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WESTERN CAPE**

**KNOWLEDGE OF, ATTITUDES TOWARD AND PRACTICES REGARDING NON-
COMMUNICABLE DISEASES AMONG UNDERGRADUATE STUDENTS AT A
UNIVERSITY IN THE WESTERN CAPE**

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Western Cape.

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KEYWORDS

Attitudes

Knowledge

Practices

Non-communicable diseases

Nursing students

Undergraduate

University



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ABSTRACT

Background: Non-communicable diseases are non-infectious, irreversible with multi-causal origins that have no expectancy for cure and generate functional disability. The World Health Organisation reveals that most of the global deaths are caused by non-communicable diseases.

Aim of the study: The aim of this study was to investigate and describe the knowledge of, attitude towards, and practices regarding non-communicable diseases among undergraduate students at a School of Nursing at a university in the Western Cape Province.

Methodology: A descriptive quantitative survey design was used with a structured questionnaire that explored the knowledge of, attitude towards, and practices regarding non-communicable diseases among undergraduate students at a School of Nursing at a university in the Western Cape Province. Permission was obtained to use the 97-item self-report questionnaire on knowledge, attitudes and practice. The population of this study included second to final year undergraduate nursing students at a School of Nursing at a university in the Western Cape registered for the year 2022. The Statistical Package for Social Science version 28 was used to analyse the data against the research objectives by means of descriptive analysis.

Ethics: Ethical principles were adhered to after obtaining permission from the University of the Western Cape and the Humanities and Social Sciences Research Ethics Committee and by ensuring voluntary and informed consent and rigor of the research process. Confidentiality and anonymity were maintained by using a participant number instead of the participant's personal information. Research data have been encrypted and stored on the computer of the research supervisor and will be destroyed after a period of five years. Covid-19 safety protocol such as mask wearing, and social distancing was adhered to during the research.

Findings: The study involved the distribution of 302 questionnaires, with a high response rate of 95% (n=286) considered valid. The surveyed population, aged 19 to 32 with an average age

of 22.44 (2.5), predominantly consisted of 81.51% females and 18.49% males. Marital status indicated that 92.70% were single, while 7.3% were married. Academic status revealed that over one-fifth were in the second year of their Bachelor's Degree Programme, and 29.7% lived on campus. Biophysical statistics, including height, weight, waist and hip circumference, pulse, and blood pressure readings, were also measured. Findings on knowledge and attitudes toward non-communicable diseases showed a substantial understanding of their non-spreading nature (78.7%) and their common prevalence in South Africans (78.0%). The study further explored perceived barriers to healthy dietary habits and physical activity, as well as perceived severity of tobacco use. Additionally, self-efficacy in terms of alcohol consumption and health monitoring was addressed, with 48.6% reporting abstinence from alcohol in the last 30 days and a majority engaging in regular blood pressure monitoring. Overall, the study provides a comprehensive snapshot of the surveyed population's demographics, health-related behaviours, and attitudes towards non-communicable diseases.

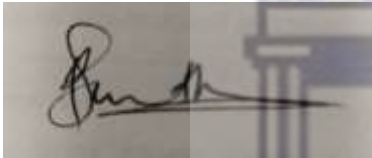
Conclusion: The high response rate of the study revealed valuable insights into participants' knowledge, attitudes, and practices related to non-communicable diseases which highlighted areas for awareness and health-promoting behaviours that could be reinforced, including dietary habits, physical activity, and avoidance of harmful substances like tobacco and alcohol. These results contribute to the understanding of factors influencing the health of young adults and can inform targeted interventions to promote a healthier lifestyle and prevent non-communicable diseases in this population.

DECLARATION

I hereby declare that this research study titled “*Knowledge of, Attitudes toward and Practices regarding Non-communicable Diseases among Undergraduate Students at a University in the Western Cape*” is my own work, that it has not been submitted before for any degree or examination to any other university, and that all resources I have used or quoted have been indicated and acknowledged as complete references.

Patricia Beryl Smith

Signed:

A rectangular box containing a handwritten signature in black ink, which appears to be 'Patricia Beryl Smith'.

Date: 13 December 2023



DEDICATION

I dedicate this thesis to my family who has always encouraged me to persevere and to Dr Juliana Willemse who has always assisted, guided, and encouraged me to complete my thesis.

I am thankful to God as His grace has sustained me and He has given me the wisdom and strength to push through it all to complete my research successfully. This was my experience:

“And my God will supply every need of yours according to His riches in glory in Christ Jesus.”

(Philippians 4:19 ESV)



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OPERATIONAL DEFINITIONS OF KEY TERMS

Attitude	This term describes an established manner of thinking or feeling about something. (Oxford Dictionary, 2021). In this study there was a focus on the undergraduate nursing student's conventional behaviour towards their understanding of non-communicable diseases.
Knowledge	This term refers to the understanding of or information about a subject that one gets through experience or study, either known by one person or by people generally. It can also be further defined as awareness, understanding, or information that has been obtained through experience or study, and that is either in a person's mind or possessed by people generally (Cambridge Dictionary, 2022). In this study, knowledge signifies the perceptions and interpretations that undergraduate nursing students have regarding non-communicable diseases.
Nursing	Nursing means a caring profession practiced by a person registered under section 31, which supports care for and treats a health care user to achieve or maintain health and where this is not possible, cares for a health care user so that he or she lives in comfort and with dignity until death (Nursing Act, 2005). In this study nursing refers to the preparation and caring offered by a nurse to a person in need of medical and nursing care.
Nursing student	A nursing student is a person who is training to be a nurse at a nursing school or hospital (Oxford Dictionary, 2019). In this study, a nursing student refers to an individual who has qualified to be accepted into an undergraduate nursing degree programme and follows the four-year nursing programme leading to the attainment of a bachelor's degree.
Practice	This term refers to the authentic application or use of an idea, belief, or method, as opposed to theories relating to it (Oxford Dictionary, 2021). In this study, practice referred to how students applied and used their knowledge and beliefs around non-communicable diseases.

South African Nursing Council Regulation 425 nursing students	Regulations relating to the approval of and the minimum requirements for the education and training of a nurse (General, Psychiatric and Community) and Midwife leading to registration (SANC, 1985). In this study, it refers to students in the four-year nursing training programme (“legacy programme”) that is phasing out and also leads to the attainment of a bachelor's degree.
Undergraduate	A university or college student who is studying for their first degree (Oxford Dictionary, 2021). In this study, undergraduate nursing students who are following a four-year degree programme.
University	An institution at the highest level of education where one can study for a degree or do research (Oxford Dictionary, 2021). In this study, the setting for this study is a School of Nursing at a university in the Western Cape Province.



LIST OF ABBREVIATIONS/ACRONYMS

DALYs	Disability-adjusted life years
GBD	Global Burden of Diseases, Injuries, and Risk Factors Study
HBM	Health Belief Model
HEI	Higher Education Institution
KAP	Knowledge, Attitudes, Practices
NCD	Non-communicable Disease
SANC	South African Nursing Council
SoN	School of Nursing
YLDs	Years lived with disability
WHO	World Health Organisation



CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

Non-communicable diseases (NCDs) are described as non-infectious, irreversible and have multi-causal origins with a long latency period, e.g. diabetes mellitus, hypertension, respiratory diseases, among others (Lopes, et al., 2017). These diseases may emerge during a student's academic years due to adopting lifestyle changes which often result in unhealthy habits and may endanger the health of the student (Lopes et al., 2017). Globally, there has been an increase in the number of deaths from non-communicable diseases (Nojilana et al., 2016).

Bigna and Noubiap (2019) state that the burden of NCDs in Sub-Saharan Africa has increased over the past two decades due to an increase in cardiovascular risk factors, such as unhealthy diets, reduced physical activity, hypertension, obesity and diabetes. In addition, NCDs are exceeding communicable, maternal, neonatal and nutritional diseases combined as the leading causes of mortality in Sub-Saharan Africa (Bigna & Noubiap, 2019).

Gouda et al. (2019) presents an in-depth analysis of the disability burden of NCDs in Sub-Saharan Africa from 1990 – 2017 revealing a substantial increase in disability adjusted life years (DALYs). DALYs are described as a combined measure of morbidity and premature mortality and can be understood as the measurement gap between current health status and a model health situation where the entire population lives to an advance age, free of disease and disability (Sheik et al., 2016). This implies that the steady increase of NCDs would have major impact on the already present burden of diseases in Sub-Saharan Africa (Yaya et al., 2020). South Africa has also been experiencing an increase in the mortality rate which influences life expectancy.

Due to the prevalence of NCDs, the life expectancy which is said to be at about 70 years of age, has now been reduced to 60 years of age. A study conducted by the South African Medical Research Council has shown that NCDs are already among the top causes of death in South Africa (Samodien et al., 2021).

1.2 BACKGROUND

Globally, different views exist about student's knowledge, attitude and practices with regard to NCDs. Student nurses are to be prepared theoretically and clinically on the importance of physical activity knowledge, attitude and practice related to NCDs, as they are being seen as the future of the nursing workforce (Walsh et al., 2020). Non-communicable diseases (NCDs) represent a group of health conditions characterised by their non-infectious nature, typically irreversible progression, and multifactorial origins with extended incubation periods.

Notable examples of NCDs include diabetes mellitus, hypertension, and respiratory diseases, according to Lopes et al. (2017). These conditions can manifest from lifestyle changes that cultivate unhealthy habits, thereby posing a significant risk to the individual's wellbeing. Globally, there has been a notable surge in the number of deaths associated with NCDs, as highlighted by Nojilana et al. (2016). This points to the growing impact of NCDs on public health worldwide, making it crucial to understand their dynamics and consequences, particularly in specific regions like Sub-Saharan Africa.

Bigna and Noubiap (2019) have observed a substantial increase in the burden of NCDs in Sub-Saharan Africa. This increase is attributed to a rise in cardiovascular risk factors, such as poor dietary choices, reduced physical activity, hypertension, obesity, and diabetes. Notably, NCDs have now surpassed communicable diseases, maternal and neonatal conditions, and nutritional diseases combined to become the leading cause of mortality in Sub-Saharan Africa (Bigna & Noubiap, 2019).

Furthermore, an in-depth analysis conducted by Gouda et al. (2019) sheds light on the disability burden associated with NCDs in Sub-Saharan Africa. Their findings reveal a significant escalation in DALYs, a measure combining morbidity and premature mortality. This measurement reflects the gap between the current health status and an ideal scenario where the entire population lives to an advanced age, free from disease and disability, as defined by Sheik et al. in 2016. This underscores the far-reaching implications of the ongoing rise in NCDs for the overall disease burden in Sub-Saharan Africa (Yaya et al., 2020).

Additionally, the impact of NCDs extends to South Africa, where an increase in mortality rates has had a direct effect on life expectancy. Life expectancy, once estimated at around 70 years, has seen a reduction to approximately 60 years due to the prevalence of non-communicable diseases. Research conducted by the South African Medical Research Council, as demonstrated in the study by Samodien et al. (2021), confirms that NCDs have now become one of the primary causes of death in South Africa, emphasising the urgent need for comprehensive strategies to address this growing public health concern.

Globally, there is an urgent necessity to comprehend and confront the escalating prevalence of non-communicable diseases (NCDs), particularly evident in regions such as Sub-Saharan Africa, where they now stand as the primary cause of mortality, surpassing communicable diseases and other health challenges. This rise in NCDs is linked to various factors, including unhealthy dietary patterns, decreased physical activity, hypertension, obesity, and diabetes, underscoring the crucial importance of equipping student nurses with the necessary theoretical and practical knowledge to address these issues. Consequently, this study aims to investigate the understanding, attitudes, and practices of undergraduate nursing students concerning non-communicable diseases, recognising their pivotal role as future healthcare professionals.

1.3 PROBLEM STATEMENT

A research problem can be seen as a specific issue, difficulty, contradiction or gap in knowledge that the researcher addressed in their research (McCombes, 2019). The Draft Action Plan for the Prevention and Control of Noncommunicable Diseases 2013 – 2020 was deliberated at the 66th World Health Assembly in May 2013 and governments were urged to decrease the amendable risk factors for non-communicable diseases and the core social determinants (World Health Organisation, 2013a).

Early intervention as preventative intervention was recognised as important in the prevention of non-communicable disease (World Health Organisation, 2013a). The World Health Organisation (WHO) has projected that by 2030, non-communicable diseases would be the leading cause of death in the Sub-Saharan African region (WHO, 2021). The Global Burden of Diseases, Injuries, and Risk Factors Study (GBD) (2020) identified that there has been an increase in the percentage of burden since 1990 due to years lived with disability (YLDs) from non-communicable diseases and injuries. In 2019, more than half of the burden of disease in countries were identified as non-communicable disease and injury YLDs (GBD, 2020).

Samodien et al. (2021) state that the health of young people in South Africa requires urgent attention and has been placed at the centre of the healthcare system. Therefore, early intervention to decrease the incidence and prevalence of NCDs should focus on providing and ensuring optimum nutrition, a secure environment and promoting physical activity (Samodien et al., 2021). Knowledge of lifestyle associated risk factors for non-communicable diseases among nursing students was identified as a concern at a faculty of nursing (Essa & El-Shemy, 2015).

Knowledge, attitude, and practice related to lifestyle and behavioural factors, such as dietary habits, physical inactivity, smoking, and alcohol consumption are some of the identified leading non-communicable disease causative factors (WHO, 2016). In line with the projection of WHO regarding the increase in non-communicable diseases in Sub-Saharan Africa by 2030, the researcher identified the need to investigate and describe the knowledge, attitude, and practice of nursing students in a School of Nursing at a university in the Western Cape.

Literature also suggests that there seems to be a lack of understanding regarding the specific knowledge, attitudes, and practices of undergraduate nursing students in regarding non-communicable diseases (NCDs). While there is acknowledgment of the importance of early intervention and the impact of lifestyle factors on NCDs, there is a specific need to assess the preparedness and awareness of nursing students in addressing these issues, particularly where NCDs are projected to become the leading cause of mortality by 2030. Additionally, there is a need for clarification in understanding how nursing education programs address the identification, prevention, and management of NCDs among students in their second to final years of study.

1.4 AIM

The aim of this study was to investigate and describe the knowledge of, attitudes toward, and practices regarding non-communicable diseases amongst undergraduate students at a School of Nursing at a university in the Western Cape Province.

1.5 OBJECTIVES

Knowledge

- To describe the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape

Attitudes

- To describe the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape
- To describe the perceived self-efficacy of non-communicable diseases among undergraduate students at a university in the Western Cape
- To describe the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape

Practice

- To describe the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape

1.6 SIGNIFICANCE OF THE STUDY

The findings of the study were to inform nurse educators on the importance of a more in-depth focus on the knowledge, attitudes, and practices of undergraduate nursing students of non-communicable diseases. This was to ensure a preventative approach and early management of lifestyle diseases, thus improving quality of life. Hence, this study has investigated and described the practices with regard to NCDs of undergraduate nursing students at a university in the Western Cape Province.

1.7 THEORETICAL FRAMEWORK

In this study, a theoretical framework is employed to guide the investigation of health behaviour, providing a structured perspective on the phenomenon. Specifically, the Health Belief Model (HBM), a widely recognised framework in health behaviour research, was chosen as the guiding tool (Champion & Skinner, 2008). The HBM is instrumental in guiding interventions related to the initiation and maintenance of health-related behaviours. In this research, it served as the foundation for exploring the knowledge, attitudes, and practices of

undergraduate nursing students in relation to non-communicable diseases (Fitzpatrick & Kazer, 2011; Wang et al., 2021; Champion & Skinner, 2008). The study focused on key constructs within the HBM, including perceived benefits, barriers, self-efficacy, susceptibility, and severity.

1.8 RESEARCH METHODOLOGY

A research methodology signifies the methods used by the researcher to structure the proposed study, and the collection and analysis thereof in a structured manner (Polit & Beck, 2017). The research design of this study was of a quantitative, descriptive nature (Brink, Van der Walt & van Rensburg, 2018). The research design was a cross-sectional, descriptive study using a self-administered questionnaire that brought a systematic approach and an appropriate method to investigate and describe undergraduate nursing students' knowledge, attitudes, and practices of NCDs at a School of Nursing at a university in the Western Cape Province.

1.9 ETHICAL CONSIDERATIONS

Throughout the research process, all essential ethical principles, including autonomy, beneficence, confidentiality, justice, and veracity, were diligently observed. Prior to commencing data collection, ethical approvals were secured from the Humanities and Social Sciences Research Ethics Committee (HSREC), the Registrar, as well as the Director of the School of Nursing at the University of the Western Cape.

A significant emphasis was placed on safeguarding the rights of study participants, with the abovementioned ethical principles serving as the foundation for the entire research, starting with the selection of the research methodology. This approach also ensured the protection of participants' privacy and wellbeing, guaranteeing that no participant was subjected to harm or discomfort. The acquisition of written, informed consent stands as a testament to the meticulous consideration of ethical principles throughout the research endeavour.

1.10 OUTLINE OF THE STUDY

The outline of the study is as follows:

Chapter 1 provides an overview of the study, encompassing its introductory context, purpose, objectives, and importance. It also delves into the research methodology and includes a glossary to elucidate on terminology that may be encountered.

Chapter 2 covers the relevant literature on knowledge, attitudes, and practices regarding non-communicable diseases among undergraduate nursing students at university level.

Chapter 3 delineates the methodology employed in this study, namely the research approach, design, and the tools used for data collection, all of which align with the principles outlined in the conceptual framework, specifically, the KAP Model.

Chapter 4 presents the analysis and the study's research findings are explored, strengthened by appropriate literature.

Chapter 5 offers a concise summary of the recommendations, summarises the research findings, and provides an in-depth discussion of certain study limitations.

1.11 CONCLUSION

This chapter introduced and contextualised the research topic. We have presented a lucid identification of the problem, accompanied by an overview of the study. The chapter also provided background information, a well-defined problem statement, research goals, objectives, a conceptual framework, and an elucidation of the study's significance. The subsequent chapter will delve into the relevant literature that supports the identified concern.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter explores the literature review undertaken. To accomplish this, it was imperative to pinpoint existing studies that are either similar or interconnected to elucidate the theoretical framework underpinning this study. A literature review is a critical and systematic examination of existing scholarly works, research studies, articles, books, and other sources related to a specific research topic or question. It serves as an essential component of research, providing an overview of the current state of knowledge in a particular field or subject area (Cooper, 1998; Fink, 2019; Machi & McEvoy, 2016).

The primary goals of a literature review are to identify gaps in knowledge, build a theoretical framework, support research design and methodology, cite and acknowledge prior work and to contextualise the research findings. A well-conducted literature review is thus crucial for the success of this research project as it provides a foundation of knowledge upon which new research can be built. It helps avoid duplication of efforts, validates the significance of work conducted, and ensures that research contributes meaningfully to the field (Cooper, 1998; Fink, 2019; Machi & McEvoy, 2016).

