	28 May 2015
Resubmission of proposal after corrections	08 June 2015
Submission of application to Ethics Committee	08 June 2015
Higher Degrees Committee clearance	24 June 2015
Ethics Committee clearance	24 June 2015
Phase 1- SSIs with key stakeholders	July to November 2015
Phase 1- FGDs with support staff	July to November 2015
Submission of proposal for Phase 2 to Higher Degrees Committee	22 January 2016
Higher Degrees Committee meeting	29 January 2016
Higher Degrees Committee clearance	05 February 2016
Ethics Committee clearance	05 February 2016
Interim Phase- first meeting with the HAG	02 March 2016
Interim Phase- second meeting with the HAG	09 March 2016
Interim Phase- evaluation of health information leaflets by other professionals and the HAG	April to May 2016
Interim Phase- finalising of health information leaflets	25 May 2016
Phase 2- Healthy eating workshop	08 June 2016
Phase 2- Gardening workshop	15 June 2016
Phase 2- Physical activity workshop	22 June 2016
Phase 2- Final evaluation focus group discussion	06 July 2016

3.9 Data collection

Data collection techniques allow for the systematic collection of data. Data collection is concerned with gathering and capturing quality data and/or evidence that easily translates to rich data analysis; and may be used to credibly and conclusively answer the research questions posed. Techniques employed and the tools used for data collection are summarised in Table 3-4 below.

Table 3-4: Summary of data collection techniques and tools used in this study

Phase	Data collection technique	Data collection tool
Phase 1: Needs Assessment	• Semi-structured interviews • Focus group discussions	• Question guide • Voice recorder • Note-taking
Interim Phase: Design and development of HILs	• Focus group discussions • Formative feedback	• Question guide • Voice recorder • Note-taking
Phase 2: Implementation of intervention	• Workshops • Observation	• Feedback questionnaire • Voice recorder • Note-taking
Phase 2b: Evaluation of the intervention	• Focus group discussions • Observation	• Question guide • Voice recorder • Note-taking

3.9.1 Participant demographics

Demographic details of all participants were collected prior to the commencement of interviews and discussions. The data included: gender, age, highest level of education, home language and preferred reading language, and department for which the participant worked.

3.9.2 Semi-structured interviews

Semi-structured interviews (SSIs) are a one-on-one data collection technique that consists of several key questions that help define the area to be explored, but also allow the interviewer or the respondent to digress in order to pursue an idea or to respond to a particular question

in more detail (Britten, 1999). This type of interview allows for probing through follow-up questions in order to gain insight and clarity on the topics being discussed that would not emerge using other research techniques such as questionnaires with predetermined questions (Mcclure, 2002). SSIs are explorative in nature and are useful in obtaining detailed information on the attitudes, perceptions, views, experiences, and beliefs on a specific matter (Silverman, 2000). Their flexible approach allows for discovery of and/or elaboration of information that may be important to the research that may not have been considered by the researcher (Gill, Stewart, Treasure, & Chadwick, 2008).

In this research, SSIs were chosen for two main reasons. Firstly, due to their busy schedules, it was a difficult task to coordinate the schedules of all key stakeholders to conduct a single focus group discussion, so the researcher organised separate meetings with the different stakeholders at their convenience. Secondly, the researcher aimed at separating the key stakeholders from the support staff so that their responses would not be influenced by the presence of their superiors.

3.9.3 Focus group discussions

Focus group discussions (FGDs) are interactive group discussions carried out with a small group of people. They are typically composed of 5 to 8 people, but may range from 4 to 12 people (Krueger, 1994; Stewart & Shamdasani, 1990). Their purpose is to collect a range of opinions from across several groups. FGDs are conducted with the aid of a question guide (Hennink, 2013; Krueger & Casey, 2014). FGDs are exploratory in nature and are used in qualitative research to explore perceptions, feelings, opinions, and ideas (Ritchie et al., 2013). FGD findings have been used in research to guide interventions and decision making (Levin-Zamir et al., 2016), to evaluate (Barbour, 2005) and to provide feedback (Powell & Single, 1996).

3.9.4 Workshops

Workshops are teaching and learning arrangements structured to produce an active participation in learning. Workshops provide participants an opportunity to learn, exchange information, practise skills, and receive feedback (Tiberius & Silver, 2001). They allow for the active participation of participants, and are usually conducted in small groups. When designed properly, workshops are a time- and cost-efficient method of actively involving participants in the learning process (Steinert, 2010). Workshops are popular because of their inherent

flexibility and promotion of principles of skill development, including communication, teamwork, and presentation (University of Kansas, 2015) They can also be adapted to diverse settings in order to facilitate knowledge acquisition and attitude changes (Steinert & Ouellet, 2000).

3.9.5 Feedback questionnaire

Questionnaires are a convenient and inexpensive method of data collection (Robson, 2002). They could be used to either gather quantitative or qualitative data and are also a good way of reducing interviewer bias, because there are "no verbal or visual clues" that could influence the respondent to answer in a certain way (Patten, 1998; Salkind, 1991). The questions are open-ended to allow the respondents to write either positive or negative responses. Data gathered in this way is helpful to researchers, who seek to understand the opinions of the respondents (Arhar, Holly, & Kasten, 2001; Patten, 1998). One problem associated with questionnaires is that respondents often give socially desirable rather than truthful responses (Mcclure, 2002).

3.9.6 Observational evaluation

Observational methods give the researcher the advantage of directly observing the participants' involvement and engagement in the workshops and with the learning activities (Arhar et al., 2001). This provides an inductive advantage to the observer, limiting personal perceptions and biases because the event is experienced first-hand. Another advantage to direct observation is that the observer identifies routine, unconscious things, often overlooked by the participants (Mcclure, 2002). However, one disadvantage is that participants may change their behaviour when they know that they are being observed (Merriam & Tisdell, 2015).

3.10 Ethical consideration and obligations

During this research, the researcher interacted extensively with the participants, thus entering their personal domains of values, thoughts, and opinions to collect data. Silverman (2000) reminds researchers that while they are conducting their research, they are entering into the private spaces of their participants. For this reason, the researcher is obliged to respect the rights, values, and desires of the participants (Webster, Lewis, & Brown, 2013). Miles and Huberman (1994) have outlined several issues that researchers should consider

before commencing data collection. They caution researchers to be fully aware of these and other issues before, during, and after the research has been conducted. Some of the issues outlined include the following:

- Ethical approval to conduct the study (has this study been deemed ethically suitable?)
- Informed consent (are the participants fully aware of what is involved?)
- Harm and risk (can the study harm or inconvenience the participants?)
- Privacy, confidentiality, and anonymity (will the study intrude too heavily into the personal spaces of the participants?)

Appropriate steps should be taken to adhere to ethical guidelines in order to uphold participants' anonymity, dignity, rights, confidentiality, and privacy (Orb, Eisenhauer, & Wynaden, 2000). The following sections describe how ethical issues during this research were addressed.

3.10.1 Approvals

Prior to commencing this study, the research proposal was presented to, and approved by, the Faculty of Pharmacy Higher Degrees Committee, Rhodes University (Appendix A). Ethical approval was obtained for both Phase 1 (Pharm 2015-5) (Appendix B) and Phase 2 (Pharm 2016-05) (Appendix G).

3.10.2 Informed Consent

Informed consent is a mechanism for ensuring that people understand what it means to participate in a particular research study, so that they can decide in a conscious, deliberate way whether they want to participate (Mandal & Parija, 2014). Due to this research involving people, it was important to obtain informed consent prior to the commencement of data collection (Hardon et al., 2001). Participants were informed of the aim and objectives of the study through invitation letters (Appendices C and H). Participation in the study was voluntary. They were also advised that they could withdraw from the study at any time during the process. Written informed consent was obtained from all participants prior to their involvement in the study, in the format presented in Appendices D and I.

3.10.3 Harm and risk

The researcher was vigilant to ensure that no participants were placed in a situation where they might have been harmed or inconvenienced as a result of their participation in the study. This was done by scheduling all interview and discussion dates and meeting venues to be convenient for all participants prior to each interaction. Non-infliction of harm was also ensured by constantly seeking verbal consent throughout the phases of the research, as well as by encouraging participants to express themselves if they were not comfortable with any of the topics being discussed at any stage.

3.10.4 Privacy, confidentiality, and anonymity

All interview dates and meeting venues were scheduled to be convenient for all of the participants prior to each interaction with the researcher. Anonymity was ensured by allocating each participant a unique identifying code instead of using names in the research report and data records, as well as by collecting only relevant details during the study.

3.11 Research process

The research process was divided into two main phases and an interim phase. The first phase was a needs assessment and was exploratory in nature, while the second phase was the educational intervention guided by the responses obtained in the first phase. The interim phase involved developing and designing health information leaflets that were informed by the results of Phase 1. Below is a detailed account of the phases:

3.11.1 Phase 1: Exploratory needs assessment

In this phase of the study, through SSIs and FGDs, the researcher aimed to identify and explore current and previous WHP activities, especially those concerning NCDs, attempted at RU. Facilitating and limiting factors of each were also explored. The researcher aimed to collect suggestions from the staff on how future activities may be improved, as well as their preferred and convenient means of communication for health messages. Through voting, all participants voted for one of the four risk factors that would guide the subsequent educational intervention.

3.11.1.1 Semi-structured interviews with key stakeholders

3.11.1.1.1 Interview procedure

After key stakeholders were identified, the researcher sent out emails requesting to meet. Copies of the research proposal and the participant invitation letter (Appendix C) were also sent via email. Objectives of this study and the interview questions were highlighted in order to give a brief overview of the study. All communication with regards to agreements to meet, times, and venues was made via email. Of particular importance was an environment that permitted participants to openly share their views. Usually the office of the participant was the most convenient choice, with the exception of a few participants, who preferred to meet on 'neutral ground' such as a boardroom.

On meeting each key stakeholder, the researcher introduced herself and thanked them for agreeing to meet for the interview. Participants were reminded of the purpose of the study, the contents of the participant invitation letter. They reaffirmed their agreement to participate in the interview, and they were asked to sign a consent form (Appendix D). Participants were encouraged to answer all questions freely and honestly. They were also encouraged to ask questions when needed.

Simple introductory questions on the role and tasks of the participant started the interview and helped to make the participant feel comfortable. Following this general information, the researcher asked the participant about their opinion on what workplace health promotion entails. This was done in order to gain insight into their idea of workplace health promotion and to illuminate the participant's perceived role in promoting healthy behaviours at the workplace. The subsequent open-ended questions allowed in-depth investigation of previous workplace health promotion programs, their facilitating and limiting factors, and suggestions for future initiatives. A question guide (Appendix E) was used to guide this process.

3.11.1.2 Focus group discussions with support staff

3.11.1.2.1 Focus group discussion procedure

After identifying the relevant participants, communication with regards to meeting times and venues were liaised by the heads of departments, who then communicated the details to the researcher. On meeting the group, the researcher introduced herself and thanked participants for agreeing to be part of the study. Participant invitation letters (Appendix C)

and consent forms (Appendix D) were handed out, and the participants were given time to read them. The researcher then verbally introduced the study, its objectives, and its purposes. She verbally re-emphasized the contents of the invitation letter, confirmed that all participants were willingly and not forcedly participating, and asked them to sign the consent forms.

Participants were encouraged to answer all questions honestly and freely. They were also encouraged to ask for clarification when they did not understand. The researcher also reminded the group that it was important to give each speaker a fair chance to speak. In cases where the discussion veered off-course, the researcher politely steered participants back on topic. In order to be consistent with all groups, a question guide (Appendix F) was used for guidance so that the same key areas were covered with all groups.

3.11.1.2.2 Seating arrangement

All FGDs were conducted in venues where the group of participants could assume a round table seating arrangement. The researcher ensured that no participants were seated in such a way that they obstructed others.

3.11.1.2.3 Resolving conflict

The researcher reminded participants that there were no right or wrong answers, as these FGDs were an exploratory process. She encouraged them to voice their opinions even if they opposed those of others. In cases where a particular participant directly attacked another, the researcher tried to resolve conflicts as amicably as possible. One such dialogue is shown in Table 3-5 below.

Table 3-5: Resolving conflict - verbatim extract from FGD 4

Extract from FGD 4 (verbatim)
…
Discussion on physical activity and how it involves simple things like walking to work instead of driving.
R1: Yes, don't drive always (points at colleague)
R3: Stop using the car wena **Lutho*
R4: Even **Susan* always drives
Researcher: There is no need to point fingers at others or mention their names as it is a learning curve for everybody. The educational intervention that will follow these discussions will include information on how we may all adopt healthy behaviours. Increasing physical activity in your daily activities is one way to stay healthy.
…
**Names have been changed to protect the confidentiality of the participants*

3.11.1.2.3 Semi-structured interview and focus group discussion questions

The SSIs and FGDs were structured around 8 main questions. An analysis of the literature revealed that recipients of workplace health promotion initiatives are often not consulted. Literature also showed the need to consult both key stakeholders and the staff at the workplace in order to design successful health promotion interventions at the workplace. It was expected that participants of the SSIs and FGDs would reflect their personal opinions on workplace health promotion and on how to improve these initiatives.

Below are the questions that were asked in the SSIs and FGDs and the rationale for asking them:

1. *What does workplace health promotion mean to you?*

This question intended to explore participant opinions of what health promotion is and what it entails. This allowed the researcher to judge whether the participants had an idea of what health promotion is. It set the tone for the rest of the discussion or interview. In a case where participants were not aware of health promotion, or perhaps referred to it by a different term, the researcher clarified and explained this concept in order to proceed with the remaining questions. Responses from this question would also shape the intervention in Phase 2, as it would be designed to suit the respondents' expectations of health promotion.

2. *What are the current policies and practices at RU with respect to workplace health promotion?*

This question was asked in the SSIs to better understand who and how health promotion activities were planned. The researcher also aimed to understand the protocols and rules that would govern the implementation of the intervention in Phase 2. It would be important to align the intervention with organisational protocols. This also allowed the researcher to plan the design process with the relevant protocols in mind and knowing who to approach for help if need be.

3. *What workplace health promotion projects have been introduced to you? What health aspects did these projects cover?*

These questions attempted to ascertain what initiatives had been attempted at Rhodes University for the support staff, and also to get an indication of whether the staff were aware of these initiatives. A probe was often used to explore which health aspects were covered. Participant responses allowed the researcher to be innovative in the design of the intervention in Phase 2.

4. *Do you consider these projects to have been helpful?*

This question intended to explore the usefulness of past initiatives. Participants were asked to elaborate on their answers, allowing the researcher to judge the suitability and feasibility of workplace health promotion activities. Responses would aid the design of the intervention, to make it appropriate and helpful to the recipients.

5. *What can be done to improve these projects?*

It was necessary to understand the deficiencies of previous interventions so as to avoid repeating previous mistakes that led to failure. In order to succeed, past mistakes need to be corrected or at least avoided. This question intended to explore ways to improve health promotion projects in order to incorporate this into the design and delivery of the intervention in Phase 2.

6. *What health promotion topic do you find most important to initiate at RU and why?*

The risk factor poll intended to identify the focus for the intervention of Phase 2. It allowed the researcher to find out which of the four risk factors was of highest priority according to participant responses.

7. *Do you have any ideas on how to raise health promotion awareness about the selected topic?*

This question was intended to gather suggestions from participants as part of the bottoms-up approach. The question investigated staff and stakeholder opinions, and, by so doing, made the researcher aware of the kind of interventions that the staff would better appreciate.

8. *Do you have any other comments or suggestions?*

This question gave participants the opportunity to speak up if they did not get a chance to speak during the interviews or discussions. It was also intended to accommodate any after thoughts.

3.11.1.4 Preparation for Phase 2

During the Phase 1 FGDs, the researcher sought participants who were willing to participate in the intervention phase in order to train as the agents of change at the workplace. Fifteen support staff members volunteered and were contacted at the end of Phase 1 for a briefing of what Phase 2 would entail. A participant invitation letter (Appendix H) was handed to each participant, and all were asked to sign the informed consent form (Appendix I) if they were still interested in participating. The first meeting with the volunteers was a meet and greet session, where everyone introduced themselves and became familiar with each other. As part of getting to know each other, all participants shared their reasons for volunteering.

The researcher gave a brief overview of the results gathered in Phase 1 and announced that, of the four major risk factors, unhealthy diets had received the most votes, followed by physical activity, and that pamphlets were the most frequently suggested means of sending health messages, according to participant responses. It was also mentioned that the needs assessment revealed that many people were affected by cardiovascular diseases. This therefore meant that the intervention would focus on designing pamphlets with information on heart healthy diets. At the end of the meeting, the researcher announced the agenda for the next meeting which included: suggestions for 3 topics under unhealthy diets to focus on, suggestions for colour themes, content for the pamphlets to be designed, and selection of a name for the team of volunteers to go by.

The next informal meeting started with an icebreaker, "What is your favourite food", to encourage conversation. The idea behind starting with each participant's favourite food was that it would reveal some of the unhealthy foods favoured by people. Three prospective names were suggested by group members. Upon voting, "Health Awareness group" (HAG) became the name of choice. General suggestions for design and content were discussed to aid the development process of the HILs. The three topics for the health information leaflets were also selected. Participants were then informed of the next phase, which was the development and design of the three HILs and their role in this phase.

3.11.1.5 Summary of procedures in Phase 1

Figure 2 below illustrates the steps that were followed in Phase 1 of this study.

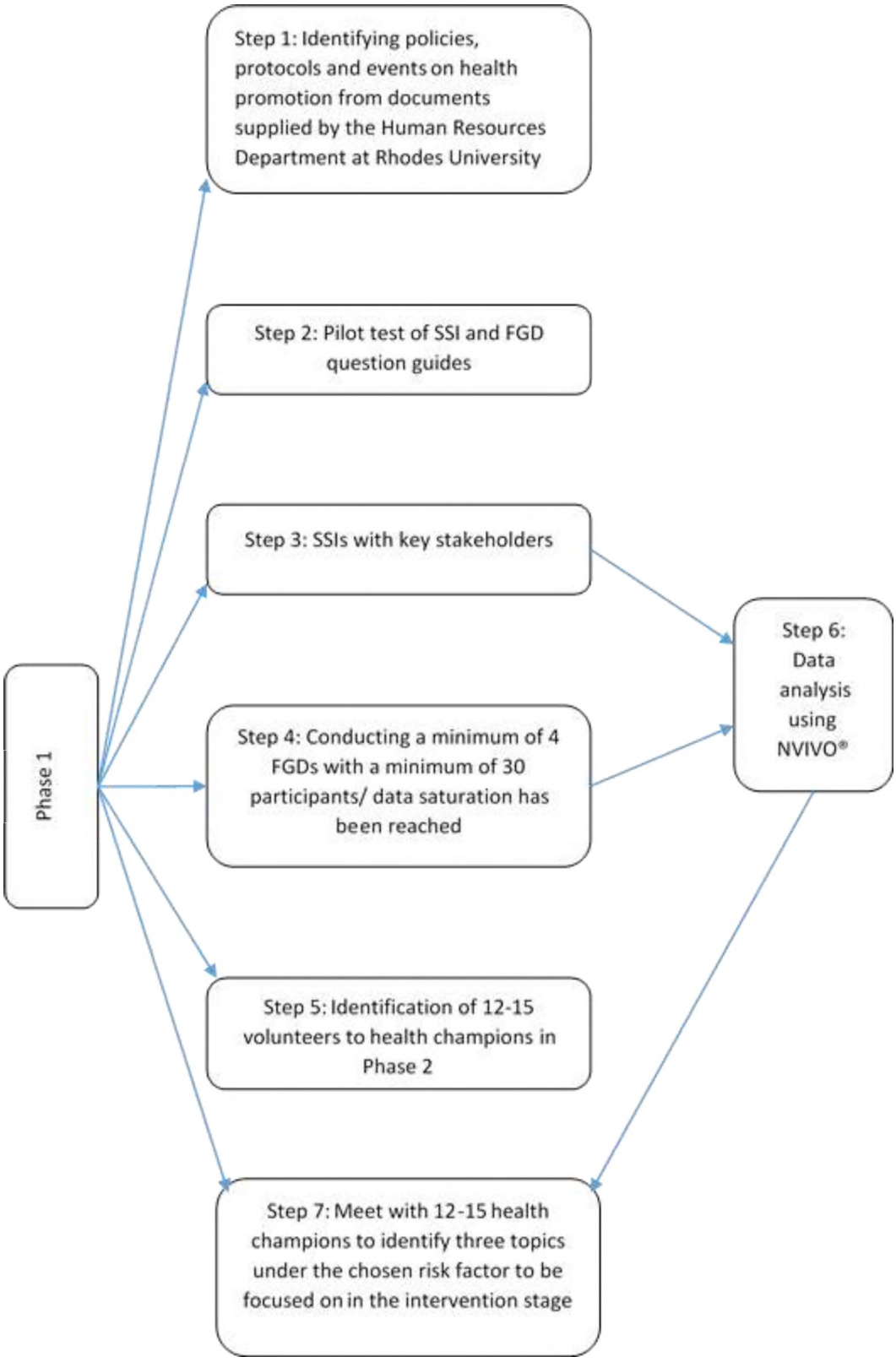


Figure 2: Flow chart of the Phase 1 method

3.11.2 Interim phase: Development of the HILs

The development and designing of health information leaflets (HILs) was guided by responses from the Phase 1 needs assessment, suggestions by the HAG, and was informed by literature based sources. The HILs underwent a series of evaluations for readability, suitability, and acceptability. More in-depth information on the development, design, and evaluation processes of the HILs is in Chapter 4.

3.11.3 Phase 2: Educational intervention

The educational intervention followed the interim development and design of the HILs. In this phase of the study, the intervention was implemented through workshops, where members of the HAG were trained on the selected topics. The intervention was then evaluated by the same members, using feedback questionnaires. The researcher also directly observed the participants during the workshops.

3.11.3.1 Workshop procedure

A series of workshops was conducted as part of the training for the members of the HAG. Workshops were used as a participatory and interactive teaching and learning platform. The purpose of the workshops was to further emphasise the written information presented in the HILs, as well as to demonstrate to the HAG and to mentor them on how to deliver these health messages to their fellow support staff members. The workshops also served as a platform where feedback on these learning sessions was obtained.

In preparation for the workshops, the relevant facilitators were contacted at least a week prior to the workshop, dates agreed on and times set. These details were confirmed telephonically the day before each workshop. The researcher also secured a venue where the workshop was to be conducted. Upon confirming the above, the researcher informed all members of the HAG in person of the workshop date and the venue. Reminders were also sent to the participants via text message the day before the workshop. On the day, the researcher ensured that the necessary resources were prepared and ready, for instance, printing the health information leaflets. The researcher arrived at the venue timeously in order to arrange furniture as desired and to lay out the materials required for each session.

Prior to the commencement of each workshop, the researcher formally welcomed all participants and introduced the facilitator to the group. A brief synopsis of the workshop was

also provided. Participants were reminded of the general rules. The duration of each workshop was approximately one and a half hours. At the end of each, all questions that participants may have had were answered. A few minutes were put aside for some teach-back sessions amongst peers. The workshops were concluded by the participants summarising and highlighting the main learning points and take home messages they gathered from the session. As part of the notices, participants were informed of the next workshop's topic. Feedback questionnaires to review each workshop were handed out to the participants as they left, and the completed forms were collected from them the next day.

3.11.3.1.1 Healthy eating workshop

This workshop was facilitated by the head nurse of the Health Care Centre at Rhodes University. This session was on heart healthy diets, with a specific focus on the effects of high dietary salt and fat consumption. It was guided by the information in the 'Salt and your heart' and the 'Fats and your heart' HILs. As part of the learning activities, cost-effective ways on how to reduce dietary salt and fats were discussed, including meal plans. A teach back exercise, where participants looked at various food labels to determine which foods had low, moderate or high salt and fat content, was another component of the learning and teaching exercise.

3.11.3.1.2 Gardening workshop

The gardening workshop was facilitated by a local horticulturist and was hosted at the Rhodes University garden. This session also emphasized and added to the gardening tips and suggestions to eat more fresh produce in the 'Salt and your health' and the 'Fats and your health' HILs. Several examples on how to start a garden in a low resource setting were discussed, and models were shown at the garden. Participants and the facilitator discussed the types of herbs and vegetables that could be planted in each season. Several recyclable materials, such as lunchboxes and old tins; and seedlings and cuttings, were made available for this session, and participants were afforded the chance to plant their own patches at the garden.

3.11.3.1.3 Physical activity workshop

The physical activity workshop was facilitated by a biokineticist. This session focused on incorporating physical activity into one's lifestyle and emphasized the information in the 'Physical activity and your heart' HIL. Several physical activity myths were discussed and

debunked. Simple and effective ways to incorporate physical activity into daily lifestyles were discussed. Simple routines that could be taught to others were also discussed, including ways of how to encourage others to be physically active. Role plays on how to promote physical activity and its benefits to others formed the teach-back exercise at the end of this workshop.

3.11.3.2 Evaluation of Phase 2

The evaluation part of the study was again exploratory in nature. Evaluations were conducted through observational methods, feedback questionnaires, and a final FGD.

3.11.3.2.1 Observational evaluation procedure

The researcher carried out observational methods of data collection and evaluations by observing how the participants were engaging with the learning activities. By using the observational method, the researcher could explore participant interest, participation, and understanding of the concepts being discussed and performed, as well as assess the feasibility and suitability of each workshop. The researcher also looked out for verbal cues that reflected participant discomfort and lack of understanding of the topic being discussed. This observation procedure was carried out at all three workshops.

3.11.3.2.2 Feedback questionnaire procedure

Feedback questionnaires (Appendix M) were distributed after each workshop in order to gather feedback from the participants on the strengths as well as the deficiencies of each workshop. They were also used as an evaluation tool to assess whether participants had correctly identified the key 'take home' points at each workshop.

3.11.3.2.3 Final focus group discussion

A final FGD, which served as the final project evaluation discussion, was conducted at the end of the project. This FGD was used as a platform for the HAG members and the researcher to evaluate the project and its usefulness in the promotion of healthy heart diets and physical activity. Gaps were also identified, and these were used as recommendations for future research. An FGD question guide (Appendix N) was used to guide the discussion. All participants were encouraged to share their personal reflections as well as their experiences on things that they now do as a result of this study. These reflections also aided in the evaluation of the usefulness of this study. Final member checks were also conducted during this FGD.

3.11.3.3 Summary of procedures in Phase 2

The flowchart below (Figure 3) illustrates a stepwise progression of Phase 2 of the study from the first workshop through to the final evaluation FGD.

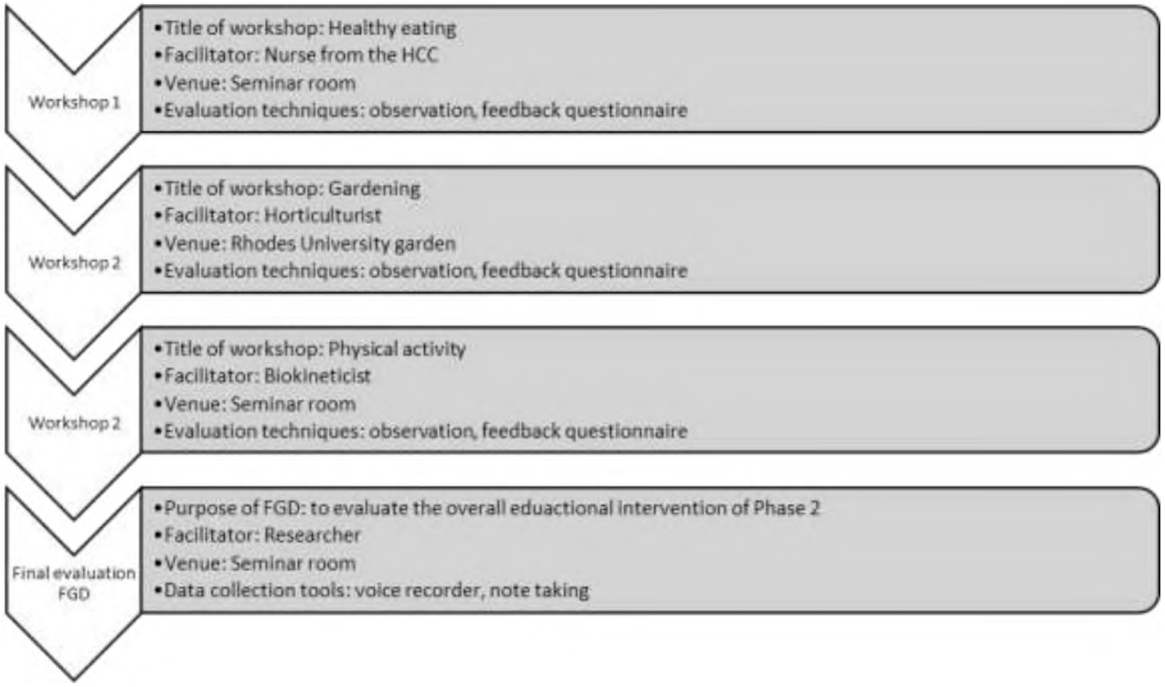


Figure 3: Flow chart of procedures carried out in Phase 2

3.12 Data analysis

The data gathered in the FGDs and SSIs was analysed through a thematic analysis method. As Braun and Clarke (2006) argue, thematic analysis provides a rich and detailed account of the data collected. It allows for the description of both implicit and explicit ideas within the data (Guest, MacQueen, & Namey, 2012) by identifying, analysing, and reporting themes and referring back to the research objectives (Braun & Clarke, 2006). Analysis of the SSI and FGD data followed a simple version of the general steps of qualitative data analysis as outlined by Creswell and Plano Clark (2011). This generic procedure is illustrated in Figure 4 below:

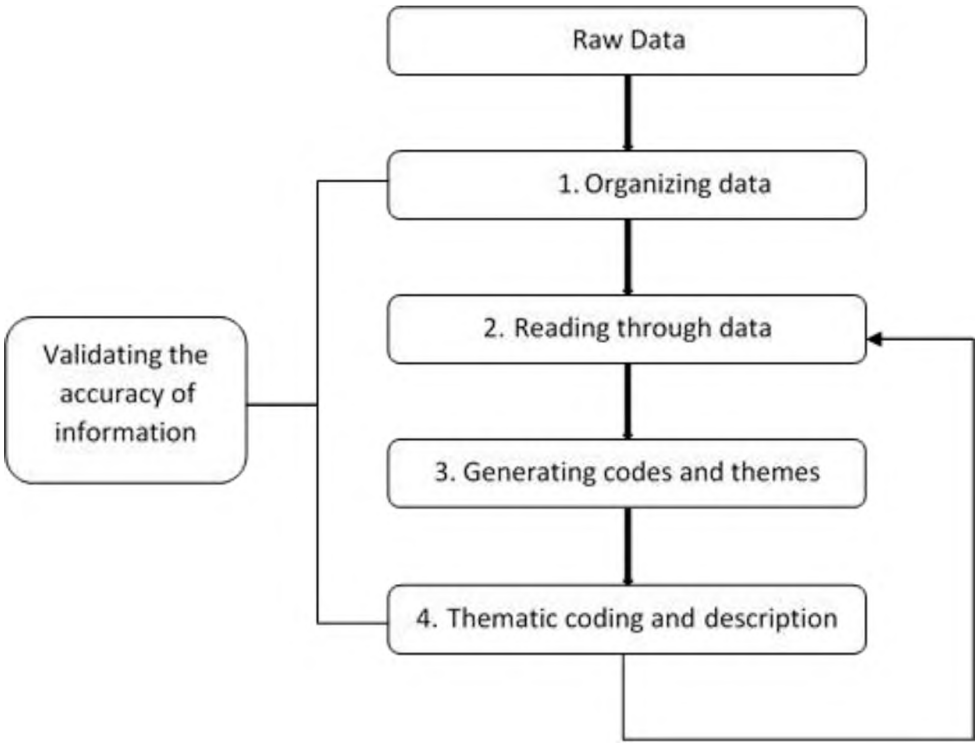


Figure 4: Data analysis steps

1. Organising and preparing data for analysis: Software tools for qualitative data analysis allow for easy sorting, structuring, and analysis of large amounts of text or other data, and facilitate the management of the resulting interpretations and evaluations (Weitzman, 2000). Over the years, the use of a computer software package to fully analyse and manage qualitative data has been highly advocated (Baugh, Hallcom, & Harris, 2010; Koshy, Waterman, & Koshy, 2011). Nvivo ® 10, data management computer software (QSR International, 2016) was used in this study.

   The researcher attended a one-day conference on the use of Nvivo ® 10 software, which was offered by CHERTYL at Rhodes University. The voice recordings of the SSIs and FGDs were transcribed verbatim from audio recordings to create a textual record for the researcher. These transcriptions were imported into and saved in NVivo ® 10.

2. Reading through data: This data exploration step requires the reader to read and re-read the transcripts in order to prepare to organise, break down into manageable chucks, code, synthesise, and identify patterns in the data (Creswell & Plano Clark, 2011). In order to get a general sense of the overall meaning of the data, all

transcribed materials were read through. During the reading process, initial themes and codes were noted.

3. Generating codes and themes: Data analysis via coding is performed, that is grouping data of the same meaning or relevance (Miles, Huberman, & Saldana, 2013). Using keywords and codes identified in step 2 above, the coding was conducted. Groups of coded data are referred to as nodes in NVivo ® 10 (QSR International, 2016). Examples of the initial codes were: conceptualisation of WHP, benefits of WHP, facilitating factors, limiting factors, and improvement.

4. Thematic coding and description: This refers to grouping data according to the themes identified and interpreting the meanings of these themes (Green, Willis, Hughes, & Small, 2007). After having identified and classified the factors affecting WHP at RU, the main objectives and aim of the educational intervention in Phase 2 were identified.

3.13 Ensuring Research Quality and Rigor

There is need for rigor in qualitative research so that findings may be seen as credible and valuable. Failure to assess the worthiness of a study could have dire consequences: ambiguous or meaningless research processes and findings may result in wasted finances, time, and efforts, while incorrect ones may result in unfeasible and unrealistic practices (Long & Johnson, 2000).

The researcher aimed to enhance the rigor of the study by using criteria commonly used in qualitative research to establish trustworthiness. The criteria employed include: credibility, dependability, confirmability, and transferability.

3.13.1 Credibility

Credibility refers to the degree of accuracy of the study findings. This was enhanced through triangulation, prolonged time in the field, member checking, peer debriefing, and external reviews; all of which are explained in detail below.

3.13.1.1 Triangulation

Patton describes triangulation as the use of multiple data collection techniques and tools in qualitative research in order to develop a comprehensive understanding of the area being studied. Denzin (1978) and Patton (1999) identified four types of triangulation. Method triangulation was used in this study.

- Six data collection techniques were used in this study: Document analysis, SSIs, FGDs, participatory workshops, direct observation, and feedback questionnaires.
- Document analysis was the process used to identify WHP policies as well as to identify and assess the documented reports and outcomes of past initiatives.
- SSIs were explorative in nature. They were useful in identifying, from a managerial perspective, the policies in place with regards to WHP, outcomes of past initiatives, facilitating and limiting factors of WHP, and the lessons learned from past initiatives.
- FGDs were useful in gaining insight into the target group's attitudes, behaviours, culture, and lifestyles. They were also useful in identifying, from the recipients of past WHP programs' perspectives, the facilitating and limiting factors of past initiatives, and the improvements they wish to see in order to improve WHP.
- Workshops were an interactive and co-learning exercise. They were used to re-iterate and emphasize information on heart healthy diets presented in the HILs. A nurse, biokineticist and a horticulturist were invited to give talks and to facilitate discussions in order to reinforce and to provide more detail on the information in the HILs.
- Observational methods allowed the researcher to assess participant interest and involvement in the workshops, which in turn helped in the assessment of their feasibility. This method was also used to pick up any non-verbal cues of discomfort and disinterest.
- Feedback questionnaires gave the researcher an idea of how well-received this educational intervention and the workshops were. From these, areas in the initiative that needed more attention and those that were most appreciated were identified.

3.13.1.2 Prolonged time in the field

Lincoln and Guba (1985) and Erlandson et al. (1993) recommend prolonged engagement between participants and the researcher to establish rapport between parties. The

development of an early familiarity with the culture of participants before data collection was another measure of ensuring trustworthiness of data.

- This was implemented in the study by dedicating the first two meetings with the HAG to 'meet and greet' and to getting to know each other. At these sessions, conversations were informal, and this facilitated the development of a rapport amongst the HAG members and the researcher.
- The relationship between HAG members and the researcher was further strengthened by frequent briefing sessions over the course of the study.
- Constant interaction with the HAG members enabled the researcher to identify other relevant factors influencing NCDs.

3.13.1.3 Member checking

Member checks are intended to provide the researcher an opportunity to verify the accuracy and completeness of their findings with the participants of the study, which in turn improves the validity of the study (Harper & Cole, 2012). This sharing of findings, interpretations, and conclusions of the research also contributes to confirming that the researcher accurately captured their suggestions and experiences (Creswell & Plano Clark, 2011; Koshy et al., 2011).

- Member checks were conducted at the end of all SSIs and FGDs. The researcher summarised the findings collected in the discussions, and then asked participants to confirm that the findings and interpretations were indeed correct. In cases of wrong deductions, the researcher asked participants to comment and to clarify any misunderstanding.
- Member checks were also conducted during the participatory FGDs with the HAG. These helped the researcher confirm that the information that was either appropriate or inappropriate during the HIL development process, as well as to confirm that the design, layout, and content of the HILs was in accordance with what the HAG expected.
- Member checks were conducted after each participatory workshop. The process was ongoing, and resulted in participants being more proactive, and sharing their personal

experiences and achievements. This information was useful to validate the success of the educational intervention.

It is argued that to strengthen this process, member checks could be undertaken by an independent party (Long & Johnson, 2000). In this case, the researcher conducted the check. This was because the researcher was concerned about the difficulties associated with the lack of rapport associated with using an external party, which would affect participant responses.

3.13.1.4 Peer debriefing

Peer debriefing (Creswell, 2012; Marshall & Rossman, 2011), also known as peer review, refers to the reviewing and evaluation of data and the research process by a peer or someone who is familiar with that research. A peer reviewer helps in the validation of research by providing the researcher with support through scrutiny and constructive criticism, challenging the choice of methods used and the researcher's interpretations of data (*The Blackwell Encyclopedia of Sociology*, 2007). Many researchers have advocated peer debriefing as a worthy process to increase the trustworthiness and credibility of qualitative research data (Creswell & Miller, 2000; Houghton, Casey, Shaw, & Baicker, 2013; Lincoln & Guba, 1985; Maxwell, 1996; Merriam, 1998; Spall, 1998).

- One peer reviewer was involved, with whom the researcher met regularly. In the meetings, upcoming steps of the research process were reviewed and evaluated. The reviewer also looked out for any inconsistencies in data and coding discrepancies.
- Meetings with the supervisor were scheduled fortnightly, and when necessary. In these meetings, progress with the study was discussed, and the research process and results were reviewed, evaluated and refined.

3.13.1.5 External reviews

External reviews refer to feedback, after scrutiny of research findings, from colleagues, peers, other researchers, and other people that are not involved in the research. Peer scrutiny of the research methodology, results, and interpretations were obtained from the following:

- The study data and interpretations were presented at academic and professional university seminars, local and national conferences, and colloquia (Research Outputs on Pages 20 and 21). Feedback from these platforms (where consent was obtained)

was either voice-recorded or written down, and then used to clarify or refine the issues highlighted. These seminars, conferences, and colloquia were made possible through the support of the supervisor and the Faculty of Pharmacy at RU.

- The researcher attended a qualitative research design course offered by the Faculty of Education at RU, where ideas on methodology and the presentation of results were discussed by peers and trainers. These discussions also provided insight on steps that could be taken to improve the research process.
- The researcher attended a research design workshop hosted by the Centre for Postgraduate Studies at RU, where research methodologies and data collection tools were discussed. In this participatory workshop, the content from the above mentioned research design course was further reiterated. This helped the researcher to plan the research process.
- The researcher attended a transdisciplinary research workshop hosted by the Centre for Postgraduate Studies in collaboration with the RU Transdisciplinary Research Group. In the two-day exploratory workshop, research approaches to integrate different disciplines and mixed methods research were discussed with peers and the hosts. This workshop provided further insight into this study's research approach.
- The researcher was part of a writing circle that was initiated by the supervisor, where sections of the thesis and research plans were critically evaluated by peers from different disciplines, such as Social Sciences and Education.
- Findings were also shared in a research team that met fortnightly, with three other peers pursuing a health promotion based Master's Degree in the field of Pharmacy Practice, and the supervisor. During these discussions, results were presented, ideas were bounced off each other, and results were further analysed in an attempt to clarify interpretations.
- A final FGD served as a platform to conduct final member checks through research evaluation for all research partners.

3.13.2 Dependability

Dependability refers to how consistent the study findings are, and to whether they could be repeated in the same context, with the same methods, and with the same participants

(Merriam, 1998). In contrast to quantitative research, where objectivity is the main goal, qualitative researchers acknowledge that data gathered and its analysis are subjective, which makes dependability difficult to assess. However, dependability may be achieved by using a clear audit trail (Koch, 2006). This should be evident within the research methodology, data analysis, and the discussion (Long & Johnson, 2000), so that an assessment of the interpretations can be made against the evidence provided.

