



Preparing medical graduates to care for older adults

By

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As the candidate's supervisor, I have approved this thesis for submission

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Date: 10 July 2020

DECLARATION

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DEDICATION

To my mom, who gave me the gift of life and the love for life-long learning, and my two daughters, Jivasha and Darshni.

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ABSTRACT

Background: Social accountability in medical training requires medical schools in South Africa to respond to the health needs of the country's rapidly increasing number of older adults. Reports, however, indicate that elderly patients in South Africa receive poor quality of care from health professionals. Reports also indicate that students' empathy towards older adults declines as they progress through their studies. These disparities necessitate greater awareness of the health needs and expectations of older adults and an inquiry into the geriatric care training of medical professionals.

Aim: This 360-degree study investigated the geriatric medical curriculum at one institution from the perspectives of geriatric patients, learners and health professions educators to make recommendations for improvement, and to develop policy guidelines for the enhancement of undergraduate medical education in geriatric care.

Methodology: A sequential mixed methods approach was adopted for this study. Four focus group discussions were conducted with patients aged 60 years and older from primary care facilities served by graduates of the medical institution (n=28). Data that emerged from this phase regarding patients' expectations of quality geriatric healthcare were triangulated with a review of curriculum documents, semi-structured interviews with health professions educators (n=5) and an evaluation of the levels of knowledge and attitudes of final year medical students regarding the care of older adults.

Results: The key principles for quality healthcare of older adults that were elicited from patients were respectful communication, compassion, appropriate prescribing, patient-centredness and coordinated care. However, professional attributes such as compassion and patient-centered care that were valued by geriatric patients are not explicitly taught or assessed in the curriculum. The current curriculum includes a wide variety of topics relevant to the care of older adults. Teaching and assessment relevant to geriatric care were further integrated into other modules, but no minimum standards are applied in assessment of the geriatric component. Students lacked exposure to older adults in ambulatory settings and received little teaching on health promotion or rehabilitative services relevant to the care of older adults. Despite the opportunities afforded by the problem-based learning approach in the curriculum for team-based learning and collaboration, interprofessional education was absent in teaching and learning relevant to older adults.

Overall, final year medical students possessed minimal levels of geriatric knowledge despite their perceptions of having had adequate exposure to geriatrics in the current curriculum. The majority of students had positive attitudes towards working with elderly patients. In particular, older students and those with a prior higher education qualification had significantly higher levels of knowledge and attitudes

towards caring for older adults. Of note, there was no association between geriatric knowledge and attitudes. Medical students also reported challenges in communicating with older adults and believed that their training had not prepared them adequately for this aspect.

Conclusion: The findings of the study affirmed the need to enhance the geriatric curriculum for undergraduate medical students, and to develop and implement minimum core competencies in geriatric care. Curriculum planners should consider greater attention to patient-centred care, communication skills training with older adults and interprofessional education, as well as broader community engagement. Policy guidelines based on the findings of this study were developed and recommended to the Undergraduate Committee for Teaching and Learning to improve the preparedness of medical graduates to care for older adults.

Keywords: undergraduate medical education; older adults; geriatric care; curriculum

PREAMBLE

The format of this thesis follows the recommendations for a PhD by manuscript format, as presented in the School of Nursing and Public Health in the College of Health Sciences, University of KwaZulu-Natal, South Africa. The thesis is submitted as a collection of three articles. Two are published research articles, and one manuscript which has been accepted for publication. These publications are combined with introductory and synthesis chapters to form a thesis.

Each chapter commences with a brief introduction and concludes with a summary of the main findings for emphasis and flow. The integrative material links the chapters and the findings to the overall aim of the study. The synthesis chapter at the end outlines the conclusions drawn from the results of the papers and includes recommendations. The contribution of the candidate is indicated for each manuscript, with details of the journals and their submission and review processes where necessary. The methodology and literature are revealed within each of the publications and is also presented within the integrative chapters i.e. Chapter One (Introduction), Chapter Two (Literature review), Chapter Three (Methodology) and Chapter Seven (Synthesis), with a summary after each article to establish the link between the chapters. The repetition between the integrative material and the manuscripts is necessitated by the manuscript format of the PhD presentation.

Please note the following concerning this particular thesis report:

- (i) The Vancouver referencing style has been used in the integrative material.
- (ii) Manuscripts are presented in the format required of the particular journal. There are differences in the style requirements. e.g., font and line spacing and referencing.

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Abbreviations and acronyms

AU	African Union
CanMEDS	Canadian Medical Education Directions for Specialists
CBE	Competency-Based Education
FGD	Focus Group Discussion
HIC	High-Income Countries
HIV	Human Immunodeficiency Virus
HPCSA	Health Professions Council of South Africa
IAGG	International Association of Gerontology and Geriatrics
IPE	Interprofessional Education
KZN	KwaZulu-Natal
LMIC	Low- and Middle-Income Countries
MDGs	Millennium Development Goals
MIPAA	Madrid International Plan of Action on Ageing
NCD	Non-communicable disease
NDoH:	National Department of Health
NHI	National Health Insurance
PHC	Primary Health Care
SA	South Africa
SDG	Sustainable Development Goals
SSA	Sub-Saharan Africa
UG	Undergraduate
UK	United Kingdom
UKZN	University of KwaZulu-Natal
USA	United States of America
WHO	World Health Organization

Peer reviewed publications

Published Manuscripts

Publication 1: Naidoo K, Van Wyk J. What the elderly experience and expect from primary care services in KwaZulu-Natal, South Africa. *African Journal of Primary health care & Family medicine*. 2019;11(1): p.1-6. <http://dx.doi.org/10.4102/phcfm.v11i1.2100>

Publication 2: Naidoo K, Van Wyk J. Preparing medical graduates to care for geriatric patients: A case study of the undergraduate medical curriculum at a South African university. *South African Family Practice journal*. 2020: 62(1), a5081. <https://doi.org/10.4102/safp.v62i1.5081>

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Manuscripts accepted for publication

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Supplementary file 2: Naidoo K, Wagie F, van Wyk JM A review of geriatric care training in the undergraduate nursing and medical curricula at the University of KwaZulu-Natal, South Africa. *AJHPE*

CONFERENCE PRESENTATIONS

Naidoo K and Van Wyk J. What the elderly experience and expect from primary care in KwaZulu-Natal, South Africa. Presented at the annual *Rural Health Conference*, 5-7 September 2019 held in Port Shepstone, KwaZulu-Natal, South Africa

Naidoo K and van Wyk J. Preparing medical graduates to care for older adults. Geriatric medical undergraduate education: Exploring the curriculum at UKZN. Presented at *College of Health Sciences Annual Research Symposium* 1st November 2020, Nelson R Mandela School of Medicine Campus.