A comprehensive search for primary and secondary sources for the literature review was done by consulting various databases, including EBSCOhost, SpringerLink, MEDLINE (Medical Literature Online), Academic Search Premier, Nexus, CINAHL (Computer Index to Nursing and Allied Health Literature), Science Direct, Scopus, Google, Google Scholar, and other resources available through the university's library. The search strategy involved using a set of keywords, namely knowledge, attitudes, practices, non-communicable diseases, undergraduate, nursing students, and university.

The literature review aims to discern existing knowledge, areas of uncertainty, and the current state of understanding regarding the study (Gray, Grove & Sutherland, 2016). The process of reviewing the literature for this research study unfolded as follows:

- Knowledge regarding NCDs
- Attitudes regarding NCDs
- Practice regarding NCDs

2.2 PREVALENCE AND RISK FACTORS OF NON-COMMUNICABLE DISEASES (NCDs) AMONG UNDERGRADUATE STUDENTS

2.2.1 Increased prevalence of NCDs among undergraduate students

As indicated by the World Health Organisation (2022); Luna and Luyckx (2020) and Ramesh and Kosalram (2023), recent research points to a growing prevalence of non-communicable diseases (NCDs) among undergraduate students globally. The shift from adolescence to adulthood is characterised by alterations in lifestyle, encompassing changes in dietary habits, physical activity, and sleep patterns, all of which can impact on the susceptibility to NCDs. Diverse studies conducted in various settings have revealed variable prevalence rates of specific NCDs in the undergraduate student population, emphasising the necessity for targeted health interventions. Cardiovascular diseases, such as hypertension and coronary artery disease emerged as noteworthy health concerns among undergraduate students.

The increased incidence of cardiovascular diseases in this demographic is linked to sedentary lifestyles, suboptimal dietary choices, and heightened stress levels. Likewise, the occurrence of diabetes among undergraduate students is experiencing an upward trend, influenced by factors, such as unhealthy eating habits, insufficient physical activity, and genetic predisposition. This poses a challenge for educational institutions and healthcare providers to implement pre-emptive measures and advocate for health-promoting behaviours. Although not

conventionally classified as NCDs, mental health disorders, including depression and anxiety have been found to be prevalent among the undergraduate student population. The intricate relationship between mental and physical health underscores the need to address both facets for comprehensive wellbeing (World Health Organisation, 2023; Luna & Luyckx, 2020; Ramesh & Kosalram, 2023).

Samodien et al. (2021) assert that non-communicable diseases significantly contribute to the disease burden in South Africa, encompassing cardiovascular diseases, cancer, diabetes, respiratory illnesses, and mental disorders, which result from the interplay of socio-environmental factors, physiology, behaviour, and genetics, making them critical health concerns for adolescents both presently and in the future (UNICEF, 2021). Analysing the correlations between variables indicates an immediate necessity for targeted interventions and policy measures to address these risk factors and effectively mitigate the growing burden of non-communicable diseases, particularly in South Africa or similar contexts (Kitole et al., 2023). Kitole et al. (2023) propose that public campaigns, health education, strengthening of healthcare systems, and evidence-based policies are imperative to reduce the prevalence of non-communicable diseases and promote healthier lifestyles. The impact of non-communicable diseases extends widely, with statistics from Statistics South Africa indicating diseases of the circulatory system as the most common underlying cause of deaths at 18.5% nationally, and chronic non-communicable diseases accounting for 17-25% of the disease burden in the Western Cape Province (Solomons et al., 2019).

Moreover, non-communicable diseases exert a significant toll on economic development at both the community and national levels, as highlighted by Hofman (2014), with employers grappling with high turnover rates and absenteeism due to conditions associated with non-communicable diseases.

2.2.2 Risk factors influencing NCDs among undergraduate students

Unwise lifestyle choices, such as suboptimal dietary patterns, sedentary behaviour, and substance abuse play a pivotal role in the upswing of NCDs among university students. The adjustment to college life often involves gaining more autonomy in decision-making, prompting students to adopt habits that adversely affect their health. Students commonly grapple with academic pressure and stress, potentially contributing to the initiation or worsening of NCDs. Stress associated with coursework, examinations, and the overall academic experience can prompt the adoption of detrimental coping mechanisms and lifestyle choices. Financial constraints and restricted access to healthcare present instances of socioeconomic factors that can influence the occurrence of NCDs among undergraduate students. Individuals from less affluent backgrounds may encounter heightened challenges in maintaining a healthy lifestyle (Budreviciute et al., 2020; Li et al., 2023; Shekhar et al., 2022).

2.3 KNOWLEDGE REGARDING NCDS

According to Nyirenda (2016), the burden of NCDs will surpass infectious diseases by the year 2035. Higher learning institutions train students in health sciences faculties to gain an understanding of both the etiology of diseases and causative factors involved in NCDs (Abdulbasat & Kazaura, 2020). There is reference to the importance of addressing how theoretical and clinical knowledge and practice affect students' habits in relation to the control of NCDs. The lack of knowledge and misconceptions of physical activity and risk factors of NCDs add to the growing burden of NCDs (Onagbiye et al., 2019).

An exploration of knowledge in low-resourced communities in the Western Cape explains how NCDs cause long duration illnesses which emanate from genetic, physiological, environmental and behavioural characteristics put together (Onagbiye et al, 2019). Non-Communicable Diseases (NCDs) constitute a formidable global health challenge, and nurses wield pivotal

roles in their prevention, management, and education (World Health Organisation, 2022). The understanding of undergraduate nursing students' knowledge levels regarding NCDs is imperative for ensuring the effective delivery of healthcare services (Gomez Del Pulgar et al., 2022). Research studies illuminate varying levels of general awareness among undergraduate nursing students concerning NCDs. While some students exhibit a commendable understanding of major NCDs, others may lack comprehensive knowledge, particularly in recognising risk factors, preventive measures, and the interdisciplinary nature of NCD management (Le et al., 2022).

The literature underscores disparities in knowledge levels specific to various NCDs. For example, students may demonstrate a heightened awareness of cardiovascular diseases due to their prevalence, while other conditions like respiratory diseases might receive less emphasis in nursing curricula (Shirotriya et al., 2023). Understanding the multifaceted nature of risk factors and the importance of lifestyle modifications in preventing NCDs is integral to effective nursing care (Moxham et al., 2018). Studies suggest that undergraduate nursing students may not consistently grasp these aspects, thereby highlighting potential gaps in their education (Wake et al., 2021). The content and depth of NCD education within nursing curricula may vary, resulting in inconsistencies in knowledge acquisition among students (Nuuyoma, 2021). Differences in teaching methods, including theoretical lectures, practical training, and clinical experiences, could impact the depth of understanding and retention of NCD-related information (Naidoo et al., 2023). Moreover, insufficient exposure to patients with NCDs during clinical placements can hinder the development of practical knowledge and skills among nursing students (Faruque et al., 2021).

Addressing the knowledge gaps among undergraduate nursing students regarding NCDs is crucial for preparing a competent nursing workforce capable of effectively contributing to

NCD prevention and management. The implementation of standardised and comprehensive educational strategies is essential to ensure uniformity and depth in NCD-related knowledge acquisition among nursing students.

Silveira et al. (2022) suggest that prolonged sedentary behaviour and lack of physical activity may heighten the risk of obesity. In their review, the authors discuss the prevalence and impact of sedentary behaviour and physical inactivity on obesity, among other factors. Despite global efforts, obesity remains a significant public health issue, affecting approximately 30% of adults worldwide, with projections indicating a rise to 33% by 2030, primarily linked to physical inactivity and sedentary lifestyles, although the precise methods and thresholds for measurement remain somewhat ambiguous. Conversely, there is a noted uptick in diabetes among students, largely attributed to unhealthy dietary habits.

2.4 ATTITUDES REGARDING NCDs

Non-Communicable Diseases (NCDs) persist as a substantial global health challenge, commanding attention from healthcare professionals. The role of nurses in addressing NCDs is pivotal, underscoring the importance of comprehending the attitudes of undergraduate nursing students towards these conditions in shaping future healthcare practices. The well-established correlation between knowledge and attitudes emphasises that a robust understanding of NCDs positively influences nursing students' attitudes towards prevention, early detection, and patient education (Asare et al., 2022).

Clinical exposure during training emerges as an influential factor in shaping attitudes. Nursing students with hands-on experience in managing patients with NCDs tend to develop more positive and empathetic attitudes towards these conditions (Ha et al., 2021). Moreover, the perceived importance of NCDs in the curriculum plays a role in shaping attitudes. When nursing students perceive NCD education as relevant and significant, it contributes to more

positive attitudes towards incorporating this knowledge into their future practice (Venables et al., 2023).

The positive impact of curriculum integration is evident as well. The incorporation of NCD content into nursing curricula positively influences attitudes, ensuring that nursing students recognise the importance of NCDs in their future roles as healthcare providers (Saude et al., 2020). Educational interventions, particularly those incorporating interdisciplinary training, contribute to positive attitudes. Exposure to collaborative approaches involving multiple healthcare disciplines fosters a holistic view of NCD management (Bendowska et al., 2023). Additionally, simulations focusing on NCD scenarios have a tangible impact on attitudes. Nursing students engaged in realistic clinical simulations related to NCDs are more likely to develop positive attitudes towards handling these conditions in real-world settings (Alrashidi et al., 2023).

Understanding the attitudes of undergraduate nursing students towards NCDs carries substantial implications for nursing practice. Positive attitudes contribute to the delivery of patient-centered care, where nursing students prioritise patient education, preventive measures, and ongoing support for patients managing NCDs (Hovey et al., 2017). These attitudes also influence the effectiveness of health promotion efforts, as nursing students with positive attitudes towards NCDs are more likely to engage in health promotion activities within clinical settings and communities (Niederstrasser et al., 2020). Moreover, attitudes developed during undergraduate education can significantly impact future professional development. Encouraging positive attitudes towards NCDs ensures that nursing students enter the workforce with a proactive and holistic approach to NCD prevention and management (Zahran et al., 2022).

In summary understanding and shaping the attitudes of undergraduate nursing students towards NCDs are crucial for the future of healthcare practices. Educational interventions and exposure to clinical scenarios emerged as key influencers, and fostering positive attitudes in nursing education can contribute significantly to improved patient outcomes and the effective management of NCDs.

Wang, Hu and Zang (2021) state that behavioural risk factors, such as unhealthy diet, smoking and physical inactivity are modifiable contributors to the development of NCDs. In Sub-Saharan Africa, there is an increase in the prevalence of NCDs that contributes to about 70% of deaths worldwide (Abdulbasat & Kazaura, 2020). Abdulbasat and Kazaura (2020) identified that patients receiving appropriate counselling on healthy behaviours were dependent on health workers' attitudes and behaviours displayed. They concluded that the correct attitudes toward a healthy lifestyle is important because unhealthy habits at universities and colleges may persist in adult life. Physical inactivity, unhealthy diets, tobacco and excessive alcohol use, could negatively impact young people which includes undergraduate nursing students (Onagbiye et al., 2019).

2.5 PRACTICE REGARDING NCD'S

Non-Communicable Diseases (NCDs) pose a substantial global health concern, necessitating focused attention and proactive management strategies from healthcare professionals. In the face of this ongoing global health challenge, it becomes imperative to comprehend the clinical practices and interventions undertaken by nursing students, as they play a pivotal role in addressing NCDs and ensuring effective healthcare delivery. Understanding the extent and nature of clinical education are vital, as it significantly influences the practices of nursing students in managing NCDs. The hands-on experiences and exposure to patients with NCDs

during clinical placements contribute significantly to the development of practical skills and competencies (Bokolo et al., 2023).

The knowledge base of nursing students emerges as a crucial determinant of their practices. A robust understanding of the pathophysiology, assessment, and management of various NCDs empowers students to implement evidence-based interventions in clinical settings (Farzaei et al., 2023). Additionally, collaboration with other healthcare professionals stands out as a key factor influencing nursing practices. Effective interdisciplinary teamwork enhances the holistic management of NCDs and contributes to positive patient outcomes (Ganatra et al., 2020).

Nursing students actively engage in health promotion practices and preventive interventions to address NCDs. These practices may involve counselling on lifestyle modifications, advocating for regular screenings, and facilitating patient education programmes (Cameron et al., 2022). Emphasis on patient-centered care is evident in the practices of undergraduate nursing students, where the unique needs and preferences of individuals with NCDs are considered. This involves fostering open communication, promoting self-management, and ensuring continuity of care (Fortin et al., 2021).

Effective collaboration with other healthcare professionals is reflected in the disease management practices of nursing students. This includes coordinating care plans, monitoring treatment adherence, and facilitating communication between various healthcare providers (Karam et al., 2021). Simulation-based learning plays a pivotal role in shaping the practices of nursing students, as simulations focusing on NCD scenarios provide a safe and controlled environment for students to apply theoretical knowledge to practical situations, thereby enhancing their clinical skills (Koukourikos et al., 2021).

Hands-on experiences during clinical placements have a profound impact on nursing practices. Exposure to diverse patient populations with NCDs ensures that students develop a broad skill

set and gain confidence in managing various conditions (Zulu et al., 2021). The practices of undergraduate nursing students in addressing NCDs carry significant implications for nursing care, including the overall quality of patient care. Nursing students equipped with evidence-based interventions and practical skills positively impact the health outcomes of individuals with NCDs (Delli Poggi et al., 2021).

Furthermore, these practices influence the professional development of nursing students, as exposure to comprehensive NCD management fosters a proactive and competent approach, preparing students for their roles as future healthcare providers (Calma et al., 2019). The broader impact on the healthcare system is also noteworthy, as well-prepared nursing graduates contribute to a more efficient and responsive healthcare system in managing the increasing burden of NCDs (Shirotriya et al., 2022).

Understanding and analysing the practices of undergraduate nursing students in addressing NCDs are crucial for enhancing healthcare delivery and patient outcomes. Clinical education, knowledge development, and interdisciplinary collaboration emerge as pivotal factors influencing these practices. Fostering evidence-based, patient-centered, and collaborative approaches in nursing education contribute to a more competent and responsive nursing workforce in the face of the growing challenges posed by NCDs. Walsh et al. (2020) explains that students demonstrated a positive attitude towards physical activity, but a lack of confidence was displayed when the students had to give advice to patients.

Healthcare workers, university and college students are key role players in education to the public who are at high risk of NCDs (Abdulbasat & Kazaura, 2020). Risky behaviours include an unhealthy lifestyle, such as smoking, physical inactivity and eating unhealthy food. NCDs can thus be referred to as chronic conditions which cannot be transmitted from one person to another. According to a study done in Thailand, there has been a rapid increase in NCDs due

to lifestyle choices of people of working age, leading to a major impact on productivity and their economy (Pongkiatchai et al., 2019). Chronic conditions can be a combination of genetic, physiological, environmental and behavioural factors (Abdulbasat & Kazaura, 2020).

2.6 HEALTH PROMOTION AND EDUCATION PROGRAMMES

Almomani et al. (2020) specify that the primary prevention of non-communicable diseases hinges on health promotion interventions. These interventions serve to empower individuals, enabling them to exert control over their health and environment. The article also posits that health promotion education can significantly improve individuals' lifestyle behaviours, knowledge, and attitudes toward adopting healthy practices, with a particular emphasis on innovative approaches. Relating this information to university students, it is asserted that they are susceptible to engaging in health-compromising behaviours (Almomani et al., 2020). By implication, this suggests that students bear the responsibility for their health to minimise the risk of developing diseases later in life. The researcher goes on to suggest that there appears to be a lack of awareness regarding health promotion behaviours among students. However, it is noted that the current rise in the prevalence and incidence of NCDs fall within the realm of chronic diseases, making it a global health priority (Pulgar et al., 2022).

The article further elucidates that health systems in most countries must undergo structural changes to deliver healthcare services with a focus on continuous surveillance and efficiency (Pulgar et al., 2022). In the South African context, health promotion aims to establish a healthy environment by fostering general health and wellbeing for all, addressing social barriers to learning and promoting effective teaching and learning (www.education.gov.za). According to Cheng et al. (2015), educators play a crucial role in providing health education to empower students with skills for healthy lifestyles and prevent NCDs, such as prevalent hypertension resulting from unhealthy lifestyles.

2.7 IMPACT OF SOCIOECONOMIC STATUS REGARDING NCD'S

Examining the prevailing upward trajectory of NCDs, such as hypertension and diabetes, on a global scale and within the local context of South Africa, it becomes imperative to conduct a comprehensive study elucidating the knowledge, attitudes, and practices concerning NCDs of both the general population and students (Samodien et al., 2021; Uwimana-Nicol et al., 2021). The World Health Organisation highlights the significance of addressing NCDs as they pose a threat to achieving the 2030 Agenda for Sustainable Development, specifically targeting the reduction of premature deaths caused by the four main NCDs before the age of 70 (WHO, 2023). These primary NCDs encompass heart attacks and strokes, cancers, chronic respiratory diseases, and diabetes.

Recognising the acknowledged link between poverty and the prevalence of NCDs, it becomes crucial to appreciate the nuanced nature of socioeconomic backgrounds, particularly among students. It is overly simplistic to label students from lower-income families as being impoverished. Despite potential access to improved facilities and financial support, these students may inadvertently face heightened risks of developing NCDs due to their lifestyle choices. It is essential to grasp the specific dynamics inherent among university students, as their unique circumstances can significantly influence the relationship between socioeconomic status, lifestyle choices, and NCD risks. Numerous studies have robustly established a connection between poverty and the increased prevalence of NCDs (Bokolo et al., 2023; World Bank, 2021). Factors, such as limited access to healthcare, unhealthy living conditions, and inadequate nutrition also contribute to the greater burden of NCDs among impoverished populations.

Contrary to a simplistic association, it is imperative to acknowledge the diversity within lower-income families, especially among university students. While these students may originate

from economically disadvantaged backgrounds, factors like access to educational opportunities, on-campus living arrangements, etc. Even with improved facilities and financial support, university students from less affluent backgrounds may still be susceptible to lifestyle choices that increases their vulnerability to NCDs. Dietary habits, levels of physical activity, and stress management play pivotal roles in determining the overall health of students (Vingilis et al., 2019). The availability of on-campus living arrangements and various forms of financial support contribute to enhanced living conditions for students from lower-income families (UNESCO, 2020). However, careful consideration is required to understand the impact of these enhancements on lifestyle choices and risks to NCDs.

University life often entails significant changes in lifestyle, encompassing dietary choices, levels of physical activity, and stress management. Studies suggest that these lifestyle changes can contribute to the development of NCDs among university students, irrespective of their socioeconomic background (El Ansari et al., 2022). Understanding the nuanced relationship between socioeconomic status, lifestyle choices, and NCD risk among university students is crucial for developing effective health promotion strategies. Interventions should not solely focus on economic indicators but also consider the multifaceted factors influencing students' choices and behaviours.