3.13.2.1 Audit trail

The degree to which the research was traceable and documented was enhanced through an audit trail (Tobin & Begley, 2004). An audit trail allows any observer to trace the research process step-by-step, via the decisions made and procedures described (Shenton, 2004). Auditing for dependability requires that data and descriptions of the research are elaborate and rich (Seale, 1999). To ensure trustworthiness of the research through dependability, the following contributed to the audit trail in this study:

- Raw data in all forms: voice recordings, videos, transcriptions field notes, and summaries were all filed and archived.
- Meeting minutes from member checking and peer debriefing were filed and archived.
- Study context and setting have been reported.
- Time period over which the research was conducted was reported.
- Number of participants was reported.
- Data collection process is fully described in Chapter 3.
- Data analysis process is also described in Chapter 3, including the software used.
- All documents used are fully cited in the References section.

Tuckett (2005) advocates the use of remarks in transcripts, as they act as signposts and enable the reader to further conceptualise the emerging themes by following the audit trail. These appear in the Results section throughout Chapter 5 as evidence to support the subsequent claims.

3.13.3 Confirmability

Confirmability refers to the adequacy of the information reported, from the research objectives and protocols for data collection, stages of data analysis, through to the

interpretation of the findings (Sharts-Hopko, 2002). It also refers to the degree to which the results can be corroborated and confirmed by others (Lincoln & Guba, 1985). A neutral researcher who tries to be non-judgemental provides a clear and balanced opinion to minimise personal biases during the study, and their findings also contribute to the trustworthiness and confirmability of the findings (Murphy & Yielder, 2010).

- The findings of this study are shaped by participant responses and not by the researcher's bias. This was enhanced through peer debriefing, member checks, and an audit trail which serve as demonstrations of the degree to which the researcher has remained true to the data.
- The researcher attended a one-day course on 'data collection procedures and data handling' prior to the commencement of data collection. Several scenarios, dilemmas, and predicaments with regards to collecting, handling, and reporting data were discussed with peers and trainers. This course was useful in helping the researcher account for or eliminate individual subjectivity or bias during data collection and analysis.
- The researcher also attended a two-hour research design decisions workshop conducted by a team of senior researchers at the university, with a focus on the validity and quality of data. Confirmability and trustworthiness aspects were discussed, and this workshop helped the researcher be vigilant when reporting the true findings of this research.
- An audit trail is available.

3.13.4 Transferability

Transferability refers to how findings can be applied in other contexts or to populations outside the actual study context (Maxwell, 2002). The researcher in no way claims that this study's findings are transferable to other workplaces. Instead, the researcher sought to enhance the degree of applicability of the study finding through triangulation and member checking. Lincoln and Guba (1985) highlighted that generalizability is not a goal of qualitative research. However, the researcher has given a 'thick description' of the study context, the research process, and its findings for those reading the study report to evaluate how findings

apply to their own contexts. Generalizability and transferability may only come from the reader and not the researcher.

4. CHAPTER 4: DESIGN AND EVALUATION OF HEALTH INFORMATION LEAFLETS

4.1 Introduction

This chapter provides a brief background on the use of health information leaflets (HILs) and a justification of why they are used in this study. The methods used in designing and evaluating the leaflets are described. All the participants, together with their roles and contributions, are also described.

4.2 Background

Having knowledge of NCDs and the major risk factors may influence healthier lifestyles. Development of clear, short, and concise health information is required in order to deliver effective health messages, and these in turn may influence social change in the form of healthy behaviours (Glasgow, McCaul, & Fisher, 1993; Graves & Graves, 2003). Printed health information materials are useful for enhancing health knowledge in individuals. However, such materials need to be readable and suitable to the target group if they are to have the intended effect (Buckton et al., 2015; Burke & Greenberg, 2010; Shieh & Hosei, 2008).

One step to increasing understanding of written health materials is to improve the quality of the materials in the instruction for all individuals, especially those with limited literacy skills (Ryan et al., 2014). Factors such as visual illustrations, the use of familiar words and phrases, and avoidance of complex words may increase the readability of materials and the ease of comprehension (Sargeant, 2005; Vargas, Kantak, Chuang, Koolen, & Lee, 2015).

Health education can be effective with audio-visual aids. However, oral communication often fails because it is misunderstood and/or forgotten. Information leaflets could therefore be considered as a way of supplementing health education (Rosdahl, Swamy, Stinnett, & Muir, 2014). A number of guidelines for producing written information have been produced over the last few years. These include advice on planning, writing, and design, but also emphasize the importance of obtaining evidence-based information, and involving both medical personnel, target groups, and other members of the public (Hung & Stones, 2014; Lampert, Wien, Haefeli, & Seidling, 2016; Renuka & Pushpanjali, 2013; Rosdahl et al., 2014; Williams, Muir, & Rosdahl, 2016).

4.2.1 Background of study

The decision to use HILs in the intervention phase was informed by the findings of Phase 1, where key stakeholders and peer educators suggested their preferred means of communicating health messages. Using HILs was most frequently mentioned. The content of the HILs was informed by Phase 1 FGD and SSI findings, where key stakeholders and support staff afforded the researcher insights into factors that influence NCDs, the NCDs most commonly affecting the support staff and their families, and the information needs of the target group. Heart health was the most frequently mentioned. Collating the polls for which risk factor to be focused on in the intervention showed that diet had the most votes.

The Health Awareness Group (HAG) members then assisted by narrowing down the topics of focus and highlighting knowledge areas that they felt should be included in the HILs, both to increase their own knowledge and to assist in peer education efforts. The HAG also strongly believed and justified the inclusion of an HIL with information on 'physical activity and the heart' as diet and physical activity are closely related. The final topics and suggested knowledge areas were as follows:

- Salt: where it is found, its effects on the heart/body, how to reduce salt in the diet.
- Fats: where they are found, their effects on the heart/body, the good and bad fats, how to reduce dietary fats.
- Physical activity: benefits of physical activity for the heart, ways of being physically active without going to the gym, advantages of physical activity.

4.2.2 Role players

The Health Awareness Group

The Heath Awareness Group (HAG), a group of support staff, who during Phase 1 of the study volunteered to participate in the educational intervention. The group consisted of 15 members, of whom 11 were already peer educators (these peer educators were involved in a mentoring program on HIV/AIDS at the workplace). The HAG members actively participated in the evaluation of the HILs and training as peer educators for workplace health promotion of heart healthy diets.

The researcher's peers

The peers involved in this study were fellow Master of Pharmacy candidates also working on health promotion projects. They were involved in evaluation of the HILs and provided formative feedback during their development process. The researcher's peers were valuable contributors to the development and design process of the HILs, as they offered 'extra eyes' that picked up certain errors the researcher may have overlooked as well as offered ideas on how to improve the HILs.

Other health professionals

A doctor, pharmacist, nurse, and dietician were involved in assessing the content validity of the HILs, providing formative feedback on the content and design of HILs, as well as assessing them against the SAM and PEMAT checklists. These health care professionals were pertinent to the development of the HILs, as their vast knowledge and experience in the health sector informed several design and content changes in the HILs, to make them accurate and user-friendly.

African culture and languages expert

A local Grahamstown citizen who is an expert in African culture and languages contributed to this study by evaluating the literacy demand and cultural appropriateness of the content and graphics used in the HILs. His input is deemed valuable as he is both an expert and a local resident, therefore familiar with the literacy needs of and the cultures of the locals.

4.3 Brief overview of the study

Both Chapters 3 and 4 describe the methods used in the various phases of this project. This interim phase of the study consisted of four main stages.

- Stage 1: Conceptualisation of the first draft of the HILs, their evaluation, and output of the modified first draft.
- Stage 2: Content validation, qualitative, and quantitative evaluation by other health care professionals (doctor, pharmacist, nurse, dietician, and language and culture expert), which resulted in output of the second draft HILs. The drafts were quantitatively evaluated using readability tests, the Suitability Assessment of Materials (SAM) tool and the Patient Education Materials Assessment Tool (PEMAT).

- Interim stage: pilot testing of question guide for the evaluation FGD.
- Stage 3: Second draft HILs were evaluated for readability, suitability, acceptability, and actionability. Qualitative evaluation of the second draft of the HILs through FGDs (members of the HAG- 15 support staff representatives), which resulted in the third draft HILs.
- Stage 4: Final editing, language editing, and graphics editing, which resulted in the final HILs. Final HILs were quantitatively evaluated for readability, suitability, acceptability, and actionability as in Stage 2.

4.4 Conceptualisation of the HILs

The objectives of Phase 2 of this study were to design and evaluate HILs containing information about heart healthy diets and physical activity. The objectives were informed by the results of Phase 1 of the study, which was a needs assessment. Guidelines for designing health related information were obtained from different sources and were consulted at all stages of designing the HILs. The initial design of the HILs was formulated by the researcher using templates in Microsoft® Publisher software. As the researcher's first language is English, HILs were designed in English. Once finalised, they would later be translated into Afrikaans and IsiXhosa.

4.4.1 Literature based sources

An extensive literature review was conducted to gather evidence-based information to include in the HILs. Literature based sources on healthy heart diets and physical activity, such as books, HILs, and infographics from WHO, NGOs, and NDoH were gathered (Academy of Nutrition and Dietetics, 2012; American Heart Association, 2014, 2016; British Heart Foundation, 2016; HelpGuide, 2016; Kita, 2010; Lachat et al., 2013; The Society for Cardiovascular Angiography and Interventions, 2016; WHO, 2015d, 2010, 2014d). These sources were helpful in identifying the necessary information on the relationship between salt, fats, and physical activity to heart health, for inclusion in the HILs. They were also useful in identifying how to design the HILs, and how to structure the content. Other sources included journal articles and internet websites (reference information is included in the reference list).

4.5 Design of HILs

Many factors should be considered when designing all types of health information materials, including HILs. The topics covered, reading level, terminology, and language should be suitable for the intended target group (Lake et al., 2007; Robertson, 2008). Health promotion messages do not have to be complex, technical or scientific, however also need not be so over-simplified that the core messages lose their meaning (Carr & Descheemaeker, 2008; Nature, 2013; Smith, Chu, & Langford, 2008; Weiss et al., 1994). Although people may appreciate reading health promotion materials, the challenge of ensuring that messages make sense to the final readers lies in including an adequate number of relevant and relatable facts about the topic, so that readers understand and are able to act on the messages received (Whittingham, Ruiter, Castermans, Huiberts, & Kok, 2008).

Several authors have proposed guidelines for designing reading materials for use by the public (Doak & Doak, 2010; Hoffmann & Worrall, 2004; Houts, Doak, Doak, & Loscalzo, 2006; Hung & Stones, 2014; Lampert, Wien, Haefeli, & Seidling, 2016; Moult, Franck, & Brady, 2004; Maat & Lentz, 2010; Renuka & Pushpanjali, 2013; Secker, 1997; Shaddock, 2002). The following information areas were the focus when designing the HILs:

- Content: Short, succinct sentences are preferred in order to minimise potential misinterpretation and to make the leaflet informal. These increase the understanding of the written information.
- Format: Spelling and grammar in the text should be checked.
- Language: Simple, short, familiar words should be used, as these aid in making the HIL user friendly. Scientific and medical terminology should be limited and where this cannot be avoided, definitions should be provided.
- Font size and type: Large font sizes are advisable, as they facilitate reading. Font sizes 12 and larger are considered acceptable. Sans serif fonts are often used. The use of bold and italics should be kept to a minimum. Capital letters should be avoided because these are difficult to read and slow the reading process.
- Layout: Layout should be consistent throughout the leaflet. The page must not be filled with text, and sufficient white space is required to yield a less challenging HIL. Short, non-justified paragraphs and bullet points are preferred, as these organise the text, thus making the HIL inviting to read.

- Print colour: Black print on white background is the most commonly found and best to use, since it is easier to read than coloured prints, especially for colour-blind individuals. Red should be used for warnings only.
- Paper size: A4 and A5 are preferable for long leaflets, as these are easy to turn over. The z-fold design has also been used.
- Headings: Headings must be conspicuous and short, as these are easier to read. Capital letters may be used for headings.
- Style: The active voice is favoured because it personalises the text and minimises potential confusion and misinterpretation.
- Graphics: Pictures and photographs should relate to supplementary text. Decorative images should be avoided as these can cause confusion.

This leaflet design was guided by a checklist that was adopted from Secker (1997) and Tutty and O'Connor (1999). Figure 5 below shows the checklist.

	Leaflet Checklist	√
Information	Up-to-date and accurate information	
	No unnecessary detail	
	Information is as requested by readers	
	Well-organised under each heading	
Headings	Action oriented or Question and answer type	
	Stand out from main body text	
Writing style	Reading level is appropriate	
	No more than one idea in a sentence	
	Use of personalised pronouns	
	Use of everyday language	
	Medical terms are explained	
Colour	Attractive	
Text design	Clear and uncluttered	
	Avoid too much bold and italics	
	Use of bullet points	
	12-point type or larger	
Illustrations	Simple and uncluttered	
	Meaningful to readers	
	Positioned to relevant texts	

Figure 5: Checklist for leaflet design

4.5.1 Content of HILs

The content of the HIL provided information on heart healthy diets and physical activity. The three topics included: 'Salt and your heart', 'Fats and your heart', and 'Physical activity and your heart'. Below is a summary of the information in the HILs:

- A general introduction on salt, fats, and physical activity
- Effects of diets high in salt and fats, and the effects of physical inactivity on the body and, more specifically, the heart

- Advantages of healthy diets and physical activity
- Tips on how to reduce dietary salt and fats, and on how to increase physical activity in one's lifestyle and daily routines
- An interactive activity in each pamphlet that aimed at helping the reader remember the main learning points of the HILs

The specific headings under which information was grouped in each leaflet are as follows:

Table 4-1: The headings under which information falls in each HIL

	Headings
Salt and your heart	• How does salt enter your body? • How does excess salt affect your heart? • What is high-high? • Know your numbers! (promotion of regular blood pressure checks) • How can you prevent high blood pressure? • How can you reduce salt in your diet? • What kind of foods are high in salt? • Healthy tip: Start a vegetable garden?
Fats and your heart	• What is fat? • Why do you need fats in your diet? • What are heart healthy fats and their benefits? • What are unhealthy fats and their effects? • How can you reduce fats in your diet? • How do you know which foods to buy?
Physical activity and your heart	• Your heart and physical activity • What is physical activity? • What are the benefits of physical activity for your heart? • Other benefits of physical activity • Let's get active! (easy and cheap ways to keep active at home and at work) • Just for fun! (a crossword puzzle)

The HILs also included pictures and photographs to augment and highlight the written text. Some information was grouped into a table form.

4.5.2 Format and languages used in the HILs

The HILs were in the form of A4 size paper that was divided into three panels in the landscape orientation. The paper was printed on both sides and folded into a z-fold design. The cover panel consisted of the title and cover art of the HIL. The main information was on the four inside panels, including the folded over back panel. The back panel consisted of an activity related to the HIL information and acknowledgements. The headings were in the form of questions in bold font and Arial font size 18. The accompanying information was in Calibri font size 14.

4.6 Evaluation of the HILs

Several methods have been developed and validated to evaluate printed health materials before they are publicly distributed (Lake et al., 2007; Lampert et al., 2016). These include both direct and indirect methods, as well as objective and subjective methods to assess the utility of these materials. The indirect methods include design assessment tools and readability tests that are objective, while the direct methods include FGDs, individual SSIs, and self-administered questionnaires (Badarudeen & Sabharwal, 2010; Lampert et al., 2016; Lee, Kim, Yoo, & Lee, 2016; McClinchy, Dickinson, Barron, & Thomas, 2011; Vallance, Taylor, & Lavallee, 2008; Wang, Miller, Schmitt, & Wen, 2013). All these methods have both strengths and limitations, and it is often recommended that more than one method is used for evaluation, in order to increase the validity of the results (Badarudeen & Sabharwal, 2010).

4.6.1 Evaluation of the design and layout of the HILs

Design and layout are key elements to assess in pamphlet design. The way the information is laid out on the page can assist or inhibit the readers' interest to read and their understanding of the HILs (Chubaty, Sadowski, & Carrie, 2009; Hung & Stones, 2014). The HILs underwent a series of design and layout evaluations by the researcher and some peers. Formal evaluations, through focus group discussions, were carried out by the HAG, as well as another group of support staff during the pilot testing. Formative evaluative feedback was also received from other professionals. In these evaluations, participants were encouraged to share both the positive and negative aspects of the HILs' design and layout, in order for the researcher to

improve and tweak the HILs, so that they were optimal reading materials for the intended target group.

Different methods and instruments are used to evaluate the readability, suitability, comprehensibility, and content of health education materials (Clayton, 2009; Finnie, Felder, Linder, & Mullen, 2010; Hoffmann & Ladner, 2012; Walsh & Volsko, 2008). In order to assess the designed HILs, readability formulae, the Suitability Assessment of Materials (SAM) and the Patient Education Material Assessment Tool (PEMAT) were used.

4.6.2 Evaluation of readability of HILs

There are various definitions of readability. Klare (1963) defined readability as "the ease of understanding or comprehension due to the style of writing." Richards, Platt, and Platt (1992,), defined readability as "how easily written materials can be read and understood. This depends on several factors including the average length of sentences, the number of new words contained, and the grammatical complexity of the language used in a passage." Other useful definitions include those by William H DuBay (2007), McLaughlin (1969), Dale and Chall (1949), and (Hargis (1998). Readability may be calculated and quantified by using readability formulae.

4.6.2.1 Readability formulae

Readability formulae are mathematical formulae used to determine the difficulty of a given text. They typically take into consideration aspects of writing, such as the number of sentences and sentence complexity, which are measured by sentence length and vocabulary complexity, determined by the number of syllables in each word or the word length used (Fry, 2002; McLaughlin, 1969). The classic readability formulae predict comprehension (McLaughlin, 1974), and most do so by providing a numerical score representing the educational level necessary to read and understand a given text (Klare, 1974). Readability formulae offer good and quick starting points for matching readers with appropriate reading material (Doak, Doak, & Root, 1996; Friedman & Hoffman-Goetz, 2006; Gunning, 2003; Sperling, 2006).

According to DuBay (2004), over 200 formulae have been created. The most commonly used include the Flesch-Kincaid Grade Level Score (FKGLS), the Flesch Reading Ease Score (FRES), and the Simplified Measure of Gobbledygook (SMOG) (Luk & Aslani, 2011). The SMOG

formula is frequently cited for use in the assessment of health education materials (DuBay, 2007). For the purposes of this study, the SMOG, FKGLS, ARI, CLI and FRES formulae were selected to assess the readability of the second drafts and final versions of the designed HILs.

4.6.2.1.1 Simple Measure of Gobbledygook

The Simple Measure of Gobbledygook (SMOG) assesses word length, sentence length, and the number of syllables per word. The score is then indicated as a grade school level (McLaughlin, 1969). SMOG is an accurate and convenient method of analysing the readability of health education literature and was recommended by the U.S. National Cancer Institute (1979) for the assessment of cancer-related pamphlets. However, SMOG results are often one or two grade levels higher, because it is based on stricter criteria for readability and classifies reading grade levels based on 100% comprehension ability (Meade & Smith, 1991).

4.6.2.1.2 Flesch-Kincaid Grade Level Score

The Flesch-Kincaid Grade Level Score (FKGLS) assesses the average number of syllables per word and the average number of words per sentence. The results of this test are also indicated as a U.S. grade school level (Kincaid, Fishburne Jr, Rogers, & Chissom, 1975).

4.6.2.1.3 Flesch Reading Ease Score

The Flesch Reading Ease Score (FRES) is a formula that assesses text based on sentence length and the number of syllables per word. Scores are represented as a number between 0 and 100 (the highest possible score) and may be equated to the educational level required by the reader in order to read and understand the given text (Flesch, 1948). The higher the FRES score, the easier it is to read. Texts with very high FRES scores (90-100) are considered very easy to read, and may be understood by 10 year old scholars. Those with very low scores are considered confusing and may require the reader to be at least a college graduate to be able to read and understand the given text (Dawson, 2008).

4.6.2.1.4 Automated Readability Index

The Automated Readability Index (ARI) formula computes a grade level score using the word difficulty and sentence difficulty within a text. It is derived from ratios representing the number of letters per word and the number of words per sentence. The recommended grade level for readability is between 7 and 8. Its scores correspond to U.S. grade levels (Kincaid et al., 1975).

4.6.2.1.5 Coleman-Liau Index

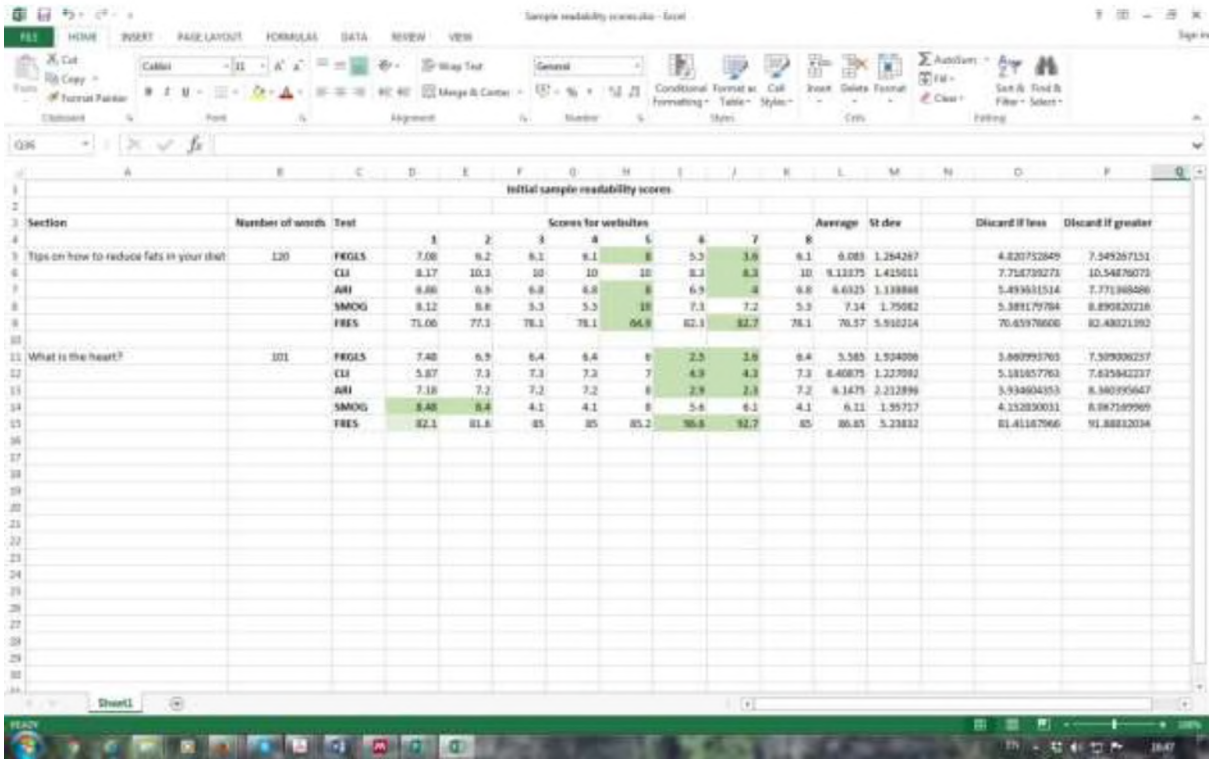
The Coleman-Liau (CLI) formula computes the grade level using the number of characters within the text as well as the average sentences within 100 words. The recommended grade level for readability is between 7 and 8 (Coleman & Liau, 1975).

4.6.2.2 Online readability websites

Computer programs that automatically calculate readability scores have been created (DuBay, 2004). Online readability calculators were searched for on the worldwide web and eight websites were identified.

1. http://www.online-utility.org/english/readability_test_and_improve.jsp
2. https://readability-score.com/text/
3. http://www.joeswebtools.com/text/readability-tests/
4. https://www.dairyscience.info/read/text-clarity.php
5. http://www.justwebcontent.com/readability-analyser/
6. http://storytoolz.com/readability/show-stats
7. http://www.checktext.org/
8. http://www.webpagefx.com/tools/read-able/check.php

Using all five readability tests identified in section 4.6.2.1 and the three websites listed above, readability tests were conducted on all sections of the leaflets, and the results were analysed.



Initial sample readability scores

Section	Number of words	Test	Scores for websites								Average	St dev	Discard if less	Discard if greater
			1	2	3	4	5	6	7	8				
Tips on how to reduce fats in your diet	120	FKGLS	7.08	6.2	6.1	6.1	8	5.3	3.6	6.1	6.083	1.264267	4.820752849	7.345267151
		CLI	8.17	10.3	10	10	10	8.3	8.3	10	9.13375	1.415011	7.716719271	10.54878073
		ARI	6.66	6.9	6.8	6.8	8	6.9	6	6.8	6.6325	1.139868	5.493631514	7.771368686
		SMOG	8.12	8.8	9.3	9.3	10	7.3	7.2	9.3	7.34	1.75082	5.589179784	8.890820216
		FRES	71.06	77.3	78.1	78.1	64.8	82.1	82.7	78.1	78.57	5.910214	70.65976600	82.48021392
What is the heart?	101	FKGLS	7.48	6.9	6.4	6.4	9	2.5	3.6	6.4	5.585	1.934006	3.669993701	7.509006257
		CLI	5.87	7.3	7.3	7.3	7	4.3	4.3	7.3	6.40875	1.227092	5.181657761	7.635842237
		ARI	7.18	7.2	7.2	7.2	8	2.9	2.3	7.2	6.1475	2.212896	3.934604353	8.360395647
		SMOG	8.48	8.4	8.1	8.1	8	5.6	6.1	8.1	6.11	1.35717	4.152830031	8.067169969
		FRES	82.1	81.6	85	85	85.2	98.6	92.7	85	86.85	5.23832	81.41167966	91.88832034

Figure 6: Sample readability scores

In order to reflect accurate results, more than one website was used to determine the readability scores of the readability of each HIL. In Figure 6, the values highlighted in green show the outliers from the two data sets assessed. Five websites with either one or no outliers on either of the two data sets were identified. Three of these (websites 3, 4 and 8) showed identical results and it was suspected that the same readability score calculator was used by the different websites. One (website 4) of the four was selected, and ultimately three websites were used for the calculation of readability scores. The links to the websites used in this study are given below:

1. Online-utility.org https://www.online-utility.org/english/readability_test_and_improve.jsp
2. Readability score https://readability-score.com/text/
3. Joe's Web Tools http://www.joeswebtools.com/text/readability-tests/

Text from each HIL was copied into separate plain text documents. Text deemed not relevant to health education was deleted, including copyright notices and acknowledgements. For each HIL, all sections were combined, prepared, and then copied and pasted into the different online tools where readability was calculated. All results were in the form of grade levels, with

the exception of the FRES results, which were numbers between 0 and 100 which were converted to grade level equivalents to allow comparison with other readability test scores. Results were recorded and averages for each test were calculated on a spreadsheet in Microsoft® Excel.

In recognition of the shortcomings of readability formulae, several other instruments are relied upon that assess the comprehensibility, usability, and suitability of materials. Instruments such as the SAM and PEMAT may be used to assess other characteristics of written information that are not addressed by the readability formulae.

4.6.2.2.1 Limitations of readability formulae

Readability formulae were used with caution, as there are several known limitations (Friedman & Hoffman-Goetz, 2006; Meade & Smith, 1991). They were used as a quick screen of difficulty, as the results obtained from readability formulae are only estimates of readability and not absolute measures of the required reading levels (Gunning, 2003; Sperling, 2006). When analysing materials written for adults, it is therefore important to remember that most of the classic readability formulae were validated using children and children's materials (McLaughlin, 1974).

Most formulae predict 50% to 75% comprehension, not 100% (Klare, 1974). Formulae also do not take into account the reader's familiarity with a specific topic or knowledge of specialized jargon (Redish & Selzer, 1985). Multisyllabic words can raise a document's readability score, while short words may score well, even if they are not commonly used or widely understood. Long words such as cholesterol and hypertension will increase the reading level of a given text; however, people suffering from chronic or complex conditions or from their own general knowledge may have become familiar with such medical terminology (Burke & Greenberg, 2010). Therefore objective assessment of the reading level of text including such words will not accurately reflect the reading demands encountered by more experienced readers.

4.6.3 Suitability of the health information leaflets

Suitability is an undervalued aspect of health care information, and can help predict whether or not that information will be understood by the target population (Nasser, Mullan, & Bajorek, 2012). Although grade-level readability is one of many factors that contributes to the overall readability of materials, even materials written on a low grade level may be difficult

to comprehend if the organization, layout, and design are not suitable. Only a few published assessments have been designed to evaluate the suitability of written health education materials (Mayeaux et al., 1996; Vahabi & Ferris, 1995). To address the overall suitability of materials, including reading grade level, Doak and Doak developed the Suitability Assessment of Materials (SAM) (Doak et al., 1996). The SAM is one of the most widely used assessment tools and has been greatly used in the assessment and improvement of health education materials, including materials developed for low literates (Ryan et al., 2014).

4.6.3.1 Suitability Assessment of Materials checklist

The Suitability Assessment of Materials (SAM) instrument is a systematic method of assessing the suitability of health-related information for a particular target group in a short space of time. The SAM guides the researcher to rate the relative ease of decoding words (readability) and the relative ease of understanding the meaning (comprehension). This tool can be used to identify specific shortcomings that reduce the suitability of materials: either in the development stages or with existing materials (Doak, Doak, Miller, & Wilder, 1994).

Materials are rated in six areas, which include: content, literacy demand, graphics, layout and type, learning stimulation and motivation, and cultural appropriateness (Doak et al., 1996; Ryan et al., 2014). Using a point system for each area, materials are then ranked as superior, adequate or not suitable content. The score is then calculated by adding the total points and dividing by the total possible score. The score is then converted into a percentage and may be interpreted as shown in Table 4-2 below. These results are used to identify the insufficiencies of the materials developed, which may then be addressed and revised to improve the content (Doak et al., 1994; Jahan, Al-Saigul, Alharbi, & Abdelgadir, 2014). Appendix M, the SAM score sheet, was used as the data collection tool.

Table 4-2: Interpretation of percentage scores of the SAM

Percentage Score (%)	Interpretation of SAM ratings
<39	Inadequate
40- 69	Adequate
>70	Superior

4.6.4 Actionability and Usability of HILs

Written information needs to be comprehensible for readers to understand and act on the message (Lee et al., 2016). The PEMAT has been identified as a useful evaluation tool that may be used to assess how understandable and actionable written materials are (Kanchan, Tejaswini, Sagarkar, Ranadheer, & Shwetha, 2016).

4.6.4.1 The Patient Educational Materials Assessment Tool

The PEMAT is an instrument that systematically assesses the understandability and actionability of written materials based various parameters, including clarity of purpose, appropriateness of the vocabulary, organisation, and the use of visual aids (Shoemaker et al., 2014). According to the PEMAT User's Guide, materials are understandable when consumers of diverse backgrounds and varying levels of health literacy can process and explain key messages. Materials are actionable when consumers can identify what they can do, based on the information presented (Shoemaker, Wolf, & Brach, 2013).

To assess understandability, the PEMAT rates 17 desirable and undesirable characteristics in six categories: content, word choice/style, use of numbers, organization, layout/design, and visual aids. To assess actionability, the tool rates seven additional characteristics. The overall understandability score is calculated as an average of the six category scores, while the overall actionability score is calculated as an average of the seven item scores in that scale. Scores range from 0% to 100%, with higher scores indicating that the material is easier to understand and act on. For the purposes of this research, using this tool, the HILs were assessed for their actionability only, as the understandability component of this checklist was similar to that of the SAM tool. Appendix L, the PEMAT score sheet, was used as the data collection tool.

4.6 Modifications made to the health information leaflets

The HILs went through a four-stage process of modification. Each stage and the main role players and/or types of evaluations performed are detailed below:

4.6.1 Stage 1 modifications

After conceptualisation of the first draft HILs, changes were made to the first draft of all leaflets following personal observation and peer scrutiny. These changes resulted in the output of the modified first draft HILs, which were used in Stage 2 of the design and development process.

4.6.2 Stage 2 modifications

The modified first draft HILs were assessed for validity of their content. A doctor, pharmacist, dietician, and nurse were consulted to assess all three HILs. Upon receiving formative feedback from these health professionals, relevant feedback was incorporated into each HIL, and resulted in the second draft HILs.

A local culture and African languages expert also evaluated the HILs for their literacy demand and cultural appropriateness. Feedback received also informed some of the contextual and graphical changes that were made to the modified first draft HILs.

4.6.3 Stage 3 modifications

An FGD was conducted for each HIL, where the HIL was evaluated by members of the HAG. HILs were evaluated to assess participant opinion on the concept of using HILs, its content, layout and format. A previously pilot-tested and revised question guide (Appendix J) was used to guide the FGDs. Feedback received from the HAG was incorporated into each HIL. At this stage, all HILs were tested for readability, suitability, acceptability, and actionability.

Readability tests were conducted by the researcher using online readability tests. The suitability, acceptability, and actionability of the HILs was evaluated using the SAM and PEMAT checklists. These evaluations were performed by six reviewers: a doctor, a pharmacist, a dietician, a nurse, a peer, and a member of the HAG. The results from the readability tests, SAM and PEMAT checklists also informed some of the changes and improvements made to the second draft HILs. The resultant drafts, the third draft HILs, were then used in Stage 4 of the design and development process.

4.6.4 Stage 4 modifications

The third draft HILs were language edited by a professional language editor. Minor grammatical issues were corrected at this stage. The drafts were then sent to a graphic designer, who fixed spatial issues on all HILs. These changes were incorporated and resulted in the final HILs.

Readability, suitability, acceptability, and actionability of the final HILs were evaluated the same way as in Stage 3, by the same reviewers. The results obtained from the online readability tests, PEMAT and SAM checklists were then compared to see if the HILs had improved with regards to readability, suitability, acceptability, and actionability.

4.7 Summary of the study's procedures

Figure 7 below summarises the different stages of design and development of HILs in this study.

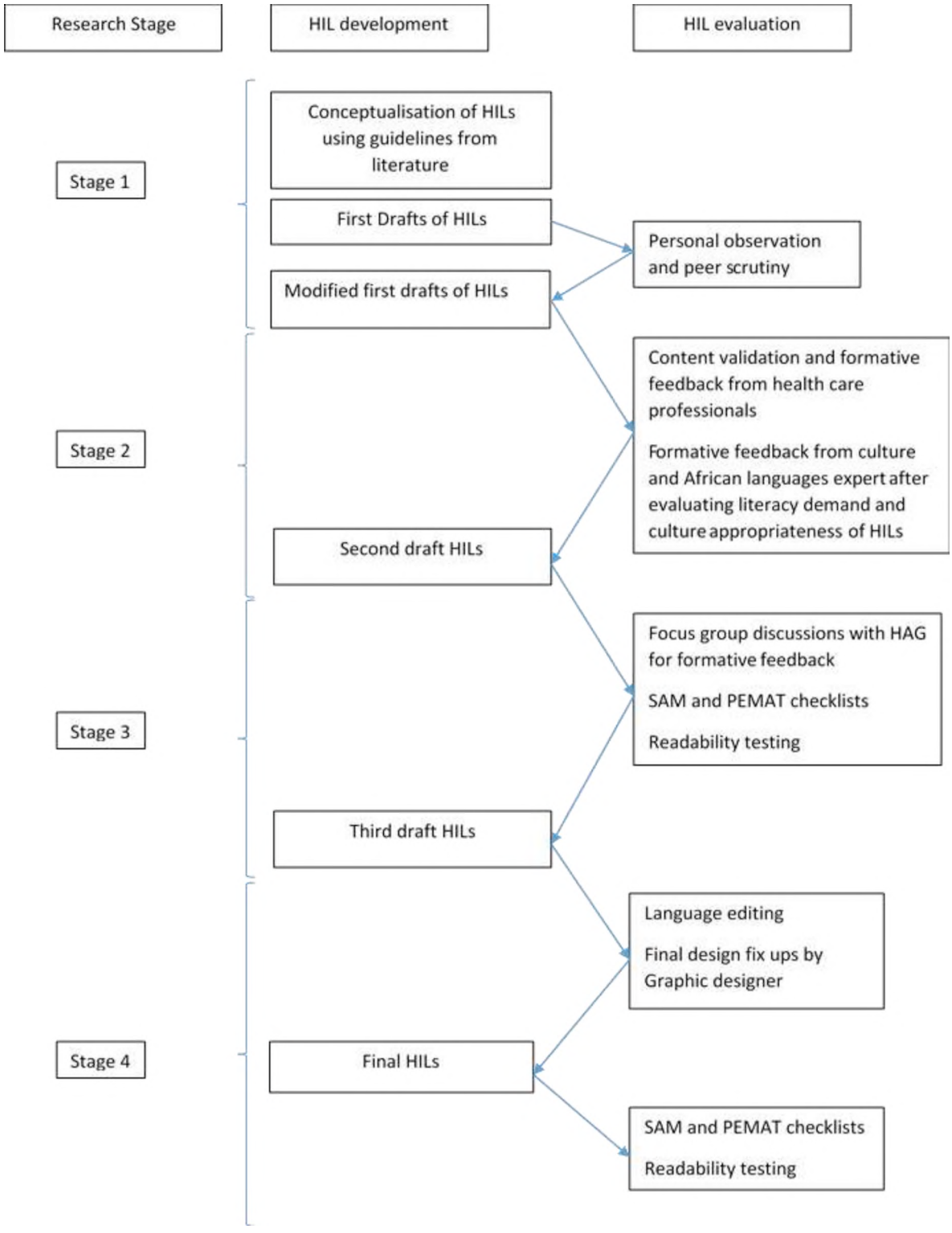


Figure 7: Design and evaluation procedures for the HILs

5. CHAPTER 5: RESULTS

5.1 Introduction

This chapter summarises the results that were obtained from the SSIs, FGDs, formative feedback, and the workshops detailed in the methodology chapter above. Due to the bi-phasic nature of the study, the results are grouped according to the objectives of each phase of the study. They are presented in three main sections, which are: Results for Phase 1 - needs assessment, Results for the interim phase, and Results for Phase 2 - the intervention study.

During the FGDs, SSIs, and workshops, probes were used to ascertain responses from the participants. When more than one question was asked, or when probes were used, the researcher merged the responses. Some of the responses given below have been rephrased to suit the phrasing of the question, in order to provide the reader with a perspective of the answer given. Table 5-1 is an extract (verbatim) from one of the transcripts.

Table 5-1: Verbatim extract from FGD 8

Extract from FGD 8
....
Researcher: Do you know of any WHP activities at RU since you started here?
No response...
Researcher: Any awareness campaigns or anything that promotes the awareness of and prevention of disease?
R1: Yes
R2: Yes
Researcher: Do you know of any health promotion activities such as plays or talks or written health messages at Rhodes University that you can identify?
R1: Yes
May you briefly describe them for me?
R1: Well, not as far as I can remember but the SAN is there. Normally you can take the health pamphlets that are there when you go there for yourself to read through.
...

Such a response will be presented as follows:

> *Some health promotion initiatives have been attempted at the university. There are some freely available pamphlets at the Health Care Centre that may be accessed by all who go there and are interested in reading them. - R1 FGD 8 amended*[1]

5.2 Results for Phase 1

5.2.1 Demographics

The demographic details of all participants were gathered prior to the commencement of the SSIs and FGDs. These are detailed in the subsections below

5.2.1.1 Key stakeholders

A total of 11 key stakeholders were interviewed. Of the 11 key stakeholders, 3 were female and 8 male. All were second language English speakers, with the exception of 2, who were first language English speakers. All held either a diploma, bachelor's degree, or higher qualification.

5.2.1.2 Support staff

A total of 12 FGDs were conducted, with an average of 6 participants each. 56% of the 78 participants that took part in Phase 1 were female and 44% were male. The age range was from 24 to 64 years with a mean age of 47. The majority of participants (83%) were black, first language IsiXhosa speakers, while 15% were coloured, first language Afrikaans speakers. However, 78% of the total number of participants preferred to read in English.

Demographic characteristics of the Phase 1 participants are as follows:

[1] R1 FGD 8 refers to "participant R1 (unique identifying code) in focus group discussion number 8"

Table 5-2: Demographics of the Phase 1 participants

Demographic Parameter	Participants, n(%)
Gender	
Male	34 (44)
Female	44 (56)
Age (years)	
<21	0 (0)
21-40	26 (33)
41-65	52 (67)
>65	0 (0)
Race	
Black	65 (83)
White	1 (1)
Coloured	12 (15)
Other	0 (0)
First (home) language	
English	2 (2)
Afrikaans	16 (21)
IsiXhosa	60 (77)
Preferred reading language	
English	61 (78)
Afrikaans	7 (9)
IsiXhosa	10 (13)
Highest Level of Education	
No education	0 (0)
Grade 1-7	10 (13)
Grade 8-12	54 (69)
Additional/ formal courses attended	14 (18)

5.2.2 Themes arising from the semi-structured interviews and focus group discussions

Ten main themes were raised during the interviews and discussions. These included: (1) views on workplace health promotion; (2) the benefits of workplace health promotion; (3) the facilitating factors that led to the success of previous initiatives at RU; (4) the limiting factors that contributed to the failure of past initiatives; (5) improvements that the staff wish to be implemented in order to increase their willingness to participate in future initiatives; (6) the most common NCDs that affect the support staff; (7) personal and social factors influencing the incidence of NCDs; (8) the staff's current beliefs, pressures, and misconceptions that could contribute to lifestyle risk factors; (9) identification of the risk factor to be concentrated on in the intervention phase; and (10) the suggested focus of intervention.