Naidoo K, Waggie F, van Wyk J. Shared geriatric care competencies in the undergraduate nursing and medical curricula. Presented at the *SAFRI Poster day*, 1st March 2020, Cape Town, South Africa.

CHAPTER 1 – INTRODUCTION

This chapter introduces the research area and the rationale for the study. It presents the study objectives and outlines the theoretical and conceptual frameworks. The chapter concludes by stating the research questions and briefly describes how these questions are addressed in the subsequent chapters of this thesis.

1.1. Background to the research topic

The majority of older adults in South Africa (SA) have been disadvantaged historically and continue to be marginalized in society.^[1] Despite improvements to the SA health system, the disparities between the public and private health sectors, and between rural and urban communities present ongoing challenges to the access of healthcare, particularly for older people.^[1-6] Negative attitudes and lack of understanding regarding the care needed by older adults further contribute to the health inequities experienced by populations aged 60 years and older.^[7, 8] Older adults in SA are thus more vulnerable to poor health outcomes due to the sub-optimal and often inappropriate care that they receive.^[2, 4, 9-12] Until recently, older person's health received little attention in health policies, resource allocation, and health professions training.^[13] However, increased life expectancies and the rapid increase in the number of older adults necessitates urgent attention to the health needs of older adults.

The proportion of the population in SA aged 60 and above is predicted to double from 7.8% in 2012 to 14.8% in 2050.^[14] As people age, the prevalence of chronic illnesses increases. Thus, the anticipated growth in the older population will increase the burden on resource-limited health systems. Currently, the health systems and health professions training in sub-Saharan Africa (SSA) provides little coverage of age-related health conditions prevalent among older adults.^[7, 15] Healthcare systems in SSA prioritize communicable diseases and maternal and child health in accordance with the Millennium Development Goals (MDG).^[16] In contrast, there has been limited planning for the health needs of the growing geriatric population.^[7] The consequences of the rapid increase in older adults must be considered when planning health policies and programmes.

Some initiatives have already occurred at the policy level nationally. However, there is still a need for significant restructuring of the current health systems and rethinking of health professions training to improve the quality of healthcare for the older population. In response to the disparities in health care, the SA government plans to implement a National Health Insurance (NHI) scheme.^[17] A key objective of the NHI scheme, which is currently being piloted, is to strengthen the primary healthcare system, thereby

improving the availability and the delivery of equitable health services to all South African citizens.^[18] The majority of older people in SA, as in the rest of sub-Saharan Africa (SSA), seek health services at the primary care level.^[19] Unlike in high-income countries (HICs), there is limited access to specialized geriatric services or residential care facilities for older people. Robust primary healthcare and community-level services are thus essential to support the health needs of older adults.^[2] Unfortunately, the care of older adults at primary healthcare facilities in SA is compromised by overcrowded facilities, lack of chronic medication, inadequate personnel, and limited access to health promotion and rehabilitation services.^[20, 21] Increased priority to primary health care (PHC) will help address the health needs of older people.^[22] However, more resources need to be mobilized within the PHC system to improve the management of chronic and age-related health conditions.

Older patients commonly present with complex health needs that require the involvement of physicians, nurses, physiotherapists, occupational therapists, pharmacists and other health professionals.^[23] Effective team based care is thus especially important in caring for older adults with complex health needs. Conversely poor teamwork and collaboration may result in duplication of services and adverse patient outcomes. It is thus imperative that healthcare professionals involved in the care of older adults undergo interprofessional education (IPE) to improve their collaboration when caring for older adults.

The care of older adults requires a coordinated interprofessional approach with an emphasis on preserving function, rather than curing illness. However, the primary care system in South Africa focuses on acute episodic care and national priority programmes such as HIV/AIDS care and maternity and child health. The single-disease approach to patient care is perpetuated by the education and training of primary care health professionals. Traditional health professions training occurs in discipline-specific silos with little interaction with other cadres of health professionals. Such training does not promote collaboration between different health professionals and lacks an integrated and coordinated approach to the care of older adults with complex health needs.

A recent initiative that will benefit older adults is the national Integrated Chronic Disease Management (ICDM) programme.^[24] This programme aims to provide comprehensive and coordinated care to people with chronic illnesses. ICDM will thus benefit older adults, among whom chronic diseases are more prevalent than in any other age group.^[25] The integrated care approach has the potential to reduce health care costs and care dependencies in the aged. However, the success of the NHI and ICDM programmes are reliant on the ability of health professionals to manage the primary healthcare needs of all people, including older adults, and to function as part of a team. Unfortunately, doctors and nurses, who make up the bulk of primary care health professionals in SA, reportedly receive little training in the care of older adults, or

interprofessional education.^[1, 2, 26] Interprofessional education (IPE), where “two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” is recommended by the World Health Organisation (WHO) to improve health professionals’ competency in provided coordinated care for older adults.^[27, 28] However, there has been poor uptake of this recommendation by medical schools, especially in low- and middle-income countries (LMIC).^[29] The lack of geriatric care training and IPE among health professionals raises concerns about the quality of care provided to elderly patients.