In summary, while acknowledging the association between poverty and NCD prevalence, it is vital to recognise the diverse socioeconomic backgrounds of university students. Enhanced facilities and financial support may improve living conditions, but lifestyle choices remain a critical factor influencing NCD risk among students. A comprehensive approach to health promotion in university settings should consider the complex interplay between socioeconomic factors and individual behaviours.

2.8 SOCIAL, CULTURAL AND ENVIRONMENTAL INFLUENCES

An exploration of the intricate interplay of social, cultural, and environmental factors that influence the knowledge, attitudes, and practices (KAP) of undergraduate nursing students in relation to NCDs is of importance. Recognising how these influences intersect is crucial for designing targeted interventions aimed at enhancing NCD-related education and fostering optimal healthcare practices among aspiring nursing professionals. Social dynamics exert a significant impact on nursing students' perspectives regarding NCDs. Interactions with peers, familial influences, and adherence to societal norms collectively shape attitudes and practices (Wilkins et al., 2021). Within the academic community, social support and effective communication contribute to the dissemination of knowledge pertaining to NCDs.

Cultural contexts are instrumental in determining how NCD-related information is perceived and applied. Cultural beliefs, traditions, and health-seeking behaviours influence the approach of nursing students towards NCD prevention and management (Ying et al., 2018). The integration of a culturally sensitive curriculum becomes imperative for fostering a comprehensive understanding. The physical and healthcare environment plays a pivotal role in shaping nursing students' engagement with NCDs. Factors, such as access to resources, clinical exposure, and the structure of educational programmes collectively contribute to the development of NCD-related knowledge and practices among students (Brown et al., 2020).

Environmental factors may either facilitate or impede effective NCD education.

The interactions between social, cultural, and environmental influences create a dynamic context for the KAP of nursing students regarding NCDs. For instance, a supportive social network combined with a culturally relevant curriculum can enhance the effectiveness of NCD education (Kolb et al., 2019). Collectively, these influences impact the acquisition and retention of NCD-related knowledge among nursing students. Exposure to diverse cultural perspectives

and varied clinical environments enriches their understanding of NCDs (Williams et al., 2021). Attitudes toward NCDs are moulded by social expectations, cultural norms, and the healthcare environment. Positive attitudes can be cultivated through inclusive and culturally competent education, laying the foundation for patient-centered care (Lopez & Valdez, 2020). Nursing practices related to NCDs are influenced by the social, cultural, and environmental context in which students learn. Exposure to diverse patient populations and culturally competent training enhances the practical skills required for effective NCD management (Wong & Yap, 2019).

Challenges may arise when social, cultural, or environmental factors conflict with established healthcare protocols. However, recognising these challenges provide opportunities for curriculum enhancement, faculty development, and the fostering of cultural competence among nursing students (Greenwood & De Leeuw, 2020). Understanding the intricate web of social, cultural, and environmental influences on the KAP of undergraduate nursing students regarding NCDs have far-reaching implications. Tailoring educational strategies to accommodate these influences ensure the development of well-rounded, culturally competent nursing professionals capable of addressing the evolving landscape of NCDs.

The knowledge, attitudes, and practices of undergraduate nursing students regarding NCDs are intricately woven into the social, cultural, and environmental fabric of their educational journey. Recognising and addressing these influences are essential for developing comprehensive and culturally sensitive NCD education, ultimately shaping a future nursing workforce adept at addressing the complex challenges posed by NCDs.

2.9 STUDENT HEALTH SERVICES AND NCD MANAGEMENT

The increasing prevalence of NCDs worldwide underscores the need for a comprehensive approach to their management. Within educational institutions, Student Health Services plays a crucial role in influencing the knowledge, attitudes, and practices of undergraduate nursing

students regarding NCDs. These services, integral components of academic settings, serve as accessible healthcare hubs offering preventive care, health education, and support for managing chronic conditions, including NCDs (Wang et al., 2021).

Understanding the multifaceted role of Student Health Services is paramount in evaluating their impact on nursing students. These services contribute significantly to enhancing NCD-related knowledge among nursing students through various educational initiatives, such as workshops, seminars, and informational resources (Oliveira et al., 2019). By providing a deeper understanding of NCDs, their risk factors, and preventive measures, Student Health Services becomes instrumental in shaping the educational landscape for nursing students. The influence of Student Health Services extends beyond knowledge enhancement to impact the attitudes of nursing students towards NCD management. Positive experiences within these services can foster a proactive and empathetic approach among students when dealing with individuals affected by NCDs (Lambert & Lambert, 2018). This positive attitude is a crucial aspect of preparing nursing professionals to engage effectively in the complex field of NCD management.

Moreover, the practices of undergraduate nursing students in NCD management are directly influenced by the support provided by Student Health Services. Exposure to real-life cases, supervised clinical experiences, and practical training offered by these services contribute significantly to the development of effective NCD management skills among nursing students (Eze et al., 2020). However, despite the valuable resources offered by Student Health Services, challenges such as resource constraints and varying service quality may exist. Addressing these challenges present opportunities for collaboration, curriculum enhancement, and the integration of best practices in NCD management within educational institutions (Butts & Rich, 2018). Strategies, such as the integration of NCD-specific modules in nursing curricula,

strengthening interdisciplinary collaboration within Student Health Services, and regular training sessions for healthcare providers within these services, and continuous assessment and improvement of the quality of healthcare services can further optimise their impact. Furthermore, Student Health Services can serve as platforms for interdisciplinary collaboration, involving not only nursing professionals but also other healthcare disciplines. This collaborative approach fosters a comprehensive understanding of NCDs and encourages holistic patient care (Drenkard et al., 2019).

The role of Student Health Services in NCD management has far-reaching implications for the future nursing workforce. A comprehensive understanding of NCDs, acquired through these services, prepares nursing students to be proactive contributors to the healthcare system's response to the growing burden of NCDs (Albouaini et al., 2018). Recognising the significance of Student Health Services is essential for developing strategies that maximise their potential in preparing nursing professionals for the complex challenges posed by NCDs.

2.10 LONG-TERM HEALTH IMPLICATIONS

The enduring health consequences linked to the knowledge, attitudes, and practices (KAP) of undergraduate nursing students concerning NCDs are fundamental factors that shape the trajectory of future healthcare professionals. Recognising how the KAP of nursing students may influence their personal wellbeing and the health of the communities they serve is fundamental for a thorough health education and the efficacious management of NCDs. In the context of nursing education, students' comprehension of NCDs forms the bedrock of their prospective clinical practice. A comprehensive grasp of the pathophysiology, risk factors, and preventative measures associated with NCDs is indispensable (Asare et al., 2022). The absence of such comprehensive knowledge may pose challenges in the identification of early

symptoms, implementation of preventive strategies, and delivery of optimal care to individuals affected by NCDs.

The attitudes cultivated by nursing students toward NCDs throughout their educational journey wield substantial influence over patient care. Positive attitudes, nurtured through inclusive and culturally competent education, lay the groundwork for patient-centered care (Lopez & Valdez, 2020). Conversely, negative attitudes or misconceptions may impede the provision of effective care and support to individuals grappling with NCDs. The practices adopted by nursing students in the management of NCDs during their educational tenure have a direct impact on their subsequent professional development. Exposure to diverse patient populations, practical training, and supervised clinical experiences contribute significantly to the cultivation of effective NCD management skills (Eze et al., 2020). These practical skills are imperative for addressing the escalating burden of NCDs in real-world healthcare settings. Nursing students' practices in relation to NCDs also shape their involvement in health promotion activities. Positive practices, such as counselling on lifestyle modifications, advocating for regular screenings, and facilitating patient education programmes, contribute to preventive interventions (Cameron et al., 2022). These practices carry the potential to influence not only individual patient outcomes but also public health on a broader scale.

The knowledge, attitudes, and practices embraced by nursing students during their education may exert long-term implications on their personal health choices. Students who cultivate positive lifestyle practices grounded in their understanding of NCDs are more likely to adopt healthier behaviours throughout their lives. Conversely, insufficient knowledge or negative attitudes may lead to suboptimal health decisions. As prospective healthcare providers, the collective impact of nursing students' KAP regarding NCDs extends to the health of the populations they will serve. A well-rounded education that underscores evidence-based

practices, positive attitudes, and a profound understanding of NCDs equip nursing students to make significant contributions to the health outcomes of both individuals and the broader community throughout their professional careers.

The enduring health implications intertwined with the KAP of undergraduate nursing students concerning NCDs extend beyond their academic journey. A comprehensive education emphasising positive attitudes, evidence-based practices, and an in-depth understanding of NCDs empowers nursing students to positively influence individual health outcomes and contribute meaningfully to the broader health landscape of the populations they will serve throughout their professional endeavours.

2.11 SUMMARY

Within this chapter, the primary focus has been on presenting key findings derived from a comprehensive literature review. This literature review specifically delves into aspects related to the knowledge levels, attitudes, and practices concerning non-communicable diseases (NCDs) among undergraduate students enrolled at a university in the Western Cape. The synthesis of existing literature has been instrumental in shedding light on the current state of awareness, attitudes, and behavioural patterns regarding NCDs. In Chapter 3, the methodology and theoretical framework used in the current study are discussed in detail.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

In this chapter, the fundamental structure of the research methodology is outlined, covering aspects such as the theoretical framework, research approach, design, setting, population, and sampling, along with inclusion and exclusion criteria. Additionally, it is followed by a discussion on the data collection instrument, how data were analysed for reliability and validity, and the ethical considerations considered in this research study. A research methodology signifies the methods used by the researcher to structure the proposed study, the collection and analysis of data in a structured manner (Polit & Beck, 2017). The research design of this study is included, which is of a quantitative, descriptive nature (Brink et al., 2018).

3.2 AIM OF THE STUDY

The aim of this study was to investigate and describe the knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a School of Nursing at a university in the Western Cape Province.

3.3 OBJECTIVES

The objectives of this study were to:

- i. Knowledge: Describe the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape
- ii. Attitudes: Describe the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape; describe the perceived self-efficacy of non-communicable diseases among undergraduate students at a university

in the Western Cape; and to describe the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape.

- iii. Practice: Describe the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape.

3.4 THEORETICAL FRAMEWORK

A theoretical framework can be defined as a group of statements composed of concepts related in some way to form an overall view of a phenomenon that predicts and explains health behaviour guiding researchers, to organise existing knowledge (Fitzpatrick & Kazer, 2011; Wang et al., 2021). The theoretical framework employed in this study draws upon the Health Belief Model (HBM), which examines the knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape.

Within the HBM, various perspectives are considered to understand the motivations behind individuals' decisions to take or abstain from specific actions (Champion & Skinner, 2008). The HBM serves as a valuable framework for guiding interventions aimed at both initiating and sustaining health-related behaviours (Champion & Skinner, 2008). The applied constructs included the perceived benefits of adopting preventive behaviours against NCDs; (b) perceived barriers to adopting preventive behaviours against NCDs; (c) perceived self-efficacy to adopting preventive behaviours against NCDs, (d) perceived susceptibility to NCDs and (e) perceived severity of having NCDs as illustrated in Figure 3.1 below.

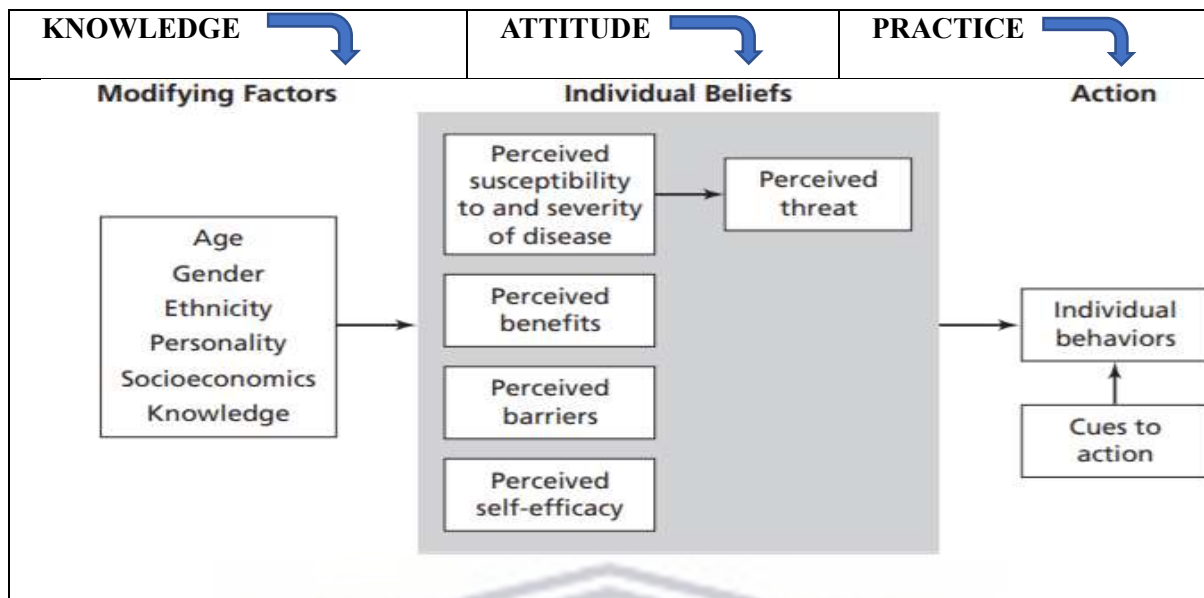


Figure 3.1: Schematic representation of the Health Belief Model

Wang et al (2021), describes the HBM of preventive behaviour against non-communicable diseases, as a theoretical framework to explain or predict health-related behaviour. This article also states, that individual health belief about perceived susceptibility and perceived severity means that these two constructs denote threats, perceived benefits, perceived barriers to action and self- efficacy. The mentioned threats represent anticipations that have the potential to elucidate the continuance and compliance with preventive behaviours aimed at mitigating non-communicable diseases (Wang et al., 2021). In this research study, the HBM was used to acquire insights into the knowledge, attitudes, and behaviours related to non-communicable diseases among undergraduate nursing students enrolled at a university in the Western Cape.

The application of the HBM as a conceptual framework was used to address the objectives related to knowledge, attitudes, and practices regarding non-communicable diseases (NCDs) among undergraduate students. The HBM suggests that an individual's health-related behaviour is influenced by their perceptions of susceptibility to a health threat, the perceived severity of that threat, the perceived benefits of taking action to reduce the threat, the perceived

barriers to acting, and their self-efficacy in taking those actions. To achieve the objectives of this study, the HBM was applied as follows:

Objective 1: Knowledge - Perceived Benefits

- To describe the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape

In the context of the HBM, this objective relates to the perceived benefits construct and this study investigated how students perceived the benefits of acquiring knowledge about NCDs. For example, it was assessed whether students believed that having knowledge about NCDs could lead to better health outcomes, early detection, or more effective prevention strategies.

Objective 2: Attitudes - Perceived Barriers

- To describe the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape

This objective is linked to the perceived barriers construct in the HBM that explored the barriers that students perceived regarding the prevention or management of NCDs. These barriers included time constraints, financial limitations, and cultural factors that affected their attitudes and behaviours towards NCD prevention.

Objective 3: Attitudes - Perceived Self-Efficacy

- To describe the perceived self-efficacy of non-communicable diseases among undergraduate students at a university in the Western Cape

In this area, there was a focus on the self-efficacy component of the HBM with an assessment on how confident students felt in their ability to take action to prevent or manage NCDs. This included their belief in their capacity to follow a healthy diet, engage in regular exercise, and adherence to medical advice.

Objective 4: Attitudes - Perceived Susceptibility

- To describe the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape

This objective relates to the perceived susceptibility construct within the HBM. There was an investigation into how students perceived their own vulnerability to NCDs, their awareness of the risk factors that applied to them individually, and whether they believed that they were at risk based on their lifestyle, family history, or other factors.

Objective 5: Practice - Perceived Severity

- To describe the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape

This objective is connected to the perceived severity element in the HBM and it investigated how students perceived the seriousness of NCDs. It included their understanding of the potential health consequences and the impact of NCDs on their quality of life. By applying the HBM in this way, insights were gained into the factors that influenced students' knowledge, attitudes, and practices regarding NCDs. These insights could possibly inform interventions and health education programmes tailored to the specific beliefs and perceptions of the target population.

Hence, the HBM served as the framework for analysing the collected data to comprehend the knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape.

3.5 RESEARCH APPROACH

A research approach encompasses the systematic process of collecting, analysing, and interpreting data to draw conclusions on a research topic, evolving from a broader

conceptualisation. There are three primary research approaches: quantitative, qualitative, and mixed methods. The quantitative approach involves presenting numerically acquired data, facilitating statistical analysis. This method allows researchers to gain insights into complex issues through the exploration of variables, employing direct and quantifiable questions. In the context of this study, the quantitative approach was applied to gather numerical data on the knowledge of, attitudes toward, and practices regarding non-communicable diseases (Polit & Beck, 2017; Streefkerk, 2023). The quantitative approach was used to obtain quantitative data to comprehend the knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape using the Statistical Package for Social Sciences (SPSS), version 28 for the analysis.

3.6 RESEARCH DESIGN

The study design was a cross-sectional, descriptive study, using a self-administered questionnaire that brought a systematic approach and an appropriate method to the investigation and description of undergraduate nursing students' knowledge, attitudes and practices of non-communicable diseases at a university in the Western Cape (Polit & Beck, 2017). A descriptive study design involves investigating individuals, events, or conditions in their natural state without manipulating variables, aiming to depict a particular phenomenon. Descriptive research delves into various variables and proves particularly valuable for examining differences in group characteristics or identifying traits within diverse populations (Aggarwal & Ranganathan, 2019).

3.6.1 Descriptive research design

A descriptive research design allows the researcher to gather quantitative data that can undergo statistical analysis, enabling the formulation of generalisations about the sample population. Survey research, a type of non-experimental research, acquires information about the practices,

views, attitudes, or knowledge of a specific group regarding a particular topic (Siedlecki, 2020; Williams, 2007).

3.6.2 Descriptive survey study design

In this research study, the researcher conducted a survey to obtain quantitative data to comprehend the knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape. Data collected were summarised through statistical analysis (SPSS Version 28) enabling the generalisations of the results obtained.

3.7 RESEARCH SETTING

A research setting can be defined as a place that needs to be suitable and feasible and is essential (Creswell, 2019). As stated by Gray, Grove and Sutherland (2016), conducting research in a natural setting implies that the researcher lacks control or influence over the study environment. The study took place at a School of Nursing (SoN) situated in the Western Cape, affiliated with the Community and Health Sciences Faculty. The SoN offers accredited undergraduate and postgraduate programmes, approved by SANC and registered with the South African Qualifications Authority (SAQA). This specific SoN is one of four higher education institutions (HEIs) providing undergraduate nursing programmes in the Western Cape. Within this framework, two SANC Regulatory Bachelor of Nursing programmes were accessible in 2023: Regulation 174 (R174) and the Regulation 425 (R425). The R174 programme, introduced in 2020, supersedes the R425 programme, a legacy nursing qualification phased out in accordance with the requirements of the Higher Education Qualifications Sub-Framework, as published in the Government Gazette in July 2016 by the Minister of Higher Education, Science, and Innovation. The last intake for the R425 programme was in 2019, and it continues to be offered for pipeline students during the determined teach-out period (www.sanc.co.za).