5.2.2.1 Views on workplace health promotion

Since there are many views of what workplace health promotion entails, it was essential to explore and understand the participants' understanding of its relevance to them and what it should entail. Prior to commencement of the FGDs and SSIs around past initiatives, views on the nature of workplace health promotion were discussed. Below are some responses from the participants.

A holistic approach

According to the majority of participants, workplace health promotion was perceived as a concept that looked at health as a whole and therefore involved providing information on diseases, preventative measures and their importance, the treatment of the disease, as well as the side effects of some medications. It was noted that most respondents favoured the promotion of preventative measures, as they believed that many health issues could be avoided:

> *"A holistic approach. Health promotion would include telling people about possible diseases that out there and then teaching people about lifestyle changes. That is very important because people think that if they take a pill they are going to get better but there's preventative measures. You don't need to take the medication. Medications have a lot of side effects, so if we can promote a culture whereby people can avoid the illness then they will never have to get to the medications that have so many side*

effects. So that is where we should end up so that people don't end up being diagnosed in the first place." – R2 FGD 5

Encouraging behaviour change

Another way of understanding workplace health promotion that emerged from discussions was that it encourages behavioural change in the workplace. Participants indicated the need to educate staff on healthy behaviours:

"Having programs at the workplace that educate the staff about healthy behaviours and encouraging them to live healthily."- R4 FGD 8

Raising awareness

Workplace health promotion was also considered a form of health education and therefore a tool used to raise awareness. Interviews revealed that this was a well-known feature of health interventions which would likely be appreciated and could lead to healthier behaviour in the workplace:

"I would think WHP, it's giving everybody awareness, so that you know exactly what is happening around you, how you can improve your lifestyle and how you make sure that you're not getting sick and what affects your work. By opening that door, for me, it's like a road, you know there's a robot therefore its telling me if its red, it's dangerous, likewise, I get a warning that, for example that food is dangerous and I mustn't eat that and if I can eat it, I need to be careful just like an amber robot."- SSI 5[2]

Empowering staff

Another perception of workplace health promotion, demonstrated by key stakeholder responses, was that it should enable staff to take control over their own health. One of the respondents in the SSIs explained the need to equip staff members with skills and information that ultimately empowers them to take care of their own health:

"I suppose it's the initiative to try and coach the staff to live healthy lives."- SSI 6

[2] SSI 5 refers to "respondent in semi-structured interview number 5"

Caring for staff members

When describing their understanding of workplace health promotion, most of the key stakeholders revealed their personal support for the staff who work under them in order to preserve their health. Most of them mentioned that they proactively built relationships and socialised with their staff, as well as made personal enquiries into the health and lifestyle related aspects of their lives. They illustrated that health promotion is also about caring for and understanding others:

> *"In order to have a healthy workforce, one must look out and care for the people they work with. Creating personal relationships with the staff and communicating with them matters. Caring for your people is the first step towards building health promotion systems that work."- SSI 11*

5.2.2.2 Health promotion policy for non-communicable diseases

The researcher intended to discover any current health promotion policies in place in order to align the planned intervention with established protocols. According to the key stakeholders, there were currently no policies in place that focused on the prevention of NCDs or their risk factors, and that the only health related policy was aimed at HIV/AIDS:

> *"…there is an HIV policy in place for both staff and students but that policy does not really include NCDs."- SSI 3*

It was also highlighted that with the new wellness framework, not yet implemented at the time of data collection, the Human Resources Department was hoping to include more employee wellness related initiatives:

> *"There have been some attempts at offering some support in terms wellness. I'm new and I'm not entirely satisfied that it's been covered enough but having said that I think it's also to do with the kind of resource deficiency that's been in the department and we are hoping to get some traction on that so we become more integrated and responsive and we currently have in place measures to address the strategy and move forward. So there has been a strategy, there has been some intervention on an* ad hoc *basis but I have developed now the EAP (Employee Assistance Program) strategy. Developed both an in-house and an outsourced model for consideration and developed*

the wellness calendar on an annual basis… there's been a lot I've been busy with, so developing the strategy according to the framework has been the prioritisation to this point. Now we are moving on to get the right resources or at least the support. So it's in flow."- SSI 2

5.2.2.3 Past and current health promotion practices

Previous and current health promotion initiatives were documented in order to identify efforts that have previously been employed at the university. Participants provided brief descriptions of the initiatives that they have been exposed to as follows:

CURRENT INITIATIVES (at the time of data collection)

Presentations on diet and physical activity

"I know of a program that went through the kitchens. That was about diet and physical activity. I know of that program because I participated and it actually did work because most of our staff go to the gym now. Most go during lunch hour and it's a positive thing in the kitchens. The third year students came to present some plays and skits." - R2 FGD 7

Health information leaflets available at the Health Care Centre

Some health promotion initiatives have been attempted at the university. There are some freely available pamphlets at the Health Care Centre that may be accessed by all who go there and are interested in reading them. - R1 FGD 8 amended

PREVIOUSLY ATTEMPTED INITIATIVES

Healthy eating catalogues

"There was some day when Bonitas, the medical (aid) people, they were here on one month. I don't remember when was it, was it last year or early this year but they were here at the Union department telling us about how we must eat and all that and checking if the people are healthy. Checking the diabetics and the high blood. And they did give us some catalogues that we can see how must we eat and all that."- R2 FGD 1

Presentations on unhealthy diets, tobacco and cancer

> *"I recall two days back where some of the students, here in this very dining hall. They taught us about awareness on using tobacco and unhealthy diet and that we must avoid fats. So they educated us about and they gave us the information on how to keep your heart healthy and showed us some of the results of bad habits - a damaged heart: how it looks like, damaged kidneys: how they look like."- R1 FGD 4*

Rhodes Olympics

> *We've had physical activity initiatives that focused on fitness as well as a nutrition discussion last year. We also had the Rhodes Olympics, it was a fun activity, however I'm not sure contributed to anything besides social wellness. - SSI 1 amended*

Dietary salt reduction talk

> *There was a talk that was planned specifically for the kitchen staff that focused on the amount of salt and sugar they add to the food that they prepare. This had to be done because excessive amounts were being added to the food and making it very unhealthy. - SSI 1 amended*

5.2.2.4 Benefits of workplace health promotion

Most SSI and FGD participants reported that healthy staff were of utmost importance in the workplace. Reasons provided for this perception included increased productivity, more positive attitudes, and greater levels of job security.

Reduced absenteeism

Staff absenteeism was reported as one of the major factors affecting operations and service delivery by departments at the university. This had a negative influence on workplace productivity and often led to failure to deliver the department's expected services in time:

> *"Some of my staff, maybe myself included, are heavily overweight, probably morbidly obese. Regularly, my staff are absent, with medical certificates. I have a lot of absenteeism due to sick leave. A lot of them with chronic issues. It impacts on our operations significantly. We are a small department as it is. Very often I have 2 [support staff members present]. One week I had 4 staff, an entire week. An entire week! And that week I had less than 50% of my staff [present] for the entire week on*

sick leave. So that's how bad it gets here sometimes and it really impacts our operations."- SSI 4

Cost savings

Unhealthy staff were perceived to be more likely to take sick days or to carry out their duties slowly due to fatigue, costing the institution money as other personnel may have to be hired or trained in order to compensate:

"I'm sure we will generate savings as there will be less people calling in sick, therefore we don't have to get other people to fill in for them."- SSI 3

Increased productivity

Increased productivity was the most frequently mentioned outcome of importance in relation to having healthy staff. Greater productivity was believed to translate into higher efficiency in the workplace:

"If people are educated about healthy behaviours, they will know how to act and be more productive at work. We will get more work done. If people are functioning 100%, we will get 100% done."- R6 FGD 1

Increased knowledge

Knowledge of and prevention of chronic diseases were believed to be beneficial resources at the workplace. Participants reported that this kind of knowledge would make them more health conscious, and therefore better able to control or prevent NCDs. This in turn would result in a healthier workforce, which is better able to deliver and attain their work goals:

"We will work better and achieve our work goals if we know how to prevent and manage our chronic diseases."- R1 FGD 3

5.2.2.5 Success factors of past workplace health promotion initiatives

Participants reported a few desirable factors that led to the success of some of the previous initiatives. Most participants were motivated to participate when they were offered incentives. Incentivising initiatives was a major determinant leading to good turn out and participation at some of the projects.

Incentives

Incentives were the most frequently mentioned success factors. Participants believed that incentives, however small, played a big role in increasing interest and participation in workplace health promotion initiatives:

> *"If you say there's going to be incentives, the turnout is good."- R1 FGD 5*

> *"A little gift - a t-shirt, a pen, a mug - always does the trick. Staff appreciate these incentives and are more willing to participate if there's something in it for them."- SSI 2*

Context specificity

Interventions that targeted behaviours that the target group could relate to were appreciated and accepted by the support staff. According to participants, focusing on context specific topics, such as excessive dietary sugar and salt consumption, allowed the target group to engage with and learn about new behaviours:

> *"Ok I think it has helped in such a way that since I've heard the presentation, especially about the diabetes part they were talking about sugar of which I didn't have knowledge on that the more sugar you eat, it results in you having diabetes and things like those. As a result now I've reduced in eating sugar because before the information I got, I've been having 2-3 cans of coke or whatever drink I've been taking but now I'm reducing because I've been drinking 1, of which as time goes (on I will reduce even more) because it doesn't just unplug itself [happen]."- R2 FGD 3*

Another participant supported this point by saying:

> *"Salt is a real issue. I have learnt a lot about salt and that I don't have to put too much salt in the food....We would like more of those activities because this is the reality of our community."- R6 FGD 6*

5.2.2.6 Limitations of previous workplace health promotion initiatives

Although some aspects of past initiatives were successful, the limitations seem to outweigh these. Participants emphasised that projects and events on health promotion were not well-

communicated, some events were cliché and boring, and no attempts were context specific or culturally sensitive. The staff also indicated that no needs assessments had been carried out, and that this lack of engagement resulted in poor turn out and participation. Ultimately, the intended health messages were not communicated, as staff did not engage in the planned projects and/or events.

Time constraints

Several participants pointed out that they were unable to participate in such initiatives because they were carried out at inconvenient times, usually during work hours. Furthermore, venues were often far from their workstations, and this required even more time from participants in order to get there:

> *"... most times we don't get time to go there [to participate in health-related initiatives] because we are busy and it's far."- R5 FGD 5*

Cost

Almost all key stakeholders mentioned cost as a major barrier that hindered the implementation of workplace health promotion programs. Due to a more urgent focus on other university projects, especially for the students, health promotion projects for the support staff were not prioritised:

> *"Frankly speaking, there's more being done for the students than for the staff. I don't even think we have a significant amount of the wellness budget being put aside for them. If money is not put aside for it then we can't finance these initiatives. This is also why very few have been attempted." – SSI 8*

Culturally inappropriate activities

Participants also pointed out the need for initiatives that take culture into consideration. By offering initiatives that are more accommodating towards them, the target group would be more willing to participate:

> *"It is good that gym subscriptions are subsidised but it's not culturally correct for me to wear skimpy gym attire. I can't go there in a dress either."- R4 FGD 10*

Restrictive environment

Another limitation brought to light was that presenters often presented information to the participants without giving them the chance to ask questions. This left some staff confused, which defeated the purpose of the presentations:

> *"The other thing is that guys come here to do presentations, some of your presentations, people don't get the chance to ask questions. Some people would have wanted to ask but didn't get the chance. In the end, it's useless if we are confused or don't understand but can't ask questions."- R6 FGD 6*

Language barrier

With the majority of the support staff being first language isiXhosa speakers, many rarely communicate in English. Although a large portion understand and can communicate in basic English, they are not familiar with several English health related terms and therefore require health messages to be conveyed in languages that they understand in order for them to contextualise these messages:

> *"Some of the staff here are old. They don't understand English very well, especially when it's medical stuff. We need activities that they can understand and are comfortable to participate in."- R7 FGD 9*

Lack of email access

The most predominant form of communication at the university is email. Although it is an ideal time-saving mode of communication, many support staff have little or no access to emails. This is therefore one of the challenges faced by the university with regards to dispatching health information or advertising health promotion activities to the vast group of support staff:

> *"It's difficult to communicate with the staff about health promotion events because they don't always have email access. Messages need to get to the staff effectively. I receive a lot of emails and so does my secretary, sometimes messages don't get to staff on time. There is a need for a means to deliver messages directly to staff."- SSI 5*

Lack of interest

Managers also outlined the reasons behind their lack of interest in initiating health awareness programs, events or activities in the workplace. As one key stakeholder highlighted, it is because staff do not reciprocate their efforts:

> *"The staff do not show any interest."- SSI 11*

Another key stakeholder also commented:

> *"You know you can lead a horse to the water, but you can't make them drink. One can only do so much to get them to participate."- SSI 10*

Absence of a needs assessment before planning interventions

Many assumptions have been made in the past regarding staff health needs and, because of this, many initiatives have failed. All key stakeholders spoke at length on the need to explore staff needs before any planning is done:

> *"I think we are not including staff. We just assume what's good for them."- SSI 2*

Another manager went on to support the idea of conducting a needs assessment prior to implementation of initiatives, providing an example of how such oversights alienate target audiences:

> *"There is a lot of pre-work that needs to be done. Our approach is wrong. This is my view. I'm going to give a random example. We buy brooms but no one has ever asked the guy who's pushing the broom what kind of broom they'd like. Interactions are important."- SSI 1*

A respondent from one of the FGDs also stressed the need to involve staff in the planning of initiatives:

> *"I would like you guys to involve us more, if we can go [work] together in these projects."- R2 FGD 12*

Absence of a clear framework

It was also highlighted that the absence of a clear framework for workplace health promotion was a major planning flaw, as outcomes could not be quantified:

> *"We do not have a set framework or clear measurement of outcomes for these health promotion activities. We can't even point out what we've achieved."- SSI 9*

Need to shift focus of interventions away from HIV/AIDS

Another limitation that was mentioned was the narrow scope of previous initiatives. The focus has been on HIV/AIDS for a long time, which has become monotonous. The staff are interested in knowing more about the other diseases that are affecting them:

> *"We need health information on diseases that are common to our target population like hypertension and diabetes. This is not the case most of the time. Most health talks are on HIV/AIDS; the focus needs to shift. "- SSI 3*

Another manager spoke in support of this point, further supporting the need to shift the focus from HIV/AIDS to NCDs:

> *"It's very rare that you find each and every month you have not been invited to attend a memorial service, one of our staff members has passed on. The majority of these people didn't die of HIV, they died of other non-communicable diseases, mostly heart-related, and it really makes me think of this thing of not only concentrating on HIV but on the wellness at large. We need to educate our staff on how to prevent risk factors that contribute to the increase of non-communicable diseases."- SSI 6*

Lack of sustainability

The interviews disclosed a dire need to introduce a sustainability plan into the design of initiatives in order for them to be successful:

> *"I think it's too sporadic to really gain momentum. A project like this needs continuous involvement and interaction to have a bit of success."- SSI 1*

Confidentiality

Many of the staff were worried about privacy issues. This was one of the reasons for their lack of interest. A key stakeholder highlighted the need to eliminate any factors that would lead to staff being hesitant to participate because they are worried about the confidentiality of their information:

> *"There is a computer (where people's details are entered) and people lose interest. People lose confidentiality (people are worried about confidentiality issues) and people are reluctant to go to these things."- SSI 5*

Lack of support from key stakeholders

One of the respondents pointed out that one of the flaws in planning that management was making was that key stakeholders were not engaging staff as much as they should:

> *"To me, what's important is engaging with them [staff]. We are not engaging enough."- SSI 4*

This point was further supported in one of the FGDs:

> *"I want Human Resources to also be involved in issues of the staff. There should be more support from management. There should be more programs on health awareness."- R1 FGD 4*

Lack of context specificity

Previous initiatives were not tailored to fit the needs of the target group. This meant that the information presented was not useful to them as it could not be implemented. One participant highlighted one such scenario:

> *"The kinds of food they were suggesting we eat are so expensive. We can't afford them. It was better for them to tell us how we can improve our diets with foods that we already eat. What we learnt there, we can't really apply in our homes, for example olive oil is so expensive. It would be better if they told us something like telling people to have smaller portions of food or eat more of this food and less of that one."- R4 FGD 8*

Lack of access to health information

In the case of written health information, many staff members could not access it as they had to go to places they do not usually go, in search of it:

> *"If I'm not sick, I'm not going to go to the health care centre so I won't get those pamphlets. So some people just don't have access to information."- R4 FGD 8*

5.2.2.7 Suggested improvements for future initiatives

Participants were keen to suggest improvements that they would like implemented in order for them to consider participating in future workplace health promotion initiatives. Many participants suggested the use of pamphlets and posters as means of communicating health messages, as these are convenient. Below are some of the other suggested improvements:

Use of pamphlets

> *"You can also use pamphlets that have all this information you presented to us because we also like to read."- R2 FGD 6*

> *"Pamphlets are easy to carry. You don't have to read them as soon as you get them, you can keep them and read later. So pamphlets are good to help spread these messages."- R5 FGD 2*

Informal group activities

> *"Something that is social and is a group effort. Fun! Something fun because formal talks, people don't attend. They are boring. Ways of making things exciting is including activities on how to do things. Actually doing it brings sense to the activity."- R1 FGD 7*

Use of media

> *"If it could be put in a film where everybody will see."- R1 FGD 12*

Use of posters

> *"We would like to have posters in our changing rooms.... most of the time you give us a small paper which we fold and put in the pocket and then into the rubbish bin."- R2 FGD 6*

Health checks in the different departments

"If a Sister (nurse) or Doctor could come test us here at work for cholesterol, sugar and things like that."- R2 FGD 4

Workshops by peer educators

"Workshops run by the peer educators with small groups of people and not a big crowd. People respond better when they are in small groups of people that they know in their own departments, people get more interested if they are with people that they know."- R4 FGD 7

Plain and simple information

"Giving plain and simple information."- R4 FGD 3

Culture

"Take culture into consideration."- SSI 1

Promotion of other types of physical activity besides the gym

"You know I was a gym man. I used to go to the gym after work but now I'm getting old, I need other ways of being active that don't involve gym. Some things I can do at home you know."- R6 FGD 10

Sustainability

"My worry, and I have to raise it again, is that it has to be sustained in whichever way but has to be sustained because it becomes a futile exercise when you go away and it dies. Because when the project dies, people die, in terms of knowledge, in terms of anything else, they go back to where they were and do the things were asked not to because the project is dead. But if there's continuity in the project, it also creates that mind set of 'I must live a good and healthy lifestyle', in the case of a project that supports healthy living, but if the project is dead, that person's conscience also dies. So I urge you for continuity."- R1 FGD 3

5.2.2.8 Current beliefs, peer pressure and misconceptions that influence lifestyle risk factors

It was important to document the staff's beliefs, peer pressures, and common misconceptions that influence their lifestyle risk factors in order to plan the direction the intervention would take. These social and personal factors needed to be explored and then clarified in the intervention in order to promote health as well as furnish the target group with factual health information. Some of the issues that were raised are detailed below:

Stigma

Throughout the interviews, a strong notion of some staff members being judgmental towards others became apparent. The key stakeholders described the workplace place as a "gossip friendly place", where the environment was not particularly accommodating to those who had various health conditions, as others would start to talk about and stigmatise them. One of the managers indicated the need to educate people in the workplace in order to create a friendly environment:

> *One of the problems we are currently facing is the issue of stigma. Early detection is important, however staff are embarrassed of their conditions and worry a lot about other people gossiping about them. They also need clarity when they get their results i.e. to tell them that it's not the end of their lives and there are ways to improve or maintain their health. We also need to educate the staff about various diseases and that they are nothing to gossip about. Why must people gossip on someone who has high-high (hypertension) or diabetes when they themselves can even get it? - SSI 4 amended*

Physical activity is a myth

Many staff, even those whose work did not involve physical exertion, believed that simply being at work was as much physical activity as they needed. This misconception was highlighted by one of the participants:

> *"You know the way we work here, we get enough physical activity."- R3 FGD 6*

One of the managers also reiterated the staff's lack of interest in any forms of physical activity outside of their work:

> *"They (staff) do not believe in physical activity at all- it's unheard of."- SSI 7*

Another participant revealed that it was not only people at the workplace who did not believe in physical activity, it appears to be a widespread problem, as even the other people from their communities showed no interest in being physically active:

> *"In most of our black communities, we are physically inactive, especially the elderly. They just like to relax, smoke and drink, especially the men." R1 FGD 4*

Age

In the FGDs, it became apparent that there is a general misconception amongst the older support staff members that certain activities were only for younger staff. This therefore led to their not participating, when in fact they were also supposed to benefit from them.

> *"Some people think they are too old to participate in some of these activities as they are close to their retirement age."- R5 FGD 10*

Healthy living is expensive

It became apparent that the majority of the support staff that participated were under the impression that in order to lead a healthy lifestyle one has to purchase expensive food. This point was raised in all the FGDs and revealed that this misconception may be influencing unhealthy behaviours amongst the staff, therefore influencing the incidence of NCDS as well. One of the participants responded:

> *Some of us cannot afford things like coconut oil or the almond oil that is suggested. I can't be buying things that are expensive like asparagus. I mean, I don't even know how to cook it. - R4 FGD 7 amended*

Another participant reported that many of the staff believe that bread is the cheapest and healthiest food they can eat:

> *"The only thing that people here are doing is buy bread! Bread, tea! Bread, tea! Bread, tea! Every day of the month. I'm sure we all believe that it's cheapest and it's the healthiest food we can eat."- R1 FGD 1*

Competition

Staff in the workplace often want to create certain impressions of themselves and are therefore easily pressured into following certain trends. Competition, especially with food, was one of the factors that was revealed that may influence NCDs:

> *I have noticed we are always competing with food because we want everyone to see that we are eating nice food. I'll bring meat all the time because I see others do that and I them to see that I'm eating nice food. It's not because I can afford it but I want to fit in. - R2 FGD 3 amended*

More is better

Another factor that surfaced was the belief that using more salt and sugar during food preparation would enhance the taste, but the health implications of this were often not considered:

> *"The chefs (the catering staff who cook for the students) have got these beliefs that adding more salt or sugar to food makes the students want to eat it more."- SSI 1*

Meat equals wealth

Cultural beliefs contribute to behaviour. One respondent revealed the excessive consumption of red meat among the people in this community due to the belief that it is a sign of wealth:

> *"In IsiXhosa culture, they believe that eating meat every day, especially beef, is a sign of wealth. People here will eat more red meat than they drink water. It's unreal and bad for our health"- SSI 9*

Convenience over health

Many people have replaced fresh food with ready-made or pre-cooked food. Participants also disclosed this in the interviews, and pointed out that many individuals have started to prioritise convenience over healthiness:

> *"There is this belief that ready-made foods and frozen vegetables are both convenient and healthy so people find no need to buy or grow fresh vegetables."- SSI 10*

5.2.2.9 Identification of one risk factor to be focused on in the intervention phase

This component of the study was quantitative. All participants were asked to vote for one of the four main risk factors of NCDs in order to narrow down the main topic(s) for the upcoming intervention phase. Polls were collated and the totals were as follows: Diet (57 votes); Physical activity (20 votes); Alcohol (10 votes); and Smoking cessation (2 votes).

A graphic representation of the votes is shown in Figure 8 below:

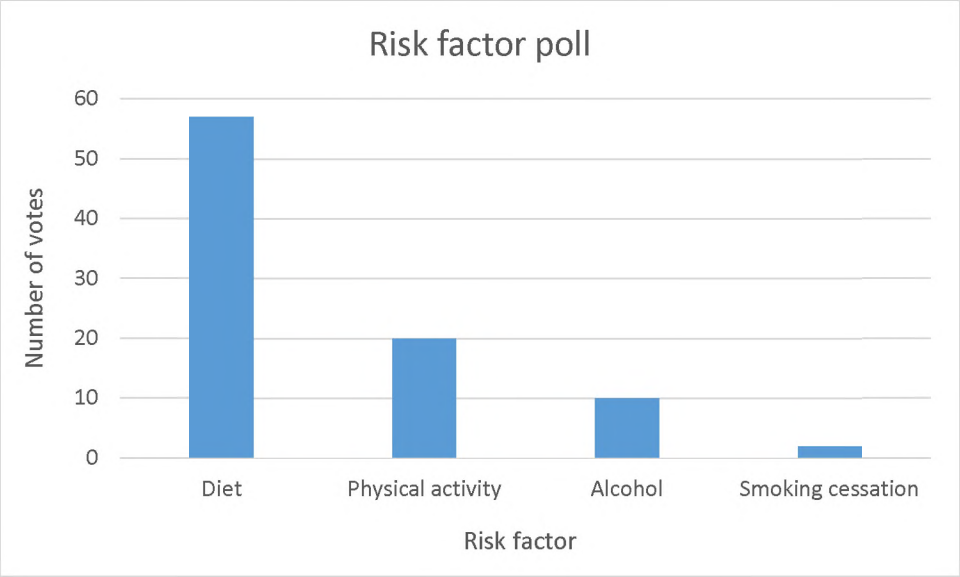


Figure 8: Graph showing results of the risk factor poll

5.2.2.10 Suggested focus for the intervention

In line with the participatory action research approach adopted by this project, participants were asked for their input with regard to what they would like to be the focus of the project's intervention. Some of the responses included:

> *"Promoting things like physical activity and healthy eating are good for people, especially for the health of the heart. People need to know why they are sick, like they are too lazy, too fat, that's why they have heart problems."- SSI 5*
>
> *"Many people die here because of high blood pressure."- SSI 4*
>
> *"If we concentrate on diet, our lives will fall into place. Diet is the main culprit."- R2 FGD 7*
>
> *"We need preventative measures."- R1 FGD 7*

"Precautions so that it doesn't get bad. Prevent disease before it actually happens."- R5 FGD 7

"Focus on diet, everyone is eating."- R3 FGD 9

"Diet is for everyone unlike alcohol that targets and isolates individuals. Diet you speak to everyone."- R1 FGD 3

"May you give us more information on healthy diets, things like how we can start our own vegetable gardens?"- R2 FGD 4

"Most of us are overweight. Our kitchen staff and in our department as well. We need someone to give us information on healthy living tips and diet plans."- R1 FGD 8

5.3 Results for the interim phase

5.3.1 Demographics

The Health Awareness Group was comprised of support staff that volunteered as representatives of the target group, who helped and contributed to the planning, designing, implementation, and evaluation of the intervention in Phase 2. The group consisted of 15 members. 10 were female and 5 male. Their ranged from 31 to 64 years of age. All members were first language isiXhosa speakers but preferred to read in English. Their highest educational level ranged from Grade 9 to a tertiary diploma, with an average level of Grade 12. All members were employees at Rhodes University at the time of data collection. Table 5-3 summarises the demographics of the HAG members.

Table 5-3: Demographics of the HAG members

Unique Participant identifier	Gender	Age	Highest Educational Level Attained	Number of Years Employed at Rhodes
1	Female	48	Grade 11	11
2	Female	58	Grade 12	32
3	Female	46	Grade 12	19
4	Female	46	Grade 12	17
5	Female	64	Grade 9	16
6	Female	33	Tertiary Diploma	6
7	Male	31	Grade 12	3
8	Female	44	Grade 12	8
9	Female	46	Grade 11	12
10	Male	58	Grade 11	35
11	Female	35	Grade 12	3
12	Male	29	Grade 12	2
13	Male	46	Grade 12	10
14	Female	40	Tertiary Diploma	12
15	Male	46	Tertiary Diploma	5

5.3.2 Stage 1: Personal scrutiny and formative feedback from peers

Following personal scrutiny, first draft HILs were evaluated and formative feedback was received from peers. Minor changes were made, including:

- Fixing grammatical errors
- Fixing spatial issues with the graphics and paragraphs
- Ensuring fonts were consistent
- Ensuring graphics were of good quality

Only the 'Fats and my health' HIL was subjected to a content change at this stage. This is tabulated below:

Table 5-4: Change made to the 'Fats and your heart' HIL following suggestions from peer evaluation

Changes made	Responses/ reasons
Cover page picture **Removed**  **Replaced with:** 	*"It looks like it is promoting these fatty foods."- P1* This image was added to show that there are good and bad fats.

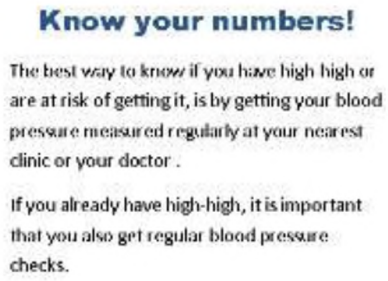
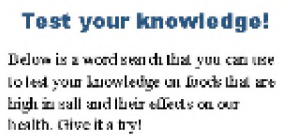
5.3.3 Stage 2: Content validation

The doctor, pharmacist, dietician, and nurse consulted in this study assessed the validity of the content in the second draft HILs. Feedback received from these health professionals was mostly positive, with all information being scientifically sound and valid. However, they provided suggestions on additional information to include and which information to replace, as they thought this would be beneficial to the target population. The suggested changes and additions made to the HILs are tabulated in Tables 5-5, 5-6 and 5-7 below. The African languages and culture expert also gave positive feedback on the appropriateness of the content and graphics in the HILs.

5.3.3.1 Salt and your heart HIL

Based on feedback from professionals, there were sections that were added or removed for various reasons. The changes are tabulated below:

Table 5-5: Changes made to 'Salt and your heart' HIL following feedback from health professionals

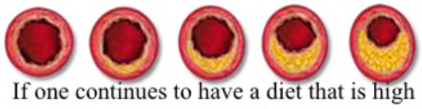
Changes made	Justification for change
Added:  **Know your numbers!** The best way to know if you have high high or are at risk of getting it, is by getting your blood pressure measured regularly at your nearest clinic or your doctor . If you already have high-high, it is important that you also get regular blood pressure checks.	With hypertension being one of the most common silent killers amongst the target group, it is important that people have regular blood pressure checks to avoid late detections. It is also important to encourage those who already have hypertension to also have regular checks so that they know whether or not they are well-maintained on their current medications. – Reviewer 1
• Salt is a compound made of sodium and chloride. • We use salt every day in the food we eat. Salt in food usually comes from preservatives and the salt we add when we cook. **Replaced with:** • Salt in your body comes from the food you eat. • Salt has many different names. On food labels, it is often referred to by the following names: **sodium, sodium chloride, sodium bicarbonate or monosodium glutamate (MSG).**	Although it was scientifically valid that salt is a compound made of sodium and chlorine, that information may not be relevant to the target audience. It was however important to inform them of the various names by which salt goes by in order for them to look out for these on food labels. – Reviewer 3
 **Test your knowledge!** Below is a word search that you can use to test your knowledge on foods that are high in salt and their effects on our health. Give it a try!	It was suggested that instead of using a word search, common foods that are high in salt content could be introduced under a subheading of their own. Adding pictures of the mentioned foods could help the reader

 SALT HIGHHIGH CHIPS SODIUM STOCK COLDMEATS HYPERTENSION PIZZA CHEESE **Replaced with:**  **What kinds of food are high in salt?** Did you know that these common foods contain high quantities of salt? Limit your use of these foods to reduce salt in your diet! Bread Cold meats Stock cubes Potato chips Cheese Canned foods	relate more to what they are reading as well as make the pamphlet less boring. – Reviewer 4

5.3.3.2 Fats and your heart HIL

Table 5-6: Changes made to 'Fats and your heart' HIL following feedback from health professionals

Changes made	Justification for change
Added: **What is fat?** • Fat is a nutrient that is essential in a healthy diet. • There are good and bad fats, therefore some types of fats are healthier for you and your heart than others.	It is worthwhile introducing the term 'fat' and emphasizing early in the HIL that there are good and bad fats. – Reviewer 1
Added: **Why do you need fats in your diet?** Everyone needs to include fats in their diet. The good fats, when eaten in correct quantities, help the body by: • Providing energy. • Maintaining the correct body temperature. • Acting as a protective cushion around organs such as your heart and brain.	Before talking about how to reduce dietary fat consumption, the readers need to also know that some fats are good and they are a necessary dietary requirement. – Reviewer 2
Added: **How do you know which foods to buy?** It is important to read food labels before buying. Look out for the following words on food labels: • Low fat • Fat free • Saturated fat free • Cholesterol free Look out for the amount of saturated fat the food contains: Per 100g of food Saturated fat: Low – Less than 1.5g; Moderate – 1.5g to 5g; High – More than 5g	It was worthwhile adding the types of foods that contained low fat contents so that the readers may become conscious of this when purchasing food items. This may assist in moulding behaviours by influencing better food choices. – Reviewer 3

Removed: **Choosing the good fats** You need to make sure you eat foods that contain healthy monounsaturated and polyunsaturated fats, too much saturated fat can increase the amount of cholesterol in your blood, which can increase your risk of developing heart disease. • Monounsaturated and polyunsaturated fats provide essential fatty acids and vitamins - so they are an important part of your diet. • Wherever possible replace saturated fats with small amounts of monounsaturated and polyunsaturated fats.	Although correct and scientifically sound, this information was deemed lengthy and unnecessary. It was suggested that this information be removed to make room for more pertinent information or pictures such as foods that contain healthy fats or more tips on foods that can be replaced to promote low fat diets. - Reviewer 4
Removed: **Results of choosing bad fats**  If one continues to have a diet that is high in fat, fatty deposits and cholesterol build up inside the blood vessels. These materials harden to form plaques as seen in the picture above and they result in a condition called atherosclerosis. As the blood vessels become smaller because of the plaques, the individual is at high risk of getting hypertension and stroke.	It was suggested that this short description of atherosclerosis was too complicated for the target group. It would instead need a more simplified explanation and more detailed pictures that could take up a large space in the HIL. It was therefore suggested that this section be removed. – Reviewer 4

5.3.3.3 Physical activity and your heart HIL

Table 5-7: Changes made to 'Physical activity and your heart' HIL following feedback from health professionals

Changes made	Justification for change
Removed:  A woman doing the dishes **Replaced with:**  A child helping with the cleaning	The initial picture was deemed stereotypical. It was suggested that activities could include children, so that the whole family may incorporate physical activity into their lives. - Reviewer 5
Removed: ❖ Where it is safe, get off the taxi early and walk the rest of the way.	Although this is a valid point, it was removed because people in this setting believe in value for money, therefore getting off a taxi halfway through the journey and walking the rest of the way but still paying a full fare is not something that will likely happen within the target group. – Reviewer 3

5.3.4 Stage 3: Focus group discussion results

Evaluative questions used in the question guide were adopted from the SAM and PEMAT tools. The main evaluation sections were: content; literacy demand; graphics; layout and typography; learning stimulation; culture appropriateness; and relevance of the activity. Below are some of the responses obtained during the FGDs and the resultant changes made to the HILs.

5.3.4.1 Salts and your heart

The responses given for the 'Salt and your heart' HIL were generally positive, with a few changes being requested by members of the HAG to enhance its design and content. Below are some of the responses to the HILs, and these have been divided into seven categories:

Content:

The written content of the HIL, according to the HAG members, was both simple and relevant. The responses regarding this section were all positive. Some of the responses are given below:

> *"It's clear and simple."- HAG 11*
>
> *"It's catchy- just by reading about salt and my heart on the first page, one will be concerned and want to read more. So I think people will be interested in reading this."- HAG 12*
>
> *"It is a good pamphlet. It's easy. All detail in the pamphlet is useful." – HAG 2*

Literacy demand

According to the participants, the HIL's content was easy to read and subdivided into manageable sections. They were also pleased that the HIL emphasised common knowledge. Responses included:

> *"People will understand this because it's divided into small chunks and because even the people in the township are being told about high-high so it's not the first time they are reading this." – HAG 3*
>
> *"It's easy to read." – HAG 15*

Graphics:

The graphics in this HIL were not easily understood and required editing. Some of the comments received and changes made are detailed in Table 5-8 below.

Layout and typography:

All responses under this section were positive. Based on participant responses, the HIL was neat and well organised. Information progressed logically and was therefore easy to follow. They also commented that the typography was legible. Below are some of the responses:

"I like that each and every heading is being explained before going further."- HAG 7

"I like how everything flows. It's also easy to understand." – HAG 10

"Organised well and neat." – HAG 5

"Letters are big enough to read."- HAG 9

Learning stimulation:

Comments on the ability of the HIL to facilitate learning were also given and were all positive. Below are some of responses

"After reading this pamphlet, gives you a chance to challenge yourself to do what you read."- HAG 12

"It (the HIL) engages people and that's good." - HAG 5

"I picked up a lot of things, I didn't know some of these things." - HAG 13

Cultural appropriateness:

This HIL was deemed culturally appropriate as its content was both realistic and inexpensive. One of the responses was:

"Tips are realistic. At least it's not expensive."- HAG 9

Activity:

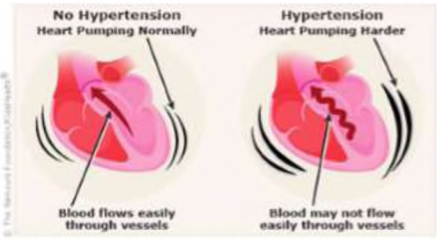
According to participant responses, the gardening activity seemed to be the highlight of the HIL, as it was considered valuable information that, if followed, would result in cost-saving. Some of the participants responded by saying:

"Good, it shows us the importance of fresh veggies and you also save money by planting your own veggies." – HAG 11

"Valuable information on how to follow your own vegetables." – HAG 15

"Relatable. Easy to follow."

Table 5-8: Changes made to the 'Salt and your heart' HIL after discussion with the HAG members

Changes made	FGD responses
Removed 	*"The picture of the heart is complicated, not for me but for someone who doesn't know what the heart looks like."- HAG 13* *"Is this picture necessary?" – HAG 1*
Removed  Fig 2: Illustration showing blood flow in a healthy heart compared to the heart of someone with hypertension	*"I was able to understand after a while but it was not clear when I read that the first time." - HAG 7* *"After a while you can see that there's a difference between these two hearts but it's not very clear."- HAG 11* *"I suggest you leave the picture out and just explain. The picture will confuse people." – HAG 3*
Removed: **Dietary approaches to prevent high blood pressure** In order to have a healthy heart, it is important to have a diet that is low in salt (sodium), cholesterol, and saturated fats. It is also important to have a diet that is high in fruits and vegetables, fibre and low-fat dairy products. **Replaced with:** **How can you prevent high blood pressure?** INCREASE: Fruits, Vegetables, Low-fat foods, Physical activity DECREASE: Salt, Fats, Alcohol, Smoking	*"There's just too much to read here. Can't you use bullet points?"- HAG 8*

Removed:  Here are steps on how to start a vegetable garden using old plastic containers **Replaced with:**  Lettuce grown in recycled water bottles	*"Are there magnets to hold the bottles together?"- HAG 8* *"It's fine but the font on the instruction is too small."- HAG 12* *"Is it (the bottles) standing upright or what?"- HAG 13*
Added  Between all meals and snacks, an adult should only eat a maximum of 5g (about one teaspoonful) of salt a day.	*"Can you tell us how much salt we must eat in a day?" – HAG 11* *"How much salt is excess salt?" – HAG 7*

5.3.4.2 Fats and your heart

Again, the majority of responses for the 'Fats and your heart' HIL were positive. Certain information was deemed unnecessary. Participants also asked for other information to be added. Some of the positive feedback received is detailed under different the subheadings below and the changes made to the HIL are detailed in Table 5-9.