The WHO also emphasises the need to include geriatric care competencies in core medical training as part of the public health response to ageing populations.^[30, 31] Medical education is inexorably entangled with the health of older populations, as developing appropriate geriatric care competencies will equip graduates to provide quality healthcare to older adults and to redress health inequities. However, geriatric medicine, the field of medicine that deals with the health concerns of older people with a focus on disease and problems associated with advancing age, is a relatively new and neglected area in health professions education.^[32] Current literature indicates that teaching and learning in geriatric care receive low priority in undergraduate (UG) medical curricula worldwide due to low levels of interest, a crowded curriculum, and more attention directed to curative medicine.^[15] Furthermore, even where geriatric medicine was included in UG medical curricula, medical students demonstrated little interest and poor learning around the care of older adults.^[33, 34] This may be due to intrinsic negative attitudes towards older adults, or the influence of poor clinical practices regarding the care of elderly patients at training sites.^[35, 36] The limited inclusion of geriatric care teaching in UG medical programmes is even more pronounced in the SSA region.^[15, 37]

Studies conducted in the SSA region confirm the lack of attention to geriatric care training of medical students.^[15, 38] A survey of medical schools in SSA identified a lack of geriatric teaching in 40% of those institutions.^[15] Even where geriatric teaching was included, there was an absence of examinable learning objectives in over 60% of institutions. The situation in South Africa is similar, with only a handful of medical schools having a geriatric department and an absence of prescribed minimum competencies in geriatric care at a national level. As a result, there is variable coverage of geriatric care in the curricula of the different medical schools. Kalula et al. 2007 have criticised the current situation in South Africa, stating that “older persons’ health is not a priority in institutional planning and training curricula, and that most health professionals complete medical training without adequate exposure to geriatric medicine.”^[11] Furthermore, few health professions training programmes include IPE or prepare their graduates to transit into multi-disciplinary teams. Limited understanding and education on geriatric care may manifest in feelings of futility or frustration by health professionals when encountering elderly patients with complex medical needs and hence adversely influence their medical management decisions.

There is an evident need for medical schools to improve the preparedness of their graduates to care for older adults. However, there is a paucity of data on the health needs of older people and geriatric medical education in the SSA region to inform the development of a geriatric curriculum appropriate for the SSA context.^[7, 37] Most initiatives and evidence on geriatric medical education originate from studies conducted in high-income countries (HICs), with different populations and with health systems that are better-resourced than those in the SSA region.^[37, 39] There is no corresponding or similar body of research on medical geriatric education in SSA.^[37] It is thus unclear how the reported health needs of older adults and curricular responses elsewhere match the situation in SSA.

Curricular strategies to enhance the current geriatric care training of medical students in SSA must address the local educational environment and health systems. Despite the willingness of most SSA medical schools to implement geriatric care training, less than half of the institutions surveyed had plans to implement teaching in the near future.^[15] Poor physical infrastructure, faculty shortages and lack of expertise in geriatric medicine present challenges to the development and implementation of a geriatric curriculum at medical schools in the SSA region.^[40] The curriculum development process, which organises what will be taught, who will be taught, and how it will be taught, seeks to align medical education with the latest information and local population needs.^[41] Despite the apparent need for medical curricula to address the health needs of older adults, there has been little stakeholder engagement regarding geriatric care training of medical graduates in SA.

The inertia around addressing the health needs of older people could be due to under-representation of older people in health policies or the lack of advocacy for older persons' health in SA.^[1] It is thus incumbent on medical schools in SA to review their curricula, taking into consideration the health needs of older adults and the current educational environment.

1.2. Problem statement

The rapid ageing of the population and reports of the poor quality of care received by elderly patients in SA necessitates an inquiry into the training of medical professionals in the care of older adults.^[9, 10] The lack of attention to geriatric care training worldwide is well-documented in the literature—however, most studies in geriatric medical education report on findings in HICs. There is little data from the SSA region on the health needs of older adults or geriatric medical education at the UG level.

It is also unclear how medical schools in SA prepare their graduates to care for older adults within the primary healthcare system, particularly given recent developments in health policies, such as the NHI scheme and ICDM program.^[42, 43]

1.3. Rationale for the study

The academic literature on medical geriatric care training is dominated by studies from HICs. There is no similar or corresponding body of scientific research on developments in geriatric medical education in SA or any other country in the SSA region. There is, therefore, a gap in the research, and a pressing need to examine how medical curricula in the SSA context can improve medical graduates' preparedness to care for older adults.

The majority of older adults in SA have been deprived of many basic human rights for most of their lives and continue to be subjected to poor quality healthcare services. Socially responsible medical training should respond to the needs of the populations they serve through service, education, and research.^[44] It is thus incumbent on medical schools to prepare their graduates to care for older adults within the local health system and enable them to act as change agents to redress the health inequities experienced by older adults. Future educational initiatives in medical education must also consider the health needs of older adults, student learning needs, and the educational environment.

This study was conceptualised to review the UG geriatric curriculum at a SA medical school and explore curricular strategies to improve medical students' preparedness to care for older adults. The medical curriculum is a complex interplay between teacher, student, educational environment, and the community served. It was, therefore, necessary to examine the curriculum within its specific context from the perspectives of the relevant stakeholders, i.e., the patients, the learners on the programme and health professions educators. Insight from different perspectives will help conceptualise curricular strategies to enhance the geriatric care training of medical professionals, and thus enable SA medical schools to produce graduates that are "fit-for-purpose."

Hence, this study explored the experiences and expectations of patients aged 60 years who access health services at primary care facilities in KwaZulu-Natal, and the learning needs of medical students regarding the care of older adults. The study also investigated the current curriculum at an SSA medical school to map teaching and learning relevant to the care of older adults and identify opportunities to enhance the geriatric care training of medical students. The findings of this study are intended to inform recommendations for the development of the geriatric curriculum for UG medical students at the University of KwaZulu-Natal (UKZN). Empiric evidence from the study will help address the gaps in research and assist the development and implementation of policies to improve older person's health in SA.

1.4. Aim

The overall aim of this study was to investigate how the undergraduate (UG) medical curriculum at the UKZN could improve the preparedness of medical students as future medical professionals to address the healthcare needs of older adults.

1.5. Objectives

Based on the knowledge gap, the following objectives were formulated to guide the study:

1. To explore and describe the experiences and expectations of patients aged 60 years and older regarding professional health services at primary care level in KwaZulu-Natal.
2. To evaluate the knowledge and attitudes of UKZN medical students regarding the medical care of elderly patients.
3. To map the geriatric medical curriculum at the UKZN and identify opportunities to enhance current teaching and learning.

In order to address the aim of the study, the three objectives were reformulated into the following research questions to be addressed:

1. What are the experiences and expectations of older adults regarding professional health services at primary healthcare facilities?
2. What is the level of knowledge and attitudes of UG medical students regarding the medical care of elderly patients?
3. What is the current medical geriatric curriculum at the UKZN, and how can it be enhanced to prepare graduates to care for older adults?