This specific SoN at a university in the Western Cape was chosen because it enhanced accessibility to the specific study population. The selection of an appropriate research setting was vital for smooth data collection, allowing participants to freely and comfortably express their knowledge related to the study topic without the constraints of an unfamiliar environment. The SoN chosen for this study hosts an undergraduate programme, providing a natural setting where the issues under investigation occurred.

3.8 STUDY POPULATION

The population of the study is the group consisting of all the sampling units relevant to the research question (Creswell, 2019). The population, as defined by Gray, Grove and Sutherland (2016), encompasses all members of a specified group who share at least one common characteristic. In the context of a study, the population refers to the entire group of individuals or a category of elements that serves as the central focus of the research. For this study, the population of interest consisted of second-, third-, and fourth-year undergraduate nursing students who registered in 2023 at a SoN in a university located in the Western Cape.

The total population encompassed all registered undergraduate nursing students in their second to fourth year of study. These students were included in the study to gather data aimed at understanding their knowledge, attitudes, and practices regarding non-communicable diseases at a university in the Western Cape. The subset of the population to which the researcher had reasonable access is termed the accessible population, as per Gray, Grove and Sutherland (2016). The researcher's reason for choosing all these year levels of undergraduate nursing students, was to establish whether students' knowledge, attitudes and practices were influenced with regard to NCDs despite them being in a higher year level.

3.8.1 Sampling strategy and sample size

Sampling and sample size were determined by the type and quality of data and the availability of the identified population (Brink et al., 2018; Polit & Beck, 2017). In this study, stratified random sampling was used and the population was divided into homogeneous strata or subgroups according to the individual year levels. Stratified random sampling guides the division of the population into subgroups, or strata, according to some variable(s) of importance to the phenomena under investigation (Nieswiadomy & Bailey, 2018).

The sample size in this research was based on 576 registered undergraduate nursing students. The sample size included second year to final year undergraduate nursing students. The formula to calculate the sample size was an online survey sample calculation with the confidence interval level at 95% and margin error at 5% (Table 3.1). The calculated sample size for this study was calculated at n=381 (www.surveysystem.com). Table 3.1 provides the registered, accessible population of undergraduate nursing students in 2023.

Table 3.1: Accessible population and sample size

Year level	Total population	Sample size
Second year	139	103
Third year	175	121
Fourth year	262	157
	Total population = 576	Total sample size = 381

3.8.1.1 Inclusion criteria

All second to fourth year undergraduate nursing students enrolled in a Bachelor of Nursing programme at a SoN in a university in the Western Cape were considered for participation. Inclusion in this study required participants to be part of either the R174 or R425 nursing programme. Despite the ongoing phasing out of the R425 programme, it is still offered at the

SoN. Consequently, second-, third- and fourth-year students in this programme met the inclusion criteria for the study

3.8.1.2 Exclusion criteria

First-year undergraduate nursing students were excluded from the study, considering their limited exposure might impede their ability to sufficiently articulate knowledge, attitudes, and practices, thereby possibly influencing and shaping their perceptions of non-communicable diseases.

3.9 DATA COLLECTION

Data collection can be described as a systematic and essential phase in the research process, involving the methodical gathering of information pertaining to the identified variables or topic. It serves as a crucial step in addressing the research question and attaining the predetermined research aims. The process encompasses various methodologies and tools tailored to the nature of the study, ensuring the reliability and validity of the collected data (Creswell & Creswell, 2017). Employing rigorous data collection methods are vital for generating accurate and meaningful findings, thereby contributing to the overall robustness and credibility of the research study (Neuman, 2014). Researchers often employ diverse techniques, such as surveys, interviews, observations, and experiments to capture comprehensive and relevant data (Yin, 2018). The meticulous execution of data collection is integral to the success of the research endeavour, allowing for thorough analysis and interpretation of results in line with the study's objectives.

3.9.1 Data collection instrument

Permission has been obtained to use the structured questionnaire as the data collection instrument. The 97-item self-report questionnaire (Annexure F) on knowledge, attitudes and practice guidelines was developed by Salwa et al. (2019). **Section 1** consists of questions related to general knowledge and attitudes related to NCDs. It includes questions one (1) to

question three (3). **Section 2** focuses on questions regarding the knowledge, attitudes and practices on NCD behavioural risk factors. It includes questions four (4) to question 69. **Section 3** consists of questions related to knowledge, attitudes and practices about NCDs. It includes questions 70 to question 81. **Section 4** focuses on socio-demographic information. It includes questions 82 to question 90. **Section 5** focuses on physical measurement self-reported by students. Permission was granted and the following adaptations were made to the data collection tool:

- Section 1, number three (3) Bangladesh will be replaced with the Western Cape Province.
- Unknown fruit that did not relate to South Africa was removed e.g., boroi, amra, tormuj and bangi.
- Unknown vegetables that did not relate to South Africa was removed e.g., chichinga.
- Soft drinks that did not relate to South Africa was removed e.g., RC cola and mojo.
- Some grammatical errors identified in the data collection tool were also corrected.

Data collection from the participants commenced upon obtaining ethical clearance, HSSREC Reference Number: HS22/4/1 (Annexure A), permission from the Registrar (Annexure B) and Head of Department at the School of Nursing (Annexure C) of the university. The focus of information gathering revolved around students' knowledge, attitudes, and practices concerning NCDs. The data collection process was executed by means of a survey format. Prior permission was sought from participants (Annexure E), who were undergraduate nursing students, and the distribution of the questionnaire (Annexure F) took place in the clinical skills laboratory of the SoN. A suitable date and time were coordinated with the educators responsible for overseeing the clinical skills laboratory sessions. Informed consent (Annexure E) was obtained after providing students with comprehensive information (Annexure D) about the study's objectives, ensuring clarity before the survey's initiation.

3.9.1.1 Content validity

Content validity is an assessment of how well an instrument represents all components of the variable to be measured (Brink et al., 2018). A measure or instrument is said to be valid if it measures what it is supposed to measure (Creswell et al., 2019). Content validity was addressed through the objectives and questionnaire questions below in Table 3.2:

Table 3.2: Content validity: Research questions in relation to the questionnaire and the HBM

Objectives	Research Question	Questionnaire	Health Belief Model
Knowledge			
To describe the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape.	What are the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape?	4, 5, 7, 8, 9, 12, 13, 14, 17, 21, 34, 35, 40, 42, 46, 57, 59, 65, 66, 69, 73, 74, 75, 76, 78, 79	Perceived benefits
Attitudes			
To describe the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape.	What are the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape?	10, 16, 18, 33, 37, 47, 52, 53, 54, 62, 68, 70, 71, 72, 74, 80, 81	Perceived barriers
To describe the perceived self-efficacy of non-communicable diseases among undergraduate students at a university in the Western Cape.	What is the perceived self-efficacy of non-communicable diseases among undergraduate students at a university in the Western Cape?	6, 11, 20, 31, 32, 38, 44, 45, 50, 51, 56, 63, 64	Perceived self-efficacy
To describe the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape.	What is the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape?	19, 22, 24, 27, 28, 29, 30, 36, 39, 41, 43, 49, 58	Perceived susceptibility
Practices			
To describe the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape.	What is the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape?	1, 2, 3, 15, 23, 25, 26, 48, 55, 60, 61, 67, 77	Perceived severity

3.9.1.2 Face validity

Ensuring face validity involves confirming that the instrument subjectively assesses the intended variables. This aspect was addressed before the commencement of the study by verifying that the questionnaire encompassed inquiries designed to investigate all identified issues. Additionally, efforts were made to guarantee that the wording of the questions was clear and comprehensible (Creswell & Creswell, 2017). Face validity was considered by submitting the research questionnaire to the study supervisors and presenting it to the research committee at a SoN for expert opinion to determine whether the questionnaire actually measures what was intended to be measured.

3.9.1.3 Reliability

According to Creswell et al (2019), reliability has to do with the consistency or repeatability of a measure or an instrument, for example, a questionnaire. High reliability is obtained when the measure or instrument will give the same results if the research is repeated on the same sample. Reliability refers to the extent an instrument can consistently produce similar results when employed repeatedly on the same individual or by different researchers over time (Brink et al., 2018). The Cronbach's alpha coefficient (α) serves as a widely utilised metric for assessing the reliability of distinct sections within an instrument (Polit & Beck, 2017). This coefficient typically ranges from .00 to +1.00, with higher values indicative of enhanced internal consistency (Brink et al., 2018). Specifically, the knowledge component of the questionnaire demonstrated a commendable level of internal consistency (Cronbach's alpha coefficient (α) = 0.83), while the attitudes component exhibited a satisfactory level of reliability and internal consistency (Cronbach's alpha coefficient (α) = 0.69) (Mogre et al., 2017). In the present study, the overall Cronbach's alpha coefficient (α) was 0.731. Notably, the knowledge component of the survey in the current study indicated a satisfactory level of reliability and internal consistency (Cronbach's alpha coefficient (α) = 0.608), whereas the attitudes

component of the survey exhibited a commendable level of internal consistency (Cronbach's alpha coefficient (α) = 0.813). As commonly used, Cronbach's alpha was employed to measure the reliability of different areas of the instrument (Polit & Beck, 2018). An acceptable reliability for Cronbach's alpha is 0.70 or above (Lin et al., 2015). The reliability aspect of using questionnaires for this study was beneficial since it ascertained that the sample was consistent with data collected.

3.9.2 Pre-testing of the instrument

Pre-testing of the instrument is described as a method of checking that questions are understood by those individuals who are likely to respond to them (Hilton, 2017). Within this pre-testing stage the questions and questionnaires were checked for reliability and validity (Michalos, 2017). It is also stated by Michalos (2017) that pre-testing is widely regarded as indispensable in survey questionnaire development and is crucial to improve data collection for quality-of-life research. The pre-test was conducted with three (3) students per year level from the population identified amounting to a total of nine (9) students. Pre-testing was conducted to identify potential gaps and implement corrections, providing respondents with the opportunity to comment on question clarity and offer suggestions for additional responses or input. To eliminate ambiguity, difficult wording, or inappropriate questions, unambiguous language was employed. The participants in the pre-testing phase shared similar characteristics with those in the main study, although they did not constitute part of the main study group. As a result, no changes were necessary to the questionnaire used in the data collection phase. All participants included in the pre-testing provided written and informed consent before participating.

3.10 DATA ANALYSIS

Data analysis encompasses the systematic examination, cleansing, transformation, and interpretation of raw data to derive meaningful insights, identify patterns, and draw conclusions in addressing research questions or objectives (Leedy & Ormrod, 2015). The collected data

were analysed utilising the Statistical Package for Social Science (SPSS) version 28, with the assistance of a statistician, as detailed in Chapter 4.

Before initiating the analysis, each questionnaire received a unique identifier to ensure anonymity and was subjected to thorough checks for completeness. All adequately completed questionnaires were included in the analysis. Statistical analysis was conducted to process quantitative data that involved data entry into SPSS version 28. A code book was developed, delineating the structural pattern and offering guidance on identified codes. Descriptive analysis was employed to scrutinise the data against the research aim and objectives, organising it into frequency distribution tables and graphs. Inferential statistical analysis utilised the Shapiro-Wilk Test and Kolmogorov Smirnov Test to assess the normality of data distribution. Associations between demographic data and the knowledge, attitudes, and practices of NCDs among undergraduate students at a SoN at a university of the Western Cape, were determined through the appropriate statistical tests. Depending on data distribution, either parametric tests like chi-square or non-parametric tests like the Mann-Whitney U Test or Kruskal Wallis Test were employed. Statistical significance was defined as a p-value less than 0.05 ($p < 0.05$).

3.11 ETHICAL CONSIDERATIONS

Ethical approval (Annexure A) for this study was obtained from the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee (HSSREC), the Registrar (Annexure B) and the Director of the School of Nursing (Annexure C) at a university in the Western Cape. An information sheet (Annexure D) was made available during the information sessions that informed participants of the purpose of the study.

The participants had to complete a voluntary, informed consent form (Annexure E) prior to the commencement of data collection. The ethical principles adhered to included autonomy and informed consent, beneficence, non-maleficence and justice. These domains are essential in

the issue of protecting the participant's identities. This could be achieved by obtaining letters of consent necessary to obtain the participants' permission to complete the questionnaire in collecting data.

3.11.1 Informed Consent

Initially, participants were provided with an information sheet outlining the study's aim and objectives. Subsequently, participants completed a consent form, which was submitted along with the questionnaire.

3.11.2 Minimising Participant Distress

A paramount consideration was minimising participant distress and ensuring protection from harm. Participants were apprised of potential risks associated with the study, and contact information for the Centre for Student Support Services (CSSS) was furnished. The researcher collaborated with the psychologist at CSSS, informed them about the study and obtained permission to refer distressed participants.

3.11.3 Confidentiality and Anonymity

Participants were guaranteed confidentiality and anonymity. Explicit instructions were given to abstain from including personal details, such as names, in any provided information. Confidentiality and anonymity were maintained by using a participant number instead of the participant's personal information.

All collected data will be securely stored and locked for a period of five (5) years post publication of results, which will be followed by secure destruction. Access to the data was restricted solely to the researcher and supervisor.

3.11.4 Protection from harm

The research adhered to the Protection of Personal Information Act 4 of 2013 to only recruit participants suitable for the research objectives. Every participant had the right to protection from discomfort and harm.

3.11.5 Principle of Respect for Persons

Respecting the autonomy of all participants is a fundamental principle, affirming their right to self-determination (Brink et al., 2018). Participants received information sheets elucidating the study's purpose, ethical considerations, and guidelines for voluntary participation.

3.11.6 Right to Full Disclosure

The researcher provided a comprehensive description of the study's nature, elucidating participants' right to decline participation. Additionally, participants were informed about the researcher's responsibilities during data collection, potential risks and benefits of participation, adhering to the principle of full disclosure (Polit & Beck, 2017). It was underscored that participating in the study offered no personal gain.

The study adhered to key ethical principles, as outlined.

3.12 SUMMARY

In this chapter, various aspects were addressed, including the theoretical framework, research approach and design, the study's setting and population, criteria for inclusion and exclusion, the procedures for sampling and data collection, and considerations regarding the validity and reliability of the data collection instrument. Additionally, discussions covered the data analysis process and ethical considerations. The subsequent chapter will delve into the study's findings.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

In this chapter, the researcher presents the outcomes derived from the analysed data collected from respondents, accompanied by a detailed discussion. The researcher endeavours to achieve the following objectives: to delineate the perceived benefits of knowledge regarding non-communicable diseases among undergraduate students at a university in the Western Cape; to elucidate the perceived barriers to understanding non-communicable diseases among undergraduate students at a university in the Western Cape; to articulate the perceived self-efficacy regarding non-communicable diseases among undergraduate students at a university in the Western Cape; to expound upon the perceived susceptibility to non-communicable diseases among undergraduate students at a university in the Western Cape; and to explicate the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape.

The researcher distributed 302 questionnaires, of which 286 were deemed valid, resulting in a response rate of 95% (n=286). The data analysis was done using SPSS software version 28 and data are presented by means of descriptive statistics.

4.2 DEMOGRAPHIC DATA

The presentation of the data was arranged from the most significant number (proportion) to the least significant number (proportion), except for the questions that reported the number of days which were presented according to the number of days. The average age of the respondents was 22.44 (2.5) with the age range between 19 to 32 (Table 4.1).

Table 4.1: Age categories of respondents

Items	Responses	Percentages (%)	n =
Ages	18-21	38.5%	60
	22-25	52.6%	82
	26-29	4.5%	7
	30-33	4.5%	7

Most of the respondents 233 (81.51%) were female and only 18.49% (n=53) were male as illustrated in Figure 4.1 below.

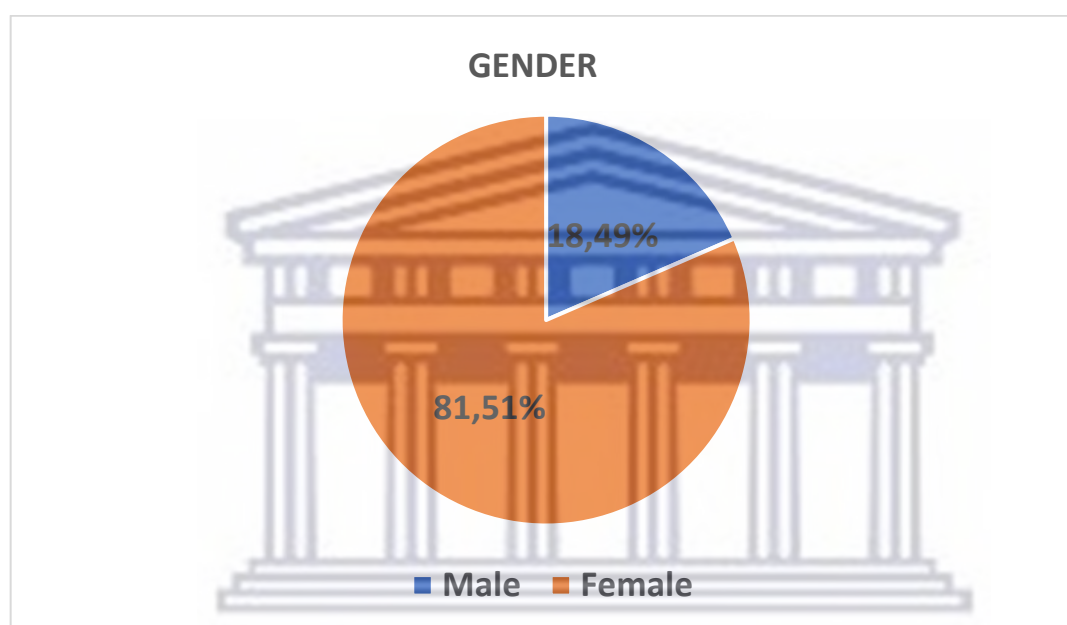


Figure 4.1: Gender

Based on the presented information in Figure 4.1, majority of the participants were female. However, it has to be noted that nursing still remains a female dominated profession as gender disparities persist in nursing education (Al-Momani, 2017). In South Africa, the 2019 statistics from SANC regarding the provincial distribution of nursing professionals indicated that merely 10.4% of practicing nurses were male, with male nursing students constituting 8% (www.sanc.co.za). In a study conducted in Slovenia, the proportion of female nurses with a bachelor's degree showed variation between 2010 and 2019, ranging from 93.83% in 2010 to 88.66% in 2019. During the same period, the percentage of male nurses with a bachelor's degree fluctuated from 6.17% in 2010 to 11.34% in 2019. The average representation of male

nurses employed as registered nurses (RNs), in this specific study, from 2010 to 2019 was 13.77% (National Institute of Public Health, 2020). A total of 92.70% (n=265) of the respondents were single, while less than one-tenth of the respondents, 7.3% (n=21) were married.