Content:

Content of the HIL received positive feedback. It was deemed relevant, appropriate, and useful. There was, however, one section of the HIL which contained information that the participants thought was unnecessary, as it could be replaced with more pertinent information that suggested behavioural changes (detailed in Table 5-9 below). Some of the participant responses regarding the content are as follows:

> *"This information is an eye-opener for everyone." – HAG*
>
> *"These (pamphlets) need to be distributed as soon as possible because they are so helpful. People need to see this information." – HAG 1*
>
> *"Easy to follow." – HAG 11*
>
> *"Everything is important. All this information is relevant." – HAG 5*
>
> *"At least it's advice that we can follow because some of the things they suggest in magazines are too expensive for us." – HAG 2*

Literacy demand

According to the participants, the HIL was easy to read and understand. They were mostly intrigued by the fact that one did not have to be highly educated to be able to read this HIL. Some of their comments included:

> *"The wording is simple enough" – HAG 4*
>
> *"I like the fact that you settled for simple English. It will be good (simple) even for those that never got the opportunity to get quality education." – HAG 8*
>
> *"It's understandable." – HAG 9*
>
> *"Definitions and information are written well." – HAG 10*

Graphics:

The pictures used were all thought to be clear, with the exception of the cover picture, which needed to be enlarged. Participants were happy with the pictures as they reinforced the text. They also requested additional pictures of the foods listed, in order to entice the readers

more, especially when it came to making them aware of foods that contained bad fats. Some of the participant comments are listed below, and the suggested changes are detailed in Table 5-9;

"The cover picture shows you what to expect inside the pamphlet." – HAG 2

"These are good pictures. We can see which are the good fats and the bad ones. It's also food that we eat all the time that's shown in the pictures." – HAG 5

"The pictures are clear." – HAG 12

"The pictures match the information in the pamphlet." – HAG 4

Layout and typography:

The general layout and typography of the HIL received favourable feedback. Participants were happy that the HIL was legible and information was broken down into sizeable chunks. They responded as follows:

"I don't have my spectacles [on] but I am able to read (the HIL). It's perfect." – HAG 4

"I like how it's divided into headings (sections) and each heading has small bits of information." – HAG 6

Learning stimulation:

The tips given in the HIL were deemed useful and prompted the reader to start reconsidering the kinds of foods they purchase. They were also said to be easy to follow, making learning from this HIL an easy task. The participants responded:

"Very useful tips. I will start looking at types of fats (on food labels) now and not buy." – HAG 5

"It's easy to follow. Old plastic bottles are easy to find." – HAG 7

Cultural appropriateness:

There were two parts of the HIL deemed culturally inappropriate, as the target group either did not relate to the given examples or was generally not comfortable with the terms used. These are detailed in Table 5-9 below.

Activity:

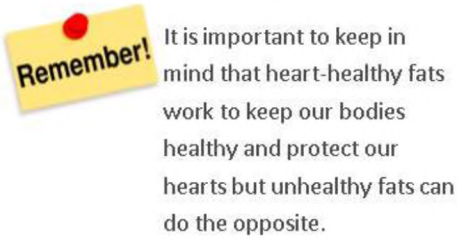
Participants were happy with the activity and called it a useful tool to use to remember the main points of the HIL. They were also happy that it was something that children could also do and that it could be used as a learning tool for them. Some of their comments were:

"I like the activity, I want to try it now." – HAG 11

"It's a nice challenge to help you remember the useful points." - HAG 3

"You can also engage your child to learn more." – HAG 7

Table 5-9: Changes made to the 'Fats and your heart' HIL after discussion with the HAG members.

Changes made	FGD responses if available
Picture enlarged 	*"...if the picture on the cover could be a bit bigger. Some people don't have good eyesight."- HAG 4*
Added: 	*"In the pamphlet you talk about good fats and bad fats, I think it's important to put a reminder that while the good fats are good for the heart, the bad ones are very damaging."- HAG 11*
Added: More pictures added under the following headings: **What are heart healthy fats and their benefits?** **What are unhealthy fats and their effects?**	*"You know where there are the lists of food, maybe add more pictures of the foods instead of lists, maybe when people see these pictures especially of the bad fats, they will consider lifestyle changes."- HAG 14*
Removed: almonds, cashews, hazelnuts, walnuts	*"Have you checked the price of those? I'm sure many of us don't take a second look at these nuts in the shop."- HAG 8*
Removed: • Monounsaturated and polyunsaturated fats provide essential fatty acids and vitamins - so they are an important part of your diet.	*"I personally understand this point, but I don't think it's necessary information, rather focus more on tips on how to replace fats in the diet."- HAG 1*
Removed: **Test your knowledge!** Below is a word search that you can use to test your knowledge on foods that are high in fats and the effects of high fat diets. Give it a try!	*"Test is not a good word, people don't like tests" – HAG 5*

5.3.4.3 Physical activity and your heart

The responses for the 'Physical activity and your heart' HIL were also generally positive. Some of the responses are provided below, and the suggested changes are detailed in Table 5-10.

Content:

The content of the HIL was deemed informative and clear. Participants responded as follows:

> *"Very informative." – HAG 1*
>
> *"It reinforces knowledge we already have and that's good." – HAG 8*
>
> *"The message is short and clear." – HAG 12*
>
> *"Shoots straight to the point." – HAG 13*

Literacy demand:

Participants labelled this HIL easy to read and to understand. Two of the participants highlighted and supported the aforementioned points, saying:

> *"The content is just right, easy and understandable because if you have too much on the page, people are not going to read this." – HAG 5*
>
> *"I'm sure even my Grade 5 child can read and understand this." – HAG 6*

Graphics:

According to participant responses, the HIL contained the right amount of pictures. Moreover, these pictures were clear and appropriate, as well as helped to reinforce the text. These points were raised by the following participants:

> *"There are enough pictures, there is no need to add more. I also like the words (caption) that explain what is going on in the picture." – HAG 10*
>
> *"These pictures show clearly what is going on, for example, I can see that those women are doing a fast walk (brisk walking) to keep their bodies healthy, and their hearts too." – HAG 9*
>
> *"I am just happy that you put gymnastics (gymnasium) because we don't do things like that in our culture, especially women." – HAG 11*

Layout and typography:

This section received positive results. Layout and typography was deemed appropriate by the readers. Some of their comments were:

> *"Just right (font size and layout)." – HAG 3*
>
> *"Can be read clearly." – HAG 12*
>
> *"It's not a busy pamphlet so it's nice and easy to read." – HAG 15*

Learning stimulation:

Participants responded positively to this section, mostly due to the helpful nature of the HIL. They commented that such an HIL facilitated and promoted behavioural change, and would motivate its readers to consider making lifestyle changes. Responses from some of the participants are listed below:

> *"These are the kinds of things (HILs) we like! I'm motivated to do these things from [suggested in] this pamphlet because they are simple and cheap things that we can do." – HAG 4*
>
> *"The tips are really helpful and I like how there's something to do for everyone in the family. Even the kids." – HAG 1*
>
> *"I think people will actually try these things out because this pamphlet is speaking to the people. What's even better is the fact that there are pointers on things we can do at home and at work. This is good information." – HAG 13*

Cultural appropriateness

The content of the HIL was deemed culturally appropriate, as readers could relate to the given information. One participant commented as follows:

> *"I like how these things are cheap. You don't have to pay to be fit like we do at the gym. This pamphlet will really help clear up a few things, especially for people that think that they can't be healthy because they can't afford gym." – HAG 8*

Activity:

Participants were pleased with the suggested activity as it was easy to do. Another reason why they liked the activity was because they could also engage their children in it. Some of the responses are given below:

"It's a nice and easy one (the activity) because clues are given" – HAG 10

"This will be a good to give to the kids as well to try out." – HAG 15

Table 5-10: Changes made to the 'Physical Activity and your heart' HIL after discussion with the HAG members

Changes made	FGD responses
Removed  **Replaced with:** 	*"These women look like they are running. You know people are not interested in running, they won't want to read this." – HAG 5* Participants were used as models to increase familiarity.
Added 	*"Talk about how you have to balance physical activity and diet for you to be healthy. You can't eat too much and think you'll be healthy because you are gardening." – HAG 7*
Added  A man riding a bicycle	*"I was just thinking there's no gender equality, there are more pictures of the ladies than the gents." – HAG 3*
Added ❖ Take some time to teach the little ones some traditional dance moves.	*"Dancing can also be added. We do a lot of cultural dances in the communities." – HAG 2*

5.3.5 Stage 4: Language editing and graphic fix ups

After language editing and fixing up of the graphics and any other spatial issues, the final HILs were produced. The three HILs are Appendices O, P and Q in the Appendices section. The full scale HILs are also available at the back of this thesis.

5.3.5 Readability, suitability, and acceptability of the HILs

In this section, the readability, SAM and PEMAT results are reported. These results are detailed in sections 5.3.5.1, 5.3.5.2 and 5.3.5.3.

5.3.5.1 Readability results

5.3.5.1.1 Raw readability results from the selected websites

The readability results as outputted by the three websites selected in section 4.6.2.2 are presented in Tables 5-11, 5-12 and 5-13. In each table, the results for the second draft and the final HIL are presented. Based on these results, those of the CLI were significantly higher than the other readability test results. The FKGLS and ARI results were consistent with each other while those of the SMOG were up to two grade levels higher.

'Salt and your heart' HIL

Table 5-11: Readability results for the 'Salt and your heart' HIL

Readability scores for second draft of 'Salt and your hear HIL'					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	71.49	6.24	8.41	8.08	5.63
Website 2	77.00	5.50	8.70	10.60	5.60
Website 3	79.10	5.20	9.40	10.60	5.60
Average score	75.86	5.65	8.84	9.76	5.61
Readability scores for final HIL- Salt and your heart					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	71.31	5.51	7.72	7.73	4.52
Website 2	78.60	4.50	7.80	11.10	4.50
Website 3	81.40	4.10	4.70	11.10	4.50
Average score	77.10	4.70	6.74	9.98	4.50

‘Fats and your heart’ HIL

Table 5-12: Readability results for the 'Fats and your heart' HIL

Readability scores for second draft of the ‘Fats and your heart’ HIL					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	66.57	6.37	8.48	9.45	6.07
Website 2	66.50	5.90	9.10	12.60	6.10
Website 3	72.70	5.50	5.70	12.50	6.00
Average score	69.59	5.92	7.76	11.52	6.06
Readability scores for the final HIL- Fats and your heart					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	71.23	5.93	8.78	8.38	5.44
Website 2	74.30	5.50	9.20	11.20	5.40
Website 3	76.40	5.20	6.10	11.20	5.40
Average score	73.97	5.54	8.03	10.26	5.41

'Physical activity and your heart' HIL

Table 5-13: Readability results for the 'Physical activity and your heart' HIL

Readability scores for second draft of the 'Physical activity and your heart' HIL					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	61.88	7.16	9.68	8.27	5.27
Website 2	66.30	6.50	10.10	11.20	5.30
Website 3	65.90	6.60	7.10	11.20	5.30
Average score	64.69	6.75	8.96	10.22	5.29
Readability scores for the final HIL- Physical activity and your heart					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Website 1	64.33	6.41	9.16	8.28	4.91
Website 2	69.20	5.70	9.60	11.20	5.00
Website 3	68.70	5.80	6.70	11.60	4.80
Average score	67.41	5.87	8.49	10.36	4.90

5.3.5.1.2 Overall mean readability scores

Table 5-14 shows a direct comparison of the overall document readability between the second drafts and the final HILs. The table also shows the actual scores and their interpretations, and the improvement in readability results. The readability level for all three second draft HILs was Grade 8 and the readability level decreased to Grade 7 in all final HILs. These materials are therefore readable at middle school level.

Table 5-14: Overall document readability of the second draft and final versions of all three HILs

SALT AND YOUR HEART HIL					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Average score from second draft	75.86	5.65	8.84	9.76	5.61
Rounded score	76.00	6.00	9.00	10.00	6.00
Interpretation	Fairly easy	Middle school	High school	High school	Middle school
Average readability across the five tests: Grade 8					
Average score from final HIL	77.10	4.70	6.74	9.98	4.50
Rounded score	77.00	5.00	7.00	10.00	5.00
Interpretation	Fairly easy	Elementary school	Middle school	High school	Elementary school
Average readability across the five tests: Grade 7					
FATS AND YOUR HEART HIL					
	FRES	**FKGLS**	**SMOG**	**CLI**	**ARI**
Average score from second draft	69.59	5.92	7.76	11.52	6.06
Rounded score	70.00	6.00	8.00	12.00	6.00
Interpretation	Fairly easy	Middle school	Middle school	College	Middle school
Average readability across the five tests: Grade 8					
Average score from final HIL	73.97	5.54	8.03	10.26	5.41
Rounded score	74.00	6.00	8.00	10.00	5.00
Interpretation	Fairly easy	Middle school	Middle school	High school	Middle school
Average readability across the five tests: Grade 7					
PHYSICAL ACTIVITY AND YOUR HEART HIL					
	FRES	**FGKLS**	**SMOG**	**CLI**	**ARI**
Average score from second draft	64.69	6.75	8.96	10.22	5.29
Rounded score	65.00	7.00	9.00	10.00	5.00
Interpretation	Standard	Middle school	High school	High school	Middle school
Average readability across the five tests: Grade 8					
Average score from final draft	67.41	5.87	8.49	10.36	4.90
Rounded score	67.00	6.00	8.00	10.00	5.00
Interpretation	Standard	Middle school	High school	High school	Elementary school
Average readability across the five tests: Grade 7					

Figure 9 shows the graphic presentation of the comparison of the average readability of the second draft HILs compared to the final HILs

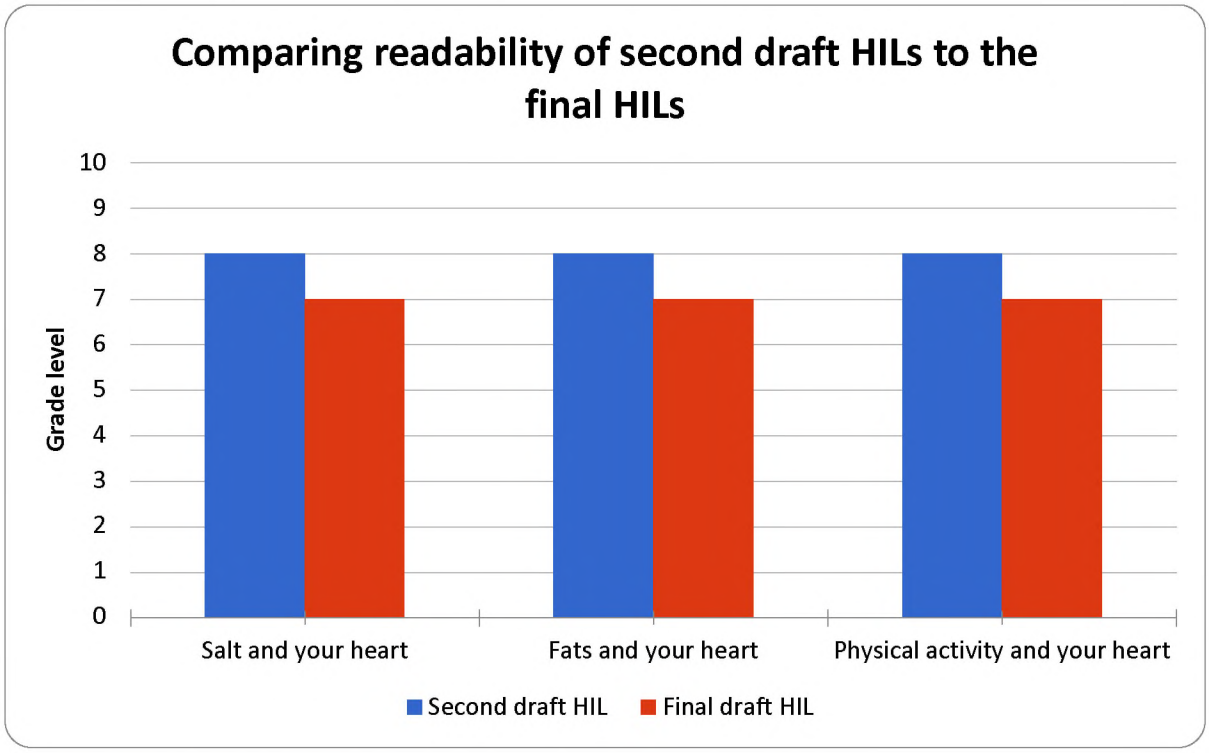


Figure 9: Graph comparing readability results of the second drafts to the final HILs

5.3.5.2 SAM results

The SAM tool was used to evaluate the suitability of the HILs. Second drafts and the final versions of all three HILs were assessed using the SAM tool. Percentage ratings of the second drafts of all leaflets fell between the 40-69% range, representing adequate material. These results showed that the draft HILs were satisfactory, although there was room for improvement. The SAM scores for all of the final HILs showed significant improvements in their overall suitability. All three scores fell within the acceptable range of 70-100%, representing superior material. From these results, the HIL content was fund to be of a suitable reading level, design and layout were of superior quality, and the information provided allowed for learning stimulation and motivation. The graphics in the HILs were relevant and were appropriately placed. Table 5-15 below shows, in detail, the SAM results of the second and final drafts of the HILs, as assessed by the six reviewers.

Table 5-15: A comparison of SAM results for the second draft and final draft of all HILs

	Salt and your heart			Fats and your heart			Physical activity and your heart	
Reviewer	2nd draft results (%)	Final draft results (%)		2nd draft results (%)	Final draft results (%)		2nd draft results (%)	Final draft results (%)
1	54.55	100.00		63.64	100.00		63.64	90.09
2	50.00	100.00		61.36	93.18		56.81	100.00
3	59.09	90.09		54.55	100.00		63.64	100.00
4	63.64	95.45		63.64	90.09		50.00	100.00
5	68.18	100.00		58.61	100.00		50.00	97.73
6	63.64	88.64		72.72	88.64		63.64	93.18
Average score	59.85	95.70		62.42	95.32		58.00	96.83
Interpretation	adequate	superior		adequate	superior		adequate	superior

Figure 10 is a graphic representation of the comparison of the SAM results in Table 5-15.

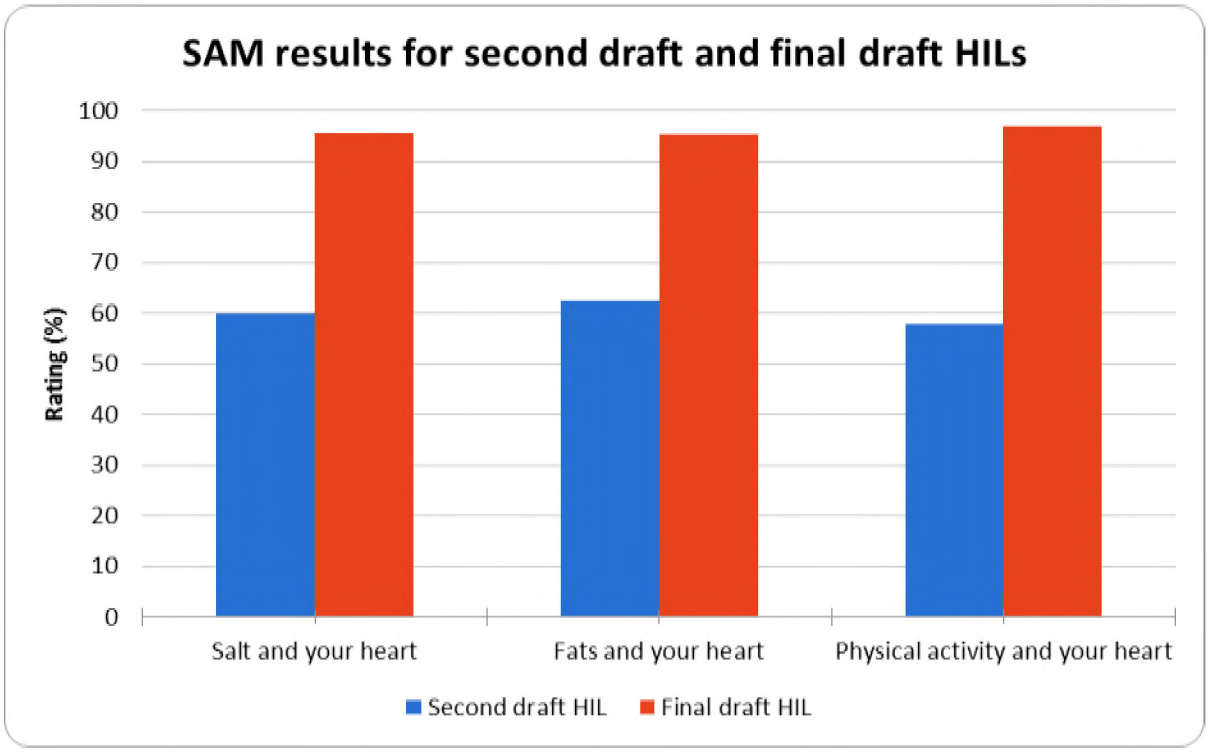


Figure 10: Graph comparing SAM results of the second drafts to the final HILs

Particular attention was paid to the 'content', 'learning stimulation and motivation' and 'cultural appropriateness' sections as these are integral to achieving the objectives of the intervention and application of the SCT constructs. The average ratings for these criteria were consistent in both assessments, and the HILS were deemed superior. All sections that had scored 'adequate' in the second drafts showed an improvement in the final HILs. Reviewer scores for these three sections are shown in Table 5-16:

Table 5-16: Table showing reviewer scores for selected sections of the SAM tool

SAM scores for selected sections in second draft HILs																		
	1			**2**			**3**			**4**			**5**			**6**		
	Salt HIL	Fats HIL	Phys act[3]	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act
Content	2	2	2	1	1	2	2	2	1	2	2	1	2	2	1	2	2	2
Learning stimulation	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	1	2
Culture appropriateness	2	2	2	2	2	2	2	1	2	2	1	2	2	1	2	2	2	2
SAM scores for selected section in final HILs																		
	1			**2**			**3**			**4**			**5**			**6**		
	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act	Salt HIL	Fats HIL	Phys act
Content	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Learning stimulation	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Culture appropriateness	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

[3] Phys act = Physical activity HIL

5.3.5.3 PEMAT results

On the PEMAT score sheet, the HILs were rated only for their actionability. The second and final drafts of the HILs were rated by a panel of six individuals. These two sets of results were compared, to assess any changes in actionability of the HILs after the series of changes. The actionability results improved for all HILs, except one rating for the 'Salt and your heart' that went from 100% to 80%, which in turn caused a change in the average actionability score that went from 100% for the second draft to 96.67% for the final draft. The average score for the fats and the physical activity HILs increased from 80.00% to 100% and 80.00% to 100%, respectively.

Table 5-17 below shows the actionability results of all the three of the HILs, according to the reviewers.

Table 5-17: A comparison of actionability results for second draft HILs and final draft HILs

	Salt and your heart			**Fats and your heart**			**Physical activity and your heart**	
Reviewer	2nd draft results (%)	Final draft results (%)		2nd draft results (%)	Final draft results (%)		2nd draft results (%)	Final draft results (%)
1	100.00	100.00		60.00	100.00		80.00	100.00
2	100.00	100.00		80.00	100.00		80.00	100.00
3	100.00	100.00		80.00	100.00		100.00	100.00
4	100.00	100.00		80.00	100.00		80.00	100.00
5	100.00	80.00		100.00	100.00		60.00	100.00
6	100.00	100.00		80.00	100.00		80.00	100.00
Average score	100.00	96.67		80.00	100.00		80.00	100.00

The abovementioned results are graphically represented in Figure 11 below:

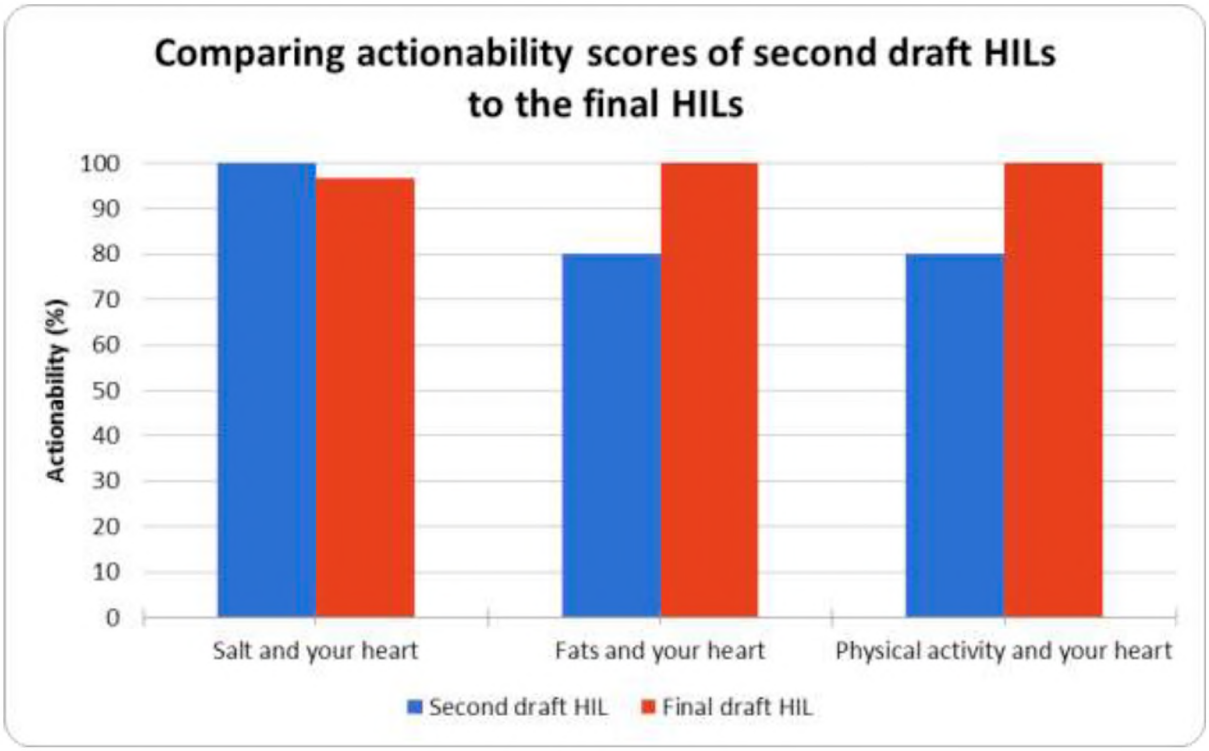


Figure 11: Graph comparing the actionability scores of the second draft to the final HIL

5.3 Results for Phase 2

Results from the feedback questionnaires

All participants were able to correctly identify at least three main learning points from the workshops. They also highlighted that the workshops were well delivered and information was easy to understand:

"All information was easy to understand and follow, there's no need to clarify anything. Recap sessions would be good though."- Quoted from feedback questionnaire 4.

There was however one participant who requested more gardening information:

"The workshop was good but may we get more information on harvesting your own seeds and re-growing them?"- Quoted from feedback questionnaire 10.

Results from the final evaluation focus group discussion

Overall, the initiative received positive feedback with participants describing it as useful, beneficial and empowering. The participants showed confidence their newly acquired knowledge and skills. Some of their responses were:

> *"I feel well-equipped and ready to be an agent of change now! I am ready!" – HAG 4*
>
> *"One man can't change the world, but I'm ready to make a difference in a few people's lives, who knows, maybe I can save someone from getting high-high (hypertension) by teaching them about salt and physical activity." – HAG 9*
>
> *"This has been a learning curve for me and I can't wait to share with others." – HAG 11*
>
> *"I found this initiative empowering because we contributed to it and our voices are being heard." – HAG 12*

The participants also shared the lifestyle changes they had incorporated into their own lives as a result of this initiative:

> *"You won't see salt at my table again! In fact, no one measures salt with their hands when they are cooking at my house. I've banned. Hayi, use a salt shaker!" – HAG 1*
>
> *"I now buy lean mince." – HAG 6*
>
> *"I've only just started, but I now take a walk for half an hour on three days of the week. I'm hoping I can get people to join me." – HAG 13*

6. CHAPTER 6: DISCUSSION

6.1 Introduction

This chapter provides a comprehensive discussion of how health promotion fits into the global agenda, as well as the results presented in Chapter 5, and also considers how these are either similar or different to those found in published literature relevant to a South African context with regard to health promotion and workplace health promotion.

6.2 Non-communicable diseases and health promotion on the global scene

NCDs, now a global epidemic, have been neglected in many poor populations despite the strong evidence showing the magnitude of this burden, the preventability of their risk factors and the threat to already strained health care systems. National and global actions have been inadequate (Beaglehole & Yach, 2003). NCDs were not part of the MDGs. It is only recently that they have started receiving some attention, with the biggest event being the *UN 2011 Political Declaration for NCDs* (United Nations, 2011), followed by several ministerial meetings in the WHO and then their incorporation into SDG 3 (UNDP, 2015). The application of health promotion initiatives in various forms (e.g. written education materials) and settings (e.g. workplaces) could possibly increase awareness of NCDs risk factors, which in turn may lead to adoption of healthy behaviours. This may ultimately reduce the prevalence of NCDs (Robert Beaglehole, Bonita, Horton, et al., 2011; Hofman, 2014). Health promotion with regards to NCDs could therefore be implemented in the workplace in order for this message to reach large audiences. Initiatives may be cost-effectively imbedded into existing workplace health policies and practices.

6.3 Workplace health promotion

Workplace environments supporting a culture of health are important for helping employees understand, adopt and maintain healthy lifestyles, at work and at home (Aldana et al., 2012). Some of the most common reasons why workplaces implement health promotion initiatives are: to raise awareness of health related issues; to reduce the rates of absenteeism; and to increase productivity at the workplace (Aldana, Merrill, Price, Hardy, & Hager, 2005; Wamer, Wickizer, Wolfe, Schildroth, & Samuelson, 1988). Findings of this study also support the theory that programs designed to improve well-being within a workforce may be used to significantly and positively impact on employee health and productivity, which may in turn

result in reduced health care costs and absenteeism, improved employee productivity, and increased overall profitability of the organisation. Positive impacts of programs designed to improve employee health have also been reported elsewhere (Baicker et al., 2010; Bertera, 1990; LeCheminant & Merrill, 2012; Yen, Schultz, Schaefer, Bloomberg, & Edington, 2010).

6.3.1 Health promotion policies at Rhodes University

Despite the broadly identified need for using health promotion interventions, the context studied has not fully recognised the potential of WHP, as the case of Rhodes University has shown. The concept of WHP with particular focus on NCDs was widely known and encouraged by participants in the FGDs and SSIs, yet there are no policies governing health promotion at the workplace, and minimal attempts at activities to raise awareness of and to encourage prevention of NCDs were identified. The results obtained from this study showed that, while there may have been attempts at health promotion initiatives, there was no set framework to guide their implementation. The case of Rhodes University greatly differed from other institutions at which workplace programs are policy-based and have resulted in successful implementation and outcomes (Barclay, 2015; Després, Alméras, & Gauvin, 2014; Dooris & Hunter, 2007; Harris et al., 2014; Kaspin, Gorman, & Miller, 2013; Mchunu, 2012; Scriven & Hodgins, 2011; Tryon, Bolnick, Pomeranz, Pronk, & Yach, 2014).

6.3.2 Factors affecting workplace health promotion activities

Several researchers have investigated the positive outcomes that result from the implementation of workplace health promotion activities (Anderson et al., 2009; Harden, Peersman, Oliver, Mauthner, & Oakley, 1999; Yen et al., 2010; Zwetsloot, Scheppingen, Dijkman, Heinrich, & Besten, 2010) Very few, however, have explored the factors that influence participation from an employee's point of view (Harden et al., 1999; Nöhammer, Stummer, & Schusterschitz, 2014). The current study investigated these barriers to participation, and its results indicate that several factors influence staff participation. A number of reasons were noted, and they include: lack of interest; the need to align information on the potential benefits of workplace health promotion with the perceptions relating to healthy behaviours in order for the employees to contextualise the information provided; and the need to develop initiatives targeting specific needs. These results allude to findings by Nöhammer et al. (2014).

The findings support the theory that to improve employee participation in designed initiatives, engaging with them during the development process of initiatives is key to the success of health promotion projects. Conducting a needs assessment is a key part to the development of health promotion initiatives at the workplace. It is also a crucial step to finding out the health needs of employees, and to involve employees early in the design and development of initiatives. Although none of the participants expressed that they would personally appreciate being part of the teams that deliberate and decide on which health promotion initiatives would be conducted, involvement of representatives from the target recipients of these initiatives is necessary (Aldana et al., 2012; Glasgow et al., 1993; Rager, Leutzinger, Hochberg, Kirsten, & Chenoweth, 2008).

Effective communication strategies are a key area to address in order for health promotion initiatives to be successful. As demonstrated in this study, many staff members were unaware of the wellness programs available to them. This phenomenon is common, contributing to the ineffectiveness of initiatives and low participation rates (Strickland et al., 2015). Although not applicable to this study setting due to the digital divide, changes in information technology have enabled greater communication and project success, as workers in other organisations have greater access to information through mobile and digital devices (Appel et al., 2011).

In the FGDs, support staff indicated a strong interest in utilising health promotion materials and participating in initiatives. They also indicated that they were health conscious and would appreciate receiving health promotion materials, as long as they were tailored to their health needs, educational needs, and were convenient. This strongly contradicted the findings of the SSIs, where the interviewees suggested that the support staff were uninterested and did not value health issues. Similar findings have been observed in another study, where top management reported that their employees were not interested in health promotion interventions, while the employees reported the opposite (Barclay, 2015).

Cultural sensitivity needs to be considered when designing initiatives and interventions, as participants expressed their unwillingness to participate in culturally inappropriate activities. Evidence from other research also supports the need to eliminate deterrents, such as cultural insensitivity, in order to attract employees to and/or to maintain their commitment to these initiatives (Campos, 2015; Kreuter et al., 2003; Scanes, 2013). The abovementioned results

from the current study are also supported by those of a similar study by Strickland et al. (2015). The two studies differed slightly, as the other study was conducted in two organisations and focused on obesity-centred workplace health promotion, while this study was conducted in one organisation.

Finally, like in the study by Pescud et al. (2015), it was important to learn the managers' views on workplace health promotion. Involving the managers was important in order to get more details on previous and present initiatives, and to learn about the principles that guided their implementation. It was also important to establish whether managers were in support of health promotion initiatives, as they play an influential role in supporting and promoting staff participation. Their interest in the project would also add to the sustainability of the educational intervention, as they would encourage staff in their departments to participate.

Although the findings of this study are most applicable in a South African setting, they may be relevant to international contexts given the universal applicability of workplace health promotion and the growing need for the implementation of wellness programs in the workplace. Gathering context-specific data for a particular organisation allows for the identification of limiting factors faced by previous health promotion attempts. This in turn aids in the designing of tailor-made health promotion initiatives in the future. Reluctance to engage with employees with regards to health issues has been noted in several organisations, even though the need to tailor health promotion initiatives according to the needs of the employees has been reported (Melnyk, Amaya, Szalacha, & Hoying, 2016; Nöhammer, Stummer, & Schusterschitz, 2011; Tryon et al., 2014).

6.3.3 Personal and social factors influencing NCDs at the workplace

The prevalence of NCDs in sub-Saharan Africa is high, even with probable under-reporting and late diagnosis, and will certainly increase in coming years (Dalal et al., 2011). Results of this study show that many people do not go for regular check-ups because they are not ill and therefore find no need to do so. Similar results were gathered in Ethiopia (Misganaw, Mariam, Ali, & Araya, 2014). It is therefore important to raise awareness of risk factors that contribute to the prevalence of NCDs, as well as to encourage regular health checks to avoid late diagnosis. For already diagnosed individuals, the importance of emphasizing adherence to medication and the maintenance of healthy lifestyles for their own benefit was also noted.

Timely diagnosis of or prevention of NCDs may improve the welfare of many (Adeyi, Smith, & Robles, 2007).

Culture shapes how personal understandings of health and illness are constructed and normalised by influencing health perceptions and health seeking behaviours (Dutta, 2007). In this study, it became apparent that many staff members were worried about the stigma that came with being diagnosed with any disease, and that they automatically thought they were going to die or did not seek medical help, leading to many cases of late detection. The stigma associated with being diagnosed has been discovered in other studies (Kinsler, Wong, Sayles, Davis, & Cunningham, 2007; Poindexter & Shippy, 2010). Although these studies were on HIV/AIDs, similar results were yielded, suggesting that people were often worried about being devalued and being defined as deviant, which they believed affected their job security and acceptance at the workplace. It was therefore important to design a health promotion initiative to raise awareness on healthy behaviours or to inform the target audience where to seek help, which also catered for those individuals in the workplace who were not keen on interventions held in public spaces such as mobile testing centres.

6.3.4 Cultural factors, values, and beliefs that contribute to non-communicable diseases

Many people, especially of African descent, appear favourably predisposed to the new body image that nutrition transition brings (Altabe, 1998; Flynn & Fitzgibbon, 1996; Mchiza, Goedecke, & Lambert, 2011; Puoane, Hughes, & Bradley, 2005). Overweightness or obesity are not seen as health challenges because there is a status symbol attached to big body size among both males and females. Obesity can thus be viewed as a social phenomenon. According to the responses received in this study, the body is a social metaphor of a person's status, i.e. the possession of a 'pot belly' or 'beer belly' in men, or fuller figures in women, are seen as signs of wealth, health, power, and high socio-economic status, so much that even men of low socio-economic status desire it. These results agree with those of a review in Nigeria which also revealed that cultural preferences for an obese phenotype as a marker of affluence or well-being have helped fuel the growing obesity epidemic and other risk factors contributing to NCDs (Oyewole et al., 2015). This suggested a case of poor knowledge of NCDs and their risk factors among the people.

6.3.5 Success factors of previous initiatives

Several participants discussed incentives as possible motivators to increase interest and participation in workplace health promotion initiatives. The use of incentives is common practice, as it is believed to boost the morale of the participants and may influence behaviour change (Volpp, Asch, Galvin, & Loewenstein, 2011). Participants of this study discussed a lack of adequate finances as a barrier to healthy behaviours, such as healthy eating. Purnell, Gernes, Stein, Sherraden, and Knoblock-Hahn (2014) suggest that low-income workers may be more likely to change to and sustain healthy behaviours if provided financial support by their organisations. However, it is also important to note that recent reviews have shown that behaviours influenced by incentives are often short-lived once incentives are removed (Purnell et al., 2014), and considerable attrition has been noted in weight loss related workplace health promotion programs (Cawley & Price, 2009). More research is required to determine the optimal timing and types of incentives. Results to date suggest that incentives may need to be an ongoing feature for initiatives to have maximum impact, but this may not be sustainable (Strickland et al., 2015).

6.3.6 Suggested focus for the intervention

Similar to a study by Oladimeji, Fawole, Nguku, and Nsubuga (2014), our study also showed that unhealthy diets and physical inactivity are the most prevalent risk factors contributing to NCDs amongst staff. Participants in their study reported that many workers were overweight, obese, and/or suffered from hypertension and other cardiovascular ailments. These results therefore prompted the need to raise awareness of heart healthy diets and physical activity. Participants advocated for tailored health promotion materials on healthy living to be available at the workplace.

6.4 Rationale for using participatory action research

Traditional research often fails to address health discrepancies because researchers do not have an understanding of the factors that drive the target group to certain health-related behaviours (Hudon et al., 2016; McQuiston, Parrado, Martínez, & Uribe, 2005). The researched are often seen as passive recipients of information who do not contribute to the actual research. In several cases, researchers use their findings only to benefit their academic and professional progress, and neglect the target groups they researched. Due to such top-down approaches and unidirectional benefits, research fatigue often occurs (Entwistle,

Renfrew, Yearley, Forrester, & Lamont, 1998; Kindon, Pain, & Kesby, 2007; MacDonald, 2012; Quigley, Handy, Goble, Sanchez, & George, 2000). Involvement and participation of the target groups is imperative for successful health promotion interventions (Hudon et al., 2016; Morisky, Ang, Coly, & Tiglao, 2004).

A review of participatory research by Jagosh et al. (2012) concluded that it is a favourable approach to research that supports health promotion by improving research quality, empowerment, capacity building, sustainability, and extension of programs. Engagement with members of the target group also provides a way of establishing a rapport between the researcher and the group, which is useful for future research (MacDonald, 2012). Other researchers have found that involvement of the community and participatory methods become useful in the design of research instruments, and have applicable research findings that can be used by the community to develop their own solutions to problems (Cargo & Mercer, 2008; O'Reilly-de Brún et al., 2015; Olshansky et al., 2005). Other benefits of PAR include the formation of new and long-lasting relationships, learning the needs of a community, professional development of all the partners involved, and the development and provision of practical, culturally sensitive, and context specific solutions (Bergold & Stefan, 2012; Bradley & Puoane, 2007; Frahsa, Rutten, Roeger, Abu-Omar, & Schow, 2014; Jagosh et al., 2012; McQuiston et al., 2005; Mubuuke & Leibowitz, 2013).

6.4.1 Rationale for selecting the target group

As described in section 3.3, the support staff at the university are graded according to their highest educational level attained and qualifications. The lower level support staff often do not have access to health promotion material. They are also often low-literate. They were therefore selected as the target group in this study in order to include them in the development of health promotion materials as well as increase their access to it. Materials were also tailored to suit their educational levels. By catering for the low-literate staff, these materials could be used, even by those with higher literacy skills, therefore catering for all at the workplace.

6.5 Integration of health promotion intervention with the HIV/AIDS peer education program

Workplace health promotion and peer education generate demands for services in the intended target group. Such programs therefore should be integrated or linked with services that provide access to health promotion materials. The Horizons Project (Horizons, 1999) revealed that peer educators are often more comfortable being perceived as general health community educators than as 'AIDS educators', due to stigma and community acceptance. This aligns with one of the common responses given during Phase 1 of this study, that staff were not keen to be seen consulting peer educators or going to the wellness office, due misconceptions that only people living with HIV/AIDS talked to such people. For this reason, this project was integrated into the HIV/AIDS peer educator program in order to address this concern. Instead of just having an HIV/AIDS peer education program, it is now a general wellness program. Another reason for the integration was the many advantages that come with piggy backing already established programs (Lambert et al., 2013; UNAIDS, 1999).