1.6. Scope of the study

This study focusses on UG medical education relevant to the care of older adults, and it is positioned in the field of Health Professions Education (HPE). The study was conducted at the UKZN, and primary care facilities in the KwaZulu-Natal province of South Africa. There is an urgent need for medical schools in SSA to deliver medical graduates that are able and willing to care for older adults. This study thus aimed to contribute to the growing body of knowledge investigating the factors that influence medical graduates'

preparedness to care for older adults. Also, by investigating a specific medical curriculum through a curriculum development framework, this study links into curriculum studies as a field of inquiry. It, therefore, offers additional insights to curriculum developers seeking to enhance teaching and learning relevant to the care of older adults.

1.7. Theoretical and Conceptual frameworks for the study

The researcher adopted a pragmatic approach to addressing the aims and objectives of the study. In Pragmatic theory, there is a focus on the purpose and consequences of knowledge.^[45] Schwab's Deliberative Curriculum theory, also referred to as "the practical," informs a pragmatic approach to curriculum development.^[46] The deliberative curriculum theory highlights the necessity of examining the curriculum within its specific context in order to reach a common understanding of the curriculum problem, and decide on the most appropriate course of action.^[46] Schwab's theory weighs strongly on the value and purpose of the curriculum, and assigns as much importance to the ends as to the means of a curriculum. The intention of this study is to redress the health inequities experienced by older adults through the professional education of medical students. Thus, Schwab's curriculum theory was espoused by this study.

The need for deliberation arises from the fact that the decisions of curriculum planners should be based on recent and available information. Decisions that are arrived at through the process of deliberation are based on rational consideration of possible solutions to a curriculum problem. Therefore, deliberation requires the ability to accept a certain degree of uncertainty or "methodological pluralism."^[47] The deliberative curriculum thus appeals to the pragmatic world view that emphasises practicality and utility. The researcher adopted a pragmatist approach to the research by conceptualising and evaluating the knowledge produced from this 360 degree investigation of the curriculum in order to attain workable and useful recommendations for geriatric care training.^{[48][49]}

Kern et al.'s Curriculum Development model encompasses the context-specific approach promoted by the deliberative curriculum school of thought, as it proposes that "medical education should change as our knowledge base changes and as the needs or perceived needs of patients and society change."^[49] Kern's six-step curriculum development model was thus adopted as the conceptual framework for this body of work (illustrated in Figure 1.1.).

The rationale and purpose of each objective are provided with reference to the steps in the curriculum development model, as illustrated in figure 1.1.

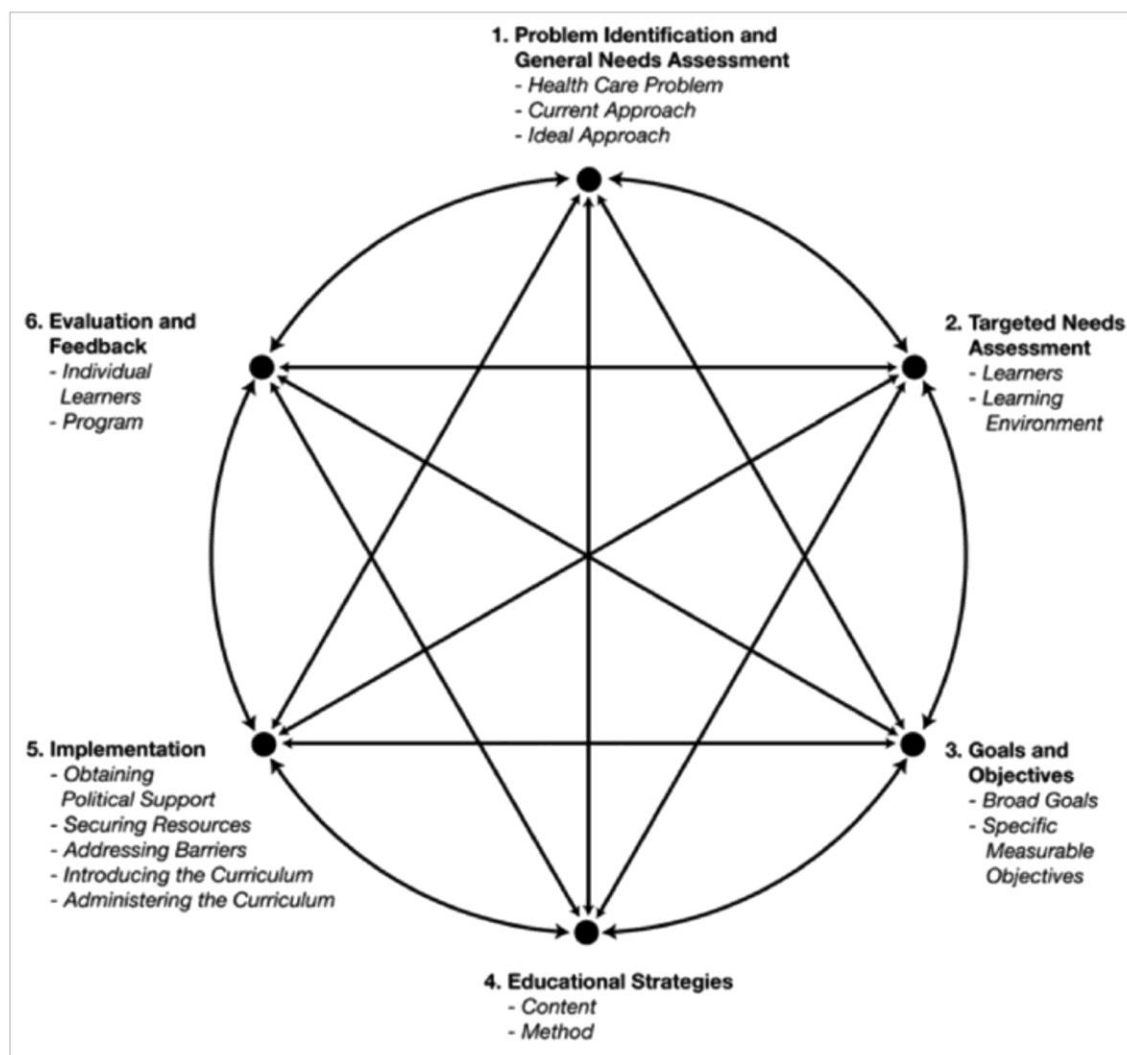


Figure 1.1. Kern et al's six-step Curriculum Development model^[49]

Kern et al's curriculum development model is informed by work from other health professions educationalists who have advocated for curricula to be linked to health care needs, and is thus grounded in patient and societal needs.^[50] Hence, it is inevitable that the first step described in this curriculum development process is the identification and critical analysis of a health care need. In this step curriculum planners must identify the health care problem that is to be addressed by the curriculum. In addition, they should identify the differences between how healthcare needs are currently being addressed and how it should be addressed. The differences between the current and ideal approaches to the care of older patients constitute the general needs assessment, which helps focus the goals and objectives of the curriculum. By clearly defining the health care problem to be addressed, curriculum planners provide the rationale for the changes to the curriculum and may engender political and financial support. It is thus crucial to have a clear

understanding of the health problem, i.e., the epidemiology, the impact on patients, healthcare professionals, educators, and society. It is of particular relevance to understand how health professionals are currently addressing the problem as they are the learners to whom the curriculum is targeted.