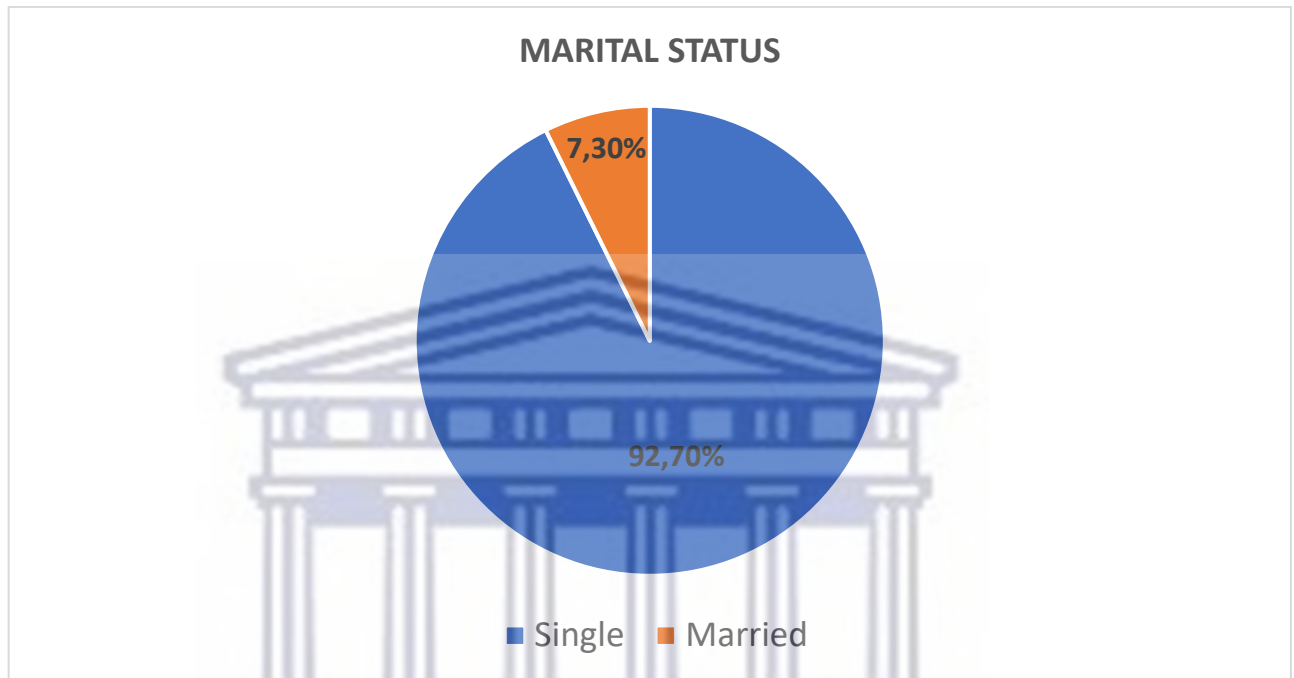


Figure 4.2: Marital status

More than 80% of the respondents, specifically 29.7% (n=85), resided on campus and had a corresponding income sufficient to afford healthy food. A majority of the respondents, constituting 57.3% (n=164), originated from urban areas, while approximately 10.5% (n=30) of the respondents' fathers were classified as non-government employees (Other), and 27.3% (n=78) of the fathers had attained a College/University qualification. About 13.3% (n=38) of the respondents had mothers who were unemployed but able to work, and a quarter of the respondents' mothers (24.5%, n=70) had completed Secondary School. The majority of the respondents, totalling 94.1% (n=269), had electricity as a household amenity, and slightly more than half of them (57.7%, n=165) had a playground in their community.

It has been identified that undergraduate nursing students face a variety of challenges throughout their academic journey. These challenges are frequently shaped by the intricate interplay of diverse contextual factors, including internal aspects, family dynamics, the school environment, and broader social, economic, and policy contexts (Jeffreys, 2015; Perna & Thomas, 2006). Challenges faced by students, including internal factors like the student's profile, academic components, psychological and emotional aspects, as well as family factors, such as family background and economic considerations, have been acknowledged as significant factors influencing the academic performance of nursing students (Mthimunye & Daniels, 2017; Mthimunye & Daniels, 2019a; Mthimunye & Daniels, 2019b).

In addition to the common life adjustments faced by students, involving adaptation to the absence of support from family, friends, and familiar surroundings, transitioning from high school, and reconciling with a chosen career path, the process of navigating these transitions can be psychologically demanding. These aspects mentioned may play a significant role in the realm of student mental health. The mental health and wellbeing of students are crucial aspects of public health, as highlighted by Barkham et al. (2019).

In measuring the biophysical statistics of the respondents, the mean height (cm) was 160.74 while the mean weight (kg) was 73.27. The mean waist circumference (cm) was 73.00 and the hip circumference (cm) 89.53. The mean pulse (per minute) was 77.48. The mean of the first systolic and diastolic blood pressure reading was 11.88 and 73.5, respectively. The mean of the second systolic and diastolic blood pressure reading was 120.4 and 73.94, respectively while the mean of the third systolic and diastolic blood pressure reading was 120.57 and 73.70, respectively.

Measuring the biophysical statistics of the respondents, with a mean height of 160.74 cm and a mean weight of 73.27 kg, provided valuable insights into the physical characteristics of the

study population. These statistics offered a quantitative overview of the average height and weight, serving as essential baseline data for understanding the biophysical profiles of the individuals involved in the study. The mean height and weight values contributed to a comprehensive depiction of the respondents' physical attributes, which could be further analysed and interpreted in the context of the broader research objectives. This information is crucial for establishing a foundation for exploring potential correlations between biophysical factors and other variables under investigation, such as knowledge, attitudes, and practices related to non-communicable diseases.

A significant proportion of respondents, comprising 40.6% (n=116), reported that their parents did not suffer from any non-communicable diseases. Over two-fifths of the respondents 44.1% (n=126) reported that their father, mother or family members had high blood pressure, 10.8% (n=31) battled with cancer, 30.8% (n=88) were diagnosed with diabetes, 8.0% (n=23) suffered a stroke (cerebrovascular accident (CVA)) and 8.4% experienced cardiovascular disease (Table 4.2).

Table 4.2: Disease profile of parents

Item	Responses	Percentages (%)	n =
Does your father, mother or family members have these diseases?	High blood pressure	44.1%	126
	No one	40.6%	116
	Diabetes	30.8%	88
	Cancer	10.8%	31
	Cardiovascular disease	8.4%	24
	Stroke	8.0%	23

An investigation by Ceylan and Turan (2023) into predictor factors influencing nursing students' attitudes towards parental participation in care reveals that nursing students maintain moderate attitudes regarding the involvement of parents in care provision. Socio-demographics are generally those characteristics, such as gender, age, ethnicity, education level, location,

among others. It is stated that researchers depend on socio-demographic questions to help them categorise their audience into different sub-groups (www.formpl.us). In this research, socio-demographic information was employed precisely for this purpose, to ascertain and comprehend students' practices regarding non-communicable diseases.

4.3 KNOWLEDGE RELATED TO NON-COMMUNICABLE DISEASES

Assessing the respondents' knowledge about non-communicable diseases, such as cardiovascular diseases, cervical cancer, and diabetes involved posing related questions. The majority of respondents, constituting 88.5% (n=253), indicated that they knew about heart disease. Concerning cardiovascular diseases, 76.6% (n=219) and 75.9% (n=217) of respondents identified excess weight and smoking, respectively, as conditions that could increase the likelihood of developing such diseases. Furthermore, 88.1% (n=252) of respondents claimed knowledge about stroke, with 80.4% (n=230) correctly associating the brain as the affected organ. Additionally, 76.6% (n=219) of respondents acknowledged that high blood pressure increases the risk of stroke. A significant portion of the respondents, accounting for 89.9% (n=257), expressed the belief that cardiovascular disease and stroke can be prevented. The vast majority of respondents, comprising 92.7% (n=265), stated that they have knowledge about diabetes, while 78.3% (n=224) reported awareness of its preventable nature. A significant percentage, 92.0% (n=263), indicated that changing dietary habits can reduce the risk of developing diabetes. Moreover, 66.8% (n=191) of respondents mentioned that a health worker has spoken to them about preventing diabetes (Table 4.3).

Table 4.3: Knowledge related to non-communicable disease

Statement	Responses	Frequency (%)	n =
Can non-communicable diseases spread between people?	Cannot spread	78.7%	225
	Can spread	12.6%	36
	I don't know	2.4%	7

How dangerous are non-communicable disease?	Very much dangerous	44.1%	126
	Quite dangerous	43.4%	124
	Not at all	5.6%	15
What do you know about the prevalence of non-communicable disease among South Africans?	These are common	78.0%	223
	I don't know	8.7%	25
	These are not common	4.2%	12

The impact of the level of knowledge on non-communicable diseases (NCDs) regarding its spread and prevalence among nursing students are substantial as reflected in Table 4.3. A high level of knowledge equips nursing students with the information needed to understand the causes, risk factors, and preventive measures associated with NCDs. This knowledge is crucial for effective patient care, health promotion, and disease prevention. Nursing students with a comprehensive understanding of NCDs are better positioned to educate patients, promote healthy lifestyles, and contribute to preventive healthcare measures. Additionally, a well-informed nursing workforce is essential for addressing the rising burden of NCDs globally and implementing strategies to manage and mitigate their impact on public health (Kamvura et al., 2022; Legesse et al., 2022; Shah, Jindal & Subramanyam, 2022). Non-communicable diseases (NCDs) are recognised as the foremost contributors to morbidity and mortality, presenting considerable challenges to global healthcare systems (Legesse et al., 2022). The findings in the aforementioned study align with the researcher's objective of assessing adequate knowledge of undergraduate nursing students related to NCDs and the factors associated with it.

Table 4.4: Knowledge of non-communicable disease (cardiovascular diseases and diabetes)

Statement	Responses	Frequency (%)	n =
How much do you know about heart disease?	I know about it	88.5%	253
	Nothing at all	1.7%	5
	Excess weight	76.6%	219
	Smoking	75.9%	217

Which of the following would increase someone's chances of getting cardiovascular diseases?	High blood pressure	75.5%	216
	Fatty food	73.8%	211
	Salty food	62.6%	179
	Old age	61.2%	175
How much do you know about 'Stroke'?	I know about it	88.1%	252
Which organ is affected by a stroke?	Brain	80.4%	230
Which of the following things you think would increase someone's chances of getting stroke?	High blood pressure	76.6%	219
	Stroke	58.7%	168
	Older age	53.8%	154
	Fatty food	47.9%	137
	Salty food	42.3%	121
Do you think we can prevent cardiovascular disease and stroke?	Yes	89.9%	257
How much do you know about "diabetes"?	I know about it	92.7%	265
Do you think diabetes is preventable?	Yes	78.3%	224
Can you think of things a person can do to reduce their chances of getting diabetes?	Changing dietary habit	92.0%	263
Has a health worker ever spoken to you about how you can prevent diabetes?	Yes	66.8%	191

Boateng et al. (2017) state that cardiovascular disease and diabetes stand out as leading causes of non-communicable disease (NCD) mortality in Sub-Saharan African countries. The current study findings align with this, indicating that 88.5% (n=253) of respondents are knowledgeable about heart disease. A high awareness level of 88.1% (n=252) is noted among respondents regarding 'Stroke', a common consequence of cardiovascular disease. Conversely, 76.6% (n=219) of participants recognise that high blood pressure elevates the risk of experiencing a stroke. Furthermore, a substantial 92.0% (n=263) of respondents believe that adopting healthier dietary habits can diminish the likelihood of developing diabetes. The noticeable enhancement in overall knowledge across all students, irrespective of gender, suggests that educational interventions focusing on these specific topics effectively elevate the awareness of health-promoting behaviours among university students, contributing to the prevention of non-communicable diseases (NCDs). Therefore, integrating health promotion education on NCDs

into university curricula becomes crucial, and employing innovative approaches are essential for fostering healthy behaviours among young adults (Almomani et al., 2020; Florence et al., 2023; Legesse et al., 2022).

4.4 PERCEIVED BARRIERS TO NON-COMMUNICABLE DISEASE (DIETARY HABITS)

In assessing perceived barriers to non-communicable diseases, a set of 24 questions focused on dietary habits. Approximately 38.5% (n=110) of the respondents reported consuming an adequate number of fruits daily, with a mean (standard deviation) of 3.92 (2.1) servings in 7 days and 2.92 (4.7) servings on a specific day. Around 49.3% (n=141) of the respondents emphasised the high importance of eating fruits every day. Regarding the benefits of daily fruit consumption, 68.5% (n=196) of the respondents stated that it contributes to good health, while 21.7% (n=62) mentioned its preventive role against non-communicable diseases. Reasons for not eating fruits every day included *'high price'* as identified by 38.1% (n=109) of the respondents and 14.3% (n=41) of respondents identified the limited availability of fruit having an impact on their daily consumption. Additionally, 42.0% (n=120) of the respondents expressed their intention to eat fruits daily moving forward. To increase fruit consumption, 71.7% (n=205) of the respondents recommended substituting fruits for unhealthy snacks, and 15.7% (n=45) suggested encouraging others to eat fruits. Parental encouragement for daily fruit consumption was reported by 46.5% (n=133) of the respondents, while 14.0% (n=40) mentioned encouragement from friends (Table 4.5).

Table 4.5: Perceived barriers to non-communicable diseases regarding fruit consumption

Statements	Responses	Frequency (%)	n =
How important it is for you to eat fruits every day?	Very much important	49.3%	141

What are the benefits of eating fruits every day?	It keeps good health	68.5%	196
What are the reasons of not eating fruits every day?	High price	38.1%	109
Will you eat fruits every day from now?	Yes	42.0%	120
How can you increase your fruit consumption?	Eat fruits instead of unhealthy snacks	71.7%	205
Did anyone tell you or encourage you to eat fruits every day?	Parents	46.5%	133
	Friends	14.0%	40

The mean days the respondent ate vegetables in 7 days were 4.16 (2.3) and for serving of vegetables on one of those days were 2.56 (2.2). Over two fifths of the respondents 42.7% (n=122) eat sufficient vegetables every day. In stating how important it is to eat vegetables every day, about three-quarters of the respondents 70.6% (n=202) reported '*Very much important*'.

On the benefit of eating vegetables, three-quarters of the respondents 74.5% (n=213) reported that 'It keeps good health' and about two-fifths 35.7% (n=102) reported that 'It prevents non-communicable disease'. In accessing the reasons of not eating vegetables every day, over half of the respondents 52.1% (n=149) reported '*High price*' while one-fifth of the respondents 11.2% (n=32) reported '*No one eats vegetables everyday around me*'. About half of the respondents 46.5% (n=133) reported that they '*will eat vegetables every day from now on*'.

On how to increase vegetables consumption, over half of the respondents 51.0% (n=146) reported they will '*Eat vegetables instead of unhealthy snacks*' while one-tenth 10.8% (n=31) reported they will '*tell others to eat vegetables*'. About three-fifths of the respondents 59.8% (n=171) reported that 'parents' encouraged them to eat vegetables every day while about one-tenth 10.8% (n=31) of respondents reported 'No one told me' (Table 4.6).

Table 4.6: Perceived barriers to non-communicable diseases regarding vegetable consumption

Statements	Responses	Frequency (%)	n =
How important it is to eat vegetables every day?	Very much important	70.6%	202
What are the benefits of eating vegetables every day?	It keeps good health)	74.5%	213
What are the reasons of not eating vegetables ever day	High price	52.1%	149
Will you eat vegetables every day from now on?	Yes	46.5%	133
How can you increase your vegetables consumption?	Eat fruits instead of unhealthy snacks	51.0%	146
Who encouraged you to eat vegetables every day?	Parents	59.8%	171

The average consumption of soft drinks in a typical week was 2.94, ranging from 1 to 7, and the mean energy consumption per week was 1.49. Approximately 46.2% of the respondents (n=132) expressed that it is *'Very much harmful'* to one's health to drink sugar-sweetened beverages every day, with a mean energy consumption per week of 1.49 and a range between 0 and 9. Regarding the addition of extra salt to food, 52.4% of the respondents (n=150) reported doing so *'Sometimes'*, while a majority of the respondents, 89.2% (n=255), stated that, in their opinion, taking extra salt during meals is *'Harmful for health'* (Table 4.7).

Table 4.7: Perceived barriers to non-communicable diseases regarding soft drinks

Statements	Responses	Frequency (%)	n =
How harmful is it for your health to drink sugar sweetened beverages every day?	Very much harmful	46.2%	132
Do you ever think about how much salt you should have in your diet every day?	Yes. I thought	64.7%	187
Do you add extra salt to your food?	Sometimes	52.4%	150
What is your opinion about taking extra salt during meal?	Harmful for health	89.2%)	255

Abraham et al. (2018) emphasise that insufficient nutrition can impact students' health and academic success. Despite having some knowledge of nutritional requirements, the transition to tertiary life, whether in college or university, provides students with more freedom to choose their food and determine portion sizes (Abraham et al., 2018). Regarding fruit consumption habits, 54.5% (n=157) of respondents affirmed that they eat fruits, with 68.5% (n=196) stating that consuming fruits daily contributes to good health. Furthermore, 71.7% (n=205) of respondents suggested that increasing fruit consumption involves choosing fruits over unhealthy snacks. Samples et al. (2017) highlight that numerous studies indicate most students have inadequate fruit and vegetable intake, predisposing them to conditions such as obesity, heart disease, and diabetes.

In a Kuwaiti study aimed at students, Alkazemi et al. (2021) explored the relationship between fruit and vegetable intake, gender, body weight, college affiliation, and family income. Gender differences were observed in fruit juice intake, with males consuming more servings per day than females. The study identified taste, inconvenience, and lack of knowledge as main barriers to consuming more fruits and vegetables. Therefore, campaigns targeting university students should focus on increasing awareness of intake recommendations, health benefits, and ways to incorporate fruits and vegetables into daily diets.

Regarding sugar-sweetened beverage consumption, which includes soft drinks, fruit drinks, and sports drinks, a global increase has been observed over the past decades (Deliens et al., 2015). Reviews within the study highlight that such beverage intake significantly contributes to weight gain and elevates the risk of type 2 diabetes and cardiovascular disease. Similarly, the consumption of energy drinks has risen notably over the years; however, in this study 46.2% of respondents believed that soft drinks are harmful (Alsunni, 2015; Deliens et al., 2015).