The FGDs and SSIs illuminated the diverse occupational groups and working environment within the university. Due to most staff being shift workers, and different departments having different tea and lunch times, support staff have varying free times and differing working hours, and these pose a specific challenge to implementing stable and sustainable health promotion interventions at the workplace. Literature confirms this finding by describing many workforces as diverse and dispersed, which are therefore challenging to reach through scheduled interventions (Grimsmo-Powney, Harris, Reading, & Coggon, 2010; Laws, St.George, King, & Rissel, 2013). Long working hours or working night shifts, and the location of venues where health promotion events were hosted therefore created barriers to access (Person, Colby, Bulova, & Eubanks, 2010) and resulted in some staff members being excluded from these initiatives.

For these reasons, a workplace health promotion program needs to be tailored to the target staff and planned for a suitable place and time. The suggestions made during the FGDs and SSIs to train a team of support staff as health promotion agents and to distribute health messages in the form of leaflets or posters were considered. Literature also suggests the use of readily available platforms in the workplace that are easily accessible by staff may increase program coverage. Peer educators were therefore identified as agents that could help

overcome the convenience and location barriers, as they would be able to facilitate health promotion activities as well as distribute health promotion materials in their departments, without their co-workers having to mobilise to venues that may be a distance from where they perform their duties. A study on motivations and barriers towards health promotion, with particular focus on weight loss, also highlighted convenience as a barrier to participation (Sabinsky, Toft, Raben, & Holm, 2006).

Mellor and Webster (2013) point out the need to introduce initiatives with which the target group is able to familiarise in order to avoid resistance. Another reason for the integration of this health promotion project with the HIV/AIDS peer education project was because the staff around the university are already familiar with the work of the peer educators, and increasing the scope of their work would therefore likely be more acceptable than would a new project.

6.5.1 The importance of peer education in workplace health promotion

The rationale behind peer education is that peers can be a trusted and credible source of information. They share similar experiences and social norms with targeted groups, and are therefore better placed to provide relevant, meaningful, explicit, and honest information. The theoretical roots of peer education can be traced back to Social Cognitive Theory, as the theory proposes that behaviour and attitude can be influenced, in part, by interactions with and observation of others (Breinbauer, 2005; Simoni, Franks, Lehavot, & Yard, 2011).

6.6 Health literacy

The prevalence of low health literacy means that health professionals play an important role in the development and distribution of accurate and comprehensible health information (Colledge et al., 2008; Keselman, Logan, Smith, Leroy, & Zeng-Treitler, 2008). Due to technological advances, those without access to new technologies are increasingly disadvantaged. These populations, particularly those in lower socioeconomic groups, are victims of the information and digital divide, which may contribute to low health literacy (Eng et al., 1998; Hsu et al., 2005). The results of this study further support this claim, as support staff reported that they had limited access to new technologies such as the internet, therefore either missed out on health promotion activities that were advertised on these platforms or could not access health information on the internet. Robinson et al. (1998) suggest the use of alternative means of distributing and increasing access to health messages for all. To bridge

this gap and to increase support staff access to health messages, this project used HILs, as they are easy to distribute, and there is a higher chance of them reaching all support staff at the university. Peer educators, who are from different departments at the university, provide a way of improving the reach of these HILs and of spreading verbal health information, as they can facilitate their distribution in and around their departments.

6.7 Rationale for using health information leaflets

People now access health information in a variety of formats, including via email (Boydell, Hodgins, & Pignatiello, 2014; de Jong, Ros, & Schrijvers, 2014), websites (Sciamanna et al., 2006; Swartz, Noell, Schroeder, & Ary, 2006), use of text messaging (Ostojic et al., 2005; Rodgers et al., 2005), audio recordings (Bodner, Dolor, Østbye, & Lyna, 2014; Elbert, Dijkstra, & Oenema, 2016), videos (Frosch, Kaplan, & Felitti, 2003; Meade, McKinney, & Barnas, 1994) and printed written health information materials (Steele, Dow, & Baxter, 2011), to name a few. As information and communication technology advances, health professionals need to ensure that those without access to new technologies are not unduly disadvantaged (Eng et al., 1998; Hsu et al., 2005). Such problems of access were highlighted in the Phase 1 results, together with the need to deliver health messages directly to staff.

To overcome the digital divide, HILs were used as a means of delivering health information as they may be delivered directly to staff members. They are also convenient as one can keep the HIL to read later when free and may be used or read time and time again, therefore overcoming yet another one of the barriers highlighted in Phase 1 which was that health promotion initiatives were conducted at inconvenient times and venues.

6.8 Development and modification of the health information leaflets

The content validating stage of the HIL development process was made possible by the other health professionals, and an African culture and languages expert. Expert judgment is the primary method used to determine whether or not written materials have valid content. Lawshe (1975) strongly advocates that if the experts on the panel question the essence or usefulness of any of the written information, it may be worthwhile to replace or reconsider the inclusion of this information. The panel of reviewers was therefore helpful in identifying some aspects of the HIL that may have been overlooked by the researcher. They greatly assisted in the enhancement of the HILs. This has also been deemed a crucial step in the

development of quality educational materials by two other studies on the development of patient education materials (Perry et al., 2012; Renuka & Pushpanjali, 2013).

The development and modification of the HILs was also made possible through the input of peer educators. Changes made to the HILs are shown in Tables 5-8, 5-9 and 5-10 in the Results chapter. The peer educators asked for the addition and removal of certain information and pictures due to them not being applicable to their setting or they were culturally inappropriate. The involvement of the peer educators was essential to fulfil the principles of PAR. Their input improved the content of the HILs through consistent interaction, making the HILs both context-specific and culturally appropriate health promotion resources.

Particular emphasis was paid to making the HILs context specific and culturally appropriate, as it has been highlighted that understanding the role of culture within the context of food consumption patterns is important in order to address unhealthy behaviours (Airhihenbuwa, Ford, & Iwelunmor, 2014). Applying the cultural and context specificity lenses to a different health problem, Lu, You, Man, Loh, and Young (2014) specifically tailored a health promotion initiative that was a culturally compelling strategy to decrease depressive symptoms among a group of Chinese breast cancer survivors.

The rationale for information included in the HILs are discussed below:

Salt HIL

High levels of dietary salt are associated with raised blood pressure and adverse cardiovascular effects (Bertram, Steyn, Wentzel-Viljoen, Tollman, & Hofman, 2012; Bibbins-Domingo et al., 2010; Brown, Tzoulaki, Candeias, & Elliott, 2009). Unfortunately very little attention has been paid to the amount of salt consumed by South Africans (Charlton et al., 2005b). A study by Charlton et al. (2005a) in Cape Town revealed that the South Africans in that area consumed more salt than the recommended five grams per day. Charlton et al. (2008) in a subsequent paper advocate for salt reduction strategies to reduce the health effects of excess salt consumption in the South African population. The recommended daily salt limit was highlighted in this HIL in order to make the readers aware of these limits in order for them to be more conscious of the foods they select.

Knowledge of recommended daily intakes, understanding of the relationships between salt and the body, and of foods that contribute the most salt to the diet are important factors that people need to know in order to reduce their salt intake. According to a review by Sarmugam and Worsley (2014), people are unaware of the aforementioned factors. In this study, salt myths and misconceptions came up during discussions with the staff. Information in this HIL was important, as it addressed these myths and provided factual information on salt, and contributed to the behavioural capability and behaviour change constructs of the SCT.

The CDC (2016) states that knowing which foods contribute to high salt levels in your diet is an important step in reducing salt intake. Common foods that are high in salt were highlighted in the HIL in order to make readers aware of them. Tips on how to reduce salt in diet were added to the HIL as a guide on how to reduce dietary salt consumption. The tips target common practices of the target group, so that readers can easily relate to them.

Fats HIL

South Africa has the highest overweightness and obesity rate in sub-Saharan Africa, with up to 41% of women being classified as obese (WHO, 2014e). Obesity in South Africa is largely attributable to the consumption of foods that are high in fat. Cultural beliefs that women with fuller figures reflect good health and a negative HIV status span across many South African populations, and have also contributed to the obesity epidemic (Puoane et al., 2005). This point was also raised during the exploratory FGDs in Phase 1 of this study. It was therefore important to address such myths, thus the relevance of the information in this HIL.

Fats are essential nutrients in a healthy diet and body. Research has shown that not all fats are created equal. There are healthy and unhealthy fats. Although essential, fats are to be consumed in moderation, as excess fats in the diet may lead to ailments such as cardiovascular diseases and diabetes, among many others (Jakobsen et al., 2009; Smuts & Wolmarans, 2013; Willett, 2012). It was therefore important to include information on healthy fats and their benefits as well as on the bad fats and their effects (Smuts & Wolmarans, 2013). Several images of foods that contain the different kinds of fats were added to the HIL in order to raise awareness of them.

Several participants in the FGDs and SSIs mentioned that being able to afford red meat was seen as a sign of wealth. As many people want to appear wealthy, they end up purchasing

cheaper, fattier cuts of meat. Willett (2012) suggests that replacing red meat with alternative protein sources, including fish and nuts, will reduce the risk of cardiovascular diseases, and that additional reduction of risk may be achieved through diets that are high in fruit and vegetables and low in saturated and trans fats. As suggested by Goetzel and Ozminkowski (2008), self-help tips on how to reduce fats in the diet were added to this HIL, in order to help readers take guided steps to reduce fats in their diet. Such measures are considered to be more successful than didactic methods of giving information. A section on what to look at on food labels was also added, so that readers may make more informed choices to select healthier low-fat foods.

Physical activity HIL

The health benefits of reducing sedentary lifestyles and promoting physical activity have become increasingly apparent in recent years. Research has shown that regular physical activity has beneficial health effects such as improved heart health and reduced risk of developing obesity (Sparling, Owen, Lambert, & Haskell, 2000). Without highlighting the benefits of physical activity, this information would not stimulate any motivation for the reader to make regular physical activity a part of their lifestyle. The benefits of physical activity were therefore highlighted in the HIL in order to persuade the reader to engage in physical activity.

Physical activity which is often equated to physical exercise was defined in this HIL to clarify the fact that physical activity refers to regular, moderate intensity activities that become part of one's lifestyle (Speck, 2002). This information was followed by an introduction of some of the common forms of physical activity. Running and going to the gym were excluded from this list as it was found out earlier in Phase 1 that the target group was more interested in cost-effective, age appropriate and culturally sensitive information.

With most individuals spending most of their time at work and then not having extra time for planned physical activities such as walking after supper, ways to incorporate physical activity at work and during day to day activities were part of the HIL content. These included taking the stairs instead of the elevator and walking to speak to someone rather than making a phone call. Information on balancing diet and physical activity was included in the HIL in order to debunk the myth that if one is physically active, they do not need to watch what they eat.

Pictures

Appropriate pictures function to increase readers' understanding of the text and indirectly make the leaflet more attractive, therefore more likely to be read (Houts et al., 2006). Brotherstone et al. (2006) explored the effectiveness of pictures in improving understandability of written health information materials. Their findings confirmed that the use of pictures significantly increased understanding. Similarly, in this study, pictures were used to enhance understandability and to amplify the written text. Pictures were also used to break the reading boredom. Choi and Bakken (2010) indicate that the use of realistic pictures with clear captions maximizes the benefit of visual aids. In this study, participants also alluded to this point. They suggested realistic pictures as opposed to cartoon-like pictograms, as "people will assume the leaflets are for kids." The use of pictures that were approved by the target group made the pictures culturally appropriate and context specific, increasing the suitability and understandability of the HILs. Some participants posed as models in the 'Physical activity and your heart' HIL as a strategy to empower other staff to become more physically active. Other reasons why these pictures were used, were to attract the readers as they saw familiar faces and also contributed to the behavioural capability and observational learning constructs of the SCT.

Activities

Corcoran and Ahmad (2016) suggest the inclusion of techniques that encourage engagement with the written text to promote reader interaction. In HIL 1, there is a gardening activity that can be attempted by the reader. According to peer educators' responses, this was useful, as the activity gives the reader a chance to perform what they have read. The crossword puzzle in 'Physical activity and your heart' HIL was most favourable, as the participants acknowledged that it provided a good summary of the HIL and allowed the reader to take note of its main points. This aligns with Berry and Miller's (2008) findings that crossword puzzles can also be used as a learning reinforcement tool or to promote reader interaction. The activities were also an application of the 'reinforcement' construct of the SCT, as starting a vegetable garden, for example, reinforces healthy behaviours, as the individual will have access to fresh vegetables, which may indirectly also serve as a reward. Another study by Bryant (2016) showed that the use of innovative, entertaining, and stimulating methods in

teaching, such as crossword puzzles, was valuable in stimulating and creating interest in the topic under discussion amongst students.

Active voice

The use of the active voice is consistently recommended as best practice in health information leaflets (Doak, Doak, & Root, 1996). Yet research suggests that reader interaction is often absent from written health materials (Hoffmann & Ladner, 2012). In all three HILs, the active voice was used to promote reader engagement. The aim was to make the reader enter a personal space, which in turn would increase the chances of the reader acting on the messages delivered (Corcoran & Ahmad, 2016). Although an active voice was used, recommendation language was used, as we acknowledged that a declarative style of writing could inhibit reader interaction or make the reader feel threatened. Words such as 'limit' or 'reduce' were used, rather than 'stop' or 'don't' (Goetzel & Ozminkowski, 2008).

6.8.1 Readability of the health information leaflets

It has been observed that the reading level of most written health materials is higher than the reading competence of the average reader, and therefore the objective assessment of readability is essential to ensure that materials match the reading skills of the target population (Badarudeen & Sabharwal, 2008; Corcoran & Ahmad, 2016; Hoffmann & McKenna, 2006; Nasser et al., 2012; Smith et al., 2014; Tian, Champlin, Mackert, Lazard, & Agrawal, 2014; Vives, Young, & Sabharwal, 2009). Davison and Bolt (1981) suggest that readability scores are more likely to be reliable if measured by two or three of the commonly used readability formulae and then averaged, as there is always the possibility of error of a grade or two in the results of any one formula. This was further supported by Doak and Doak (2010). Five readability tests were used to evaluate the readability of the HILs. The HILs were also then evaluated by some members of the target group, confirming the suitability of the HILs for the target group.

Several agencies have recommended that the readability levels of health education and information materials should not be higher than between the 6th and the 8th grade (Badarudeen & Sabharwal, 2010; CDC, 1999; Kindig, Panzer, & Nielsen-Bohlman, 2004; Weiss et al., 1994). In this study, the mean readability of the second drafts of all three HILs, calculated across five different readability formulae, was the 8th grade. After revisions were

made to the HILs, the readability came down to 7th grade in the final HILs, which is well within the recommended range. CLI results were abnormally higher than those of other tests and, had these results been excluded, the readability of all of the HILs would have been significantly lower by a grade level or two. As expected, the SMOG results were up to grade levels higher than the FRES, FKGLS, and ARI as a result of using stricter criterion to assess readability and classification of reading grade levels based on 100% comprehension ability (Friedman & Hoffman-Goetz, 2006; Meade & Smith, 1991).

Another limitation of readability formulae is that they do not take into account the reader's prior knowledge (Klare, 1984). Complex terms such as 'cholesterol' and 'monosaturated' in the 'Fats and your heart' HIL may increase the readability level of the document. Familiarity with terms is not considered in the assessment of readability, however, involvement of the HAG in evaluating the HILs showed that although the readability score may be high, the target population was nevertheless able to read and understand them. The researcher avoided oversimplifying concepts and text in an attempt to lower the readability scores, as this may have resulted in inaccurate delivery of information. Overestimating of reading difficulty will lead to less damage than underestimating, and considering the material as readable (Friedman & Hoffman-Goetz, 2006).

The use of computer-generated readability scores may be controversial because it has been shown to overestimate the reading difficulty of materials (Pikulski, 2002). Computer-based scoring was nonetheless used, as it is faster and less tedious, and incorporates less personal bias compared to hand-scored materials. It is currently the standard of evaluation in written health-related information (Kasabwala et al., 2013; Patel, Sanghvi, Cherla, Baredes, & Eloy, 2015). Some researchers have argued that readability formulae should not be too heavily relied upon, and should only be used as a quick guide rather than a sole instrument to define readability, as they only provide an estimated reading grade level (Meade & Smith, 1991; Pikulski, 2002). As all the formulae were developed in the United States of America, the grading pertains to the American grading system, and its applicability to South African grade levels is uncertain.

6.8.2 Suitability of health information

It has become apparent that evaluation of written material by others other than the researchers can be a positive way of monitoring, improving, and possibly guaranteeing their

user-friendliness and effectiveness. The need for suitability evaluation arose from the suggestion by Meade and Smith (1991) that human factors such as culture, motivation, visual attractiveness, and experience should be considered when developing health promotion information. Suitability is an undervalued component of written health information, yet it could help predict the level to which information is understood and made actionable by target groups (Nasser et al., 2012).

Gal and Prigat's (2005) exploratory study emphasises the need to pre-test patient information leaflets (PILs) with a diverse group of respondents in order to establish any readability, understandability, and suitability gaps, and to appreciate contextual elements of the PILs. The difference between the study by Gal and Prigat and this current study is that they focused on patient information, whilst our information is targeted at support staff in the workplace. As suggested, the second drafts and final drafts of the HILs were evaluated, using the SAM checklist, by six evaluators, as detailed in Chapter 4. In this study, there was a marked improvement in the mean suitability score of all three HILs between the scores of the second drafts and those of the last. The initial mean scores for HILs 1, 2, and 3 were 59.85%, 62.42%, and 58.00% respectively, and fell into the 'adequate' range. The creators of the SAM defined highly suitable materials as those that score more than 70% using the SAM checklist (Doak et al., 1994). The mean suitability scores of the final HILs were well above the threshold, therefore all three HILS were considered understandable.

Recent reviews (Finnie et al., 2010; Hoffmann & Ladner, 2012; Jahan et al., 2014; Tuot, Davis, Velasquez, Banerjee, & Powe, 2013) support the use of the SAM, as it can assist in the identification of specific elements that are not suitable or require modification. They also highlight the need to test written materials with the intended target group, as it is important for facilitating recipients' interest in, as well as understanding and recall of, the information that the material presents. As health promoting professionals, ensuring that the readers are provided with quality materials is key (Hoffmann & Ladner, 2012).

Focus group discussions, using a question guide adapted from categories of the SAM checklist, were conducted with the HAG in order to gain feedback on the HILs. Using the probing technique, in addition to asking the participants to paraphrase and summarise the information in the HILs, enabled the researchers to gain further insight into changes that needed to be made to the HILs to increase their readability, understandability, usability, and

actionability. Probing and paraphrasing also raised areas of misunderstanding and confusion. Through these feedback sessions, as alluded to by Lake et al. (2007), the HILs were tailored to their specific target group. The FGDs not only enabled rapport between members of the HAG and the researcher, but also contributed knowledge generation for both parties.

Airhihenbuwa et al. (2014) suggest that health promotion interventions should focus on the cultural contexts that nurture the adoption of certain identities and behaviours, thus the concentration on the culture and context aspects as this research aims to produce context-specific and culture sensitive health promotion materials.

6.8.3 Actionability of health information leaflets

A study by Kanchan et al. (2016) suggests using the PEMAT in the development process of educational materials, in order to assess the actionability of the written content at every stage. A similar study by Lee et al. (2016) assessed patient educational materials on healthy lifestyles for preventing cardiovascular diseases. As in this study, the materials were found to be highly actionable. This suggests that the educational materials were sufficient in clearly identifying actions that the readers could take, addressed the reader directly, provided tangible tools that could help the reader take action and the materials used visual aids wherever they could make it easier to act on instructions. The information also contained neither calculations nor graphs and charts, otherwise fully explained where present.

In their study, the overall mean actionability was 100% while ours was slightly lower, at 98.89%. Their study, together with ours, concludes that although the PEMAT is a useful tool, there is need for qualitative enquiry in order to acquire richer data on how to improve the actionability of written health materials. Other studies also support the need to engage with experts and the target audience, in order to improve the quality of these educational materials (Brega et al., 2015; McClure, Ng, Vitzthum, & Rudd, 2016).

6.9 Evaluation of the research

Evaluation of programs is essential for assessing whether a program has achieved its intended goals and for identifying opportunities for improvement (O'Connor-Fleming, Parker, Higgins, & Gould, 2006). Health promotion programs are complex to evaluate. It is through the development and implementation phases of such programs that new ideas, questions, and improvements emerge, leading to the difficulty of evaluating them. These programs often

involve long-term, ongoing, evolving, and cyclic processes. Health promotion is described as a 'process', meaning that it is a means to an end, and not an outcome in its own right (Nutbeam, 1998). This therefore means that such programs may not be completely and properly evaluated in a short space of time (Goodman, 1998).

Nutbeam (1998) suggests evaluation of health promotion programs through process evaluation. Process evaluation is used to assess elements of program development and delivery, i.e. the quality, appropriateness, and reach of the program (Hawe, Degeling, & Hall, 1990). This type of evaluation may be used during the entire life of the program, from planning through to delivery. In the planning stages, process evaluation focuses on the quality and appropriateness of the materials and approaches being developed, while it can also be useful in tracking program reach, and identify ways to improve the program in the implementation phase (Hawe et al., 1990; Round, Marshall, & Horton, 2005).

The following stages were used in this study as part of the evaluation process:

6.9.1 Needs assessment

Successful health promotion programs integrate knowledge of the target group's social and cultural contexts into their planning, development, and implementation stages. This knowledge allows researchers to identify appropriate partners, opportunities for health promotion efforts, and potential barriers and strategies to address them (Li et al., 2009). Through SSIs with key stakeholders and FGDs with the support staff, previous WHP initiatives were identified, and their facilitating and limiting factors were discussed. Improvements to and suggestions for future initiatives were sought, in order to tailor the design and implementation of the educational intervention for this study, in a way that would promote support staff participation in health promotion. A study by Levin-Zamir et al. (2016) has shown that the use of FGDs may be applied in studies where there is need to explore cultural elements that influence lifestyles, which in turn affect the prevention and self-management of chronic diseases.

6.9.2 Intervention planning

Once the focus of the educational intervention was established, HILs on heart healthy lifestyles that were culturally sensitive and context specific were created, and a group of peer educators was trained on these topics through participatory workshops. Participation of peer

educators was key to the development of the HILs, since they understood their co-workers' social and economic structures, lifestyles, cultural beliefs, and values, and are more able to provide insight into the appropriateness of the information in the HILs (Hudon et al., 2016). Their participation was also a strategy to enhance the cultural appropriateness of the HILs, as the peer educators were involved in the planning and development processes. From responses received during the feedback FGDs, the HILs were tailored for the target group as per suggestions from the peer educators. Their suggestions included removal of or addition of certain information and pictures, and the simplification of information.

Workshops and the HILs were useful in empowering peer educators with knowledge on salt, fats, and physical activity and their effects on the heart. The peer educators commented on how the training workshops had provided them the confidence needed to start health promotion conversations with fellow staff members. The HILs were identified as useful resources in the promotion of healthy lifestyles.

6.9.3 Implementation

Implementation evaluation is a process of assessing whether a program was delivered as intended (Gagnon et al., 2015). It also helps researchers to accurately describe program components and their associated degree of program integrity, which therefore helps to determine if the program is practical, replicable and/or transferrable (Duerden & Witt, 2012). Several factors such as community (Durlak & DuPre, 2008), program (Little, Sussman, Sun, & Rohrbach, 2013), facilitator (Berkel, Mauricio, Schoenfelder, & Sandler, 2011), and organisational characteristics (Durlak & DuPre, 2008) contribute to effective program implementation.

An important consideration of program implementation relates to the characteristics of the community to which the program will be delivered. Cultural and context mismatches often occur in health promotion programs, and the quality of implementation may suffer (Castro, Barrera, Jr., & Martinez, Jr., 2004; Garst & Mccawley, 2015). Through a needs assessment and prolonged time in the field, the researchers identified culture and context related factors that could promote successful project implementation. The workshops were run by a nurse, a horticulturist, and a biokineticist from the Grahamstown community who were familiar with the context and cultural practices, therefore providing information that was relevant and tailored to the requirements of the target group.

Another important characteristic for successful program implementation relates to the participants being served and their responsiveness to the program (Gagnon et al., 2015). In this study, the peer educators were highly committed to the program as the attendance was good and interest in the program was shown by their consistent engagement. They also perceived the program as both relevant and useful. On summarising each workshop and recap session in the following workshop, participants correctly identified the key messages. Their eagerness and diligence in the teach-back sessions at the end of each workshop showed their understanding of the topics delivered and that they had grasped the concepts taught and were able to communicate these health messages to their co-workers.

Program characteristics such as complexity and length may also influence its implementation (Perepletchikova, Treat, & Kazdin, 2007). The researchers acknowledged the fact that the peer educators and the staff at the workplace at large were not from a health background, and therefore health literacy levels were likely very low. The HILs that were designed were succinct, with minimal jargon. Information dispatched at the workshops was also simplified to allow for ease of understanding. Workshops were one and a half hours long at the very most, to avoid participant boredom. Recall and understanding are important characteristics for one individual to be able to dispense correct information and knowledge to another. Information dense sessions were avoided, to allow the peer educators to process the key messages gradually. This proved advantageous, as they displayed understanding and recall in the recap sessions.

The facilitators delivering a program influence its implementation. The quality of the training they offer has been shown to positively affect both the program outcomes and quality of implementation (Cyr, 2008). Training workshops were active and engaging. The facilitators were also experienced in their fields, and easily adapted the program materials to suit the intended target group, thereby adding to the quality of program delivery. In a study on substance abuse, Little et al. (2013) found that well trained and experienced facilitators had a significant positive impact on program delivery. Conversely, inexperience negatively impacts a facilitator's ability to implement a program as designed or to tailor it to suit the audience (Gottfredson et al., 2002).

Gottfredson et al. (2002) found that implementation quality was positively influenced by organisational support provided by the organisation's management. This study was largely

supported. The administrative support received, which made this project successful, included permission to conduct the study and provision of venues for all FGDs and SSIs that were conducted. The project and the researcher received ample support from the supervisor, the university's Institutional Wellness Officer, and nursing staff from the HCC, who helped during the implementation process. Kam et al (2003) also found that quality organisational support led to the best outcomes for students and to higher quality programs. These researchers found that when administrative support was low, the quality of program implementation was negatively affected.

6.9.4 Program evaluation and sustainability

Some of the most important aspects of PAR are sustainability and that the research benefits the target group being researched (MacDonald, 2012). The Institutional Wellness Officer assured the peer educators of continued support in the implementation of this health promotion initiative. The head nurse at the Health Care Centre at the university also offered her services and expertise to the peer educators in the form of quarterly recap sessions. This ensures that the peer educators stay guided in their work and promotes sustainability, which is one of the key elements of PAR. The peer educators have benefited from this research by acquiring knowledge on healthy living that they may use to teach and advise their co-workers on heart healthy lifestyles. The HILs will also be available to them for their use.

Feedback from the peer educators on other health topics to be addressed in the future and ways to improve the program were noted. This information was constructive and forms a useful resource to guide future initiatives. This feedback was handed over to the Institutional Wellness Officer to inform future context specific and culturally sensitive program improvements. This also promotes the sustainability and continued appropriateness of the program through specifically tailoring it to meet the information needs of the target group.

This project has also served as a foundation from which two additional workplace health promotion projects on alcohol and tobacco use have emerged. These projects are currently ongoing with other peer educators. Broadening the focus of workplace health promotion initiatives as these other two projects have done, may also increase the sustainability of this health promotion initiative as more peer educators are being trained on other important topics regarding the main risk factors that influence NCDs.

7. CHAPTER 7: CONCLUSIONS AND RECOMMENDATIONS

7.1 Introduction

This chapter will focus on the conclusions reached as a result of this study, as well as on the significance, strengths, limitations, and recommendations for future action based on the results obtained.

7.2 Conclusions

The following conclusions are drawn from the trends observed in the study:

According to the input from key stakeholders and support staff, health promotion initiatives that address non-communicable diseases have been attempted at Rhodes University by management over the years but were not well-received, due to deficiencies such as their lack of cultural sensitivity and context specificity. These initiatives were also not as successful as anticipated, because they were not tailored for the intended recipients. A 'top-down' approach, where the support staff were considered to be passive recipients of set initiatives, was employed, rather than a 'bottom-up' approach, where the staff would have been engaged in the planning of such initiatives. Some of the factors that contributed to increased participation in these initiatives included the introduction of incentives and fun interactive activities.

Some of the suggested improvements to future initiatives included establishing sustainability plan. Sustainability could be addressed by integrating workplace health into existing policies and systems; and the appropriate use of these to assess needs and evaluate progress. It also became apparent that there is need for a framework and clear outcome measurement processes to guide the design, implementation and evaluation processes. The need to shift health promotion initiatives from HIV/AIDS in order to focus on other NCDs was highlighted.

From this research, it also became apparent that personal beliefs, culture, peer pressure and lack of knowledge on healthy living may influence lifestyle risk factors that contribute to NCDs. Due to workers spending a large portion of their waking hours at work and being in constant interaction with each other peer pressure and sharing of misinformation on healthy lifestyle may also contribute to the increasing incidence of NCDs. Results also revealed that there were several myths and misconceptions around diet and physical activity related information. Of the four main modifiable risk factors, participants showed no interest in topics related to

overconsumption of alcohol and tobacco use as these were more specific to the male population and were not considered as important as diet and physical activity, which concerned everyone. Results also revealed that the participants believed that external rewards were necessary in order to increase their willingness to participate in health promotion initiatives.

In the interim phase of the study, the involvement of other health professionals, a culture and African languages expert, the researcher's peers, and the HAG resulted in the design and publication of context-specific and culturally sensitive HILs that addressed the information needs voiced in Phase 1 FGDs and SSIs. The use of readability tests and the PEMAT and SAM tools during different stages of the design process informed the changes made throughout the development of the HILs. This resulted in HILs that are readable, actionable, and suitable to the target group. The HIL content was scientifically sound and the design and layout received positive evaluations. Based on feedback from the participatory training workshops in Phase 2, members of the HAG found the workshops useful and empowering. With knowledge and skills gained from the workshop, the HAG members reported that they were well-equipped and ready to be agents that promoted and advocated for lifestyle changes among their peers.

This study emphasises that, in order to identify and address the factors that influence NCDs, culture and context have to be considered during the development of materials, programs, and initiatives aimed at raising awareness of NCDs and their risk factors. This is because foreign concepts have often been imposed on people, as detailed in the results section, resulting in their reluctance to participate. Results of this study therefore highlight the importance of designing context-specific and culturally appropriate materials.

The development and implementation of health promotion programs on NCDs, especially in workplaces, where the majority of adults spend a large portion of their waking hours, may prove to be advantageous in the long run. This is because, as people become more knowledgeable on NCDs and their risk factors, this will positively contribute to the decrease in the incidence of NCDs, and this is a step towards achieving SDG 3.

7.3 Strengths and limitations

The findings presented are qualitative in nature. Results of this study therefore may not be generalised beyond the sample population. Views expressed in the SSIs and FGDs may not be representative of staff from other institutions throughout the country or internationally. The data generated may provide important information that could aid health promoting organisations and researchers in creating context specific and culturally sensitive workplace health promotion initiatives. Findings may also guide future health promotion projects to effectively generate interest and action from both employers and employees, by engaging both organisers and their target populations early in the design of interventions.

This research was strengthened by the non-involvement of external 'participants', such as professional interpreters. Although one could argue against the use of participants as interpreters, the concepts of participation and openness were key to the participants' involvement in the research process. Accuracy of interpretations were confirmed by an isiXhosa speaking peer, who would listen to audio recordings of these specific parts. Another strength in the research process was the separation of key stakeholders from the support staff during data collection. By excluding their superiors from the FGDs, the support staff were better able to voice their opinions and beliefs, especially those that were negative.

Peer education also has limitations. Peer educators do not have the same training and experience as professional health educators, so their ability to provide quality education may be compromised. Free responses given by the participants during FGDs, SSIs, workshops, and feedback questionnaires posed another limitation, as participants may have wanted to impress the researcher. During FGDs and workshops, social desirability bias may have also occurred as participant responses may have been influenced by the presence of their peers.

7.4 Recommendations for future research

From the aforementioned conclusions, the following recommendations are made for future research projects:

7.4.1 Broadening the focus of the research

This study utilised Rhodes University as a case study and was limited to data collection suitable to the Master's project timeline and a small research team. Future research could

take on a broader scope, include a longitudinal study, and incorporate further case studies. Research in other university settings and other organisations may also be beneficial.

7.4.2 Create a health promotion framework

As revealed by the results of this study, there is currently no health promotion policy at Rhodes University, especially with respect to NCDs. To improve the planning, implementation, delivery, and sustainability of health promotion programs or initiatives, it is important that a set framework is followed in order to properly assess outcomes. The researchers suggest the creation of a framework to govern such initiatives so that outcomes can be documented. This way results may be compared, trends noticed, and improvements or deteriorations in outcomes brought to light, therefore allowing guided program or initiative amendments. Future research may look into creating a framework to guide workplace health promotion in this particular setting.

7.4.3 Expansion of the health promotion project

This research project focuses on heart healthy diets and physical activity, but there are other risk factors that contribute to NCDs that also need to be addressed. We recommend that future studies expand this health promotion project to raise awareness of other NCD risk factors and the prevention of NCDs, by introducing more topics on common NCDs such as diabetes and obesity. Due to educational and information needs changing over time, a continuous cycle of improvement needs to be undertaken, where needs assessments are conducted in order to tailor initiatives specifically to the target groups. We also suggest the use of different message delivery methods, such as short films or media and posters, as suggested in the needs assessment of this study.

7.4.4 Need to emphasise intrinsic rewards

From this research, it became apparent that many of the participants believed that introducing incentives would lead to increased willingness to participate in health promotion activities. It is therefore important that future initiatives consider ways to emphasize the value of intrinsic rewards, and not for the employees to expect external rewards for taking responsibility for their health. If employees understand this, this could result in more people taking greater ownership and being more proactive when it comes to personal health issues. This could also increase their willingness to actively participate in future health promotion

initiatives that are not incentivised as they understand that it is more about their health benefits than it is about incentives.

7.4.5 Training of peer educators

This research brought about the pioneer group of peer educators that focus on the promotion of and raising awareness of heart healthy diets and physical activity. Hereafter, we recommend following the standardised training of peer educators in order for them to continue providing quality information. The training of peer educators on these NCD risk factors and how to prevent NCDs should become a priority in order to improve health outcomes in the workplace and in the Grahamstown community as a whole. We also recommend that the Human Resources department and the Wellness Office personnel at the university be more involved in the provision of refresher courses for peer educators, as staff turnover could result in not having any peer educators who are equipped with the required knowledge.

7.4.6 Guided implementation

As peer educators are not health professionals, it may be worthwhile to have a health professional, for instance nursing personnel from the HCC to sit in during some of their mentoring sessions to evaluate the accuracy of the information they are delivering. Further research may explore the quality of information delivery by peer educators.

7.4.7 Measuring actionability of written health information

Based on the PEMAT results, the health information leaflets in this study were theoretically deemed actionable. Follow-up studies could document changes in the user's actions, practices, and behaviours to confirm that materials are as actionable as the PEMAT suggests. Further work is needed to try to understand if those design features related to appearance, in particular, are related to awareness. In addition, our results have raised several interesting questions about issues such as whether leaflets could lead to changes in behaviour, and how well people would remember the information over time.

8. REFERENCES

Abegunde, D. O., Mathers, C. D., Adam, T., Ortegon, M., & Strong, K. (2007). The burden and costs of chronic diseases in low-income and middle-income countries. *The Lancet*, *370*(9603), 1929–1938. http://doi.org/10.1016/S0140-6736(07)61696-1

Academy of Nutrition and Dietetics. (2012). Heart-Healthy Eating. Retrieved from http://www.eatright.org/resource/health/wellness/heart-and-cardiovascular-health/heart-health-and-diet

Adams, R. (2015). Prevention is better than cure: tackling non-communicable diseases in developing countries by focusing on prevention. *Perspectives in Public Health*, *135*(3), 121–122. http://doi.org/http://dx.doi.org/10.1177/1757913915580929

Adeyi, O., Smith, O., & Robles, S. (2007). *Public policy and the challenge of chronic noncommunicable diseases*. Washington, DC: World Bank.

Airhihenbuwa, C. O., Ford, C. L., & Iwelunmor, J. I. (2014). Why culture matters in health interventions: lessons from HIV/AIDS stigma and NCDs. *Health Education and Behavior*, *41*(1), 78–84. http://doi.org/10.1177/1090198113487199

Aldana, S. G., Anderson, D. R., Adams, T. B., Whitmer, R. W., Merrill, R. M., George, V., & Noyce, J. (2012). A review of the knowledge base on healthy worksite culture. *Journal of Occupational and Environmental Medicine*, *54*(4), 414–419. http://doi.org/10.1097/JOM.0b013e31824be25f

Aldana, S. G., Merrill, R. M., Price, K., Hardy, A., & Hager, R. (2005). Financial impact of a comprehensive multisite workplace health promotion program. *Preventive Medicine*, *40*(2), 131–137. http://doi.org/10.1016/j.ypmed.2004.05.008

Altabe, M. (1998). Ethnicity and body image: Quantitative and qualitative analysis. *International Journal of Eating Disorders*, *23*(2), 153–159. http://doi.org/10.1002/(SICI)1098-108X(199803)23:2<153::AID-EAT5>3.0.CO;2-J [pii]

American College Health Association. (2012). Healthy Campus 2020. Retrieved from http://www.acha.org/HealthyCampus/implement.cfm

American Heart Association. (2014). About Sodium (Salt). Retrieved from http://www.heart.org/HEARTORG/HealthyLiving/HealthyEating/Nutrition/About-Sodium-Salt_UCM_463416_Article.jsp#.WDcAI7nGovk

American Heart Association. (2016). Fats 101. Retrieved from http://www.heart.org/HEARTORG/HealthyLiving/FatsAndOils/Fats-101_UCM_304494_Article.jsp#.Vu1V1EDGpv4

Anderson, L. M., Quinn, T. A., Glanz, K., Ramirez, G., Kahwati, L. C., Johnson, D. B., … Katz, D. L. (2009). The Effectiveness of Worksite Nutrition and Physical Activity Interventions for Controlling Employee Overweight and Obesity. A Systematic Review. *American Journal of Preventive Medicine*, *37*(4), 340–357. http://doi.org/10.1016/j.amepre.2009.07.003

Appel, L. J., Clark, J. M., Yeh, H.-C., Wang, N.-Y., Coughlin, J. W., Daumit, G., … Brancati, F. L. (2011). Comparative Effectiveness of Weight-Loss Interventions in Clinical Practice. *New England Journal of Medicine*, *365*(21), 1959–1968. http://doi.org/10.1056/NEJMoa1108660

Arhar, J. M., Holly, M. L., & Kasten, W. C. (2001). *Action research for teachers: Traveling the yellow brick road*. Upper Saddle River, New Jersey: Merrill/Prentice Hall.

Awad, A., & Abahussain, E. (2010). Health promotion and education activities of community

pharmacists in Kuwait. *Pharmacy World & Science*, *32*(2), 146–153. Retrieved from http://link.springer.com/article/10.1007/s11096-009-9360-6

Badarudeen, S., & Sabharwal, S. (2008). Readability of patient education materials from the American Academy of Orthopaedic Surgeons and Pediatric Orthopaedic Society of North America web sites. *The Journal of Bone and Joint Surgery-American Volume*, *90*(1), 199–204. http://doi.org/10.2106/JBJS.G.00347

Badarudeen, S., & Sabharwal, S. (2010). Assessing readability of patient education materials: Current role in orthopaedics. In *Clinical Orthopaedics and Related Research* (Vol. 468, pp. 2572–2580). Springer. http://doi.org/10.1007/s11999-010-1380-y

Bagnall, A.-M., South, J., Hulme, C., Woodall, J., Vinall-Collier, K., Raine, G., … Wright, N. M. J. (2015). A systematic review of the effectiveness and cost-effectiveness of peer education and peer support in prisons. *BMC Public Health*, *15*(1), 1–30. http://doi.org/10.1186/s12889-015-1584-x

Baicker, K., Cutler, D., & Song, Z. (2010). Workplace wellness programs can generate savings. *Health Affairs*, *29*(2), 304–311. Retrieved from http://content.healthaffairs.org/content/early/2010/01/14/hlthaff.2009.0626.short

Baker, T. L. (1994). *Doing Social Research*. New York: McGraw-Hill Inc.

Bandura, A. (1989). Social cognitive theory. In R. Vasta (Ed.), *Annals of child development. Vol 6. Six theories of child development* (pp. 1–60). Green, Connecticut: JAI Press.

Barbour, R. S. (2005). Making sense of focus groups. *Medical Education*, *39*(7), 742–750. http://doi.org/10.1111/j.1365-2929.2005.02200.x

Barclay, A. R. (2015). *Workplace health promotion in the commercial fishing industry- a case of Port Lincoln*. The University of Adelaide.