The second step of the curriculum development process involves assessing the needs of a targeted group of learners, in this case, UG medical students. The third step is to set the goals and objectives for the curriculum, based on the findings of the first two steps. Objectives may include the attainment of knowledge, skills, and attitudes by the students. The development of the goals and objectives will then determine the curricular content and learning methods. In the fourth step, educational methods are chosen that are best suited to attaining the educational objectives defined in the previous step. The fifth step is the implementation of the curriculum. This step entails mobilising the necessary resources, informing relevant stakeholders of the changes, and administering the curriculum. Finally, the sixth step is to evaluate the curriculum and provide feedback.

As Kern et al. have noted, these steps do not have to occur in sequence.^[49] Multiple steps can occur concurrently, and regular review of the curriculum is required in order to remain contemporary and relevant.

1.8. Significance of the study

This study explored the health needs of older adults, assessed the knowledge and attitudes of UG medical students regarding the care of older adults, and mapped the geriatric curriculum at a SA medical school. It thus adds to the body of knowledge on older person's health in SSA and geriatric medical education. The study also conceptualises curricular strategies to enhance the preparedness of medical students at an SSA medical school to care for older adults.

1.9. Overview of the thesis

The structure of this thesis is as per the College of Health Sciences regulation for a Ph.D. thesis by manuscripts. Chapters Four, Five and Six were developed to be read as separate manuscripts. Consequently, there is an unavoidable degree of overlap and repetition between chapters.

Chapter One presents the background and overall aim of the study. It outlines the problem, rationale, and research questions that had been addressed.

Chapter Two provides an overview of the literature relevant to this study. It chronicles the history of medical geriatric education and the socio-cultural context of the health needs of geriatric populations in

SSA. The chapter also describes relevant scientific research on curriculum development and geriatric medical education.

Chapter Three provides information on the research methods used in each phase of the study as well as the overall research methodology. The results of the study are presented in the manuscript format.

Chapter Four (Objective 1) explores and describes the perceptions of patients aged 60 years and older regarding the professional health services at primary care facilities in KwaZulu-Natal. (manuscript published).

Chapter Five (Objective 2) reports on the outcome of an evaluation of the knowledge and attitudes of final year medical students regarding medical care of elderly patients (manuscript in press).

Chapter Six (Objective 3) reports on the inclusion of teaching and learning relevant to the care of older adults in the UG medical curriculum and potential opportunities to enhance current teaching and learning (manuscript published).

Chapter Seven is an integrated discussion summarizing the findings of the thesis, together with an analysis of the results, and its strengths and weaknesses. The implications of the study findings are discussed, and the conclusions stated.

1.10. Chapter summary

This chapter has provided the foundations for the thesis. After introducing the research problem and research questions, it was necessary to explore the research problem within the existing literature and situate the study within the relevant theoretical framework. This is done in the next chapter.

Chapter 2. Literature review

2.1. Chapter outline

The chapter presents the empirical and theoretical literature that informed the study. It explores the socio-political context of the health of geriatric populations in SSA. It also chronicles the historical background of geriatric medical education, with a focus on curricular strategies to enhance geriatric care training of medical students.

2.2. Geriatric health in sub-Saharan Africa

2.2.1. Defining geriatric medicine and geriatric populations in SSA

Geriatric medicine is the field of medicine that deals with the health concerns of older people and focusses on health problems associated with advancing age.^[32] An “elderly” or “older” person is defined as an individual aged 65 years and older in HICs.^[51] However, the United Nations agreed to classify geriatric populations in SSA to represent people aged 60 years and older as life expectancies in this region differ from that in HICs.^[52] In many African countries, including South Africa, the pensionable age for citizens is at 60 years. The African Union (AU) also recommended that member states standardize the definition of older people as those aged 60 years and above.^[53] While the definition of older people in SSA is almost sure to change as life expectancies improve, the current study considers older adults as those aged 60 years and older.

The population of SSA is ageing at a more rapid rate than in any other region in the world. The number of people aged 60 years and older in SSA is predicted to increase from 42.6 million in 2010 to 160 million in 2050.^[54] In South Africa, the number of people aged 60 years and older is expected to outnumber those aged under five years for the first time by 2040.^[55] The demographic transition of the population has been attributed to the success of programs targeted at improving infant and child survival and reducing deaths from infectious diseases.^[56, 57] The increase in the number of older adults has significant implications for the health and social sectors in the country. Ageing is associated with chronic and age-related health conditions, as well as functional decline and the loss of independence.^[58] Consequently, the health burden among older adults is disproportionately higher than that in any other age group. Despite the increased risk for ill-health in later life, senior citizens in SA play a vital role in the community by supporting their families through their state pensions, caring for children orphaned by the HIV epidemic, and providing a living memory of our past.^[59, 60] It is thus incumbent upon the state to protect the rights of older adults, including the right to basic health services. Unfortunately, the majority of older adults in SSA are at increased risk of

ill-health and disability due to poor socio-economic conditions and limited access to health services.^[7] From a public health and policy perspective it is important to examine the evidence on older person's health to develop strategies to improve the quality of life of older people in SSA.