4.5 PERCEIVED BARRIERS TO NON-COMMUNICABLE DISEASE REGARDING PHYSICAL ACTIVITY

In accessing barriers to non-communicable disease, 15 questions were used to access the physical activity of the respondents. Over two-fifths of the respondents 21.3% (n=61) reported '3 days' of being physically active for a total of at least 60 minutes or more per day during the past 7 days, while a few respondents 3.8% (n=11) reported '6 days' of being physically active for a total of at least 60 minutes or more per day during the past 7 days. During the past 7 days, over half of the respondents 54.9% (n=157) did not you walk or ride a bicycle to or from school/university/coaching/shop/any other place. Over half of the respondents 54.9% (n=157) did not go for physical activity to the gym in a week during this year and about half of the respondents 48.3% (n=138) did not do exercise, such as push-ups. or weightlifting to strengthen or tone their muscles. During the past 7 days, 48.3% (n=138) of the respondents did not do muscle stretching exercises, such as touching toes while bending the waist or stretching legs (Table 4.8).

Table 4.8 Physical activity (During past 7 days)

Statements	Responses	Frequency (%)	n =
During the past 7 days, how many days were you physically active for a total of at least 60 minutes or more per day?	0 days	16.8%	48
	1 day	11.5%	33
	2 days	16.1%	46
	3 days	21.3%	61
During the past 7 days, how many days did you walk or ride a bicycle to or from school/university/coaching/shop/any other place?	0 day	54.9%	157
During this year, how many days per week did you go for physical activity to the gym?	0 day	54.9%	157
During the past 7 days. how many days did you do exercise to strengthen or tone your muscles such as push-ups. or weight lifting?	0 day	48.3%	138
	0 day	33.6%	96

During the past 7 days, how many days did you do muscle stretching exercises such as touching your toes while bending your waist or stretching your legs?			
	1 day	19.6%	56
Do you think that you do adequate physical activity every day?	Yes	30.1%	86
How important is it to you to do physical exercise every day?	Very much important	67.7%	165
What are the health benefits of doing physical activity every day?	It keeps body healthy	88.5%	253
In your opinion, how often should a person at your age do exercise to stay healthy?	2-4times per week	57.0%	163
What are the main reasons that you do not perform any physical activity every day?	Time constraint	73.1%	209
From now on will you do physical activity every day?	Yes	28.7%	82
What are the main reasons that you do not perform any physical activity every day?	Time constraint	73.1%	209
Did anyone tell you or encourage you to do physical activity every day?	No one told me	30.8%	88
	Parents	30.4%	87
	Health workers	29.7%	85
	Educators	21.3%	61
How much time do you usually spend sitting or reclining on a typical day? (e.g. watching television. doing computer work. playing video game. chatting with friends. sewing etc.)	3-4 hours a day	35.0%	100
How much time do you spend sleeping in a typical day? (Add night sleep and day nap time)	6 hours	21.0%	60
	7 hours	21.3%	61

Perceived barriers to physical activity among undergraduate nursing students can vary and may include factors such as time constraints, academic workload, lack of motivation, environmental factors, and personal health concerns. It is important to note that these barriers maybe context specific and can vary among individuals. Many nursing students face demanding academic schedules, making it challenging to find time for regular physical activity (Heneghan et al., 2018). Some students may struggle with motivation to engage in physical activity due to fatigue, stress, or competing priorities (Wolf et al., 2017). Environmental factors such as

limited access to recreational facilities, unsafe neighbourhoods, or unfavourable weather conditions can act as barriers to physical activity (Bauman et al., 2012). Personal health concerns or injuries may deter students from participating in physical activities, especially if they fear exacerbating existing health issues (Nelson et al., 2019). Peer pressure or lack of social support for physical activity within the academic community may influence students' perceptions and behaviours (Liang et al., 2018). The structure and demands of the nursing education programme may not prioritise or encourage physical activity, contributing to perceived barriers (Dacey et al., 2008).

It's important to recognise that these barriers are interconnected, and addressing them may require multifaceted interventions tailored to the specific needs of nursing students. If students understand the unique challenges they face, it can contribute to the development of effective strategies to promote physical activity and overall wellbeing. Approximately 30.1% (n=86) of respondents engage in adequate daily physical activity, while 67.7% (n=165) consider it *'Very important'* to exercise daily. Highlighting the benefits, 88.5% (n=253) note that regular physical activity *'Keeps the body healthy'* and 40.9% (n=117) believe it *'Prevents non-communicable diseases'*. Regarding the frequency recommended for their age, 57.0% (n=163) suggest *'2 - 4 times per week'*.

For those not engaging in daily physical activity, 73.1% (n=209) cite time constraints as the primary barrier. Looking ahead, 28.7% (n=82) express the intention to start regular physical activity. In terms of encouragement, 30.8% (n=88) state that *'No one told them'*, while 21.3% (n=61) credit educators for encouraging daily physical activity. Additionally, 35.0% (n=100) report spending a considerable amount of time sitting or reclining during a typical day, engaging in activities, such as watching television, computer work, playing video games, or

chatting with friends. Moreover, 21.3% (n=61) indicate spending 7 hours on sleep in a typical day (Table 4.9).

Table 4.9 Physical activity (Importance and reason)

Statements	Responses	Frequency (%)	n =
How important is it to you to do physical exercise every day?	Very much important	67.7%	165
What are the health benefits of doing physical activity every day?	It keeps body healthy	88.5%	253
In your opinion, how often should a person at your age do exercise to stay healthy?	2-4times per week	57.0%	163
What are the main reasons that you do not perform any physical activity every day?	Time constraint	73.1%	209
From now on will you do physical activity every day?	Yes	28.7%	82
What are the main reasons that you do not perform any physical activity every day?	Time constraint	73.1%	209
Did anyone tell you or encourage you to do physical activity every day?	No one told me	30.8%	88
	Parents	30.4%	87
	Health workers	29.7%	85
	Educators	21.3%	61
How much time do you usually spend sitting or reclining on a typical day? (e.g., watching television. doing computer work. playing video game. chatting with friends. sewing etc.)	3-4 hours a day	35.0%	100
How much time do you spend sleeping in a typical day? (Add night sleep and day nap time)	6 hours	21.0%	60
	7 hours	21.3%	61

In a recent study, Kljajevic et al. (2021) emphasised the direct impact of diet and physical activity on the health status of both adults and children. The study highlights that, given the significant proportion of the global population being physically inactive, this has become a major public health concern. The World Health Organisation recognises physical inactivity as a risk factor, comparable to smoking, obesity and hypertension (Kljajevic et al., 2021).

When examining the tables presented above regarding physical activity, it becomes evident that a considerable number of respondents are not engaging in regular physical activity. This trend poses a potential risk, contributing to a sedentary lifestyle. Notably, a significant portion of the student population is not actively encouraged to partake in physical activities. Nevertheless, it is acknowledged that respondents recognise the importance of engaging in physical activity for overall health.

4.6 PERCEIVED SELF-EFFICACY OF NON-COMMUNICABLE DISEASE RELATED TO WEIGHT

Concerning weight, a significant majority of respondents, accounting for 88.1% (n=252), have monitored their weight in the past six months. Of these, 55.6% (n=159) perceived themselves as having a normal weight, and 62.2% (n=178) deemed it 'Very much important' to maintain a normal body weight for overall health. Additionally, a vast majority, 93.4% (n=267), expressed knowledge about checking their blood pressure, with 92.3% (n=264) emphasising the importance of regular blood pressure monitoring. The majority, 96.9% (n=277), acknowledged that high blood pressure could lead to health problems. Moreover, 93.0% (n=266) recognised the impact of salt-rich foods on blood pressure, with 80.4% (n=230) advocating for dietary pattern changes as an effective preventive measure against high blood pressure (Table 4.10).

Table 4.10: Weight/Blood pressure

Statements	Responses	Frequency (%)	n =
Have you weighed yourself in the last 6 months?	Yes	88.1%	252
Regarding your body weight, what do you feel you are?	Normal weight	55.6%	159
How important it is for you to maintain normal body weight to stay healthy?	Very much important	62.2%	178
How much do you know about "blood pressure" ?	I know about it	93.4%	267

Do you think it is important to check blood pressure regularly?	Yes	92.3%	264
How would eating food with a lot of salt affect your blood pressure?	Raise blood pressure	93.0%	266
Does high blood pressure cause health problems?	Yes	96.9%	277
Which one is effective to prevent high blood pressure?	Change diet pattern	80.4%	230

According to Sitaula et al. (2022), the global burden of non-communicable diseases such as diabetes and hypertension are on the rise, encompassing both low-income and middle-income countries. In alignment with the focus of the present study, it is apt to emphasise that young individuals should acquire comprehensive knowledge of non-communicable diseases early in life. This awareness enables them to cultivate healthy lifestyles from an early age, effectively averting the development of non-communicable diseases in their formative years (Sitaula et al., 2022). The objectives of this study align with the researcher's aim to explore the knowledge, attitudes, and practices of students regarding non-communicable diseases.

4.7 PERCEIVED SUSCEPTIBILITY OF NON-COMMUNICABLE DISEASE RELATED TO ALCOHOL AND DRUGS

The impact of drug and alcohol consumption on the self-efficacy of undergraduate nursing students concerning non-communicable diseases was assessed through inquiries about their drinking habits and addictive drug use. Approximately half of the participants, comprising 48.6% (n=139), reported not having consumed any alcoholic beverages in the past 30 days. Furthermore, majority of respondents, totalling 61.2% (n=175), affirmed that they had never used any addictive drugs (Table 4.11).

Table 4.11: Alcohol and drugs

Statements	Responses	Frequency (%)	n =
During the past 30 days. on how many days did you have at least one drink containing alcohol?	0 day	48.6%	139
Have you ever taken addictive drugs?	No. I never take any addictive drugs	61.2%	175

In a study conducted by Guerrero-Agenjo et al. (2023) nursing students evaluated their alcohol consumption post the COVID-19 pandemic, examining whether their drinking habits could be categorised as hazardous or harmful. The findings indicate that approximately 10% of nursing students fall into the category of hazardous drinkers, with notable variations between genders. The study underscores the significance of excessive alcohol consumption as a major public health concern, potentially influencing the behaviour of university students. In a study examining alcohol use among high school learners in peri-urban areas of South Africa, it was identified that learners are susceptible to alcohol consumption and its adverse consequences. This susceptibility is primarily attributed to easy accessibility of alcohol products, particularly in localities characterised by poor socioeconomic status and inadequate infrastructure (Mathibe et al., 2022).

Acquiring alcohol was easy with students either being influenced by their peers or independently exploring alcohol consumption. However, engaging in alcohol use can result in various social harms, as indicated. It was emphasised that alcohol use and abuse have become a global lifestyle, particularly prevalent in Sub-Saharan Africa. The rise in substance use, including alcohol and tobacco, among young individuals is notable, particularly in South Africa, contributing to non-communicable diseases in later years. Data analysis conducted by the researcher reveals that 48.6% (n=139) of respondents abstained from drinking in the last

30 days. According to the World Health Organisation (2022), alcohol accounts for 5.1% of the global burden of disease and injury, measured in DALYs.

4.8 PERCEIVED SEVERITY OF NON-COMMUNICABLE DISEASE AND TOBACCO USE

In accessing the perceived severity of non-communicable disease, questions were asked on the practice of tobacco use. Over half of the respondents 59.4% (n=170) reported ‘I have never smoked cigarettes. Most of the respondents 82.5% (n=236) reported they did *‘Not smoke cigarettes during the past 30 days’*. Most of the respondents 81.8% (n=234) reported that they did *‘Not use any tobacco products other than cigarettes during the past 30 days’*. Over two-fifths of the respondents 45.1% (n=129) reported *‘I have never smoked cigarettes’*. During the last 30 days, the respondents reported trying to stop smoking between 0 and 11 times. Over three-tenths of the respondents 30.4% (n=87) have had people smoked in their presence during the last 7 days. Over three-fifths of the respondents 68.5% (n=196) neither had their parents or guardians use any form of tobacco products (Table 4.12).

Table 4.12: Tobacco use: smoking history

Statements	Responses	Frequency (%)	n =
How old were you when you first tried a cigarette?	I have never smoked cigarettes	59.4%	170
During the past 30 days. on how many days did you smoke cigarettes?	0 day	82.5%	236
During the past 30 days, on how many days did you use any tobacco products other than cigarettes such as cannabis?	0 day	81.8%	234
During the past 12 months have ever tried to stop smoking cigarette?	I have never smoked cigarettes	45.1%	129
During the past 7 days. on how many days have people smoked in your presence?	0 day	23.1%	66
	1 or 2 days	30.4%)	87
	3 or 4 days	19.6%	56

Which of your parents or guardians use any form of tobacco products? e.g. cigarettes. cannabis. etc.?	Neither	68.5%	196
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Majority of respondents, constituting 92.7% (n=265), expressed the belief that smoking 'Is harmful to health'. Additionally, a substantial percentage, 83.2% (n=238), affirmed that 'Any form of smoke is detrimental to health'. Moreover, 92.0% (n=263) of respondents considered smoking 'Very much harmful' to the lungs, 83.9% (n=240) to the heart, and 77.6% (n=222) to the brain. A significant proportion, 94.8% (n=271), acknowledged that smoking 'around others could adversely affect their health'. Concerning the allowance of smoking in their homes, 49.7% (n=142) responded negatively, stating '*I don't allow it*'. When considering the benefits of not smoking, 81.8% (n=243) of respondents identified '*Keeping good health*'. Regarding reasons for smoking, 49.7% (n=142) attributed it to being '*With friends*' or experiencing '*Peer pressure*'. Conversely, 52.1% (n=149) reported that their parents encouraged them not to smoke (Table 4.13).

Table 4.13: Tobacco use and effect on health

Statements	Responses	Frequency (%)	n =
Do you think smoking is harmful for health?	Yes	92.7%	265
How much do you have to smoke for it to be harmful to your health?	Any smoke harms health	83.2%	238
How harmful is smoking for your lungs?	Very much harmful	92.0%	263
How harmful is smoking for your heart?	Very much harmful	83.9%	240
How harmful is smoking for your brain?	Very much harmful	77.6%	222
Do you think smoking around others could affect their health?	Yes	94.8%	271
Do you mind if people smoke in your home?	I don't allow it	49.7%	142
What will be the benefit of not smoking?	Keep good health	81.8%	243
In your opinion why does one at your age smoke?	With friend's/Peer pressure	49.7%	142

Did anyone tell you or encourage you not to do smoking?	Parents	52.1%	149
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Smoking has been identified as a significant risk factor for various non-communicable diseases (NCDs), and its impact on the health of undergraduate students is a matter of concern. Research consistently demonstrates the detrimental effects of smoking on both physical and mental health, contributing to the development and exacerbation of NCDs. Smoking is a well-established risk factor for cardiovascular diseases, including coronary heart disease and stroke (WHO, 2018). The harmful chemicals in tobacco smoke can lead to the narrowing of blood vessels, increased blood pressure, and the formation of blood clots, all of which contribute to cardiovascular issues (Centre for Disease Control and Prevention [CDC], 2021).

Smoking is a major cause of respiratory diseases such as chronic obstructive pulmonary disease (COPD) and lung cancer. Students who smoke may experience impaired lung function, chronic bronchitis, and an increased risk of respiratory infections (CDC, 2021). Tobacco use, including smoking, is a leading cause of various cancers, including cancer of the lungs, mouth, throat, oesophagus, pancreas, bladder and cervix (American Cancer Society, 2022). Students who smoke are at a higher risk of developing these cancers later in life. Smoking has been associated with mental health issues, including anxiety and depression (Taylor et al., 2014). Students, who are already susceptible to stress, may find that smoking exacerbates mental health challenges. Nicotine, a highly addictive substance in tobacco, can lead to dependence and addiction. Students who start smoking may face difficulties quitting; further perpetuating the health risks associated with tobacco use (National Institute on Drug Abuse, 2020). It's crucial to note that the impact of smoking on undergraduate students can extend beyond their student years, influencing their long-term health outcomes. Encouraging smoking cessation and implementing tobacco control measures on university campuses are essential steps in promoting the overall wellbeing of students.

4.9 SUMMARY

This chapter presented the study's results and engaged in a discussion of the findings. The outcomes suggest that undergraduate nursing students generally possess sufficient knowledge and maintain a responsible attitude when it comes to adopting healthy practices related to non-communicable diseases. Additionally, the results indicate that respondents comprehend the significance of knowledge of, attitudes towards, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape. Chapter 5 will delve into recommendations, identified limitations, and conclude the study.



CHAPTER 5

SUMMARY, RECOMMENDATIONS, LIMITATIONS AND CONCLUSION

5.1 INTRODUCTION

In this chapter, a summary of the study's findings, as detailed in Chapter 4, will be provided. Recommendations will be suggested for improving knowledge of, attitudes toward, and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape. The researcher will thoroughly examine the study's limitations in this section, formulate conclusions and provide recommendations based on the identified findings.

5.2 SUMMARY OF THE STUDY

The findings of this study shed light on the critical issues surrounding knowledge of nursing students in relation to non-communicable diseases, such as awareness of blood pressure, cardiovascular diseases, cervical cancer, diabetes, impact of alcohol consumption and drugs, and weight management. Moreover, the study revealed a commendable level of knowledge and awareness regarding blood pressure monitoring. The majority of respondents recognised the potential health implications of high blood pressure, further demonstrating an understanding of preventive measures, particularly through dietary pattern modifications. This awareness aligns with the global burden of non-communicable diseases, emphasising the need for early education and lifestyle interventions to curb the rising prevalence of conditions like diabetes and hypertension. A substantial majority of respondents demonstrated a heightened awareness of their weight, with more than half perceiving themselves as having a normal weight. The significant emphasis on maintaining a normal body weight reflects the students' commitment to overall health, suggesting a positive inclination towards healthy lifestyle choices.

The aim of this study was to investigate and describe the knowledge of, attitudes towards, and practices regarding non-communicable diseases amongst undergraduate students at a

university in the Western Cape. To achieve this, the study employed the Health Belief Model (HBM), a widely acknowledged framework in health behaviour research. Selected as the guiding tool for its applicability, the HBM has been instrumental in directing interventions associated with the initiation and sustenance of health-related behaviours. In the context of this research, it provided the essential groundwork for investigating the knowledge, attitudes, and practices of undergraduate nursing students in relation to non-communicable diseases, as corroborated by previous studies (Fitzpatrick & Kazer, 2011; Wang et al., 2021; Champion & Skinner, 2008).

5.3 OBJECTIVE: KNOWLEDGE

5.3.1 To describe the perceived benefits of knowledge on non-communicable diseases among undergraduate students at a university in the Western Cape.