Bates, J. (2013). Benefits of Health Promotion in the Workplace. Retrieved from http://wellnessproposals.com/wellness-articles/benefits-of-health-promotion-in-the-workplace/

Baugh, J. B., Hallcom, A. S., & Harris, M. E. (2010). Computer Assisted Qualitative Data Analysis Software: A Practical Perspective for Applied Research. *Revista Del Instituto Internacional de Costos*, *6*, 69–81. Retrieved from http://www.revistaiic.org/articulos/num6/articulo4_esp.pdf

Beaglehole, R., Bonita, R., Alleyne, G., Horton, R., Li, L., Lincoln, P., … Stuckler, D. (2011). UN high-level meeting on non-communicable diseases: Addressing four questions. *The Lancet*. http://doi.org/10.1016/S0140-6736(11)60879-9

Beaglehole, R., Bonita, R., Horton, R., Adams, C., Alleyne, G., Asaria, P., … Watt, J. (2011). Priority actions for the non-communicable disease crisis. *The Lancet*, *377*(9775), 1438–1447. http://doi.org/10.1016/S0140-6736(11)60393-0

Beaglehole, R., & Yach, R. (2003). Globalisation and the prevention and control of non-communicable disease: the neglected chronic diseases of adults. *The Lancet*, *362*, 903–908. Retrieved from http://0-ac.els-cdn.com.wam.seals.ac.za/S0140673603143358/1-s2.0-S0140673603143358-main.pdf?_tid=bd5a0fd6-21cb-11e6-b3c2-00000aacb35e&acdnat=1464107142_526f2aa3d9db74be4c08c6f97968f644

Bergold, J., & Stefan, T. (2012). Participatory Research Methods : A Methodological Approach in Motion. *Forum: Qualitative Social Research*, *13*(1), Art. 30. Retrieved from http://www.qualitative-research.net/index.php/fqs/article/view/1801

Berkel, C., Mauricio, A. M., Schoenfelder, E., & Sandler, I. N. (2011). Putting the Pieces Together: An

Integrated Model of Program Implementation. *Prevention Science*, *12*(1), 23–33. http://doi.org/10.1007/s11121-010-0186-1

Berry, D. C., & Miller, M. G. (2008). Crossword Puzzles as a Tool to Enhance Athletic Training Student Learning: Part I. *Human Performance and Health Education Faculty Research, Paper 10*. Retrieved from http://scholarworks.wmich.edu/humanperformance_faculty

Bertera, R. L. (1990). The effects of workplace health promotion on absenteeism and employment costs in a large industrial population. *American Journal of Public Health*, *80*(9), 1101–1105. http://doi.org/10.2105/AJPH.80.9.1101

Bertram, M. Y., Steyn, K., Wentzel-Viljoen, E., Tollman, S., & Hofman, K. J. (2012). Reducing the sodium content of high-salt foods: effect on cardiovascular disease in South Africa. *South African Medical Journal*, *102*(9), 743–745. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/22958695

Bibbins-Domingo, K., Chertow, G. M., Coxson, P. G., Moran, A., Lightwood, J. M., Pletcher, M. J., & Goldman, L. (2010). Projected Effect of Dietary Salt Reductions on Future Cardiovascular Disease. *New England Journal of Medicine*, *362*(7), 590–599. http://doi.org/10.1056/NEJMoa0907355

Biernacki, P., & Waldorf, D. (1981). Snowball Sampling: Problems and Techniques of Chain Referral Sampling. *Sociological Methods Research*, *10*(2), 141–163. http://doi.org/10.1177/004912418101000205

Blair, J. E. (1993). Social learning theory: strategies for health promotion. *The Workplace Health & Safety: Promoting Environments Conducive to Well-Being and Productivity*, *41*(5), 245–249. Retrieved from http://www.researchgate.net/publication/14685927_Social_learning_theory_strategies_for_health_promotion

Bloom, D. E., Cafiero, E., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., Fathima, S., … Weiss, J. (2011). *The Global Economic Burden of Noncommunicable Diseases*. Geneva: Program on the Global Demography of Aging. Retrieved from https://ideas.repec.org/p/gdm/wpaper/8712.html

Boddy, L. M., Knowles, Z. R., Davies, I. G., Warburton, G. L., Mackintosh, K. A., Houghton, L., & Fairclough, S. J. (2012). Using formative research to develop the healthy eating component of the CHANGE! school-based curriculum intervention. *BMC Public Health*, *12*(1), 710. http://doi.org/10.1186/1471-2458-12-710

Bodner, M., Dolor, R., Østbye, T., & Lyna, P. (2014). Accuracy and congruence of patient and physician weight-related discussions: from Project CHAT (Communicating Health: Analyzing Talk). *The Journal of the American Board of Faamily Medicine*, *27*(1), 70–77. Retrieved from http://www.jabfm.org/content/27/1/70.short

Boydell, K., Hodgins, M., & Pignatiello, A. (2014). Using technology to deliver mental health services to children and youth: a scoping review. *Journal of the Canadian Academy & Adolescent Psychiatry*, *22*(2). Retrieved from http://search.ebscohost.com/login.aspx?direct=true&profile=ehost&scope=site&authtype=crawler&jrnl=17198429&AN=95831739&h=EsmzVRRiPhgjkMDL9BcRPHTinbwXUttn0XEiCMiYDo9OSNBIKpUWeQGVl6SW4%2BfPgJ2xnMsMFS57DF32nROSqw%3D%3D&crl=c

Bradley, H. A., & Puoane, T. (2007). Prevention of hypertension and diabetes in an urban setting in South Africa: participatory action research with community health workers. *Ethnicity and Disease*, *17*(1), 49–54. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/17274209

Bradshaw, D., Groenewald, P., Laubscher, R., Nannan, N., Nojilana, B., Norman, R., … Johnson, L. (2003). Initial burden of disease estimates for South Africa, 2000. *South African Medical Journal*, *93*(9), 682–688. Retrieved from http://reference.sabinet.co.za/sa_epublication_article/m_samj_v93_n9_a18

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. http://doi.org/10.1191/1478088706qp063oa

Brega, A. G., Freedman, M. A. G., LeBlanc, W. G., Barnard, J., Mabachi, N. M., Cifuentes, M., … West, D. R. (2015). Using the Health Literacy Universal Precautions Toolkit to Improve the Quality of Patient Materials. *Journal of Health Communication*, *20*(sup2), 69–76. http://doi.org/10.1080/10810730.2015.1081997

Breinbauer, C. (2005). *Youth: Choices and change: Promoting healthy behaviors in adolescents*. Pan American Health Org. Retrieved from https://books.google.com/books?hl=en&lr=&id=goqyfO8KkFIC&oi=fnd&pg=PT28&dq=Youth:+Choices+and+Change+:+Promoting+Healthy+Behaviors+in+Adolescents&ots=WJyVZvr7LA&sig=Lm93ClnmVt7gu2gzznoQqzzawiY

British Heart Foundation. (2016). Fats explained. Retrieved from https://www.bhf.org.uk/heart-health/preventing-heart-disease/healthy-eating/fats-explained

Britten, N. (1999). Qualitative interviews in healthcare. In C. Pope & N. Mays (Eds.), *Qualitative research in health care* (2nd ed., pp. 11–19). London: BMJ Boooks.

Brotherstone, H., Miles, A., Robb, K. A., Atkin, W., & Wardle, J. (2006). The impact of illustrations on public understanding of the aim of cancer screening. *Patient Education and Counseling*, *63*(3), 328–335. Retrieved from http://www.sciencedirect.com/science/article/pii/S073839910600098X

Brown, I. J., Tzoulaki, I., Candeias, V., & Elliott, P. (2009). Salt intakes around the world: implications for public health. *International Journal of Epidemiology*, *38*(3), 791–813. http://doi.org/10.1093/ije/dyp139

Bryant, J. (2016). Crossword Puzzles – Entertaining tool to reinforce lecture content in undergraduate physiology teaching. *International Journal of Biomedical Research*, *7*(6), 346–349. http://doi.org/10.7439/IJBR.V7I6.3314

Buckton, C. H., Lean, M. E. J., & Combet, E. (2015). Language is the source of misunderstandings'-impact of terminology on public perceptions of health promotion messages. *BMC Public Health*, *15*(1), 1–13. http://doi.org/10.1186/s12889-015-1884-1

Burke, V., & Greenberg, D. (2010). Determining Readability : How to Select and Apply Easy-to-Use Readability Formulas to Assess the Difficulty of Adult Literacy Materials. *Adult Basic Education and Literacy Journal*, *4*(1), 34–42.

Cade, J. E., Kirk, S. F. L., Nelson, P., Hollins, L., Deakin, T., Greenwood, D. C., & Harvey, E. L. (2009). Can peer educators influence healthy eating in people with diabetes? Results of a randomized controlled trial. *Diabetic Medicine*, *26*(10), 1048–1054. http://doi.org/10.1111/j.1464-5491.2009.02808.x

Campos, B. (2015). What is the Role of Culture in the Association of Relationships with Health?: Culture, Relationships, and Health. *Social and Personality Psychology Compass*, *9*(12), 661–677. http://doi.org/10.1111/spc3.12226

Cancelliere, C., Cassidy, J. D., Ammendolia, C., & Côté, P. (2011). Are workplace health promotion programs effective at improving presenteeism in workers? a systematic review and best

evidence synthesis of the literature. *BMC Public Health*, *11*(1), 395. http://doi.org/10.1186/1471-2458-11-395

Cargo, M., & Mercer, S. L. (2008). The Value and Challenges of Participatory Research: Strengthening Its Practice. *Annual Review of Public Health*, *29*(1), 325–350. http://doi.org/10.1146/annurev.publhealth.29.091307.083824

Carr, T., & Descheemaeker, K. (Eds.). (2008). *Nutrition and Health*. John Wiley & Sons. Retrieved from https://books.google.com/books?hl=en&lr=&id=_ZUA_nMLegoC&oi=fnd&pg=PR3&dq=nutrition+and+health+tanya+carr+descheemaker&ots=mYYh_vCJFo&sig=QhTeTG5pYRp9IADARAeoLR5W_IQ

Castellanos, D. C., Downey, L., Graham-Kresge, S., Yadrick, K., Zoellner, J., & Connell, C. L. (2013). Examining the Diet of Post-Migrant Hispanic Males Using the Precede-Proceed Model: Predisposing, Reinforcing, and Enabling Dietary Factors. *Journal of Nutrition Education and Behavior*, *45*(2), 109–118. http://doi.org/10.1016/j.jneb.2012.05.013

Castro, F. G., Barrera, Jr., M., & Martinez, Jr., C. R. (2004). The Cultural Adaptation of Prevention Interventions: Resolving Tensions Between Fidelity and Fit. *Prevention Science*, *5*(1), 41–45. http://doi.org/10.1023/B:PREV.0000013980.12412.cd

Cawley, J., & Price, J. (2009). *Outcomes in a Program that Offers Financial Rewards for Weight Loss* (NBER working paper series). Cambridge, MA. http://doi.org/10.3386/w14987

Cawood, J., Dooris, M., & Powell, S. (2010). Healthy universities: Shaping the future. *Perspectives in Public Health*, *130*(6), 259–260. http://doi.org/10.1177/1757913910384055

Cecchini, M., Sassi, F., Lauer, J. A., Lee, Y. Y., Guajardo-Barron, V., & Chisholm, D. (2010). Tackling of unhealthy diets, physical inactivity, and obesity: health effects and cost-effectiveness. *The Lancet*, *376*(9754), 1775–1784. http://doi.org/10.1016/S0140-6736(10)61514-0

Centers for Disease Control and Prevention. (1999). Scientific and Technical Information Simply Put. Retrieved February 12, 2017, from https://stacks.cdc.gov/view/cdc/11353/Share

Centers for Disease Control and Prevention. (2013, December 6). Benefits of Health Program. Retrieved from http://www.cdc.gov/workplacehealthpromotion/businesscase/benefits/

Centers for Disease Control and Prevention. (2016). How to Reduce Sodium. Retrieved from http://www.cdc.gov/salt/reduce_sodium_tips.htm

Charlton, K. E., Steyn, K., Levitt, N. S., Peer, N., Jonathan, D., Gogela, T., … Lombard, C. J. (2008). A food-based dietary strategy lowers blood pressure in a low socio-economic setting: a randomised study in South Africa. *Public Health Nutrition*, *11*(12), 1397–1406. http://doi.org/10.1017/S136898000800342X

Charlton, K. E., Steyn, K., Levitt, N. S., Zulu, J. V., Jonathan, D., Veldman, F. J., & Nel, J. H. (2005a). Diet and blood pressure in South Africa: Intake of foods containing sodium, potassium, calcium, and magnesium in three ethnic groups. *Nutrition*, *21*(1), 39–50. http://doi.org/10.1016/j.nut.2004.09.007

Charlton, K. E., Steyn, K., Levitt, N. S., Zulu, J. V, Jonathan, D., Veldman, F. J., & Nel, J. H. (2005b). Ethnic differences in intake and excretion of sodium, potassium, calcium and magnesium in South Africans. *European Journal of Cardiovascular Prevention and Rehabilitation*, *12*(4), 355–362. http://doi.org/10.1097/S1741-8267(03)12408-5

Chatterton, P., Fuller, D., & Routledge, P. (2007). Relating action to activism: Theoretical and

methodological reflections. In *Participatory action research approaches and methods: connecting people, participation and place* (p. 260). London; New York: Routledge.

Choi, J., & Bakken, S. (2010). Web-based education for low-literate parents in Neonatal Intensive Care Unit: Development of a website and heuristic evaluation and usability testing. *International Journal of Medical Informatics*, *79*(8), 565–575. http://doi.org/10.1016/j.ijmedinf.2010.05.001

Chu, C., Breucker, G., Harris, N., Stitzel, A., Gan, X., Gu, X., & Dwyer, S. (2000). Health-promoting workplaces—international settings development. *Health Promotion International*, *15*(2), 155–167. http://doi.org/10.1093/heapro/15.2.155

Chubaty, A., Sadowski, C. A., & Carrie, A. G. (2009). Typeface legibility of patient information leaflets intended for community-dwelling seniors. *Age and Ageing*, *38*(4), 441–447. http://doi.org/10.1093/ageing/afp065

Claasen, N., Covic, N. M., Idsardi, E. F., Sandham, L. A., Gildenhuys, A., & Lemke, S. (2015). Applying a Transdisciplinary Mixed Methods Research Design to Explore Sustainable Diets in Rural South Africa. *International Journal of Qualitative Methods*, 69–91.

Clayton, L. H. (2009). TEMPtEd: development and psychometric properties of a tool to evaluate material used in patient education. *Journal of Advanced Nursing*, *65*(10), 2229–2238. http://doi.org/10.1111/j.1365-2648.2009.05049.x

Cohen, L., Manion, L., & Morrison, K. (2000). *Research Methods in Education* (5th ed.). London: RoutledgeFalmer.

Coleman, M., & Liau, T. L. (1975). A computer readability formula designed for machine scoring. *Journal of Applied Psychology*, *60*(2), 283. Retrieved from http://psycnet.apa.org/journals/apl/60/2/283/

Colledge, A., Car, J., Donnelly, A., & Majeed, A. (2008). Health information for patients: time to look beyond patient information leaflets. *JRSM*, *101*(9), 447–453. http://doi.org/10.1258/jrsm.2008.080149

Corcoran, N., & Ahmad, F. (2016). The readability and suitability of sexual health promotion leaflets. *Patient Education and Counseling*, *99*(2), 284–286. http://doi.org/10.1016/j.pec.2015.09.003

Crawford, S. Y. (2005). Pharmacists' Roles in Health Promotion and Disease Prevention. *American Journal of Pharmaceutical Education*, *69*(73), 534–540.

Creswell, J. W. (2012). *Qualitative inquiry and research design: Choosing among five approaches*. Sage.

Creswell, J. W., & Miller, D. L. (2000). Determining Validity in Qualitative Inquiry. *Theory Into Practice*, *39*(3), 124–130. http://doi.org/10.1207/s15430421tip3903_2

Creswell, J. W., & Plano Clark, V. L. (2011). *Designing and conducting mixed methods research*. SAGE Publications.

Crosby, R., & Noar, S. M. (2011). What is a planning model? An introduction to PRECEDE-PROCEED. *Journal of Public Health Dentistry*, *71 Suppl 1*, S7-15. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/21656942

Cundill, G., Sheona, S., Sisika, L., Ntshudu, M., Lotz-Sisitka, H., Kulundu, I., & Hamer, N. (2014). *Social learning for adaptation: a handbook for practitioners and action researchers*.

Cyr, L. F. (2008). Facilitation Competence: A Catalyst for Effective Extension Work. *Journal of*

Extension, *46*(4), Article 4RIB2. Retrieved from https://joe.org/joe/2008august/rb2.php

Dalal, S., Beunza, J. J., Volmink, J., Adebamowo, C., Bajunirwe, F., Njelekela, M., … Holmes, M. D. (2011). Non-communicable diseases in sub-Saharan Africa: what we know now. *International Journal of Epidemiology*, *40*(4), 885–901. http://doi.org/10.1093/ije/dyr050

Dale, E., & Chall, J. (1949). The concept of readability. *Elementary English*, *26*(1), 19–26. Retrieved from http://www.jstor.org/stable/41383594

Daniels, S. E., & Walker, G. B. (2001). Working through Environmental Conflict: The Collaborative Learning Approach, 1–299. Retrieved from http://works.bepress.com/steven_daniels/30

Davis, T. R. V, & Luthans, F. (1980). A Social Learning Approach to Organizational Behavior. *Academy of Management Review*, *5*(2), 281–290. http://doi.org/10.5465/AMR.1980.4288758

Davison, A., & Bolt, B. (1981). *Readability- Appraising text difficulty*. Urbana, Illinois: City for the Study of Reading. http://doi.org/Documentation Reproduction Service Number ED208340

Dawson, J. (2008). *Can YOU Read Me Now?: How to Use Readability Formulas to Write for Your Target Audience*.

De Greef, M., & Van den Broek, K. (2004). *Making the Case for Workplace Health Promotion: Analysis of the effects of WHP*. Belgium.

De Jager, P., Hofman, K., Khan, T., Volmink, H., & Jina, R. (2012). Recommendations to improve the National Development Plan for Health. *South African Medical Journal*, *102*(11), 827–829. Retrieved from http://www.scielo.org.za/pdf/samj/v102n11/11.pdf

de Jong, C. C., Ros, W. J. G., & Schrijvers, G. (2014). The effects on health behavior and health outcomes of Internet-based asynchronous communication between health providers and patients with a chronic condition: a systematic review. *Journal of Medical Internet Research*, *16*(1), e19. Retrieved from http://www.jmir.org/article/view/3000/XML

Demmer, H. (1995). Worksite health promotion. *European Health Promotion Series*, (4).

Denzin, N. K. (1978). *The research act: A theoretical orientation to sociological methods*. New York: McGraw-Hill.

Department of Health South Africa. (2013a). *Reduction of total sodium content of certain foodstuffs and related matters*.

Department of Health South Africa. (2013b). Strategic Plan for the Prevention and Control of Non-Communicable Diseases 2013-17. Retrieved from http://www.hsrc.ac.za/uploads/pageContent/3893/NCDs STRAT PLAN CONTENT 8 april proof.pdf

Després, J.-P., Alméras, N., & Gauvin, L. (2014). Worksite Health and Wellness Programs: Canadian Achievements & Prospects. *Progress in Cardiovascular Diseases*, *56*(5), 484–492. http://doi.org/10.1016/j.pcad.2013.11.002

Djalalinia, S., Ramezani Tehrani, F., Malekafzali, H., & Peykari, N. (2013). Peer Education: Participatory Qualitative Educational Needs Assessment. *Iranian Journal of Public Health*, *42*(12), 1422–1429. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/26060644

Doak, C. C., Doak, L. G., Miller, K., & Wilder, L. (1994). Suitability assessment of materials (SAM). In *American Public Health Association Annual Meeting*. Washington DC.

Doak, C. C., Doak, L. G., & Root, J. H. (1996). Teaching patients with low literacy skills. *The American*

Journal of Nursing, *96*(12), 16M. Retrieved from http://journals.lww.com/ajnonline/Abstract/1996/12000/Teaching_Patients_with_Low_Literacy_Skills.22.aspx

Doak, L. G., & Doak, C. C. (2010). Writing for readers with a wide range of reading skills. *American Journal Medical Writers Association Journal*, *25*(4), 149–154.

Doherty, S., & Dooris, M. (2006). The healthy settings approach: the growing interest within colleges and universities. *Education and Health*, *24*(3), 42–43. Retrieved from http://ahpwebserver1.opt.uea.ac.uk/publications/Doherty-Dooris-EH-2006.pdf

Dooris, M. (2001). Health promoting universities: policy and practice–a UK perspective. *Campus Partnership for Health, San Antonio*. Retrieved from http://www.jisctechdis.ac.uk/assets/Documents/subjects/psychology/p-dooris.pdf

Dooris, M., & Hunter, D. J. (2007). Organisations and settings for promoting public health. *Policy and Practice in Promoting Public Health. London: Sage*, 95–126. Retrieved from http://scholar.google.com/scholar?cluster=18250291616444539015&hl=en&oi=scholarr

DuBay, W. H. (2004). The Principles of Readability. *Online Submission*. Retrieved from http://eric.ed.gov/?id=ED490073

DuBay, W. H. (2007). Smart Language: Readers, Readability, and the Grading of Text. *Online Submission*. Retrieved from http://eric.ed.gov/?id=ED506403

Duerden, M. D., & Witt, P. A. (2012). Assessing Program Implementation: What It Is, Why It's Important, and How to Do It. *Journal of Extension*, *50*(1), Article 1FEA4. Retrieved from https://www.joe.org/joe/2012february/a4.php

Dugmore, L. D. (2007). Cardiac Rehabilitation and Wellness in the Corporate Setting. In *Cardiovascular Prevention and Rehabilitation* (pp. 428–434). Springer London. Retrieved from http://link.springer.com/chapter/10.1007/978-1-84628-502-8_52

Durlak, J. A., & DuPre, E. P. (2008). Implementation Matters: A Review of Research on the Influence of Implementation on Program Outcomes and the Factors Affecting Implementation. *American Journal of Community Psychology*, *41*(3–4), 327–350. http://doi.org/10.1007/s10464-008-9165-0

Dutta, M. J. (2007). Communicating About Culture and Health: Theorizing Culture-Centered and Cultural Sensitivity Approaches. *Communication Theory*, *17*(3), 304–328. http://doi.org/10.1111/j.1468-2885.2007.00297.x

Elbert, S. P., Dijkstra, A., & Oenema, A. (2016). A mobile phone app intervention targeting fruit and vegetable consumption: the efficacy of textual and auditory tailored health information tested in a randomized controlled trial. *Journal of Medical Internet Research*, *18*(6). Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4920964/

Eng, T. R., Maxfield, A., Patrick, K., Deering, M. J., Ratzan, S. C., & Gustafson, D. H. (1998). Access to health information and support: a public highway or a private road? *Journal of the American Medical Association*, *280*(15), 1371–1375. http://doi.org/10.1001/jama.280.15.1371

Entwistle, V. A., Renfrew, M. J., Yearley, S., Forrester, J., & Lamont, T. (1998). Lay perspectives: advantages for health research. *British Medical Journal (Clinical Research Education)*, *316*(7129), 463–466. http://doi.org/10.1136/bmj.316.7129.463

Eriksson, A., Axelsson, S. B., & Axelsson, R. (2012). Collaboration in workplace health promotion - A case study. *International Journal of Workplace Health Management*, *5*(3), 181–193.

http://doi.org/10.1108/17538351211268836

Erlandson, D. A., Harris, E. L., Skipper, B. L., & Allen, S. D. (1993). *Doing naturalistic inquiry: a guide to methods*. Newbury Park, California: SAGE Publications.

European Agency for Safety and Health at Work. (2007). *Luxembourg Declaration on Workplace Health Promotion in the European Union*. Retrieved from http://www.enwhp.org/fileadmin/rs-dokumente/dateien/Luxembourg_Declaration.pdf

European Agency for Safety and Health at Work. (2012). Motivation for employers to carry out workplace health promotion. Retrieved from https://osha.europa.eu/en/tools-and-publications/publications/literature_reviews/motivation-for-employers-to-carry-out-workplace-health-promotion

Federal Institute for Occupational Safety and Health. (1999). Healthy Employees in Healthy Organisation, Good Practice in Workplace Health Promotion (WHP) in Europe- Models of Good Practice.

Finnie, R. K. C., Felder, T. M., Linder, S. K., & Mullen, P. D. (2010). Beyond reading level: A systematic review of the suitability of cancer education print and Web-based materials. *Journal of Cancer Education*, *25*(4), 497–505. http://doi.org/10.1007/s13187-010-0075-0

Flesch, R. (1948). A new readability yardstick. *Journal of Applied Psychology*, *32*(3), 221–233. http://doi.org/10.1037/h0057532

Flynn, K., & Fitzgibbon, M. (1996). Body image ideals of low-income African American Mothers and their preadolescent daughters. *Journal of Youth and Adolescence*, *95*(5), 615–630.

Frahsa, A., Rutten, A., Roeger, U., Abu-Omar, K., & Schow, D. (2014). Enabling the powerful? Participatory action research with local policymakers and professionals for physical activity promotion with women in difficult life situations. *Health Promotion International*, *29*(1), 171–184. http://doi.org/10.1093/heapro/das050

Freedman, D., Pisani, R., & Roger, P. (2007). *Statistics* (4th ed.). New York: W. W. Norton & Company.

Friedman, D. B., & Hoffman-Goetz, L. (2006). A systematic review of readability and comprehension instruments used for print and web-based cancer information. *Health Education & Behavior*, *33*(3), 352–373. http://doi.org/10.1177/1090198105277329

Frosch, D. L., Kaplan, R. M., & Felitti, V. J. (2003). A randomized controlled trial comparing internet and video to facilitate patient education for men considering the prostate specific antigen test. *Journal of General Internal Medicine*, *18*(10), 781–787. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/14521639

Fry, E. (2002). Readability versus leveling. *The Reading Teacher*, *56*(3), 286–291. Retrieved from http://www.jstor.org/stable/20205195

Gagnon, R. J., Franz, N. K., Garst, B. A., Bumpus, M. F., Gagnon, R. J. ;, Franz, N. K. ;, … Franz, N. (2015). Factors Impacting Program Delivery: The Importance of Implementation Research in Extension. *Journal of Human Sciences and Extension*, *3*(2). Retrieved from http://lib.dr.iastate.edu/edu_pubs

Gal, I., & Prigat, A. (2005). Why organizations continue to create patient information leaflets with readability and usability problems: an exploratory study. *Health Education Research*, *20*(4), 485–493. http://doi.org/10.1093/her/cyh009

Garst, B. A., & Mccawley, P. F. (2015). Solving Problems, Ensuring Relevance, and Facilitating Change: The Evolution of Needs Assessment Within Cooperative Extension. *Journal of Human Sciences*

and Extension, *3*(2), 26–47.

Gaventa, J. (1981). *Power and Powerlessness: Quiescence and Rebellion in an Appalachian Valley*. Urbana, Illinois: University of Illinois Press. http://doi.org/10.2307/1960999

Gaziano, T. A., & Pagidipati, N. (2013). Scaling Up Chronic Disease Prevention Interventions in Lower- and Middle-Income Countries. *Annual Review of Public Health*, *34*, 317–335. http://doi.org/10.1146/annurev-publhealth-031912-114402

Gielen, A. C., & McDonald, E. M. (1997). The PRECEDE-PROCEED Planning Model. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.), *Health Behavior and Health Education: Theory, Research and Practice* (2nd ed.). San Francisco: Jossey-Bass.

Gill, P., Stewart, K., Treasure, E., & Chadwick, B. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, *204*(6), 291–295. http://doi.org/10.1038/bdj.2008.192

Gillis, A., & Jackson, W. (2002). *Research methods for nurses: Methods and interpretation*. Philadelphia: F.A. Davis Company.

Glanz, K., & Bishop, D. B. (2010). The Role of Behavioral Science Theory in Development and Implementation of Public Health Interventions. *Annual Review of Public Health*, *31*, 399–418. http://doi.org/10.1146/annurev.publhealth.012809.103604

Glanz, K., & Kristal, A. R. (2002). Worksite nutririon programs. In M. P. O'Donell (Ed.), *Health Promotion in the Workplace* (3rd ed., pp. 1–22). Albany: Delmar Cengage Learning.

Glanz, K., & Rimer, B. K. (2005). *Theory at a glance: a guide for health promotion practice* (2nd ed.). National Cancer Institute, NIH publication no 05-3896.

Glanz, K., Rimer, B. K., & Lewis, F. M. (2002). *Health Behavior and Health Education: Theory, Research and Practice*.

Glasgow, R. E., McCaul, K. D., & Fisher, K. J. (1993). Participation in Worksite Health Promotion: A Critique of the Literature and Recommendations for Future Practice. *Health Education and BehaviorBehavior*, *20*(3), 391–408. http://doi.org/10.1177/109019819302000309

Goetzel, R., Sepulveda, M., Knight, K., & al, et. (1994). Association of IBM's "A Plan for Life" health promotion program with changes in employees' health risk status. *Journal of Occupational Medicine*, (36), 1005–1009.

Goetzel, R. Z., & Ozminkowski, R. J. (2008). The Health and Cost Benefits of Work Site Health-Promotion Programs. *Annual Review of Public Health*, *29*(1), 303–323. http://doi.org/10.1146/annurev.publhealth.29.020907.090930

Goodman, R. M. (1998). Principals and tools for evaluating community-based prevention and health promotion programs. *Journal of Public Health Management and Practice*, *4*(2), 37–47. http://doi.org/10186732

Gottfredson, G. D., Gottfredson, D. C., Czeh, E. R., Cantor, D., Crosse, S. B., & Hantman, I. (2002). *National Study of Delinquency in Schools: Summary*. (96-MU-MU-008; 98-JN-FX-0004). Retrieved from https://www.ncjrs.gov/pdffiles1/nij/grants/194116.pdf

Graves, M., & Graves, B. (2003). *Scaffolding reading experiences: Designs for student success*. ERIC. Retrieved from http://eric.ed.gov/?id=ED471411

Grbich, C. (1999). *Qualitative research in health. An introduction*. St Leonards, NSW: Allen and Unwin.

Green, H. E. (2014). Use of theoretical and conceptual frameworks in qualitative research. *Nurse Researcher*, *21*(6), 34–38. Retrieved from http://journals.rcni.com/doi/abs/10.7748/nr.21.6.34.e1252

Green, J., Willis, K., Hughes, E., & Small, R. (2007). Generating best evidence from qualitative research: the role of data analysis. *Australian and New Zealand Journal of Public Health*, *31*(6), 545–550. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1753-6405.2007.00141.x/full

Green, L. W., & Kreuter, M. W. (1999). *Health program planning : an educational and ecological approach* (4th ed.). Mountain View, CA: Mayfield Publishing Co.

Green, L. W., & Ottoson, J. M. (2006). *A Framework for Planning and Evaluation: PRECEDE-PROCEED Evolution and Application of the Model PRECEDE-PROCEED Model*. Quebec.

Greenwood, D. J., Whyte, W. F., & Harkavy, I. (1993). Participatory action research as a process and as a goal. *Human Relations*, *46*(2), 175–193. Retrieved from http://hum.sagepub.com/content/46/2/175.short

Grime, J. C., & Ong, B. N. (2007). Constructing osteoarthritis through discourse – a qualitative analysis of six patient information leaflets on osteoarthritis. *BMC Musculoskeletal Disorders*, *8*(1), 34. http://doi.org/10.1186/1471-2474-8-34

Grimsmo-Powney, H., Harris, E. C., Reading, I., & Coggon, D. (2010). Occupational health needs of commercial fishermen in South West England. *Occupational Medicine (Oxford, England)*, *60*(1), 49–53. http://doi.org/10.1093/occmed/kqp137

Guest, G., MacQueen, K. M., & Namey, E. E. (2012). *Applied thematic analysis*. Thousand Oaks: Sage Publications.

Gunning, T. G. (2003). The role of readability in today's classrooms. *Topics in Language Disorders*, *23*(3), 175–189. Retrieved from http://journals.lww.com/topicsinlanguagedisorders/Abstract/2003/07000/The_Role_of_Readability_in_Today_s_Classrooms.5.aspx

Harden, A., Peersman, G., Oliver, S., Mauthner, M., & Oakley, A. (1999). A systematic review of the effectiveness of health promotion interventions in the workplace. *Occupational Medicine*, *49*(8), 540–548. http://doi.org/10.1093/occmed/49.8.540

Hardon, A., Boonmongkon, P., Streefland, P., Tan, M. L., Hongvivatana, T., Geest, J. D. M., … Varkevisser, C. M. (2001). *Applied health research manual: anthropology of health and health care* (3rd ed.). Amsterdam, The Netherlands: Het Spinhuis. Retrieved from http://dare.uva.nl/record/1/127702

Hargis, G., Hernandez, A. K., Hughes, P., Ramaker, J., Rouiller, S., & Wilde, E. (1998). *Developing quality technical information: A handbook for writers and editors*. Upper Saddle River, New Jersey: Prentice Hall.

Harper, M., & Cole, P. (2012). Member checking: can benefits be gained similar to group therapy? *The Qualitative Report*, *17*(2), 510–517. Retrieved from http://nsuworks.nova.edu/tqr/vol17/iss2/1/?utm_source=nsuworks.nova.edu%2Ftqr%2Fvol17%2Fiss2%2F1&utm_medium=PDF&utm_campaign=PDFCoverPages

Harris, G. E., & Larsen, D. (2007). HIV Peer Counseling and the Development of Hope: Perspectives from Peer Counselors and Peer Counseling Recipients. *AIDS Patient Care and STDs*, *21*(11), 843–860. http://doi.org/10.1089/apc.2006.0207

Harris, J. R., Hannon, P. A., Beresford, S. A. A., Linnan, L. A., & Mclellan, D. L. (2014). Health Promotion in Smaller Workplaces in the United States. *Annual Review of Public Health*, *35*, 327–342. http://doi.org/10.1146/annurev-publhealth-032013-182416

Hawe, P., Degeling, D., & Hall, J. (1990). *Evaluating Health Promotion: A Heath Worker's Guide*. Sydney: MacLennan and Petty.

HelpGuide. (2016). Heart Healthy Diet Tips: Lower Cholesterol, Prevent Heart Disease and Improve Your Cardiovascular Health. Retrieved from http://www.helpguide.org/articles/diet-weight-loss/heart-healthy-diet-tips.htm

Hennink, M. M. (2013). *Focus Group Discussions*. Oxford University Press. Retrieved from https://books.google.com/books?hl=en&lr=&id=5DLLAgAAQBAJ&pgis=1

Higgins, J., & Field, S. (2012). HSRPP Conference 2012. University College Cork, Ireland Day. *International Journal of Pharmacy Practice*, *1*, 1.

Hoffmann, T., & Ladner, Y. (2012). Assessing the Suitability of Written Stroke Materials: An Evaluation of the Interrater Reliability of the Suitability Assessment of Materials (SAM) Checklist. *Topics in Stroke Rehabilitation*, *19*(5), 417–422. http://doi.org/10.1310/tsr1905-417

Hoffmann, T., & McKenna, K. (2006). Analysis of stroke patients' and carers' reading ability and the content and design of written materials: Recommendations for improving written stroke information. *Patient Education and Counseling*, *60*(3), 286–293. http://doi.org/10.1016/j.pec.2005.06.020

Hoffmann, T., & Worrall, L. (2004). Designing effective written health education materials: considerations for health professionals. *Disability and Rehabilitation*, *26*(19), 1166–1173. Retrieved from http://www.tandfonline.com/doi/abs/10.1080/09638280410001724816

Hofman, K. (2014). Non-communicable diseases in South Africa: A challenge to economic development. *South African Medical Journal*, *104*(10), 647. http://doi.org/10.7196/SAMJ.8727

Hope, K. R. (2003). Promoting Behavior Change in Botswana: An Assessment of the Peer Education HIV/AIDS Prevention Program at the Workplace. *Journal of Health Communication*, *8*(3), 267. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=10283143&site=ehost-live

Horizons. (1999). *Peer Education and HIV/AIDS: Past Experience, Future Directions*. Kingston, Jamaica.

Houghton, C., Casey, D., Shaw, D., & Baicker, K. (2013). Rigour in qualitative case-study research. *Nurse Researcher*, *20*(4), 12–17. Retrieved from http://search.proquest.com/openview/1d910984e5885e87e98412471fda9f38/1?pq-origsite=gscholar

Houts, P. S., Doak, C. C., Doak, L. G., & Loscalzo, M. J. (2006). The role of pictures in improving health communication: A review of research on attention, comprehension, recall, and adherence. *Patient Education and Counseling*, *61*(2), 173–190. http://doi.org/10.1016/j.pec.2005.05.004

Hsu, J., Huang, J., Kinsman, J., Fireman, B., Miller, R., Selby, J., & Ortiz, E. (2005). Use of e-Health services between 1999 and 2002: A growing digital divide. *Journal of the American Medical Informatics Association*, *12*(2), 164–171. http://doi.org/10.1197/jamia.M1672

Hudon, C., Loignon, C., Grabovschi, C., Bush, P., Lambert, M., Goulet, É., ... Johnson, L. (2016). Medical education for equity in health: a participatory action research involving persons living in poverty and healthcare professionals. *BMC Medical Education*, *16*(1), 106.

http://doi.org/10.1186/s12909-016-0630-4

Huiskamp, A., King, L. J., & Hattingh, S. P. (2003). The Rationale Behind Workplace Health Promotion. *Occupational Health South Africa*.

Hung, Y. L., & Stones, C. (2014). Visual Design in Healthcare for Low-Literate Users – A Case Study of Healthcare Leaflets for New Immigrants in Taiwan. In *Design, User Experience, and Usability. User Experience Design for Everyday Life Applications and Services* (pp. 44–55). Switzerland: Springer International Publishing. http://doi.org/10.1007/978-3-319-07635-5_5

Ince, M. L. (2008). Use of a social cognitive theory-based physical-activity intervention on health-promoting behaviors of university students. *Perceptual And Motor Skills*, *107*(3), 833–836. http://doi.org/10.2466/pms.107.3.833-836

Institute of Medicine. (2009). *Toward Health Equity and Patient-Centeredness*. *Toward Health Equity and Patient-Centeredness: Integrating Health Literacy, Disparities Reduction, and Quality Improvement: Workshop Summary*. National Academies Press (US). http://doi.org/10.17226/12502

International Monetary Fund. (2015). The IMF and the Millenium Development Goals. IMF. Retrieved from https://www.imf.org/external/np/exr/facts/pdf/mdg.pdf

Israel, B. A., Schulz, A. J., & Parker, E. A. (1998). Review of community-based research: assessing partnership approaches to improve public health. *Annual Review of Public Health*, *19*(1), 173–202. Retrieved from http://annualreviews.org/doi/abs/10.1146/annurev.publhealth.19.1.173

Jagosh, J., Macaulay, A. C., Pluye, P., Salsberg, J., Bush, P. L., Henderson, J., … Greenhalgh, T. (2012). Uncovering the benefits of participatory research: implications of a realist review for health research and practice. *The Milbank Quarterly*, *90*(2), 311–346. http://doi.org/10.1111/j.1468-0009.2012.00665.x

Jahan, S., Al-Saigul, A., Alharbi, A., & Abdelgadir, M. (2014). Suitability assessment of health education brochures in Qassim province, Kingdom of Saudi Arabia. *Journal of Family and Community Medicine*, *21*(3), 186. http://doi.org/10.4103/2230-8229.142974

Jakobsen, M. U., O'Reilly, E. J., Heitmann, B. L., Pereira, M. A., Bälter, K., Fraser, G. E., … Ascherio, A. (2009). Major types of dietary fat and risk of coronary heart disease: a pooled analysis of 11 cohort studies. *The American Journal of Clinical Nutrition*, *89*(5), 1425–1432. http://doi.org/10.3945/ajcn.2008.27124

Jenkins, K. R., Fakhoury, N., Marzec, M. L., & Harlow-Rosentraub, K. S. (2015). Perceptions of a Culture of Health: Implications for Communications and Programming. *Health Promotion Practice*, *16*(6), 796–804. http://doi.org/10.1177/1524839914559942

Johnson, M. R. D., Guo, F., Culley, L., Hudson, N., Samanta, A., & Rauf, A. (2008). Evaluating the quality of patient information materials about Osteomalacia in South Asian languages: Exploring best practice on producing written and audio health materials in minority ethnic languages.

Kam, C.-M., Greenberg, M. T., & Walls, C. T. (2003). Examining the Role of Implementation Quality in School-Based Prevention Using the PATHS Curriculum. *Prevention Science*, *4*(1), 55–63. http://doi.org/10.1023/A:1021786811186

Kanchan, S., Tejaswini, B. D., Sagarkar, A. R., Ranadheer, R., & Shwetha, K. (2016). Assessment of Oral Health Education Material Using PEMAT Checklist. *Journal of Dental & Oro-Facial Research*, *12*(2), 4–7.