2.2.2. Policies regarding the health of older persons in SSA

Until recently, communicable diseases and maternal and child health have been the priority health concerns in accordance with the Millennium Development Goals (MDG).^[16] Consequently, there was little interest from health policymakers and researchers to address the health services required by older adults in the SSA region.^[7] However, this changed after the United Nations released the Madrid International Plan of Action on Ageing (MIPAA) in 2002.^[61] The MIPAA was intended to improve older people's access to health care, integrate care for older people in primary health care and promote training and research in geriatrics and gerontology.^[61] In line with the global response to ageing, the African Union (AU) adopted the MIPAA and subsequently developed the African Union Policy Framework and Plan on Ageing (AU plan).^[61] According to these policies each country is responsible for protecting the human rights of their older citizens. While these policies advocate for improved healthcare for older people there has been little action to address older people's health in SSA.^[7, 62] The inertia of governments around the issue of older person's health has been ascribed to limited resources and other priorities.^[62] Consequently, the health needs of older populations in SSA continue to be neglected.

A recent significant development has been the recommendation by the United Nations to include non-communicable diseases (NCDs) into national Sustainable Development Goal (SDG) plans. Since the burden of non-communicable diseases is greatest in older adults, attention to NCDs could potentially direct health policies and resources towards improving healthcare for older people, and help redress previous health inequities. An analysis of the 2017 Global Burden of Disease report identified 92 age-related diseases that contributed to 51.3% of the global burden of disease among adults.^[63] Most of the identified aged-related conditions are non-communicable diseases (NCDs), such as hypertension, diabetes, cardiovascular diseases, cancers, chronic respiratory and renal diseases, and sense organ disorders. The burden of disease is higher in SSA where studies indicate that older adults face a greater morbidity and disability burden than their counterparts in HICs, and are unlikely to receive the required care.^[2, 64, 65]

Currently, the public healthcare sector caters for over 80% of the population with only 20% of the resources.^[66] In response to the disparities in access to healthcare the South African government developed the National Health Insurance (NHI) scheme.^[17] A key objective of the NHI scheme, which is currently being piloted, is to strengthen the primary healthcare system thereby improving the availability and the delivery of equitable health services to all South Africa citizens. Increased priority to primary health care

(PHC) will help address the health needs of older people.^[22] However, health policies and restructuring of health systems must consider the evidence on the health needs of older people in order to address the priority concerns of older people. The gaps in policy and health programs for the elderly could be due in part to the paucity of data on older populations in SSA.^[2, 67]

2.2.3. Research on older people's health in SSA

The African Research on Ageing Network (AFRAN) was founded to address the gaps in ageing research.^[68] However, the Directory of Research on Ageing in Africa 2004-2015 reports only 85 English language publications in this period, of which half were conducted in South Africa and Nigeria.^[69] With the notable exceptions of the Ibadan study on ageing and the 10/66 Dementia group there has been scanty funding and resources dedicated to research on people aged 60 years and older in SSA. The limited evidence on the health services required by the geriatric population in SSA does thus not indicate a lack of need, but rather the significant gaps in knowledge on this topic. Given the need to synthesise the evidence on geriatric health needs in the SSA region, a systematic scoping review was proposed. The protocol for this review was developed and accepted for publication and has been included as supplementary file 1.

2.2.4. Barriers to healthcare in SA

The majority of older adults in SA were deprived of many basic human rights during the apartheid era and are thus more prone to ill-health in later life.^[1] The Mayosi report highlighted the concern that the health of the older generation of South Africans deteriorated rapidly if their age-related health needs were not attended to.^[70] Evidence indicates that community-dwelling older people in SA struggle to access healthcare due to the costs involved for healthcare.^[71, 72] A minority of the older population have health insurance and thus most older adults are reliant on the public healthcare system or pay out-of-pocket for private general practitioners or traditional healers. As a result there is a high level of unmet health needs among older South Africans.^[4, 71, 73]

Older adults also face additional difficulties with transport to clinics due to lower levels of functional capacity, long waiting periods at health public facilities and a general lack of health worker expertise on the management of chronic illness and geriatric syndromes.^[9] Chronic diseases, in particular, are poorly controlled with less than half of patients on adequate therapy or achieving control.^[74, 75] Multi-morbidity, the presence of two or more chronic medical conditions in older adults, is more prevalent in older adults than in any other age group and requires careful coordination of health services. Unfortunately, the national standard treatment guidelines developed for use by primary care providers in SA are intended for single disease management. Consequently, the medical care of older adults with multi-morbidities often results in polypharmacy and inappropriate prescribing.^[76]

There have been some initiatives to enhance the management of chronic and age-related health conditions in the public health sector in SA. The SA National Department of Health (NDoH) has adopted the Integrated Chronic Disease Management (ICDM) programme as part of Primary Health Care (PHC) re-engineering. This program aims to provide comprehensive and patient-centered care to those with chronic illnesses.^[24] This approach is also advocated in the WHO Age-Friendly Primary Health Care Toolkit.^[77] The toolkit is an initiative to sensitize staff at primary health care facilities to the specific needs of their older clients and to improve the quality of primary care services to older persons by focusing on preserving function and quality of life. While these initiatives could potentially improve the quality of care to older adults, their success is dependent on reforms in medical education and health systems.

Most primary health services in SSA are structured around curative care and fail to appreciate the need for coordinated care in the elderly. Furthermore, there is an absence of evidence-based recommendations regarding the management of geriatric conditions in SSA.^[78] Current literature indicate that health professionals are poorly equipped to manage complex medical problems.^[1, 26, 79] Ideally, older adults with multiple health conditions should receive integrated care delivered by a multi-disciplinary team. However, the training of health professionals has traditionally been conducted in discipline-specific silos focused on single-disease management. Health professionals are thus inadequately prepared to transit into functional multi-disciplinary teams at primary care level or able to provide integrated care to older patients. Furthermore, ageist attitudes by health professionals contribute to the poor quality of care to older adults.^[1]

The major obstacles to older person's health in SA that are described in this chapter require significant interventions to ensure quality care for all older people. These interventions should occur at three levels i.e. the macro level (policy level); the meso level (at the organizational or professional level); and the micro level (clinical level). While some positive changes in SSA have occurred at policy level, it is evident that significant restructuring of the current health systems and rethinking of health professions training are still needed. Health systems and health professions training in SA should consider the unique context of the health demands of older adults in a country with such diverse cultural perspectives such as SA. This study attempts to determine how medical education can improve the preparedness of medical students to address older person's health in SA.