The study assessed the respondents' knowledge regarding non-communicable diseases (NCDs), including cardiovascular diseases, cervical cancer and diabetes. The majority of respondents exhibited substantial awareness, with 88.5% acknowledging heart disease and 92.7% expressing knowledge about diabetes. Specific details on cardiovascular diseases revealed that 76.6% identified excess weight and 75.9% recognised smoking as potential risk factors. Furthermore, 88.1% demonstrated awareness of stroke, correctly linking it to the brain (80.4%). A significant proportion (76.6%) acknowledged the association between high blood pressure and stroke risk. Most respondents (89.9%) believed that cardiovascular diseases and stroke are preventable.

The impact of knowledge on NCDs among nursing students is significant, influencing their ability to comprehend causes, risk factors, and preventive measures. This knowledge is deemed vital for effective patient care, health promotion, and disease prevention. Well-informed nursing students can contribute to educating patients, promoting healthy lifestyles, and

participating in preventive healthcare. The study aligns with global recognition of NCDs as major contributors to morbidity and mortality. Boateng et al. (2017) identified cardiovascular disease and diabetes as leading causes of NCD mortality in Sub-Saharan Africa, which is corroborated by the current study's findings.

The improvement in knowledge among all students, regardless of gender, underscores the effectiveness of educational interventions. These interventions, focusing on health promoting behaviours, play a crucial role in preventing NCDs. Integrating health promotion education on NCDs into university curricula becomes essential, and innovative approaches are recommended for fostering healthy behaviours among young adults (Almomani et al., 2020; Florence et al., 2023; Legesse et al., 2022).

5.4 OBJECTIVE: ATTITUDES

5.4.1 To describe the perceived barriers of non-communicable diseases among undergraduate students at a university in the Western Cape.

The study assessed various aspects related to non-communicable diseases (NCDs), focusing on dietary habits, physical activity, and perceived barriers among undergraduate nursing students. In terms of dietary habits, respondents demonstrated varying levels of fruit and vegetable consumption. While a substantial percentage recognised the importance of these foods for good health and disease prevention, barriers such as high prices and limited availability were identified. Concerning sweetened beverages, a considerable number of respondents acknowledged their harmful effects. The study highlighted the need for awareness campaigns targeting college/university students to promote healthier dietary choices.

In evaluating physical activity, a significant portion of respondents reported challenges, including time constraints, lack of motivation, and environmental factors. The study emphasised the interconnected nature of these barriers and the importance of multifaceted

interventions tailored to the unique needs of nursing students. A notable proportion of respondents did not engage in adequate daily physical activity, with time constraints identified as a primary barrier. While many recognised the importance of exercise, various factors, including academic demands and personal health concerns, contributed to their perceived barriers.

Overall, the findings underscored the need for targeted interventions to enhance knowledge, promote healthier dietary habits, and overcome barriers to physical activity among nursing students. Recognising the interconnected nature of these factors is crucial for developing effective strategies to improve overall wellbeing.

5.4.2 To describe the perceived self-efficacy of non-communicable diseases among undergraduate students at a university in the Western Cape.

The study investigated the impact of drug and alcohol consumption on the self-efficacy of undergraduate nursing students regarding non-communicable diseases (NCDs). The assessment included inquiries about drinking habits and addictive drug use. Approximately 48.6% of participants reported abstaining from alcoholic beverages in the past 30 days, while 61.2% affirmed never using addictive drugs. Guerrero-Agenjo et al. (2023) conducted a study on nursing students post COVID-19, revealing that approximately 10% were hazardous drinkers, with notable gender differences. Excessive alcohol consumption was highlighted as a significant public health concern, potentially influencing university students' behaviour.

Regarding weight management, majority of respondents monitored their weight, with 55.6% perceiving themselves as having a normal weight. Recognising the importance of maintaining normal body weight, 93.4% expressed knowledge about checking blood pressure, with 92.3% emphasising the importance of regular monitoring. The majority acknowledged the health risks associated with high blood pressure, recognised the impact of salt-rich foods and advocated for

dietary pattern changes. Sitaula et al. (2022) emphasised the increasing global burden of NCDs like diabetes and hypertension, particularly affecting young individuals. The study aligns with the current aim of the research to explore students' knowledge, attitudes, and practices concerning NCDs.

5.4.3 To describe the perceived susceptibility of non-communicable diseases among undergraduate students at a university in the Western Cape.

The survey results indicate a strong awareness of the harmful effects of smoking among the respondents. A significant majority (92.7%) acknowledged that smoking is detrimental to health. Moreover, 83.2% believed that any form of smoke poses a threat to health. Concerning specific health impacts, 92.0% recognised smoking as being 'very much harmful' to the lungs, and 83.9% to the heart, and 77.6% to the brain. Additionally, a high percentage (94.8%) of respondents acknowledged that smoking around others could negatively affect their health. Regarding personal behaviour, about half of the respondents (49.7%) expressed a strict stance against smoking in their homes. The survey also shed light on attitudes toward smoking cessation, with 81.8% recognising 'keeping good health' as a significant benefit of not smoking. On the other hand, peer pressure and social influences were identified as factors contributing to smoking habits, with 49.7% attributing their smoking to being 'with friends' or succumbing to 'peer pressure'. However, a positive influence from parents was evident, as over half of the respondents (52.1%) reported that their 'parents encouraged them not to smoke'. In a study on high school learners in peri-urban areas of South Africa (Mathibe et al., 2022), susceptibility to alcohol consumption and its adverse effects were identified. The easy accessibility of alcohol products, especially in areas with poor socioeconomic conditions, contributed to substance use among young individuals. The study highlighted the global prevalence of alcohol use, particularly in Sub-Saharan Africa, linking it to the rise of non-communicable diseases. Data analysis of the current study revealed that 48.6% of student respondents 'abstained from

drinking in the last 30 days’, aligning with the World Health Organisation's recognition of alcohol's substantial contribution to the global burden of disease.

5.5 OBJECTIVE: PRACTICE

5.5.1 To describe the perceived severity of non-communicable diseases among undergraduate students at a university in the Western Cape.

The study assessed the perceived severity of non-communicable diseases (NCDs) by examining tobacco use practices among respondents. A significant portion (82.5%) reported ‘not smoking cigarettes in the past 30 days’, and 81.8% ‘did not use any tobacco products other than cigarettes’ during the same period. Over 92% believed that ‘smoking is harmful to health’, with a substantial percentage acknowledging the ‘harm of any form of smoke’. Most respondents considered smoking ‘very harmful to the lungs, heart, and brain’.

The study delved into various aspects of smoking behaviour, and determined that respondents tried to ‘stop smoking between 0 and 11 times in the last 30 days’. About 30.4% had ‘people smoking in their presence during the last 7 days’. Majority (68.5%) reported that ‘neither their parents nor guardians used any form of tobacco products’. Respondents recognised the adverse health effects of smoking on the lungs, heart, and brain, with 94.8% acknowledging the ‘negative impact of smoking around others’. When it came to the home environment, 49.7% stated that they ‘don't allow smoking’. Notably, 81.8% identified ‘keeping good health’ as a benefit of not smoking. ‘Peer pressure’ or ‘being with friends’ were reported reasons for smoking by 49.7%, while 52.1% mentioned that their ‘parents encouraged them not to smoke’. The study contextualised these findings by highlighting smoking as a significant risk factor for NCDs, including cardiovascular diseases, respiratory issues, and various cancers. It emphasised the association between smoking and mental health problems, underlining the

importance of promoting smoking cessation and implementing tobacco control measures on university campuses to enhance overall student wellbeing.

5.6 RECOMMENDATIONS

The Health Belief Model is explained through its application in the investigation of the knowledge of, attitudes toward and practices regarding non-communicable diseases among undergraduate students at a university in the Western Cape.

5.6.1 Recommendations for Education and Practices

Objective: Knowledge

Curriculum Enhancement: Integrate comprehensive education on non-communicable diseases (NCDs), including cardiovascular diseases, cervical cancer, and diabetes, into university curricula to ensure all students, irrespective of gender, receive essential knowledge.

Innovative Approaches: Implement innovative teaching methods and approaches to enhance health-promoting behaviours, emphasising the role of well-informed nursing students in patient care, health promotion, and disease prevention.

Global Perspective: Align educational interventions with global recognition of NCDs as significant contributors to morbidity and mortality, with a focus on leading causes, such as cardiovascular disease and diabetes in Sub-Saharan Africa.

Objective: Attitude

Dietary Awareness Campaigns: Develop and implement awareness campaigns targeting university students to promote healthier dietary habits, addressing barriers such as high prices and limited availability of nutritious foods.

Physical Activity Interventions: Tailor multifaceted interventions to overcome barriers to physical activity among nursing students, recognising the interconnected nature of challenges like time constraints, lack of motivation, and environmental factors.

Holistic Wellbeing: Emphasise the importance of recognising the interconnected nature of factors influencing attitudes toward NCDs, fostering a holistic approach to improve overall wellbeing.

Objective: Practice

Tobacco Control Measures: Implement and strengthen tobacco control measures on university campuses, considering the perceived severity of smoking and the negative impact on physical and mental health.

Support for Smoking Cessation: Provide resources and support for smoking cessation, considering the reported attempts to quit smoking and the acknowledgment of the harmful effects of smoking on various organs.

Alcohol Awareness Programmes: Develop awareness programmes addressing the susceptibility to alcohol consumption, especially in areas with poor socioeconomic conditions, and highlight the global prevalence of alcohol use and its association with NCDs.

Integration of Preventive Measures: Encourage the integration of preventive measures, such as regular monitoring of weight and blood pressure, into daily practices, emphasising their role in averting the development of NCDs.

These recommendations aim to address the identified gaps and contribute to fostering a healthier lifestyle and improved wellbeing among undergraduate nursing students.

5.6.2 Recommendations for research

Longitudinal studies to assess the retention of knowledge over time and to explore the long-term impact of educational interventions on the understanding of non-communicable diseases (NCDs) among nursing students. An investigation could be conducted into the influence of cultural and demographic factors on knowledge acquisition, ensuring a comprehensive understanding of how diverse student populations respond to educational interventions. Since

this was a quantitative study, a qualitative research study could be done to gain in-depth insights into the specific challenges faced by nursing students in adopting healthy attitudes toward NCDs, providing a nuanced understanding of their perspectives. Finally, to possibly investigate variations in health practices related to NCDs across different cultural backgrounds, providing insights into the cultural determinants that influence practices among undergraduate students.

5.7 LIMITATIONS

This research exclusively utilised quantitative data, potentially restricting respondents who may have preferred to provide detailed responses rather than answering closed-ended questions. This limitation could have constrained the range of responses and impacted the study's outcomes. Additionally, data collection was confined to students associated with a nursing school at a university in the Western Cape.

5.8 SUMMARY

In conclusion, this comprehensive study aimed to achieve a multifaceted understanding of undergraduate nursing students' knowledge, attitudes, and practices regarding non-communicable diseases (NCDs) at a university in the Western Cape. The objectives focused on knowledge, attitudes, and practice aspects, shedding light on various dimensions of NCD-related awareness among the student population. The findings related to knowledge revealed a commendable level of awareness among respondents, with significant percentages recognising key NCDs, such as cardiovascular diseases, diabetes, and stroke. The study highlighted the instrumental role of knowledge in shaping nursing students' perspectives on causes, risk factors, and preventive measures associated with NCDs. This awareness, crucial for effective patient care, health promotion, and disease prevention, was found to be positively impacted by educational interventions.

Examining attitudes, the study addressed perceived barriers to adopting healthy behaviours, including dietary habits, physical activity, and substance use. Barriers, such as high prices and limited availability of healthy foods were identified, emphasising the need for targeted interventions to promote healthier dietary choices. Additionally, the study explored the impact of drug and alcohol consumption on self-efficacy, emphasising the public health concern of excessive alcohol consumption among nursing students. The practice-oriented objectives delved into the perceived severity of NCDs, particularly through an examination of tobacco use practices. The study revealed a substantial proportion of respondents abstaining from smoking and recognising the harmful effects of tobacco use, aligning with global efforts to curb smoking-related health issues.

In summary, the study provided valuable insights into the complex interplay of knowledge, attitudes, and practices among nursing students concerning NCDs. The identified areas of strength and potential challenges underscored the importance of tailored interventions, encompassing education, lifestyle modification, and substance use prevention, to enhance the overall wellbeing of undergraduate nursing students

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ANNEXURE A: ETHICS APPROVAL



UNIVERSITY of the
WESTERN CAPE



29 April 2022

Miss B Smith
School of Nursing
Faculty of Community and Health Sciences

HSSREC Reference Number: HS22/4/1

Project Title: Knowledge, attitudes and practices of non-communicable diseases among undergraduate students at a University of the Western Cape.

Approval Period: 29 April 2022 – 29 April 2025

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology, and amendments to the ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report by 30 November each year for the duration of the project.

For permission to conduct research using student and/or staff data or to distribute research surveys/questionnaires please apply via:

<https://sites.google.com/uwc.ac.za/permissionresearch/home>

The permission letter must then be submitted to HSSREC for record keeping purposes.

The Committee must be informed of any serious adverse events and/or termination of the study.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

NHREC Registration Number: HSSREC-130416-049

Director: Research Development
University of the Western Cape
Private Bag X 17
Bellville 7535
Republic of South Africa
Tel: +27 21 959 4111
Email: research-ethics@uwc.ac.za

FROM HOPE TO ACTION THROUGH KNOWLEDGE.

ANNEXURE B: PERMISSION TO CONDUCT RESEARCH: REGISTRAR



**UNIVERSITY OF THE WESTERN CAPE
PERMISSION TO CONDUCT RESEARCH**

DEAR **Patricia Smith**

This serves as acknowledgement that you have obtained and presented the necessary ethical clearance and your institutional permission required to proceed with the project referenced below:

RESEARCH TOPIC

Knowledge of, attitude towards and practices regarding non-communicable diseases among undergraduate students at a University of the Western Cape

Name of researcher : Patricia Smith
Permission valid till : 29 April 2025
Institution : University of the Western Cape
Ethics reference : HS22/4/1
Permission reference : UWCRP942844

You are required to engage this office (researchperm@uwc.ac.za) in advance if there is a need to continue with research outside of the stipulated period. The manner in which you conduct your research must be guided by the conditions set out in the annexed agreement. Conditions to guide research conducted at the University of the Western Cape.

Please be at liberty to contact this office should you require any assistance to conduct your research or require access to either staff or student contact information.

Regards
Dr Ahmed Shaikjee
Deputy Registrar Academic Administration

.....
Approval status: **APPROVED** 12 May 2022

To verify or confirm the authenticity of this document please contact the University at researchperm@uwc.ac.za.



UNIVERSITY OF THE WESTERN CAPE
Robert Sobukwe Road, Bellville, 7535, Republic of South Africa

**ANNEXURE C: PERMISSION TO CONDUCT RESEARCH: SCHOOL OF NURSING:
HEAD OF DEPARTMENT**



18 May 2022

RE: REQUEST FOR PERMISSION TO CONDUCT RESEARCH AT THE SCHOOL OF NURSING, UNIVERSITY of the WESTERN CAPE

Name of Researcher: Ms Patricia Smith

Research Topic: *Knowledge of, attitude towards and practices regarding non-communicable diseases among undergraduate students at a University of the Western Cape.*

Institution: UWC

Health Research Ethics Committee - Ethics Clearance Reference No.: HS22/4/1

UWC Permission Reference Code: UWC RP942844

Target population: B Nursing, 2nd, 3rd and 4th year students

Ethics Validity Period: 29 April 2022 – 29 April 2025

As per your request and evidence provided, we acknowledge that you have obtained the necessary permission and ethics clearance. Permission is therefore granted for you to conduct your research as outlined in your proposal.

Please note that while permission is granted to conduct your research (i.e. interviews and surveys) staff and students at the School of Nursing are not compelled to participate and may decline to participate or withdraw should they wish to.

Should you wish to make use of or reference the School's name, spaces, identity, etc. in any publication/s, you must first furnish the School with a copy of the proposed publication/s so that the School can verify and grant permission for such publication/s to be made publicly available.

As per your letter of permission to conduct research at the UWC from Dr Ahmed Shaikjee, Deputy Registrar, assistance to access student contact information, must be done through the office of the Deputy Registrar or be facilitated by your supervisor.

We wish you success with your research.

Yours sincerely

Prof Penelope Martin
Director: School of Nursing
Faculty of Community and Health Sciences
UNIVERSITY of the WESTERN CAPE
T: 021 959 9345
E: pmartin@uwc.ac.za

ANNEXURE D: INFORMATION SHEET



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9592819, Fax: 27 21-9593515

Project Title: Knowledge of, attitude towards and practices regarding non-communicable diseases among undergraduate students at a university of the Western Cape.

What is this study about?

This is a research project being conducted by Ms. Patricia Smith at the University of the Western Cape. The purpose of this research project is to investigate knowledge, attitudes and practices of non-communicable diseases among undergraduate students at a School of Nursing at a university of the Western Cape

What will I be asked to do if I agree to participate?

As a nursing student, you will be asked to participate in completing a questionnaire to share your knowledge, attitudes and practices of non-communicable diseases as an undergraduate student at a School of Nursing at a university of the Western Cape. The questionnaire should take approximately 20 - 30 minutes to complete.

Would my participation in this study be kept confidential?

The researchers undertake to protect your identity and the nature of your contribution. The information will not be available to any person, other than the researcher, research supervisor and statistician. Identification codes will be used instead of names on any of the data forms. All computer files related to this research project will be password-protected on the computer of the researcher. The questionnaire will be anonymous and will not contain any information that will personally identify you.

What are the risks of this research?

All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Where necessary, an appropriate referral will be made to a suitable professional for further assistance or intervention.

What are the benefits of this research?

The research is not designed to personally benefit the researcher, but to inform guidelines for providing information related to the knowledge, attitudes and practices of non-communicable diseases among undergraduate students at a university of the Western Cape.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalised or lose any benefits to which you otherwise qualify. Participation in the research is not a course requirement nor does it affect your progress.

What if I have questions?

This research is being conducted by Ms. Patricia Smith in the School of Nursing at a university in the Western Cape. If you have any questions about the research study itself, please contact: Researcher: Ms. Patricia Smith, Student number: 9332488, University of the Western Cape; Private Bag X17, Bellville 7535, Cell: 0793195885 Email: 9332488@myuwc.ac.za

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact: Research Supervisor: Dr Juliana Willemse, University of the Western Cape, Private Bag X17, Bellville 7535, Telephone: +27 21-959 2258, Email: jjwillemse@uwc.ac.za.

Head of School of Nursing, Professor P. Martin, University of the Western Cape, Private Bag X17, Bellville 7535, Telephone: +27 21-959 2271, Email: pmartin@uwc.ac.za.

Dean of the Faculty of Community and Health Sciences, Professor A. Rhoda, University of the Western Cape, Private Bag X17, Bellville 7535, Email: arhoda@uwc.ac.za

This research has been approved by the University of the Western Cape's Humanities and Social Sciences Research Ethics Committee.