Kasabwala, K., Misra, P., Hansberry, D. R., Agarwal, N., Baredes, S., Setzen, M., & Anderson Eloy, J. (2013). Readability assessment of the American Rhinologic Society patient education materials. *International Forum of Allergy & Rhinology*, *3*(4), 325–333. http://doi.org/10.1002/alr.21097

Kaspin, L. C., Gorman, K. M., & Miller, R. M. (2013). Systematic review of employer-sponsored wellness strategies and their economic and health-related outcomes. *Population Health Management*, *16*(1), 14–21. http://doi.org/10.1089/pop.2012.0006

Keselman, A., Logan, R., Smith, C. A., Leroy, G., & Zeng-Treitler, Q. (2008). Developing Informatics Tools and Strategies for Consumer-centered Health Communication. *Journal of the American Medical Informatics Association*, *15*(4), 473–483. http://doi.org/10.1197/jamia.M2744

Kincaid, J. P., Fishburne Jr, R. P., Rogers, R. L., & Chissom, B. S. (1975). *Derivation of new readability formulas (automated readability index, fog count and flesch reading ease formula) for navy enlisted personnel* (No. RBR-8-75). Retrieved from http://oai.dtic.mil/oai/oai?verb=getRecord&metadataPrefix=html&identifier=ADA006655

Kindig, D. A., Panzer, A. M., & Nielsen-Bohlman, L. (2004). *Health literacy: a prescription to end confusion*. Washington, DC: National Academies Press. Retrieved from https://books.google.com/books?hl=en&lr=&id=vWp0AAAAQBAJ&oi=fnd&pg=PT21&dq=Nielsen-Bohlman+L,+Panzer+AM,+Kindig+DA.+Health+Literacy:+A+Prescription+to+End+Confusion.+Washington,+DC:+Institute+of+Medicine,+National+Academies+Press%3B+2004.&ots=SHlSfX2rgM&s

Kindon, S. L., Pain, R., & Kesby, M. (2007). *Participatory action research approaches and methods : connecting people, participation and place*. London ;New York: Routledge.

Kinsler, J. J., Wong, M. D., Sayles, J. N., Davis, C., & Cunningham, W. E. (2007). The Effect of Perceived Stigma from a Health Care Provider on Access to Care Among a Low-Income HIV-Positive Population. *AIDS Patient Care and STDs*, *21*(8), 584–592. http://doi.org/10.1089/apc.2006.0202

Kita, J. (2010). 9 Easy Ways To Clean Up Your Diet. *Prevention*, *62*(3), 128–133. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=hxh&AN=48011309&site=ehost-live&scope=cite

Klare, G. R. (1963). Measurement of readability. Retrieved from http://agris.fao.org/agris-search/search.do?recordID=US201300477919

Klare, G. R. (1974). Assessing Readability. *Reading Research Quarterly*, *10*(1), 62–102. http://doi.org/10.2307/747086

Klare, G. R. (1984). *Handbook of reading research 1*. Retrieved from https://scholar.google.com/scholar?q=klare+1984+readability&btnG=&hl=en&as_sdt=0%2C5

Koch, T. (2006). Establishing rigour in qualitative research: the decision trail. *Journal of Advanced Nursing*, *53*(1), 91–100. http://doi.org/10.1111/j.1365-2648.2006.03681.x

Koshy, E., Waterman, H., & Koshy, V. (2011). *Action research in healthcare*. Newbury Park, London, New Dehli: SAGE.

Kreuter, M. W., Lukwago, S. N., Bucholtz, D. C., Clark, E. M., & Sanders-Thompson, V. (2003). Achieving cultural appropriateness in health promotion programs: targeted and tailored approaches. *Health Education and Behavior*, *30*(2), 133–146. Retrieved from http://heb.sagepub.com/content/30/2/133.short

Kroeber, A. L., & Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. *Papers.*

Peabody Museum of Archaeology & Ethnology, Harvard University. Retrieved from http://psycnet.apa.org/psycinfo/1953-07119-001

Krueger, R. A. (1994). *Focus Groups: A Practical Guide for Applied Research* (2nd ed.). Thousand oaks, California: Sage.

Krueger, R. A., & Casey, M. A. (2014). *Focus Groups: A Practical Guide for Applied Research*. SAGE Publications. Retrieved from https://books.google.com/books?hl=en&lr=&id=APtDBAAAQBAJ&pgis=1

Labaree, R. V. (2009). Research Guides: Organizing Your Social Sciences Research Paper: Theoretical Framework. Retrieved from http://libguides.usc.edu/c.php?g=235034&p=1561763

Lachat, C., Otchere, S., Roberfroid, D., Abdulai, A., Seret, F. M. A., Milesevic, J., … Kolsteren, P. (2013). Diet and Physical Activity for the Prevention of Noncommunicable Diseases in Low- and Middle-Income Countries: A Systematic Policy Review. *PLoS Med*, *10*(6), e1001465. http://doi.org/10.1371/journal.pmed.1001465

Lake, A. A., Speed, C., Brookes, A., Heaven, B., Adamson, A. J., Moynihan, P., … Dixon-Woods, M. (2007). Development of a series of patient information leaflets for constipation using a range of cognitive interview techniques: LIFELAX. *BMC Health Services Research*, *7*(1), 3. http://doi.org/10.1186/1472-6963-7-3

Lambert, S. M., Debattista, J., Bodiroza, A., Martin, J., Staunton, S., Walker, R., … Friedmann, P. (2013). Effective peer education in HIV: defining factors that maximise success. *Sexual Health*, *10*(4), 325. http://doi.org/10.1071/SH12195

Lambert, E. V, & Kolbe-Alexander, T. L. (2013). Innovative strategies targeting obesity and non-communicable diseases in South Africa: what can we learn from the private healthcare sector? *Obesity Reviews: An Official Journal of the International Association for the Study of Obesity*, *14 Suppl 2*, 141–149. http://doi.org/10.1111/obr.12094

Lampert, A., Wien, K., Haefeli, W. E., & Seidling, H. M. (2016). Guidance on how to achieve comprehensible patient information leaflets in four steps. *International Journal For Quality in Health Care*, 1–5. http://doi.org/10.1093/intqhc/mzw077

Laws, R., St.George, A., King, L., & Rissel, C. (2013). *Employer Perspectives of workplace health promotion- key findings from qualitative interviews*. University of Sydney.

Lawshe, C. H. (1975). A quantitative approach to content validity. *Personnel Psychology*, *28*(4), 563–575. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1744-6570.1975.tb01393.x/full

LeCheminant, J. D., & Merrill, R. M. (2012). Improved Health Behaviors Persist Over Two Years for Employees in a Worksite Wellness Program. *Population Health Management*, *15*(5), 261–266. http://doi.org/10.1089/pop.2011.0083

Lee, H., Kim, J., Yoo, R., & Lee, J. (2016). Development and Evaluation of Cardiovascular Disease Prevention Education Materials for Middle-aged Korean-Chinese Female Workers: Applying Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P). *Journal of Korean Academy of Community Health Nursing*, *27*(3), 284–298. http://doi.org/10.12799/jkachn.2016.27.3.284

Levin-Zamir, D., Badarne, S., Najami, M., Gan Noy, S., Poraz, I., Shapira, M., … Goldfracht, M. (2016). The use of focus groups as a basis for planning and implementing culturally appropriate health promotion among people with diabetes in the Arab community. *Global Health Promotion*, *23*(1), 5–14. http://doi.org/10.1177/1757975914548200

Li, Y., Cao, J., Lin, H., Li, D., Wang, Y., & He, J. (2009). Community health needs assessment with precede-proceed model: a mixed methods study. *BMC Health Services Research*, *9*, 181. http://doi.org/10.1186/1472-6963-9-181

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Newbury Park, London, New Dehli: SAGE.

Little, M. A., Sussman, S., Sun, P., & Rohrbach, L. A. (2013). The Effects of Implementation Fidelity in the Towards No Drug Abuse Dissemination Trial. *Health Education (Bradford, West Yorkshire, England)*, *113*(4), 281–296. http://doi.org/10.1108/09654281311329231

Lombard, L. (2013). Non-communicable diseases: an ongoing challenge. *SA Journal of Diabetes & Vascular Disease Editorial* , *10*(2), 47.

Long, T., & Johnson, M. (2000). Rigour, reliability and validity in qualitative research. *Clinical Effectiveness in Nursing*, *4*(1), 30–37. http://doi.org/10.1054/cein.2000.0106

Lowe, G. S. (2004). Healthy workplace strategies: Creating change and achieving results. *Health Promotion*, 1–33. Retrieved from http://www.cprn.org/documents/26838_en.pdf

Lu, Q., You, J., Man, J., Loh, A., & Young, L. (2014). Evaluating a Culturally Tailored Peer-Mentoring and Education Pilot Intervention Among Chinese Breast Cancer Survivors Using a Mixed-Methods Approach. *Oncology Nursing Forum*, *41*(6), 629–637. http://doi.org/10.1188/14.ONF.629-637

Lu, R., Mackay, J., Niu, S., & Peto, R. (2012). *Tobacco: The Growing Epidemic: Proceedings of the Tenth World Conference on Tobacco or Health, 24–28 August 1997, Beijing, China*. Springer Science & Business Media. Retrieved from https://books.google.co.za/books?id=wdLiBwAAQBAJ

Luk, A., & Aslani, P. (2011). Tools used to evaluate written medicine and health information: document and user perspectives. *Health Education & Behavior*, *38*(4), 389–403. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/1090198110379576

MacDonald, C. (2012). Understanding Participation Action Research: A Qualitative Research Methodology Option. *The Canadian Journal of Action Research*, *13*(2), 34–50. Retrieved from http://journals.nipissingu.ca/index.php/cjar/article/view/37/33

Macdonald, G. (2000). A new evidence framework for health promotion practice. *Health Education Journal*, *59*(1), 3–11. Retrieved from http://journals.sagepub.com/doi/pdf/10.1177/001789690005900102

Mahdizadeh, M., Peymam, N., Taghipour, A., Esmaily, H., & Mahdizadeh, S. M. (2013). Effect of health education program on promoting physical activity among diabetic women in Mashhad, Iran: applying social cognitive theory. *Journal of Research in Health Sciences*, *13*(1), 90–97. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/23772021

Mandal, J., & Parija, S. C. (2014). Informed consent and research. *Tropical Parasitology*, *4*(2), 78. Retrieved from http://tropicalparasitology.org/article.asp?issn=2229-5070;year=2014;volume=4;issue=2;spage=78;epage=79;aulast=Mandal

Marshall, C., & Rossman, G. B. (2011). *Designing qualitative research* (5th ed.). Los Angeles: SAGE Publications. Retrieved from http://files/1321/Marshall and Rossman - 2014 - Designing qualitative research.pdf

Martinez, R., Matheson, D., Martin, B., & Silverstein, B. (2010). The New Discipline of Workforce Wellness: Enhancing Corporate Performance by Tackling Chronic Disease. *Health Care, People and Organization*. Retrieved from

https://www.bcgperspectives.com/content/articles/health_care_payers_providers_people_management_human_resources_new_discipline_of_workforce_wellness/

Mathers, C., Stevens, G., & Mascarenhas, M. (2009). *Global health risks: mortality and burden of disease attributable to selected major risks.* Geneva. Retrieved from http://www.who.int/healthinfo/global_burden_disease/GlobalHealthRisks_report_full.

Maxwell, J. A. (1996). *Applied social research methods series. Qualitative research design: An interactive approach. : Sage Publications* (Vol. 41). Thousand Oaks, California: Sage Publications.

Maxwell, J. A. (2002). Understanding and validity in qualitative research. In A. M. Huberman & M. B. Miles (Eds.), *The Qualitative Researcher's Companion*. Thousand Oaks, California: SAGE.

Mayeaux, E. J., Murphy, P. W., Arnold, C., Davis, T. C., Jackson, R. H., & Sentell, T. (1996). Improving patient education for patients with low literacy skills. *American Family Physician*, *53*(1), 205–211. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8546047

McAlister, A., Perry, C., & Parcel, G. (2008). How individuals, environment, and health interact: social cognitive theory. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education : theory, research, and practice* (4th ed., pp. 169–188). San Francisco, CA : Jossey-Bass.

McClinchy, J., Dickinson, A., Barron, D., & Thomas, H. (2011). Practitioner and lay perspectives of the service provision of nutrition information leaflets in primary care: Nutrition information leaflets in primary care. *Journal of Human Nutrition and Dietetics*, *24*(6), 552–559. http://doi.org/10.1111/j.1365-277X.2011.01200.x

McClure, E., Ng, J., Vitzthum, K., & Rudd, R. (2016). A Mismatch Between Patient Education Materials About Sickle Cell Disease and the Literacy Level of Their Intended Audience. *Preventing Chronic Disease: Public Health Research, Practice, and Policy*, *13*(E64), 1–9. http://doi.org/10.5888/pcd13.150478

Mcclure, R. D. (2002). *Common Data Collection Strategies Effective in Qualitative Studies Using Action Research in Technical/Operational Training Programs*.

Mchiza, Z. J., Goedecke, J. H., & Lambert, E. V. (2011). Intra-familial and ethnic effects on attitudinal and perceptual body image: a cohort of South African mother-daughter dyads. *BMC Public Health*, *11*(1), 433. http://doi.org/10.1186/1471-2458-11-433

Mchunu, G. (2012). Proposed guidelines for a workplace health promotion policy and implementation framework. *Occupational Health Southern Africa*, *18*(2), 5–12.

McKee, M. M., & Paasche-Orlow, M. K. (2012). Health Literacy and the Disenfranchised: The Importance of Collaboration Between Limited English Proficiency and Health Literacy Researchers. *Journal of Health Communication*, *17*, 7–12. http://doi.org/10.1080/10810730.2012.712627

McLaughlin, G. H. (1969). SMOG grading: A new readability formula. *Journal of Reading*, *12*(8), 639–646. Retrieved from http://www.jstor.org/stable/40011226

McLaughlin, G. H. (1974). Temptations of the Flesch. *Instructional Science*, *2*(4), 367–383. Retrieved from http://link.springer.com/article/10.1007/BF00123459

McQuiston, C., Parrado, E. A., Martínez, A. P., & Uribe, L. (2005). Community-Based Participatory Research with Latino Community Members: Horizonte Latino. *Journal of Professional Nursing*, *21*(4), 210–215. http://doi.org/10.1016/j.profnurs.2005.05.003

Meade, C. D., McKinney, W. P., & Barnas, G. P. (1994). Educating patients with limited literacy skills: the effectiveness of printed and videotaped materials about colon cancer. *American Journal of Public Health*, *84*(1), 119–121. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8279598

Meade, C. D., & Smith, C. F. (1991). Readability formulas: Cautions and criteria. *Patient Education and Counseling*, *17*(2), 153–158. http://doi.org/10.1016/0738-3991(91)90017-Y

Medrano Martínez, V., Callejo-Domínguez, J. M., Beltrán-lasco, I., Pérez-Carmona, N., Abellán-Miralles, I., González-Caballero, G., … Moltó-Jordá, J. M. (2015). Migraine education brochures and patient-perceived satisfaction. *Neurología (English Edition)*, *30*(8), 472–478. http://doi.org/10.1016/j.nrleng.2015.08.006

Mellor, N., & Webster, J. (2013). Enablers and challenges in implementing a comprehensive workplace health and well-being approach. *International Journal of Workplace Health Management*, *6*(2), 129–142. http://doi.org/10.1108/IJWHM-08-2011-0018

Melnyk, B. M., Amaya, M., Szalacha, L. A., & Hoying, J. (2016). Relationships Among Perceived Wellness Culture, Healthy Lifestyle Beliefs, and Healthy Behaviors in University Faculty and Staff Implications for Practice and Future Research. *Western Journal of Nursing Research*, *38*(3), 308–324. http://doi.org/10.1177/0193945915615238

Merriam, S. B. (1998). *Qualitative Research and Case Study Applications in Education. Revised and Expanded from "Case Study Research in Education."* San Francisco, CA: Jossey-Bass Publishers. Retrieved from http://eric.ed.gov/?id=ed415771

Merriam, S. B., & Tisdell, E. J. (2015). *Qualitative research: A guide to design and implementation*. John Wiley & Sons. Retrieved from https://books.google.com/books?hl=en&lr=&id=JFN_BwAAQBAJ&oi=fnd&pg=PA137&dq=direct+observation+in+qualitative+research&ots=wM2VLH0D56&sig=B9OXG9VjRfHFr8ftfk7IwfyWJ0s

Michie, S., Abraham, C., Whittington, C., & McAteer, J. (2009). Effective techniques in healthy eating and physical activity interventions: a meta-regression. Retrieved from http://psycnet.apa.org/journals/hea/28/6/690/

Miles, M., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook*. SAGE Publications.

Miles, M., Huberman, A., & Saldana, J. (2013). *Qualitative data analysis*. Retrieved from https://books.google.com/books?hl=en&lr=&id=3CNrUbTu6CsC&oi=fnd&pg=PR1&dq=coding+in+qualitative+data+analysis&ots=Lg9-hnWN1a&sig=J-y46Tm834BCPwT_KMlg93unuvM

Miller, C. K., Edwards, L., Kissling, G., & Sanville, L. (2002). Nutrition education improves metabolic outcomes among older adults with diabetes mellitus: results from a randomized controlled trial. *Preventive Medicine*, *34*(2), 252–259. Retrieved from http://www.sciencedirect.com/science/article/pii/S0091743501909855

Minkler, M., & Wallerstein, N. (Eds.). (2008). *Community-based participatory research for health : from process to outcomes*. Jossey-Bass.

Misganaw, A., Mariam, D. H., Ali, A., & Araya, T. (2014). Epidemiology of major non-communicable diseases in Ethiopia: a systematic review. *Journal of Health, Population, and Nutrition*, *32*(1), 1–13. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/24847587

Mitchell, J. A., Eden, B., Dunn, S., Cramp, J., Chapman, K., Jayewardene, V., … St George, A. (2012). Healthy Workplace Guide: ten steps to implementing a workplace health program. Retrieved from http://ses.library.usyd.edu.au/handle/2123/8776

Morisky, D. E., Ang, A., Coly, A., & Tiglao, T. V. (2004). A model HIV/AIDS risk reduction programme in the Philippines: a comprehensive community-based approach through participatory action research. *Health Promotion International*, *19*(1), 69–76. http://doi.org/10.1093/heapro/dah109

Moult, B., Franck, L. S., & Brady, H. (2004). Ensuring quality information for patients: development and preliminary validation of a new instrument to improve the quality of written health care information. *Health Expectations*, *7*(2), 165–175. Retrieved from http://onlinelibrary.wiley.com/doi/10.1111/j.1369-7625.2004.00273.x/full

Mubuuke, A. G., & Leibowitz, B. (2013). Participatory action research: The key to successful implementation of innovations in health professions education. *African Journal of Health Professions Education*, *5*(1), 30–33. http://doi.org/10.7196/ajhpe.208

Murphy, F. J., & Yielder, J. (2010). Establishing rigour in qualitative radiography research. *Radiography*, *16*(1), 62–67. http://doi.org/10.1016/j.radi.2009.07.003

Nankunda, J., Tumwine, J. K., Soltvedt, Å., Semiyaga, N., Ndeezi, G., Tylleskär, T., … Stone, D. (2006). Community based peer counsellors for support of exclusive breastfeeding: experiences from rural Uganda. *International Breastfeeding Journal*, *1*(1), 19. http://doi.org/10.1186/1746-4358-1-19

Nasser, S., Mullan, J., & Bajorek, B. (2012). Assessing the quality, suitability and readability of internet-based health information about warfarin for patients. *Australasian Medical Journal*, *5*(3), 194–203. http://doi.org/10.4066/AMJ.2012.862

Nature. (2013). Shades of grey. *Nature*, *497*, 410. http://doi.org/10.1038/497410a

Naydeck, B. L., Pearson, J. A., Ozminkowski, R. J., Day, B. T., & Goetzel, R. Z. (2008). The Impact of the Highmark Employee Wellness Programs on 4-Year Healthcare Costs: *Journal of Occupational and Environmental Medicine*, *50*(2), 146–156. http://doi.org/10.1097/JOM.0b013e3181617855

Neves, G. S., Nasr, A., Abreu-Reis, P., Abreu, J. T. de, Abreu, P. T., Scheffer, B., … Collaço, I. (2013). Peer health education for injury prevention: a cost-effective measure that can spread medical knowledge amongst children and youths. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, *21*(1), S23. http://doi.org/10.1186/1757-7241-21-S1-S23

Ngo, A. D., Ha, T. H., Rule, J., & Dang, C. V. (2013). Peer-based Education and the Integration of HIV and Sexual and Reproductive Health Services for Young People in Vietnam: Evidence from a Project Evaluation. *PLoS ONE*, *8*(11), 1–7. http://doi.org/10.1371/journal.pone.0080951

Nnakwe, N. E. (2013). *Community nutrition : planning health promotion and disease prevention*. Jones & Bartlett Learning.

Nöhammer, E., Stummer, H., & Schusterschitz, C. (2011). Improving employee well-being through worksite health promotion? The employees' perspective. *Journal of Public Health*, *19*(2), 121–129. http://doi.org/10.1007/s10389-010-0364-4

Nöhammer, E., Stummer, H., & Schusterschitz, C. (2014). Employee perceived barriers to participation in worksite health promotion. *Journal of Public Health*, *22*(1), 23–31. http://doi.org/10.1007/s10389-013-0586-3

Norr, K. F., Norr, J. L., McElmurry, B. J., Tlou, S., & Moeti, M. R. (2004). Impact of Peer Group Education on HIV Prevention Among Women in Botswana. *Health Care for Women International*, *25*(3), 210–226. http://doi.org/10.1080/07399330490272723

Northeast Utilities. (2001). Northeast Utilities. *The Health Project*. Retrieved from http://thehealthproject.com/winner/northeast-utilities-wellaware/

Nutbeam, D. (1998). Evaluating Health Promotion--Progress, Problems and solutions. *Health Promotion International*, *13*(1), 27–44. http://doi.org/10.1093/heapro/13.1.27

O'Connor-Fleming, M. L., Parker, E., Higgins, H., & Gould, T. (2006). A framework for evaluating health promotion programs. *Health Promotion Journal of Australia*, *17*(1), 61–66. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/16619938

O'Donnell, M. P. (2001). *Health promotion in the workplace* (3rd ed.). Delmar Thomson Learning.

O'Reilly-de Brún, M., de Brún, T., Okonkwo, E., Bonsenge-Bokanga, J.-S., De Almeida Silva, M. M., Ogbebor, F., … Stake, R. (2015). Using Participatory Learning: Action research to access and engage with "hard to reach" migrants in primary healthcare research. *BMC Health Services Research*, *16*(1), 16–25. http://doi.org/10.1186/s12913-015-1247-8

Office of the Presidency of the Republic of South Africa. (2015). *Twenty Year Review, South Africa, 1994–2014.*

Oladimeji, A. M., Fawole, O., Nguku, P., & Nsubuga, P. (2014). Prevalence and factors associated with hypertension and obesity among civil servants in Kaduna, Kaduna State, June 2012. *The Pan African Medical Journal*, *18*(Suppl 1), 13. http://doi.org/10.11694/pamj.supp.2014.18.1.3260

Olshansky, E., Sacco, D., Braxter, B., Dodge, P., Hughes, E., Ondeck, M., … Upvall, M. J. (2005). Participatory action research to understand and reduce health disparities. *Nursing Outlook*, *53*(3), 121–126. http://doi.org/10.1016/j.outlook.2005.03.002

Onya, H. (2007). Health promotion in South Africa. *Promotion & Education*, *14*(4), 233–237. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18372875

Orb, A., Eisenhauer, L., & Wynaden, D. (2000). Issues in Qualitative Research. *Journal of Nursing Scholarship*, *33*(1), 93–96. Retrieved from http://www.columbia.edu/~mvp19/RMC/M5/QualEthics.pdf

Östlund, U., Kidd, L., Wengström, Y., & Rowa-Dewar, N. (2011). Combining qualitative and quantitative research within mixed method research designs: A methodological review. *International Journal of Nursing Studies*, *48*(3), 369–383. http://doi.org/10.1016/j.ijnurstu.2010.10.005

Ostojic, V., Cvoriscec, B., Ostojic, S. B., Reznikoff, D., Stipic-Markovic, A., & Tudjman, Z. (2005). Improving asthma control through telemedicine: A study of short-message service. *Telemedicine and E-Health*, *11*(1), 28–35. http://doi.org/10.1089/tmj.2005.11.28

Oyewole, O. E., Atinmo, T., Maiyaki, M., Garbati, M., Ludwig, D. S., Majzoub, J. A., … Robinson, T. N. (2015). Nutrition transition and chronic diseases in Nigeria. *Proceedings of the Nutrition Society*, *74*(4), 460–465. http://doi.org/10.1017/S0029665115002402

Pander Maat, H., & Lentz, L. (2010). Improving the usability of patient information leaflets. http://doi.org/10.1016/j.pec.2009.09.030

Patel, C. R., Sanghvi, S., Cherla, D. V., Baredes, S., & Eloy, J. A. (2015). Readability assessment of internet-based patient education materials related to parathyroid surgery. *Annals of Otology, Rhinology and Laryngology*, *124*(7), 523–527. http://doi.org/10.1177/0003489414567938

Patel, D., Goetzel, R. Z., Beckowski, M., Milner, K., Greyling, M., da Silva, R., … Nossel, C. (2013). The Healthiest Company Index: a campaign to promote worksite wellness in South Africa. *Journal of Occupational and Environmental Medicine*, *55*(2), 172–178. http://doi.org/10.1097/JOM.0b013e3182728d61

Patel, K. (2015). Workplace wellness still sadly neglected in SA. *Daily Maverick*. Retrieved from

http://www.dailymaverick.co.za/article/2012-02-29-workplace-wellness-still-sadly-neglected-in-sa/#.VeC3-5dx1h8

Paton, K., Sengupta, S., & Hassan, L. (2005). Settings, systems and organization development: the Healthy Living and Working Model. *Health Promotion International*, *20*(1), 81–89. http://doi.org/10.1093/heapro/dah510

Patten, M. L. (1998). *Questionnaire Research: A practical guide*. Los Angeles, California: Pyrczak Publications.

Patton, M. Q. (1999). Enhancing the quality and credibility of qualitative analysis. *Health Services Research*, *34*(5 Pt 2), 1189–1208. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1089059/

Perepletchikova, F., Treat, T. A., & Kazdin, A. E. (2007). Treatment integrity in psychotherapy research: Analysis of the studies and examination of the associated factors. *Journal of Consulting and Clinical Psychology*, *75*(6), 829–841. http://doi.org/10.1037/0022-006X.75.6.829

Pérez-Escamilla, R., Hromi-Fiedler, A., Vega-López, S., Bermúdez-Millán, A., & Segura-Pérez, S. (2008). Impact of Peer Nutrition Education on Dietary Behaviors and Health Outcomes among Latinos: A Systematic Literature Review. *Journal of Nutrition Education and Behavior*, *40*(4), 208–225. http://doi.org/10.1016/j.jneb.2008.03.011

Perry, C., Albrecht, J., Litchfield, R., Meysenburg, R., Er, I., Lum, A., … Meimann, E. (2012). The Development of a Food Safety Brochure for Families: The Use of Formative Evaluation and Plain Language Strategies. *Journal of Extension*, *50*(1), 1RIB3. Retrieved from http://lib.dr.iastate.edu/fshn_hs_pubs/3

Person, A. L., Colby, S. E., Bulova, J. A., & Eubanks, J. W. (2010). Barriers to participation in a worksite wellness program. *Nutrition Research and Practice*, *4*(2), 149–154. http://doi.org/10.4162/nrp.2010.4.2.149

Pescud, M., Teal, R., Shilton, T., Slevin, T., Ledger, M., Waterworth, P., & Rosenberg, M. (2015). Employers' views on the promotion of workplace health and wellbeing: a qualitative study. *BMC Public Health*, *15*(1). http://doi.org/10.1186/s12889-015-2029-2

Pikulski, J. J. (2002). *Readability*. *Houghton Mifflin*. Boston, MA.

Poindexter, C. C., & Shippy, R. A. (2010). HIV Diagnosis Disclosure: Stigma Management and Stigma Resistance. *Journal of Gerontological Social Work*, *53*(4), 366–381. http://doi.org/10.1080/01634371003715841

Pollitz, K., & Rae, M. (2016). Workplace Wellness Programs Characteristics and Requirements. Retrieved from http://kff.org/private-insurance/issue-brief/workplace-wellness-programs-characteristics-and-requirements/

Posavac, E. J., & Kattapong, K. R. (1999). Peer-based interventions to influence health-related behaviors and attitudes: A meta-analysis. *Psychological Reports*, *85*(3 Pt 2), 1179–1194. http://doi.org/10.2466/PR0.85.7.1179-1194

Powell, R. A., & Single, H. M. (1996). Focus Groups. *International Journal for Quality in Health Care*, *8*(5), 499–504. http://doi.org/10.1093/intqhc/8.5.499

Puoane, T., Hughes, G., & Bradley, H. A. (2005). Obesity among black South African women. *Journal of Human Ecology*, *13*, 91–95. Retrieved from http://repository.uwc.ac.za/xmlui/handle/10566/243

Purnell, J. Q., Gernes, R., Stein, R., Sherraden, M. S., & Knoblock-Hahn, A. (2014). A Systematic Review of Financial Incentives for Dietary Behavior Change. *Journal of the Academy of Nutrition and Dietetics*, *114*(7), 1023–1035. http://doi.org/10.1016/j.jand.2014.03.011

QSR International. (2016). NVivo. Retrieved February 3, 2017, from http://www.qsrinternational.com/nvivo-product

Quigley, D., Handy, D., Goble, R., Sanchez, V., & George, P. (2000). Participatory research strategies in nuclear risk management for native communities. *Journal of Health Communication*, *5*(4), 305–331. http://doi.org/10.1080/10810730050199123

Quintiliani, L., Sattelmair, J., & Sorensen, G. (2007). The workplace as a setting for interventions to improve diet and promote physical activity. In *WHO/WEF Joint Event on Preventing Noncommunicable Diseases in the Workplace*. Dalian/ China. Retrieved from http://www.who.int/dietphysicalactivity/Quintiliani-workplace-as-setting.pdf

Rager, R. C., Leutzinger, J. A., Hochberg, J. A., Kirsten, W., & Chenoweth, D. H. (2008). Employee Disease Management in US and Global Workplaces: Integrating Strategies and Expanding their Scope. *Disease Management and Health Outcomes*, *16*(2), 87. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=31607035&site=ehost-live

Raingruber, B. (2014). Health promotion theories. In *Contemporary Health Promotion in Nursing Practice* (pp. 53–94). Retrieved from https://books.google.com/books?hl=en&lr=&id=G-7PDAAAQBAJ&oi=fnd&pg=PA49&dq=bonnie+raingruber+health+promotion+theories&ots=NC9xnSfZrt&sig=4Gg-so8y1NRTGTfSraQfjJJKz20

Ransdell, L. B. (2001). Using the PRECEDE-PROCEED Model to Increase Productivity in Health Education Faculty. *The International Electronic Journal of Health Education*, (4), 276–282.

Reason, P., & Bradbury, H. (2001). *Handbook of action research : participative inquiry and practice*. London; Thousand Oaks California: SAGE.

Redish, J. C., & Selzer, J. (1985). The place of readability formulas in technical communication. *Technical Communication*, 46–52. Retrieved from http://www.jstor.org/stable/43094562

Registered Nurses' Association of Ontario. (2002). *Workplace Health, Safety and Well-being of the Nurse*. Toronto, Canada.

Renuka, P., & Pushpanjali, K. (2013). Leaflet Preparation and Validation Procedures. *Universal Journal of Public Health*, *1*(3), 110–114. http://doi.org/10.13189/ujph.2013.010310

Rhee, R. L., Von Feldt, J. M., Schumacher, H. R., & Merkel, P. A. (2013). Readability and suitability assessment of patient education materials in rheumatic diseases. *Arthritis Care & Research*, *65*(10), 1702–1706. http://doi.org/10.1002/acr.22046

Richards, J. C., Platt, H., & Platt, J. (Eds.). (1992). *Longman dictionary of language teaching and applied linguistics* (2nd ed.). London: Longman Group UK Limited.

Ritchie, J., Lewis, J., Nicholls, C. M. N., & Ormston, R. (Eds.). (2013). *Qualitative research practice: A guide for social science students and researchers*. SAGE Publications. Retrieved from https://books.google.com/books?hl=en&lr=&id=EQSIAwAAQBAJ&oi=fnd&pg=PP1&dq=focus+group+discussions+qualitative+study&ots=lZXSgpRz7L&sig=DEaZguuPzOE1tp8qv3tR7xOGWtM

Robertson, R. (2008). Using information to promote healthy behaviours. Retrieved from www.kingsfund.org.uk

Robinson, T. N., Patrick, K., Eng, T. R., & Gustafson, D. (1998). An Evidence-Based Approach to Interactive Health Communication A Challenge to Medicine in the Information Age for the

Science Panel on Interactive Communication and Health. *Journal of the American Medical Association*, *280*(14), 1264–1269. http://doi.org/10.1001/jama.280.14.1264

Robson, C. (2002). *Real World Research* (2nd ed.). United Kingdom: Blackwell Publishing.

Rodgers, A., Corbett, T., Bramley, D., Riddell, T., Wills, M., Lin, R.-B., & Jones, M. (2005). Do u smoke after txt? Results of a randomised trial of smoking cessation using mobile phone text messaging. *Tobacco Control*, *14*(4), 255–261. http://doi.org/10.1136/tc.2005.011577

Rosdahl, J. A., Swamy, L., Stinnett, S., & Muir, K. W. (2014). Patient education preferences in ophthalmic care. *Patient Preference and Adherence*, *8*, 565–574. http://doi.org/10.2147/PPA.S61505

Ross, J. (2007). Health literacy and its influence on patient safety. *Journal of PeriAnesthesia Nursing*, *22*(3), 220–2. http://doi.org/10.1016/j.jopan.2007.03.005

Ross, M. W., & Williams, M. L. (2002). Effective targeted and community HIV/STD prevention programs. *Journal of Sex Research*, *39*(1), 58–62. http://doi.org/10.1080/00224490209552121

Round, R., Marshall, B., & Horton, K. (2005). *Planning for effective health promotion evaluation*. Melbourne.

Ryan, L., Logsdon, M. C., McGill, S., Stikes, R., Senior, B., Helinger, B., … Davis, D. W. (2014). Evaluation of Printed Health Education Materials for Use by Low-Education Families: Suitability and Readability of Materials. *Journal of Nursing Scholarship*, *46*(4), 218–228. http://doi.org/10.1111/jnu.12076

SA NCD Declaration. (2011). South African Declaration on the Prevention and Control of Non-Communicable Diseases.

Sabinsky, M. S., Toft, U., Raben, A., & Holm, L. (2006). Overweight men's motivations and perceived barriers towards weight loss. *European Journal of Clinical Nutrition*, *61*(4), 526–531. http://doi.org/10.1038/sj.ejcn.1602537

Sadler, G. R., Lee, H.-C., Lim, R. S.-H., & Fullerton, J. (2010). Recruitment of hard-to-reach population subgroups via adaptations of the snowball sampling strategy. *Nursing & Health Sciences*, *12*(3), 369–374. http://doi.org/10.1111/j.1442-2018.2010.00541.x

Salkind, N. J. (1991). *Exploring research*. (M. P. Company, Ed.). New York.

Sandelowski, M. (2000). Combining Qualitative and Quantitative Sampling, Data Collection, and Analysis Techniques in Mixed-Method Studies. *Research in Nursing & Health*, *23*(3), 246–255. http://doi.org/10.1002/1098-240X(200006)23:3<246::AID-NUR9>3.0.CO;2-H

Sargeant, J. M. (2005). Medical Education for Rural Areas: Opportunities and Challenges for Information and Communications Technologies. *Journal of Postgraduate Medicine*, *51*(4), 301–307. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=19399700&site=ehost-live

Sarmugam, R., & Worsley, A. (2014). Current levels of salt knowledge: A review of the literature. *Nutrients*, *6*(12), 5534–5559. http://doi.org/10.3390/nu6125534

Sawyer, R. G., Pinciaro, P., & Bedwell, D. (1997). How Peer Education Changed Peer Sexuality Educators' Self-Esteem, Personal Development, and Sexual Behavior. *Journal of American College Health*, *45*(5), 211–217. http://doi.org/10.1080/07448481.1997.9936887

Scanes, L. (2013). Evidence shows workplace health promotion works- but how do you get your employees to attend? In *Queensland Mining Industry Health and Safety Conference 2003:*

Accepting the Challenge. Townsville. Retrieved from http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.504.6476&rep=rep1&type=pdf

Schover, L. R., Jenkins, R., Sui, D., Adams, J. H., Marion, M. S., & Jackson, K. E. (2006). Randomized trial of peer counseling on reproductive health in African American breast cancer survivors. *Journal of Clinical Oncology*, *24*(10), 1620–1626. http://doi.org/10.1200/JCO.2005.04.7159

Schwartzberg, J. G., Cowett, A., VanGeest, J., & Wolf, M. S. (2007). Communication techniques for patients with low health literacy: a survey of physicians, nurses, and pharmacists. *American Journal of Health Behavior*, *31*(Suppl 1), S96-104. http://doi.org/10.5555/ajhb.2007.31.supp.S96

Sciamanna, C. N., Nicholson, R. A., Lofland, J. H., Manocchia, M., Mui, S., & Hartman, C. W. (2006). Effects of a website designed to improve the management of migraines. *Headache: The Journal of Head and Face Pain*, *46*(1), 92–100. http://doi.org/10.1111/j.1526-4610.2006.00312.x

Scriven, A., & Hodgins, M. (2011). *Health Promotion Settings: Principles and Practice*. SAGE. Retrieved from https://books.google.co.za/books?id=BHFEAgAAQBAJ

Seale, C. (1999). *The quality of qualitative research*. London, UK: SAGE Publications.

Secker, J. (1997). Assessing the quality of patient-education leaflets. *Coronary Health Care*, *1*(1), 37–41. http://doi.org/10.1016/S1362-3265(97)80038-7

Seymour, J. E., Almack, K., Kennedy, S., & Froggatt, K. (2013). Peer education for advance care planning: volunteers' perspectives on training and community engagement activities. *Health Expectations*, *16*(1), 43–55. http://doi.org/10.1111/j.1369-7625.2011.00688.x

Shaddock, J. (2002). Appraising the quality of consumer health information leaflets. *Health Expectations*, *5*(1), 84–87. http://doi.org/10.1046/j.1369-6513.2002.00171.x

Sharif, F., Abshorshori, N., Tahmasebi, S., Hazrati, M., Zare, N., Masoumi, S., … Li, X. (2010). The effect of peer-led education on the life quality of mastectomy patients referred to breast cancer-clinics in Shiraz, Iran 2009. *Health and Quality of Life Outcomes*, *8*(1), 74. http://doi.org/10.1186/1477-7525-8-74

Sharts-Hopko, N. C. (2002). Assessing rigor in qualitative research. *Journal of the Association of Nurses in AIDS Care*, *13*(4), 84–86. Retrieved from http://www.nursesinaidscarejournal.org/article/S1055-3290(06)60374-9/fulltext?mobileUi=0

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information*, *22*(2), 63–75. Retrieved from http://content.iospress.com/articles/education-for-information/efi00778

Shieh, C., & Hosei, B. (2008). Printed Health Information Materials: Evaluation of Readability and Suitability. *Journal of Community Health Nursing*, *25*(2), 73–90. http://doi.org/10.1080/07370010802017083

Shiner, M. (1999). Defining peer education. *Journal of Adolescence*, *22*(4), 555–566. http://doi.org/10.1006/jado.1999.0248

Shoemaker, S. J., Wolf, M. S., & Brach, C. (2013). The Patient Education Materials Assessment Tool (PEMAT) and User's Guide An Instrument To Assess the Understandability and Actionability of Print and Audiovisual Patient Education Materials (Version 1.0).

Shoemaker, S. J., Wolf, M. S., & Brach, C. (2014). Development of the Patient Education Materials Assessment Tool (PEMAT): a new measure of understandability and actionability for print and audiovisual patient information. *Patient Education and Counseling*, *96*(3), 395–403.

http://doi.org/10.1016/j.pec.2014.05.027

Silverman, D. (2000). *Doing qualitative research*. London: SAGE Publications.