2.3. Curriculum development

Curriculum review and design are central to this thesis. Therefore, in this section I define and present the approaches to curriculum development and the educational strategies reported on in medical geriatric curricula. It is important to recognise that curriculum development is a dynamic and complex process, and

that there are competing schools of thought in this area. Some of the approaches to curricular design are described in order to justify the theories and positions adopted in the subsequent chapters of this thesis.

2.3.1 Theories of curriculum and curriculum development

A curriculum is commonly referred to as a “planned educational experience”. The dominant model of curriculum design is that proposed by Tyler (1949), referred to as the “Tyler Rationale”.^[41] He described curriculum development as a process that organises what will be taught, who will be taught, how it will be taught and attempts to align medical education with the latest information and local population needs.^[41] Posner further unpacked the curriculum into seven elements i.e. the scope and sequence of intended learning outcomes, the learning content, the content outline, the assessment standards, the sources for learning, the course of study and the planned learning experiences.^[80] However, the Posner and the Tyler rationale focus on the attainment of technical competencies and do not address the development of professional attributes to meet societal needs. Curriculum is viewed only as a blueprint for educational activities, rather the social purpose of professional education.

A different perspective proposed by Schwab was the Deliberative Curriculum theory. It involves consideration of the fundamental value of a curriculum, and takes into account both the ends and the means of a curriculum. This view of curriculum development differs from the Tyler Rational which assumes learning to occur in a linear fashion with little consideration to how the instructional design and content could add value to the educational process and outcome. Schwab’s deliberative theory, also referred to as “the practical” argues that it is necessary to examine the curriculum within its specific context to reach a common understanding of the curriculum problem and decide on the most appropriate course of action. The need for deliberation arises from the fact that curriculum planners must make decisions based on the available information. Decisions that are arrived at through the process of deliberation are based by rational consideration of possible solutions to a curriculum problem. Thus, deliberation requires the ability to accept a certain degree of uncertainty or “methodological pluralism.”^[47]

There are multiple factors involved in a medical curriculum. These include the learner, the educational environment and the community served. A deliberative inquiry into the curriculum entails an exploration of each of these factors and how they contribute to the whole.^[81] This is similar to systems thinking, which explores the parts of a system that interconnect and interact to make a complete whole.^[82] Curricula can also be viewed from four perspectives - the planned, taught, received and hidden curriculum.^[83] The *planned* curriculum is the written, documented curriculum, designed to provide a guide for educators and students. Second, the *taught* curriculum is what is actually delivered to the students. Third, the *received* curriculum is how the students experience the learning process. Fourth, the *hidden* curriculum refers to the

norms and values embodied by the school or institution. While health professions educators design and deliver the curriculum (planned and taught curriculum), the students' learning is also influenced by their experiences in the educational environment (received and hidden curriculum).^[35]

The multiple perspectives outlined above influence the outcome of the educational process and present a challenge to curriculum planners. Thus, periodic review of the curriculum is necessary to ensure that the desired learning outcomes are being achieved. The process of deliberation on the curriculum includes participation by all stakeholders. It is thus essential to have a clear understanding of the curriculum. One of the ways in which to make a curriculum more transparent and open to review is by curriculum mapping.

Curriculum mapping is a method of auditing the content, time and sequence of the planned curriculum.^[84, 85] The methodology of curriculum mapping has been used extensively in medical education to document how and where novel or specific content such as sex and gender-based medicine^[86], communication skills training^[87], and substance misuse^[88] is taught and assessed in a curriculum. Curriculum mapping has also been used to facilitate interprofessional education by identifying overlaps in the curricula of different professions thereby informing the design of shared learning or IPE.^[89] Curriculum mapping is thus an integral part of the curriculum review and development process.

2.3.2. Kern et. al's Curriculum development model

Kern et. al's six-step Curriculum development model provides a practical and theoretically sound approach to develop, implement, evaluate and continually improve educational experiences in medical education.^[49] The model encompasses the context-specific approach promoted by the deliberative curriculum school of thought as it is founded on the assumption that "medical education should change as our knowledge base changes and as the needs or perceived needs of patients and society change."^[49] Kern's six-step curriculum development model was thus adopted as the conceptual framework for this body of work.

Kern's curriculum development model is founded on work by other health professions educationalists who have advocated for curricula to be linked to health care needs, and is thus grounded in patient and societal needs.^[50] The first step described in this curriculum development process is thus the identification and critical analysis of a health care need. In this step curriculum planners must identify the health care problem that is to be addressed by the curriculum. In addition they should identify the differences between how the health care need is currently being addressed and how it should be addressed. The differences between the current and ideal approach constitutes the general needs assessment, which helps focus the goals and objectives of the curriculum.

Earlier in this chapter I expounded on the epidemiology and effects of age-related health conditions on older populations and health systems in the SSA region and South Africa. From the literature it is evident

that healthcare for older adults in SSA is lacking. The gaps in knowledge on the health needs of older adults in SSA have partly contributed to the limited inclusion of geriatric care competencies in UG medical curricula. It is therefore essential to identify and explore the health needs of older adults in order to examine how the curriculum addresses these needs. It is of particular relevance to understand how health professionals are currently addressing the problem as they are the learners that the curriculum is targeted at.

The second step of the curriculum development process involves assessing the needs of a targeted group of learners, in this case undergraduate medical students. The third step is to set the goals and objectives for the curriculum, based on the findings of the first two steps. Objectives may include attainment of knowledge, skills or attitudes by the students. Development of the goals and objectives will then determine the curricular content and learning methods. In the fourth step educational methods are chosen that are best suited to attaining the educational objectives defined in the previous step. The fifth step is implementation of the curriculum. This entails mobilising the necessary resources, informing relevant stakeholders of the changes and administering the curriculum. Finally, the sixth step is to evaluate the curriculum and provide feedback. As Kern et al. have noted, the process of curriculum development does not always progress in a sequential, linear fashion across these phases; at times, two or more phases may occur concurrently.

The deliberative curriculum approach emphasises that all participants should be involved in determining the goal of education, hence the importance of transparency and consultation in each phase of the curriculum development process. While deliberation does not seek to develop theories around curriculum development it does attempt to pursue the most rationale decision within a particular set of circumstances. In addition to these steps health professions educators must ensure that curricula are updated in respect of trends in medical education and best evidence medical education.^[90] In order to conceptualise the curricular approaches to enhancing geriatric care training in a SSA medical school, one must first understand the roots of geriatric medical education.