Humanities and Social Sciences Research Ethics Committee

University of the Western Cape

Private Bag X17

Bellville

7535

Tel: 021 959 4111

E-mail: research-ethics@uwc.ac.za

Ethics number: HS22/4/1



ANNEXURE E: INFORMED CONSENT FORM



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9592819, Fax: 27 21-9593515

Title of Research Project: Knowledge of, attitude towards and practices regarding non-communicable diseases among undergraduate students at a university of the Western Cape.

- The study has been described to me in language that I understand.
- questions about the study have been answered.
- understand what my participation will involve.
- free to participate of my own choice and free will.
- understand that my identity will not be disclosed to anyone.
- understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits.

Participant's name

Participant's signature.....

Date.....

ANNEXURE F: QUESTIONNAIRE



UNIVERSITY OF THE WESTERN CAPE

Private Bag X 17, Bellville 7535, South Africa

Tel: +27 21-9592819, Fax: 27 21-9593515

Title of Research Project: Knowledge of, attitude towards and practices regarding non-communicable diseases among undergraduate students at a university of the Western Cape.

1. General Knowledge and Attitudes related to Non- Communicable Diseases

	Question	Response	Answer code
1	Can non-communicable diseases spread between people?	Cannot spread Can spread I don't know	1 2 3
2	How dangerous are non-communicable diseases?	Ver much dangerous Quite dangerous Not at all	3 2 1
3	What do you know about the prevalence of non-communicable diseases among South Africans?	These are common These are not common I don't know	1 2 3

Non-communicable diseases are a group of diseases that include heart disease, diabetes, hypertension, chronic respiratory diseases, cancers etc.

2. Knowledge, Attitudes and Practices on NCD Behavioural Risk Factors (RF)

Dietary habit			
4	How many days do you eat fruits in last 7 days? (e.g. banana, mango, apple, orange, pineapple, etc.)	<input type="text"/> days	NOT APPLICABLE
5	How many servings of fruit do you eat on one of those days?	<input type="text"/> <input type="text"/> Servings	NOT APPLICABLE
6	Do you think you eat adequate amount of fruits every day?	Yes No I don't know	1 2 3
7	How important it is to you to eat fruits every day?	Very much important Quite important Not at all	3 2 1

8	What are the benefits of eating fruits every day? (Multiple answers acceptable)	It keeps good health It prevents NCD It prevents constipation It fulfils nutritional need Others (Please mention)	1 2 3 4
9	What are the reasons of not eating fruits every day? (Multiple answers acceptable)	High price Not so available Fruits are not accessible at home everyday No one eats fruit everyday around me Others (Please mention)	1 2 3 4
10	Will you eat fruits every day from now?	Yes No Not sure	1 2 3
11	How can you increase your fruits consumption? (Multiple answers acceptable)	Ask parents to buy fruits everyday Eat fruits instead of unhealthy snacks Eat fruits in every meal Tell others to eat fruits Others (Please mention)	1 2 3 4
12	Did anyone tell you or encourage you to eat fruits every day? Who?	Parents Teachers Friends Health workers No one told me Others (Please mention)	1 2 3 4 5
13	How many days do you eat vegetables in last 7 days? e.g. Green and coloured leafy vegetables, papaya, tomato, cauliflower, cabbage, beans, brinjal, ladies' finger, cucumber, etc. (Not potato, rice or other cereals)	<input type="text"/> days	NOT APPLICABLE
14	How many servings of vegetables do you eat on one of those days?	<input type="text"/> <input type="text"/> Servings	NOT APPLICABLE
15	Do you think you eat adequate amount of vegetables every day?	Yes No I don't know	1 2 3
16	How important it is to eat vegetables every day?	Very much important Quite important Not at all	3 2 1

17	What are the benefits of eating vegetables every day? (Multiple answers acceptable)	It keeps good health It prevents non-communicable disease It prevents constipation It fulfils nutritional need Others (Please mention)	1 2 3 4
18	What are the reasons for not eating vegetables every day? (Multiple answers acceptable)	High price Not so available Fruits are not accessible at home everyday No one eats fruit everyday around me Others (Please mention)	1 2 3 4
19	Will you eat vegetables every day from now on?	Yes No Not sure	1 2 3
20	How can you increase your vegetables consumption? (Multiple answers acceptable)	Ask parents to buy fruits everyday Eat fruits instead of unhealthy snacks Eat fruits in every meal Tell others to eat fruits Others (Please mention)	1 2 3 4
21	Who encouraged you to eat vegetables every day?	Parents Teachers Friends Health workers No one told me Others (Please mention)	1 2 3 4 5
22	How many days do you consume soft drinks in a typical week? (e.g. Pepsi, coca cola, sprite, 7-up, Fanta, Mirinda, etc.)	days <input type="text"/>	NOT APPLICABLE
23	How harmful is it for your health to drink sugar sweetened beverages every day?	Very much harmful Quite harmful Not at all harmful	3 2 1
24	On how many days per week do you consume energy? (e.g. Red Bull, Energade, Score, etc.)	days <input type="text"/>	NOT APPLICABLE
25	Do you ever think about how much salt you should have in your diet every day?	Yes, I thought No, I never thought	1 2

26	Do you add extra salt to your food?	Always Sometimes Never	1 2 3
27	What is your opinion about taking extra salt during meal?	Harmful for health Good for health Not related to health	1 2 3
Physical activity			
28	During the past 7 days, how many days were you physically active for a total of at least 60 minutes or more per day? ADD UP ALL THE TIME YOU SPENT IN ANY KIND OF PHYSICAL ACTIVITY EACH DAY. (Physical activity means exercise, walking, running, playing on a field, swimming, cycling, etc.)	0 days 1 day 2 days 3 days 4 days 5 days 6 days 7 days	1 2 3 4 5 6 7 8
29	During the past 7 days, how many days did you walk or ride a bicycle to or from school/university/ coaching/ shop/ any other place?	0 days 1 day 2 days 3 days 4 days 5 days 6 days 7 days	1 2 3 4 5 6 7 8
30	During this year, how many days per week did you go for physical activity to the gym?	0 days 1 day 2 days 3 days 4 days 5 or more days	1 2 3 4 5 6
31	During the past 7 days, how many days did you do exercise to strengthen or tone your muscles, such as push-ups, sit-ups, or weight lifting?	0 days 1 day 2 days 3 days 4 days 5 days 6 days	1 2 3 4 5 6 7

		7 days	8
32	During the past 7 days, how many days did you do muscle stretching exercises such as touching your toes while bending your waist or stretching your legs?	0 days 1 day 2 days 3 days 4 days 5 days 6 days 7 days	1 2 3 4 5 6 7 8
33	Do you think that you do adequate physical activity every day?	Yes No Don't know	1 2 3
34	How important it is to you to do physical exercise every day?	Very much important Quite important Not at all	3 2 1
35	What are the health benefits of doing physical activity every day? (Multiple answer accepted)	It keeps body healthy Prevents non-communicable disease Increases brain efficacy Reduces chance of heart disease Reduces chance of diabetes Increases working capacity Others (Please specify)	1 2 3 4 5 6
36	In your opinion, how often should a person at your age do exercise to stay healthy?	Monthly Twice a month Once a week 2-4 times per week 5-6 times per week Every day Others (Please specify)	1 2 3 4 5 6
37	What are the main reasons that you do not perform any physical activity every day? (Choose <u>one</u> answer)	Time constraint Too expensive They don't know how They don't know want to do They think there is no need Scarcity of space Other (specify) _____	1 2 3 4 5 6

38	From now on will you do physical activity every day?	Yes No Not sure	1 2 3
39	How can you increase your physical activity every day? (You can choose multiple answers)	Play outdoor game every day Attend physical exercise at gym Go campus by doing cycling or walking Tell others to do physical activity everyday Others (specify)	1 2 3 4
40	Did anyone tell you or encourage you to do physical activity every day? Select who?	Parents Educators Health workers No one told me Others (Please mention)	1 2 3 4
41	How much time do you usually spend sitting or reclining on a typical day? (e.g. watching television, doing computer work, playing video game, chatting with friends, sewing etc.) (Time spending in class or at home doing homework is not included)	Less than 1 hour a day 1-2 hours a day 3-4 hours a day 5-6 hours a day 7-8 hours a day More than 8 hours a day	1 2 3 4 5 6
42	How much time do you spend sleeping in a typical day? (Add night sleep and day nap time)	4 hours or less 5 hours 6 hours 7 hours 8 hours 9 hours 10 hours or more	1 2 3 4 5 6 7
Tobacco use			
43	How old were you when you first tried a cigarette?	I have never smoked cigarettes 7 years old or younger 8 or 9 years old 10 or 11 years old 12 or 13 years old 14 or 15 years old 16 or 17 years old 18 years old or older	1 2 3 4 5 6 7 8
44	During the past 30 days, on how many days did you smoke cigarettes?	0 days 1 or 2 days 3 to 5 days 6 to 9 days 10 to 19 days 20 to 29 days All 30 days	1 2 3 4 5 6 7

45	During the past 30 days, on how many days did you use any tobacco products other than cigarettes, such as cannabis	0 days 1 or 2 days 3 to 5 days 6 to 9 days 10 to 19 days 20 to 29 days All 30 days	1 2 3 4 5 6 7
46	During the past 12 months, have you ever tried to stop smoking cigarettes?	Yes No I have never smoked cigarettes I did not smoke cigarettes during the past 12 months	1 2 3 4
47	During the last 30 days, how many times have you tried to stop smoking?	<input type="text"/> times	NOT APPLICABLE
48	During the past 7 days, on how many days have people smoked in your presence?	0 days 1 or 2 days 3 or 4 days 5 or 6 days All 7 days	1 2 3 4 5
49	Which of your parents or guardians use any form of tobacco products, e.g. cigarettes, cannabis, etc.	My father or male guardian My mother or female guardian Both Neither	1 2 3 4
50	Do you think smoking is harmful for health?	Yes No I don't know	1 2 3
51	How much do you have to smoke for it to be harmful to your health?	Any smoke harms health Smoking at least once a week Only daily smoking is harmful Only a packet of cigarettes or more per day is harmful	1 2 3 4
52	How harmful is smoking for your lungs?	Very much harmful Quite harmful Not at all	3 2 1
53	How harmful is smoking for your heart?	Very much harmful Quite harmful Not at all	3 2 1
54	How harmful is smoking for your brain?	Very much harmful Quite harmful Not at all	3 2 1
55	Do you think smoking around others could affect <u>their</u> health?		1 2

		Yes No I don't know	3
56	Do you mind if people smoke in your home?	Don't mind I do mind, but I allow it I don't allow it	1 2 3
57	What will be the benefit of not smoking be? (Multiple answer acceptable)	Money and time will be saved Keeps good health Prevents NCD Increase brain efficacy Reduces chance of heart disease Reduces chance of lung cancer Increase working capacity Others (Specify)	1 2 3 4 5 6 7
58	In your opinion why does one at your age smoke? (Choose any one)	With friends/ Peer pressure Watching elder of the family To prove oneself adult To forget grief It feels good to smoke From curiosity Others (Specify)	1 2 3 4 5 6
59	Did anyone tell you or encourage you not to do smoking? Who? (MULTIPLE ANSWER ACCEPTED)	Parents Educators Health workers No one told me Others (Please mention)	1 2 3 4
Alcohol and Drugs			
60	During the past 30 days, on how many days did you have at least one drink containing alcohol? (Beer, vodka, etc.)	0 days 1 or 2 days 3 to 5 days 6 to 9 days 10 to 19 days 20 to 29 days All 30 days	1 2 3 4 5 6 7
61	Have you ever taken addictive drugs? (Tick what you took) (MULTIPLE ANSWER ACCEPTED)	Marijuana Mandrax Heroin Cocaine No, I never take any addictive drugs Others (specify).....	1 2 3 4 5
Weight			
62	Have you weighed yourself in the last 6 months?	Yes No	1 2

63	Regarding your body weight, what do you feel you are?	Underweight Normal weight Overweight Very overweight	1 2 3 4
64	How important it is for you to maintain normal body weight to stay healthy?	Very much important Quite important Not at all important	3 2 1
High Blood pressure			
65	How much do you know about “blood pressure”?	Nothing at all I have only heard the term before I know about it	1 2 3
66	Do you think it is important to check blood pressure regularly?	Yes No Don't know	1 2 3
67	How would eating food with a lot of salt affect your blood pressure?	Raise blood pressure Lower blood pressure Don't know	1 2 3
68	Does high blood pressure cause health problems?	Yes No Don't know	1 2 3
69	Which one is effective to prevent high blood pressure? (Multiple answer accepted)	Medication Losing weight Changing diet pattern Physical exercise I don't know Others (specify).....	1 2 3 4 5

3. KAP about NCD

Questions	Answers	Code
Cardiovascular diseases		
70	How much do you know about “heart disease”?	Nothing at all I have only heard the term before I know about it
71	Which of the following would increase someone's chances of getting cardiovascular diseases? (Multiple answer accepted)	Smoking High blood pressure Excess weight Older age Fatty food Salty food

72	How much do you know about “Stroke”?	Nothing at all I have only heard the term before I know about it	1 2 3
73	Which organ is affected by a stroke?	Heart Brain I don’t know	1 2 3
74	Which of the following things you think would increase someone’s chances of getting stroke? (Multiple answer accepted)	Smoking High blood pressure Excess weight Older age Fatty food Salty food I don’t know Others (Specify)	1 2 3 4 5 6 7
75	Do you think we can prevent cardiovascular disease and stroke?	Yes No Don’t know	1 2 3
76	How much do you know about “Cervical cancer”?	Nothing at all I have only heard the term before I know about it	1 2 3
77	Do you know if cervical cancer can be prevented using a vaccine?	Yes No Don’t know	1 2 3
Diabetes			
78	How much do you know about “diabetes”?	Nothing at all I have only heard the term before I know about it	1 2 3
79	Do you think diabetes is preventable?	Yes No Don’t know	1 2 3
80	Can you think of things a person can do to reduce their chances of getting diabetes? (Multiple answer accepted)	Changing dietary habit Medication Physical activity Losing weight Quitting smoking I don’t know Diabetes can’t be prevented by any means Others (Specify)	1 2 3 4 5 6 7
81	Has a health worker ever spoken to you about how you can prevent diabetes?	Yes No I don’t know/ I can’t remember	1 2 3

4. Socio-demographic Information

SN	Questions	Answers	Ans. Code
82	What is your gender?	Male Female Do not wish to say	1 2 3
83	How old are you?	<input type="text"/> <input type="text"/> <input type="text"/> Years	NOT APPLICABLE
83.1	Are you married?	YES NO	1 2
83.2	In which year level are you currently?	LEVEL <input type="text"/>	NOT APPLICABLE
83.3	Do you have an income to buy healthy food?	YES NO	1 2
83.4	Do you live on campus?	YES NO	1 2
83.5	Do you stem from an urban or rural community?	Urban Rural	1 2
84	Which of the following best describes your father's main occupation in last twelve months? (Tick any one)	Government employee (Officer) Government employee (Others) Non-government employee (Officer) Non-government employee (Others) Business owner (Large) Business owner (Small) Housewife/ Homemaker Household worker Farming and Land owner Agricultural worker Factory worker Building worker Machinist Petrol attendant Cleaner Driver Farm worker Student Unemployed, able to work Unemployed, unable to work Refused Other (specify).....	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 99

85	<p>Which of the following best describes your mother's main occupation in last twelve months?</p> <p>(Tick any one)</p>	<p>Government employee (Officer) 1 Government employee (Others) 2 Non-government employee (Officer) 3 Non-government employee (Others) 4 Business owner (Large) 5 Business owner (Small) 6 Housewife/ Homemaker 7 Household worker 8 Farming and Land owner 9 Agricultural worker 10 Factory worker 11 Building worker 12 Machinist 13 Petrol attendant 14 Cleaner 15 Driver 16 Farm worker 17 Student 18 Unemployed, able to work 19 Unemployed, unable to work 20 Refused 99 Other (specify).....</p>	
86	<p>What is the highest level of formal education your father has completed?</p> <p>(Tick any one)</p>	<p>No formal schooling 1 Less than primary school 2 Primary school completed 3 Secondary school completed 4 Higher Secondary school completed 5 College/University completed 6 Post graduate degree completed 7 Refused 99</p>	
87	<p>What is the highest level of formal education your mother has completed?</p> <p>(Tick any one)</p>	<p>No formal schooling 1 Less than primary school 2 Primary school completed 3 Secondary school completed 4 Higher Secondary school completed 5 College/University completed 6 Post graduate degree completed 7 Refused 99</p>	
88	<p>Does your father or mother or any member of your family has any of the following diseases? Please specify. (Multiple answer accepted)</p>	<p>Cardiovascular disease 1 Diabetes 2 High pressure 3 Stroke 4 Cancer 5 No one 6</p>	

89	Which of the following items are present at your household? (Multiple answer accepted)	Electricity	1
		Flush toilet	2
		Land Line phone	3
		Mobile phone	4
		Television	5
		Radio	6
		Refrigerator	7
		Air conditioner	8
		IPS/ Generator	9
		Van	10
		Private car	11
		Scooter/ motor cycle	12
		Washing Machine	13
		Table	14
		Chair/bench	15
		Clock/watch	16
		Bed/cot	17
		Sewing machine	18
		Computer/laptop	19
90	Does your educational institute have a playground?	Yes	1
		No	2

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5. Physical measurement (self-reported)

SN	Variables	Value
91	Height (cm)	
92	Weight (kg)	
93	Waist circumference (cm)	
94	Hip circumference (cm)	
95	Pulse (per minute)	

96	Blood pressure (systolic)	1st	2nd	3rd
97	Blood pressure (diastolic)	1st	2nd	3rd

Signature of data collector



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ANNEXURE G: EDITING CERTIFICATE



TO WHOM IT MAY CONCERN

This letter confirms that the dissertation with the title *Knowledge of, Attitude towards and Practices regarding Non-communicable Diseases among Undergraduate Students at a University of the Western Cape* by Patricia Beryl Smith for the fulfilment of the requirements of the Master's degree in Nursing, Faculty of Health and Community Sciences, School of Nursing, University of the Western Cape has been edited for grammatical and structural concerns by the undersigned language professional. Neither the research content nor the author's intentions were altered in any way during the editing process. The responsibility lies with the author to effect changes and to attend to any anomalies indicated during the editing process. Reference checking was included. The editor's professional profile can be viewed on LinkedIn. (<https://za.linkedin.com/in/gava-kassiem-a7569b39>).

Gava Kassiem

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Member of South African Translators' Institute

Member of Pro Lingua

Member of Anfasa

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13 December 2023

ANNEXURE H: TURNITIN REPORT

9332488:Similarity_report_13_12_2023_Ikamva.docx

ORIGINALITY REPORT

14% SIMILARITY INDEX	12% INTERNET SOURCES	8% PUBLICATIONS	5% STUDENT PAPERS
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PRIMARY SOURCES

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