Simoni, J. M., Franks, J. C., Lehavot, K., & Yard, S. S. (2011). Peer interventions to promote health: conceptual considerations. *The American Journal of Orthopsychiatry*, *81*(3), 351–9. http://doi.org/10.1111/j.1939-0025.2011.01103.x

Singapore Government Health Promotion Board. (2008, May 1). Best Practices in Workplace Health. Retrieved from http://www.hpb.gov.sg/HOPPortal/article?id=HPBSUEXTAPP1_4021920

Sloane, B. C., & Zimmer, C. G. (1993). The Power of Peer Health Education. *Journal of American College Health*, *41*(6), 241–245. http://doi.org/10.1080/07448481.1993.9936334

Smith, F., Carlsson, E., Kokkinakis, D., Forsberg, M., Kodeda, K., Sawatzky, R., … Ohlen, J. (2014). Readability, suitability and comprehensibility in patient education materials for Swedish patients with colorectal cancer undergoing elective surgery: A mixed method design. *Patient Education and Counseling*, *94*(2), 202–209. Retrieved from http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=emed11&NEWS=N&AN=20140 59907

Smith, K., Chu, A., & Langford, L. (2008). Communicating About Suicide: What's Helpful? What's Dangerous? Using Safe and Effective Messaging to Promote Campus Mental Health and Prevent Suicide. Retrieved from https://wellness.missouri.edu/Suicide/docs/acha_poster_safe_messaging_final_52413.pdf

Smuts, C. M., & Wolmarans, P. W. (2013). The importance of the quality or type of fat in the diet: a food-based dietary guideline for South Africa. *South African Journal of Clinical Nutrition*, *26*(S), S87–S99.

South Africa. (1997). *White Paper for the transformation of the health system in South Africa (Notice No. 667 of 1997)*. Pretoria.

Spall, S. (1998). Peer debriefing in qualitative research: Emerging operational models. *Qualitative Inquiry*, *4*(2), 280–292. Retrieved from http://qix.sagepub.com/content/4/2/280.short

Sparling, P. B., Owen, N., Lambert, E. V, & Haskell, W. L. (2000). Promoting physical activity: the new imperative for public health. *Health Education Research*, *15*(3), 367–76. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/10977383

Speck, B. J. (2002). From exercise to physical activity. *Holistic Nursing Practice*, *16*(5), 24–31. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12465215

Sperling, R. A. (2006). Assessing reading materials for students who are learning disabled. *Intervention in School and Clinic*, *41*(3), 138–143. Retrieved from http://journals.sagepub.com/doi/abs/10.1177/10534512060410030201

Statistics South Africa. (2014). *General Household Survey 2013*. Pretoria: Statistics South Africa.

Steele, M., Dow, L., & Baxter, G. (2011). Promoting public awareness of the links between lifestyle and cancer: a controlled study of the usability of health information leaflets. *International Journal of Medical Informatics*, *80*(12), e214-29. http://doi.org/10.1016/j.ijmedinf.2011.08.012

Steinert, Y. (2010). How to design and conduct effective workshops. In K. M. Skeff & A. Stratos (Eds.), *Methods for Teaching Medicine* (pp. 89–115). Philadelphia: ACP Press.

Steinert, Y., & Ouellet, M.-N. (2000). *A Workbook On Designing Successful Workshop*. McGill University. Retrieved from

https://www.mcgill.ca/medicinefacdev/files/medicinefacdev/DesigningWorkshopsWorkbook.pdf

Stewart, D. W., & Shamdasani, P. N. (1990). *Focus Groups: Theory and Practice*. Newbury Park, California: Sage.

Strickland, J. R., Eyler, A. A., Purnell, J. Q., Kinghorn, A. M., Herrick, C., & Evanoff, B. A. (2015). Enhancing workplace wellness efforts to reduce obesity: a qualitative study of low-wage workers in St Louis, Missouri, 2013-2014. *Preventing Chronic Disease*, *12*(5), E67. http://doi.org/10.5888/pcd12.140405

Stringer, E., & Genat, W. J. (2004). *Action research in health*. Columbus, Ohio: Person Prince Hall.

Stringer, E. T. (2013). *Action Research* (4th ed.). Sage Publications.

Strudsholm, T., Meadows, L. M., Robinson Vollman, A., Thurston, W. E., & Henderson, R. (2016). Using Mixed Methods to Facilitate Complex, Multiphased Health Research. *International Journal of Qualitative Methods*, *15*(1). http://doi.org/10.1177/1609406915624579

Swartz, L. H. G., Noell, J. W., Schroeder, S. W., & Ary, D. V. (2006). A randomised control study of a fully automated internet based smoking cessation programme. *Tobacco Control*, *15*(1), 7–12. http://doi.org/10.1136/tc.2003.006189

Szilagyi, T. (2002). Peer education of tobacco issues in Hungarian communities of Roma and socially disadvantaged children. *Central European Journal of Public Health*, *10*(3), 117–120. Retrieved from http://europepmc.org/abstract/med/12298343

Thamby, S. A., & Subramani, P. (2014). Seven-star pharmacist concept by World Health Organization. *Journal of Young Pharmacists*, *6*(2), 1–3. http://doi.org/10.5530/jyp.2014.2.1

The Blackwell Encyclopedia of Sociology. (2007). Oxford, UK, Malden, USA and Carlton, Australia: Blackwell Publishing Ltd. Retrieved from http://doi.wiley.com/10.1111/b.9781405124331.2007.x

The Society for Cardiovascular Angiography and Interventions. (2016). Top Ten Benefits of Regular Physical Activity. Retrieved from http://www.secondscount.org/heart-resources/heart-resources-detail?cid=f32db674-f604-4483-a6fd-31081cf66065#.VzNTLyHGovk

Tian, C., Champlin, S., Mackert, M., Lazard, A., & Agrawal, D. (2014). Readability, suitability, and health content assessment of web-based patient education materials on colorectal cancer screening. *Gastrointestinal Endoscopy*, *80*(2), 284–290. http://doi.org/10.1016/j.gie.2014.01.034

Tiberius, R., & Silver, I. (2001). *Guidelines for Conducting Workshops and Seminars That Actively Engage Participants*. Retrieved from http://www.academicpsychiatry.org/htdocs/Fidlerdocs/Education/Faculty_Development/teaching-skills/guidelines_for_conducting_workshops_(2001).htm

Tobin, G. A., & Begley, C. M. (2004). Methodological rigour within a qualitative framework. *Journal of Advanced Nursing*, *48*(4), 388–396. http://doi.org/10.1111/j.1365-2648.2004.03207.x

Tryon, K., Bolnick, H., Pomeranz, J. L., Pronk, N., & Yach, D. (2014). Making the Workplace a More Effective Site for Prevention of Noncommunicable Diseases in Adults. *Journal of Occupational and Environmental Medicine*, *56*(11), 1137–1144. http://doi.org/10.1097/JOM

Tsouros, Agis D.; Dowding, Gina; Thompson, Jane; Dooris, M. (1998). *Health Promoting Universities Concept, experience and framework for action*. Copenhagen: WHO, Regional Office for Europe. Retrieved from http://files/149/E60163.pdf

Tuckett, A. G. (2005). Part II. Rigour in qualitative research: complexities and solutions. *Nurse Researcher*, *13*(1), 29–42. http://doi.org/10.7748/nr2005.07.13.1.29.c5998

Tuot, D. S., Davis, E., Velasquez, A., Banerjee, T., & Powe, N. R. (2013). Assessment of printed patient-educational materials for chronic kidney disease. *American Journal of Nephrology*, *38*(3), 184–194. http://doi.org/10.1159/000354314

Tutty, L., & O'Connor, G. (1999). Patient information leaflets: some pertinent guidelines. *Radiography*, *5*(1), 11–14. http://doi.org/10.1016/S1078-8174(99)90003-2

U.S. Department of Health and Human Services. (2000). *Healthy people 2010*. (U.S. Government Printing Office, Ed.) (2nd ed.). Washington, DC: U.S. Government Printing Office.

U.S. National Cancer Institute. (1979). *Readability testing in cancer communications* (No. (DHEW Publication No. 79-1689)). Washington, DC.

UNAIDS. (1999). *Peer education and HIV/AIDS: Concepts, uses and challenges*. Geneva, Switzerland. Retrieved from http://www.unaids.org

UNDP. (2015). SDG 3: Good health and well-being. *UNDP*. Retrieved from http://www.undp.org/content/undp/en/home/mdgoverview/post-2015-development-agenda/goal-3.html

United Nations. (2011). *United Nations high-level meeting on noncommunicable disease prevention and control*. New York, USA. Retrieved from http://www.who.int/nmh/events/un_ncd_summit2011/political_declaration_en.pdf?ua=1

United Nations. (2016). Final list of proposed Sustainable Development Goal indicators.

University of Kansas. (2015). Conducting a workshop. Retrieved January 29, 2017, from http://ctb.ku.edu/en/table-of-contents/structure/training-and-technical-assistance/workshops/main

University of South Carolina. (2013). Healthy Campus 2020 - Healthy Carolina. Retrieved from http://www.sa.sc.edu/healthycarolina/healthy-campus-2020/

University of Sydney. (2015). Working groups - About the University - The University of Sydney. Retrieved from http://sydney.edu.au/about/profile/healthy-sydney-university/working-group.shtml

Vahabi, M., & Ferris, L. (1995). Improving written patient education materials: A review of the evidence. *Health Education Journal*, *54*(1), 99–106. Retrieved from http://journals.sagepub.com/doi/pdf/10.1177/001789699505400110

Vallance, J. K., Taylor, L. M., & Lavallee, C. (2008). Suitability and readability assessment of educational print resources related to physical activity: Implications and recommendations for practice. *Patient Education and Counseling*, *72*(2), 342–349. http://doi.org/10.1016/j.pec.2008.03.010

van Teijlingen, E., & Hundley, V. (2001). The importance of pilot studies. *Social Research Update*, (35), 1. Retrieved from http://sru.soc.surrey.ac.uk/SRU35.html

Vargas, C. R., Kantak, N. A., Chuang, D. J., Koolen, P. G., & Lee, B. T. (2015). Assessment of online patient materials for breast reconstruction. *Journal of Surgical Research*, *199*(1), 280–286. http://doi.org/10.1016/j.jss.2015.04.072

Vives, M., Young, L., & Sabharwal, S. (2009). Readability of spine-related patient education materials from subspecialty organization and spine practitioner websites. *Spine*, *34*(25), 2826–2831.

http://doi.org/10.1097/BRS.0b013e3181b4bb0c

Volpp, K. G., Asch, D. A., Galvin, R., & Loewenstein, G. (2011). Redesigning Employee Health Incentives — Lessons from Behavioral Economics. *New England Journal of Medicine*, *365*(5), 388–390. http://doi.org/10.1056/NEJMp1105966

Wagemakers, A., Vaandrager, L., Koelen, M. A., Saan, H., & Leeuwis, C. (2010). Community health promotion: A framework to facilitate and evaluate supportive social environments for health. *Evaluation and Program Planning*, *33*(4), 428–435. http://doi.org/10.1016/j.evalprogplan.2009.12.008

Walsh, T. M., & Volsko, T. A. (2008). Readability assessment of internet-based consumer health information. *Respiratory Care*, *53*(10), 1310–1315. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/18811992

Wamer, K. E., Wickizer, T. M., Wolfe, R. A., Schildroth, J. E., & Samuelson, M. H. (1988). Economic implications of workplace health promotion programs: review of the literature. *Journal of Occupational and Environmental Medicine*, *30*(2), 106–112. Retrieved from http://journals.lww.com/joem/Abstract/1988/02000/Economic_Implications_of_Workplace_Health.8.aspx

Wang, L.-W., Miller, M. J., Schmitt, M. R., & Wen, F. K. (2013). Assessing readability formula differences with written health information materials: Application, results, and recommendations. *Research in Social and Administrative Pharmacy*, *9*(5), 503–516. http://doi.org/10.1016/j.sapharm.2012.05.009

Warwick, I., & Aggleton, P. (2004). Building on Experience: a formative evaluation of a peer education sexual health project in South Africa. *London Review of Education*, *2*(2), 137–153. http://doi.org/10.1080/1474846042000229476

Webster, S., Lewis, J., & Brown, A. (2013). Ethical Considerations in Qualitative Research. In *Qualitative Research Practice: A Guide for Social Science Students and Researchers* (Vol. 1, pp. 77–110). SAGE Publications. Retrieved from https://books.google.com/books?hl=en&lr=&id=EQSIAwAAQBAJ&pgis=1

Weiss, B. D., Blanchard, J. S., McGee, D. L., Hart, G., Warren, B., Burgoon, M., & Smith, K. J. (1994). Illiteracy among Medicaid recipients and its relationship to health care costs. *Journal of Health Care for the Poor and Underserved*, *5*(2), 99–111. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/8043732

Weitzman, E. A. (2000). Software and Qualitative Research. In Denzin, Norman K & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (pp. 803–820). Thousand Oaks: Sage Publications.

White, S., Park, Y. S., Israel, T., & Cordero, E. D. (2009). Longitudinal Evaluation of Peer Health Education on a College Campus: Impact on Health Behaviors. *Journal of American College Health*, *57*(5), 497–506. http://doi.org/10.3200/JACH.57.5.497-506

Whittingham, J. R. D., Ruiter, R. A. C., Castermans, D., Huiberts, A., & Kok, G. (2008). Designing effective health education materials: experimental pre-testing of a theory-based brochure to increase knowledge. *Health Education Research*, *23*(3), 414–426. http://doi.org/10.1093/her/cym018

WHO. (1986). The Ottawa Charter for Health Promotion. Retrieved from http://www.who.int/healthpromotion/conferences/previous/ottawa/en/

WHO. (1995a). Types of Healthy Settings. Retrieved from http://www.who.int/healthy_settings/types/en/

WHO. (1995b). Types of Healthy Settings: Health Promoting Universities. Retrieved from http://www.who.int/healthy_settings/types/universities/en/

WHO. (1997a). *Jakarta Declaration on Leading Health Promotion into the 21st Century*. Jakarta: WHO.

WHO. (1997b). The Role of the Pharmacist in the Health Care System - Preparing the future pharmacist: curricular development. *Report of a Third WHO Consultative Group on the Role of the Pharmacist*. Vancouver Canada. http://doi.org/10.1353/hpu.2010.0345

WHO. (2005). *WHO Framework Convention on Tobacco Control*. Retrieved from http://apps.who.int/iris/bitstream/10665/42811/1/9241591013.pdf?ua=1

WHO. (2009). Milestones in Health Promotion: Statements from Global Conferences. Retrieved from http://www.who.int/healthpromotion/Milestones_Health_Promotion_05022010.pdf?ua=1

WHO. (2010). Global recommendations on physical activity for health. Retrieved from http://whqlibdoc.who.int/publications/2010/9789241599979_eng.pdf?ua=1

WHO. (2011). Prevention is better than cure, say Romanian doctors. *Bulletin of the World Health Organization*, *89*(4), 248–249. http://doi.org/10.2471/BLT.11.030411

WHO. (2013a). 10 facts on noncommunicable diseases. Retrieved from http://www.who.int/features/factfiles/noncommunicable_diseases/en/

WHO. (2013b). Global Action Plan for the Prevention and Control of NCDs 2013-2020. Retrieved from http://www.who.int/nmh/events/ncd_action_plan/en/

WHO. (2013c). Global action plan for the prevention and control of noncommunicable diseases 2013-2020.

WHO. (2014a). Alcohol Report. Retrieved from http://www.who.int/substance_abuse/publications/global_alcohol_report/profiles/zaf.pdf?ua=1

WHO. (2014b). *Global status report on alcohol and health - 2014*. Retrieved from http://apps.who.int/iris/bitstream/10665/112736/1/9789240692763_eng.pdf

WHO. (2014c). Non Communicable Diseases (NCD) Country Profiles. Retrieved from http://apps.who.int/iris/bitstream/10665/128038/1/9789241507509_eng.pdf?ua=1

WHO. (2014d). Policy brief: Reducing the use of salt in the food industry to lower sodium consumption. Retrieved from http://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CCcQFjAB&url=http%253A%252F%252Fwww.who.int%252Fnmh%252Fncd-coordination-mechanism%252FPolicybrief34.pdf&ei=o35xVamoJMzvUIXCgoAB&usg=AFQjCNFWr33BM_FIfTYJzIVuy3XXjF5NBQ&sig2=BL2sgzmEyWBaYM

WHO. (2014e). South Africa- Noncommunicable Diseases Country Profiles. Retrieved from http://www.who.int/nmh/countries/zaf_en.pdf?ua=1

WHO. (2015a). *Global report on diabetes*. Geneva. Retrieved from http://www.who.int/diabetes/global-report/en/

WHO. (2015b). Noncommunicable diseases. Retrieved from http://www.who.int/mediacentre/factsheets/fs355/en/

WHO. (2015c). Occupational health. Retrieved from

http://www.who.int/occupational_health/topics/workplace/en/index1.html

WHO. (2015d). Salt reduction. Retrieved from http://www.who.int/mediacentre/factsheets/fs393/en/

WHO. (2015e). *UN Sustainable Development Summit 2015*. New York City, United States of America. Retrieved from http://www.who.int/mediacentre/events/meetings/2015/un-sustainable-development-summit/en/

WHO. (2015f). Workplace health promotion. Retrieved from http://www.who.int/occupational_health/topics/workplace/en/

WHO. (2016). Cardiovascular diseases (CVDs). Retrieved from http://www.who.int/mediacentre/factsheets/fs317/en/

Willett, W. C. (2012). Dietary fats and coronary heart disease. *Journal of Internal Medicine*, *272*(1), 13–24. http://doi.org/10.1111/j.1365-2796.2012.02553.x

Williams, A. M., Muir, K. W., & Rosdahl, J. A. (2016). Readability of patient education materials in ophthalmology: a single-institution study and systematic review. *BMC Ophthalmology*, *16*(1), 133. http://doi.org/10.1186/s12886-016-0315-0

Woolf, S. H., Dekker, M. M., Byrne, F. R., & Miller, W. D. (2011). Citizen-centered health promotion: building collaborations to facilitate healthy living. *American Journal of Preventive Medicine*, *40*(1), S38–S47. Retrieved from http://www.sciencedirect.com/science/article/pii/S0749379710005416

Yan, Z., Finn, K., & Corcoran, M. (2015). Using Peer Education to Promote Balance, Fitness, and Physical Activity Among Individuals with Intellectual Disabilities. *American Journal of Health Studies*, *30*(4), 180–186. Retrieved from http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=113906622&site=ehost-live

Yen, L., Schultz, A. B., Schaefer, C., Bloomberg, S., & Edington, D. W. (2010). Long-term return on investment of an employee health enhancement program at a Midwest utility company from 1999 to 2007. *International Journal of Workplace Health Management*, *3*(2), 79–96. http://doi.org/10.1108/17538351011054998

Zwetsloot, G. I. J. M., Scheppingen, A. R. van, Dijkman, A. J., Heinrich, J., & Besten, H. den. (2010). The organizational benefits of investing in workplace health. *International Journal of Workplace Health Management, 2, 3, 143-159.* Retrieved from http://repository.tudelft.nl/view/tno/uuid%3A0865b914-54b5-4f53-8c14-485a652b4fc5/

9. APPENDICES

Appendix A: Faculty of Pharmacy Higher Degrees Committee approval letter

RHODES UNIVERSITY
Where leaders learn

Faculty of Pharmacy
Artillery Road, Grahamstown, 6139, South Africa
PO Box 94, Grahamstown, 6140, South Africa
t: +27 (0) 46 603 8381
f: +27 (0) 46 603 7506
e: dean.pharmacy@ru.ac.za

www.ru.ac.za

24 June 2015

Dear Tinatsei Chigumete

RE: Approval from the Faculty of Pharmacy's Higher Degrees Committee

As a postgraduate student in the Faculty of Pharmacy – with student number 11C3834 - I am pleased to inform you that the Faculty of Pharmacy's Higher Degrees Committee approves **Phase 1** of your research entitled:

Workplace health promotion: Policies and practices at Rhodes University.

Please note that you will need to submit your proposal for Phase 2 of your research once Phase 1 has been completed.

Please ensure that the Faculty of Pharmacy's Higher Degrees Committee is notified should any substantive change(s) be made, for whatever reason, during the research process.

Sincerely

C. Oltmann

Carmen Oltmann, PhD
Acting Chairperson of the Faculty of Pharmacy's Higher Degrees Committee

FACULTY OF PHARMACY
RHODES UNIVERSITY
GRAHAMSTOWN 6139
SOUTH AFRICA

Appendix B: Ethical approval letter for Phase 1

RHODES UNIVERSITY
Where leaders learn

Faculty of Pharmacy
Artillery Road, Grahamstown, 6139, South Africa
PO Box 94, Grahamstown, 6140, South Africa
t: +27 (0) 46 603 8381
f: +27 (0) 46 603 7506
e: dean.pharmacy@ru.ac.za

www.ru.ac.za

24 June 2015

Dear Tinatsei Chigumete

RE: Ethical approval by the Faculty of Pharmacy's Ethics Committee
(Tracking number PHARM 2015 - 5)

As a postgraduate student in the Faculty of Pharmacy – with student number 11C3834 - I am pleased to inform you that the Faculty of Pharmacy's Ethics Committee grants you ethical approval for **Phase 1** of your research entitled:

Workplace health promotion: Policies and practices at Rhodes University.

Please note that you will need to submit your proposal for Phase 2 of your research once Phase 1 has been completed.

Please ensure that the Faculty of Pharmacy's Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process.

Sincerely

C. Oltmann

Carmen Oltmann, PhD
Chairperson of the Faculty of Pharmacy's Ethics Committee

FACULTY OF PHARMACY
RHODES UNIVERSITY
GRAHAMSTOWN 6139
SOUTH AFRICA

Appendix C: Participant invitation letter for Phase 1

Provisional title of project: Workplace health promotion: Policies and practices at Rhodes University

Dear Participant,

You are kindly invited to participate in a research study conducted by Miss Tinatsei Gabriella Chigumete, a Masters student from the Faculty of Pharmacy, Rhodes University. If you do not understand anything in this letter, you may ask the above mentioned researcher or interpreter for clarification. If you are willing to participate, you will be asked to sign a consent form.

Purpose of study

This study is designed to promote health in a workplace setting.

Potential risks or discomforts

We do not foresee any risks or discomfort from your participation in the research.

Potential benefits

By participating, you may gain insight into how to avoid the modifiable risk factors of NCDs.

Compensation for participation

You will not receive any payment or any other compensation for participation in this study. There is also no cost to you for participation.

Confidentiality

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Information that can identify you individually will not be released to anyone outside the study, although Miss Tinatsei Gabriella Chigumete, will use the information collected in her dissertation and other publications. Information obtained from this study may be used by either the researcher or the researcher's supervisors for publication or education. Any information used for publication will never identify you individually by name.

Participation and Withdrawal

Your participation in this study is completely voluntary. You may choose whether or not to be in this study. To participate in the study, you must have worked at Rhodes University for at least 5 years. All discussions in the study are voice recorded. If you volunteer to be in this study, you may withdraw at any time without consequences of any kind. You may also refuse to answer any questions you do not want to answer. There is no penalty if you withdraw from the study.

Participant rights

If you have any pertinent questions about your rights as a research participant, please contact

Researcher: Miss Tinatsei Chigumete at g11c3834@campus.ru.ac.za (cell: +27 71 1085 041)

Researcher's Supervisor: Prof. Sunitha Srinivas at s.srinivas@.ru.ac.za

Appendix D: Participant informed consent form for Phase 1

Provisional project title: Workplace health promotion: Policies and practices at Rhodes University

Name of researcher: Tinatsei Gabriella Chigumete

I, the undersigned, confirm that,

Note to researcher: Tick the boxes below accordingly as the contents of this form are read.

I have read (or have had read to me) and understood the information about the project, as provided in the invitation letter.	
I have been given the opportunity to ask questions about the project and my participation.	
I voluntarily agree to participate in the project.	
I understand I can withdraw at any time without giving reasons and that I will not be penalised for, nor questioned on, why I have withdrawn.	
The procedures regarding confidentiality have been clearly explained (e.g. use of names, anonymity of data, etc.) to me.	
I have been informed of the presence of an interpreter and I am comfortable that they are part of this interview	
I give permission to the interviewer, Miss Chigumete, to record this interview	
I understand that the researcher's supervisors will have access to this data and that they agree to preserve the confidentiality of the data and they agree to the terms I have specified in this form.	
I, along with the Researcher, agree to sign and date this informed consent form.	

Name of participant .....

Date ..... Signature .....

Declaration by Interviewer

I, Tinatsei Gabriella Chigumete (the researcher) and the witness confirm that any personal information obtained during this interview and research study will remain strictly confidential.

Date ..... Signature .....

Name of witness .....

Date ..... Signature .....

Appendix E: Semi-structured interview question guide

A. Demographics

NB: Collect and enter demographic details on data sheet

Participant identifier number: _____

Introductory note: *We will be discussing health promotion activities that involve the support staff at RU. May it be noted that there are no wrong or correct answers in this discussion. All your views and opinions are important. If you do not wish to answer any of the questions, please indicate this to me.*

B. Workplace health promotion initiatives

What does workplace health promotion mean to you?

What are the current policies and practices at RU with respect to workplace health promotion?

Which health promotion initiative(s) have worked at RU?

What have been the facilitating factors that have contributed to the success of these initiatives?

What have been the limiting factors that have hindered progress of the initiative(s)?

What kind of feedback have you received from support staff based on current policies and practices at RU? Did the staff find them helpful?

What workplace health promotion initiatives have failed in the past?

What contributed to the failure of these projects?

What health promotion topic do you find most important to initiate at RU and why?

- ☐ Physical inactivity
- ☐ Unhealthy diet
- ☐ Harmful use of alcohol
- ☐ Tobacco use

Do you have any other comments or suggestions?

Appendix F: Focus group discussion question guide

NB: Make sure that the consent form has been explained and signed. Collect and enter demographic details of all participants on the data sheet.

1. What workplace health promotion projects have been introduced to you? What health aspects did these projects cover?
2. Do you consider these projects to have been helpful? Please explain
3. What can be done to improve these projects?
4. What health promotion topic do you find most important to initiate at RU and why?
    - ☐ Physical inactivity
    - ☐ Unhealthy diet
    - ☐ Harmful use of alcohol
    - ☐ Tobacco use
5. Do you have any ideas on how to raise health promotion awareness about the selected topic?
6. Do you have any other comments or suggestions?

Appendix G: Ethical approval letter for Phase 2

RHODES UNIVERSITY

FACULTY OF PHARMACY

5th February 2016

Dear Prof. Srinivas and Ms. Chigumete

Re: Ethical approval by the Faculty of Pharmacy's Ethics Committee
(Tracking Number PHARM 2016-05)

We are pleased to inform you that the Faculty of Pharmacy's Ethics Committee grants you ethical approval for your research entitled:

'Workplace health promotion: Policies and practices at Rhodes University.

Please ensure that the Faculty of Pharmacy's Ethics Committee is notified should any substantive change(s) be made, for whatever reason, during the research process

Sincerely,

Roman Tandlich, PhD

Deputy Chairperson of the Faculty of Pharmacy's Ethics Committee

Appendix H: Participant invitation letter for Phase 2

Provisional title of project: Workplace Health Promotion: Policies and practices at Rhodes University

Dear Participant,

You are kindly invited to participate in a research study conducted by Miss Tinatsei Gabriella Chigumete, a Masters candidate at the Faculty of Pharmacy, Rhodes University. If you do not understand anything in this letter, you may ask the abovementioned researcher for clarification. If you are willing to participate, you will be asked to sign a consent form.

Purpose of study

This study is designed to promote health in a workplace setting.

Potential risks or discomforts

We do not foresee any risks or discomfort from your participation in the research.

Potential benefits

By participating, you may gain insight into how to avoid modifiable risk factors of non-communicable diseases and learn more about a heart healthy diet.

Compensation for participation

You will not receive any payment or any other compensation for participation in this study. There is also no cost to you for participation.

Confidentiality

Any information that is obtained in connection with this study and that could be used to identify you will remain confidential, and will be disclosed only with your permission, or as required by law. Information that can identify you individually will not be released to anyone outside of the study, although Miss Tinatsei Gabriella Chigumete will use the information collected in her thesis and other publications. Information obtained from this study may be used by either the researcher or the researcher's supervisors for publication or education purposes. Any information used for publication will never identify you individually by name.

Participation and Withdrawal

Your participation in this study is completely voluntary. You may choose whether or not to be in this study. To participate in the study, you must have worked at Rhodes University for at least 1 year. All discussions in the study are voice recorded. If you volunteer to be in this study, you may withdraw at any time, without consequences of any kind. You may also refuse to answer any questions you do not want to answer. There is no penalty if you withdraw from the study.

Participant rights

If you have any pertinent questions about your rights as a research participant, please contact

Researcher: Miss Tinatsei Chigumete at g11c3834@campus.ru.ac.za (cell: +27 71 1085 041)

Researcher's Supervisor: Prof. Sunitha Srinivas at s.srinivas@.ru.ac.za (+27 46 603 8496)

Appendix I: Participant informed consent form for Phase 2

Provisional project Title: Workplace Health Promotion: Policies and practices at Rhodes University

Name of researcher: Tinatsei Gabriella Chigumete

I, the undersigned, confirm that,

Note to researcher: Tick the boxes below as the contents of this form are read.

I have read (or have had read to me) and understood the information about the project, as provided in the invitation letter.	
I have been given the opportunity to ask questions about the project and my participation.	
I voluntarily agree to participate in the project.	
I understand that I can withdraw at any time without giving reasons and that I will not be penalised for, nor questioned on, why I have withdrawn.	
The procedures regarding confidentiality (e.g. use of names, anonymity of data, etc.) have been clearly explained to me.	
I give permission to the interviewer, Miss Chigumete, to record this discussion.	
I understand that the researcher's supervisors will have access to this data and that they agree to preserve the confidentiality of the data and they agree to the terms I have specified in this form.	
I, along with the researcher, agree to sign and date this informed consent form.	

Name of participant .....

Date ..... Signature .....

Declaration by Interviewer

I, Tinatsei Gabriella Chigumete (the researcher) and the witness confirm that any personal information obtained during this interview and research study will remain strictly confidential.

Date ..... Signature .....

Name of witness .....

Date ..... Signature .....

Appendix J: Question guide for Phase 2 focus group discussions

Content:

- Is the purpose of the HIL evident?
- Is there any content in the HIL that you think is unnecessary? Elaborate.

Literacy demand:

- Is there any information you do not understand? Elaborate.
- May you please point out any complex words in the HIL.

Graphic:

- May you point out any inappropriate pictures.
- What does picture X represent (all pictures in HIL)?
- May you point out any unclear picture.

Layout and typography:

- Comment on the design and layout of the HIL?
- Does the font size allow for easy reading?

Learning stimulation and motivation:

- Do you think you are able to act on the information given in the HIL?
- Do you think the information given would motivate the reader to adopt healthier lifestyle choices?

Cultural appropriateness:

- Are there any aspects of the HIL that are culturally insensitive? Elaborate.

Activity:

- Would you take time to do the activity after reading the HIL?
- Do you find the activity useful? Why?

Appendix K: Suitability Assessment of Materials score sheet

Suitability Assessment of Materials score sheet		
Name of reviewer (optional): **Title of publication:** **Date:**		
1. Content	(a) Purpose is evident	
	(b) Content about behaviours	
	(c) Scope is limited	
	(d) Summary included	
2. Literacy demand	(a) Reading grade level • Superior= 5th grade or lower • Adequate=6th to 8th grade • Not suitable= 9th grade and above	
	(b) Writing Style, active voice used	
	(c) Vocabulary	
	(d) Context given	
	(e) Advance organisers	
3. Graphics	(a) Cover graphic shows purpose	
	(b) Type of graphics used	
	(c) Relevance of illustrations	
	(d) Lists and tables explained	
	(e) Captions used for graphics	
4. Layout and typography	(a) Layout factors	
	(b) Typography	
	(c) Subheadings used	
5. Learning stimulation and motivation	(a) Interaction used	
	(b) Behaviours are modelled and specific	
	(c) Motivation	
6. Cultural appropriateness	(a) Cultural match	
	(b) Cultural image and examples	
	Total score	

Appendix L: Patient Education Materials Assessment Tool score sheet

Patient Education Materials Assessment Tool for Printable Materials score sheet			
Reviewer Name (optional): **Title of Publication:** **Date:**			
ACTIONABILITY			
	Item	Response Option	Rating
18.	The material clearly identifies at least one action the user can take.	Disagree=0, Agree=1	
19.	The material addresses the user directly when describing actions.	Disagree=0, Agree=1	
20.	The material breaks down any action into manageable, explicit steps.	Disagree=0, Agree=1	
21.	The material provides a tangible tool (e.g., menu planners, checklists) whenever it could help the user take action	Disagree=0, Agree=1	
22.	The material provides simple instructions or examples of how to perform calculations.	Disagree=0, Agree=1, No calculations=NA	
23.	The material explains how to use the charts, graphs, tables, or diagrams to take actions.	Disagree=0, Agree=1, No charts, graphs, tables, or diagrams=N/A	
24.	The material uses visual aids whenever they could make it easier to act on the instructions.	Disagree=0, Agree=1	

Appendix M: Feedback form for workshops

WORKSHOP FEEDBACK FORM

Provisional title of Research: Workplace health promotion: Policies and practices at Rhodes University

Researcher: Tinatsei Gabriella Chigumete

Title of workshop: _____ Date: _____

1. What 3 main points have you learnt in this workshop?
2. What information do you think should be made clearer from what was covered today?
3. Any other suggestions for activities or information you would like to be included in the coming workshops?

Appendix N: Question guide for final focus group discussion

1. What lifestyle changes have you made that you had not considered before having read the HILs or attending the workshops?
2. Has the process strengthened your knowledge on heart healthy diets and physical activity?
3. Do you feel empowered to mentor others on heart healthy diets and physical activity?
4. Are you satisfied with the project as a whole?
5. Any suggestions on how this initiative may be improved?
6. Any other comments?

Appendix O: Salt and your health HIL

Page 1

What kinds of food are high in salt?

Did you know that these common foods contain high quantities of salt? Limit your use of these foods to reduce salt in your diet!

Bread

Cold meats

Stock cubes

Potato chips

Cheese

Canned foods

Did you know? Between all meals and snacks, an adult should only eat a maximum of 5g (about one teaspoonful) of salt a day.

Start a vegetable garden

HEALTHY TIP

By growing your own vegetables you may enjoy fresh food daily. You may plant your vegetables in recycled materials like used water bottles and ice-cream containers.

Lettuce grown in recycled water bottles

What you will need:

- Seedlings or cuttings
- Soil
- Water
- Used containers

How to plant:

1. Make holes at the bottom of your container for draining excess water.
2. Place some soil into your container.
3. Place the seedling or cutting in the soil.
4. Water your seedling or cutting.
5. Place in an area where it will get enough sunlight. Remember to water regularly.

SALT AND YOUR HEART

Page 2

How does salt enter your body?

- Salt in your body comes from the food you eat.
- Salt has many different names. On food labels, it is often referred to by the following names: **sodium, sodium chloride, sodium bicarbonate or monosodium glutamate (MSG).**

How does excess salt affect your heart?

The heart is an organ that pumps blood around the body. Too much salt in your diet can harm your heart.

- When there is too much salt in the blood, it pulls water into blood vessels.
- This means that the amount of fluid inside the blood vessels increases.
- With more fluid flowing through the blood vessels, blood pressure increases.
- As a result, the heart's workload increases, which could lead to heart diseases like high-high (also known as hypertension).

What is high-high?

When someone has high-high, their blood pressure is high. This means that their heart pumps harder and their blood vessels are under greater strain.

If high blood pressure continues for a long time, the heart and its blood vessels may no longer work as well as they should. This may affect other organs such as the kidneys and the brain.

Having high blood pressure for a long time may result in conditions such as:

- Stroke
- Heart attacks
- Kidney failure

Know your numbers!

The best way to know if you have high-high or are at risk of getting it, is by getting your blood pressure measured regularly at your nearest clinic or your doctor .

If you already have high-high, it is important that you also get regular blood pressure checks.

How can you prevent high blood pressure?

INCREASE	DECREASE
Fruits	Salt
Vegetables	Fats
Low-fat foods	Alcohol
Physical activity	Smoking

How can you lower the salt in your diet?

- ✓ Season food with herbs rather than salt.
- ✓ Eat fresh fruits and vegetables.
- ✓ Buy 'low salt' or 'no added salt' products.
- ✓ Reduce your use of canned or processed meats.
- ✓ Canned vegetables contain extra salt to preserve them. Rinse them in water before heating.
- ✓ Reduce your use of sauces, mixes and 'instant' products.
- ✓ Do not add extra salt at the table.

Appendix P: Fats and your heart HIL

Page 1

How can you reduce fats in your diet?

- Choose lean cuts of meat.
- Trim any excess fat off meat and remove the fatty skin from chicken.
- Instead of pouring cooking oil straight from the bottle, measure it with a teaspoon.
- Grill, bake, steam, boil or poach your foods instead of frying them in oil.
- Read food labels to help you choose foods low in saturated and trans fats.
- Use 1% or skimmed milk, and AVOID full cream or condensed milk.
- Make your own salad dressings using ingredients like vinegar, low fat yoghurt, lemon juice, and herbs, with a little oil.
- Eat more fresh vegetables into your diet. If you do not have a garden, you can easily recycle old tyres and grow your own vegetables (as shown below).

Vegetables grown in an old tyre

How do you know which foods to buy?

It is important to read food labels before buying. Look out for the following words on food labels:

- Low fat
- Fat free
- Saturated fat free
- Cholesterol free

Look out for the amount of saturated fat the food contains:

Per 100g of food			
	Low	Moderate	High
Saturated fat	Less than 1.5g	1.5g to 5g	More than 5g

Tip! Reducing unhealthy fats in your diet is as easy as eating low fat yoghurt instead of ice-cream OR reducing your red meat consumption.

FATS AND YOUR HEART

Page 2

What is fat?

- Fat is a nutrient that is essential in a healthy diet.
- There are good and bad fats, therefore some types of fats are healthier for you and your heart than others.

Why do you need fats in your diet?

Everyone needs to include fats in their diet. The good fats, when eaten in correct quantities, help the body by:

- Providing energy.
- Maintaining the correct body temperature.
- Acting as a protective cushion around organs such as your heart and brain.

Remember! It is important to keep in mind that heart-healthy fats work to keep our bodies healthy and protect our hearts but unhealthy fats can do the opposite.

What are heart healthy fats and their benefits?

Including small amounts of heart-healthy fats can help your body maintain healthy cholesterol levels. These fats include:

Monounsaturated fats- these are found in foods such as:


Eggs


Peanuts


Peanut butter


Avocados


Olives

Polyunsaturated fats- these are found mainly in vegetable oils, seeds, leafy green vegetables, whole grain cereals and oily fish such as:


Sunflower seeds


Spinach


Oats


Trout

What are unhealthy fats and their effects?

Eating too much of these, can raise your risk of high cholesterol and heart disease. Try to limit how much of these fats you eat.

Saturated fats- these are mainly found in animal foods and dairy products such as:


Fatty cuts of meat


Cheese


Margarine


Ice-cream


Full cream milk

Trans fats– these unhealthy fats are found in many fried, packaged, processed and take-away foods such as the following:


Amagwinya


Deep fried chicken


Cake


Sausages


Biscuits


Pizza

Appendix Q: Physical activity and your heart HIL

Page 1

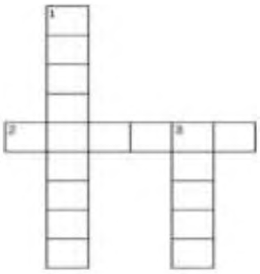
Let's get active!

Here are some easy and cheap ways to keep active at home and at work.

- Go for short walks with your family after meals. Start with 5-10 minutes, and increase to 30 minutes.
- Walk or ride a bicycle to the corner shop instead of driving.
- Instead of asking someone to bring you a drink or food, get up and get it yourself.
- Take some time to teach the little ones some traditional dance moves.
- If your job involves sitting for long periods of time, take short breaks to stretch your muscles.
- Take the stairs rather than the lift.
- Take a short walk for at least 10 minutes during your lunch break.
- Start a walking challenge with peers.
- Whenever possible, walk to speak to someone instead of making a phone call.

Just for fun!

Below is a crossword puzzle to remind you of some of the important information found in this health information leaflet. The clues are in **bold** throughout the leaflet. Try it out!



Across

2. A benefit of physical activity is helping you maintain a healthy ____.

Down

1. An example of physical activity that you can do at home.

3. Organ that pumps blood in the body.

PHYSICAL ACTIVITY AND YOUR HEART

Page 2

Your heart and physical activity

- The **heart** is an organ that pumps blood in and around your body.
- The heart must be healthy for it to function well.
- Making regular physical activity part of your lifestyle is one of the most effective ways to improve your heart's health.

What is physical activity?

Physical activity is any movement of the body that causes you to use energy.

Some examples of physical activity you could take part in include:

- Taking a walk

A group of women who are taking a walk

- Dancing

A group performing a traditional dance

- Riding a bicycle

A man riding a bicycle

- Doing household chores

A child helping with the cleaning

- **Gardening**

A man preparing his garden for planting

What are the benefits of physical activity for your heart?

Staying active is one of the most important things a person can do to live a healthy lifestyle.

Regular physical activity can improve your heart health by:

- Reducing high blood pressure
- Improving cholesterol levels
- Decreasing your risk of stroke, heart attacks and other heart diseases

Other benefits of physical activity

- Sleeping better
- Strengthening your bones and muscles
- Helping you lose weight and to maintain a healthy **weight**

It is important to balance physical activity and a healthy diet. Eating healthily and being physically active are both important!