2.4. Geriatric Medical Education

2.4.1. Development of geriatric medical curricula

Geriatric medicine is a relatively new and neglected area in health professions education.^[32] Most of the initiatives to include geriatrics in medical curricula have been reported in HICs.^[37, 91, 92] A key advocate for geriatric medical training has been the International Association of Gerontology and Geriatrics (IAGG).^[93] This non-governmental organization represents 64 countries and promotes gerontology training worldwide. It has advocated for greater attention to geriatric care training through the WHO and the United Nations

508 (UN), and promoted geriatric training in member countries. In 2007, the IAGG published its
509 recommendations for the core competencies for geriatric medical training.^[93] (Table 2.1.)

510 **Table 2.1. *IAGG recommendations for Basic Contents for Undergraduate Medical Students**

511 ** Source: IAGG newsletter 2007 Volume 18. part 1^[93]*

1. Understand the biology of ageing - which must correlate with the clinical manifestations of diseases in older individuals.
2. Demonstrate appropriate knowledge of physiology of ageing to understand concepts such as frailty and loss of functional capacity.
3. Demonstrate knowledge of demography, especially of the demographic /epidemiology transition.
4. Demonstrate sufficient knowledge of pharmacology in order to understand basic principles of prescribing for older people, with special attention to adverse effects and iatrogenesis.
5. Recognize the role of psychosocial risk factors in the causation of diseases such as living alone, economic hardship and lack of social support.
6. Recognize the importance of providing support to family caregivers, who, themselves, may be old and in poor health.
7. Recognize prevention and rehabilitation as the main goals of Geriatric Medicine.
8. Understand how complex health in older age is - thus requiring multi-dimensional evaluation and multidisciplinary approaches for the attainment of better outcomes.
9. Consider a problem-oriented approach as the most appropriate in the care of older people.
10. Embrace a holistic perspective, understanding that older persons have a rich history behind them and embrace life-course events as the root of many of their current ill-health conditions.
11. Understand that a life course perspective also implies that today's children and younger adults are tomorrow's older people and that their health in older age depends on how they live.

512
513 Following the publication by the International Association of Gerontology and Geriatrics (IAGG) of its
514 recommendations for UG geriatric training, there was rapid development and uptake of core geriatric
515 competencies for medical students in HICs. The British Geriatric Society developed a list of minimum core

geriatric competencies for UG medical curricula based on the IAGG recommendations. Since then, there was a noticeable improvement reported in teaching and assessment of geriatric competencies in medical schools in the United Kingdom (UK) between 2008 and 2013.^[94, 95] A contributing factor for the improvement was the increased attention to the quality of healthcare for older people after reports of neglect of older patients. As a result, the majority of medical schools in the UK now teach on delirium, dementia, stroke, falls, osteoporosis, extra-pyramidal disorders, polypharmacy, incontinence, ethics and mental capacity.^[95]

The European Union of Medical Specialists subsequently used the British Geriatric Society's Recommended Curriculum as the basis for a Delphi consensus study to develop an European UG curriculum in geriatric medicine.^[92] Similar initiatives have occurred in the USA, Canada, Australia and New Zealand.^[96-99] The professional bodies in HICs have been instrumental in establishing geriatric competencies in UG medical curricula in those countries.

The lack of similar initiatives in SSA countries has possibly contributed to the poor progress in geriatric medical education in the region. The South African Geriatric Society, a body of specialist geriatricians, has focused most of their efforts on post-graduate training. Most medical graduates, therefore, receive little training in geriatric care and lack geriatric knowledge and skills.^[100-102] Strategies, such as continuing medical education and post-graduate courses in geriatric medicine, have been proposed to address the lack of geriatric knowledge and skills among medical practitioners.^[100, 103] However, there has been little attention and research in the area of UG geriatric care training in the SSA region.^[37]

2.4.2. Geriatric care training in South Africa

The state of geriatric care training in SA is similar to that reported elsewhere in the SSA region. There has been greater attention directed towards post-graduate training in Geriatric Medicine, than UG medical training since geriatric medicine was established as a sub-discipline of Internal Medicine. Consequently, SA has more specialist geriatricians than most other countries on the continent. However, there is still only an estimated one geriatrician per 275 000 older persons.^[103] In an attempt to address the need for geriatric medical services, a post-graduate diploma in Geriatrics was introduced in 2015 that is targeted at primary care medical practitioners and general physicians.^[103] The syllabus for this diploma was informed by the recommendations of the IAGG (Table 2.1.). However, it is doubtful whether post-graduate training alone will be able to address geriatric health needs in the country.

The rapid increase in the number of older people and the emphasis on primary care in the NHI scheme will result in an increased demand for age-related health services at primary care level. Therefore, nursing and medical professionals, who are the forefront of primary care services in SA, will need appropriate

knowledge, skills and attitudes to care for older patients. Unfortunately there is poor collaboration between the ministries of health and education resulting in a gap between professional education and health services.^[104, 105] It is thus unclear if medical and nursing graduates in SA are adequately prepared to deliver the required health services to older adults with the planned NHI scheme, or provide integrated and coordinated care as proposed by the ICDM.

The curricula of most SA medical schools are modelled on those in HICs, and are not concordant with local health systems or the health needs of the communities served, particularly rural and disadvantaged communities.^[106] Greater attention needs to be directed towards decolonizing the UG medical curriculum. This requires SSA medical schools to conduct independent research in geriatric medical training. Part of the process of decolonizing education is to re-establish links to the community. Education should not occur independently of the communities served. Instead stakeholder engagement is essential for contextualizing knowledge, deepening understanding, encouraging community involvement, and reconnecting students with the social purpose of professional education. It is therefore important when reviewing curricula to reflect on the goal of medical education.

2.5. Medical curricula in South Africa

2.5.1. Accreditation of undergraduate medical curricula

Each of the nine medical schools in SA has autonomy to develop its UG medical curriculum based on the health care needs of the people in the province.^[107] There is currently no national UG medical curriculum nor prescribed minimum competencies to guide the curricula of medical schools. Each undergraduate programme has to be approved by the SA Council of Higher Education (CHE) and accredited by the national registration body, the Health Professions Council of South Africa (HPCSA). The accreditation process focusses on two aspects – educational quality and institutional integrity. The accreditation purpose does not evaluate the social accountability of the medical school nor is there inclusion of community representatives on the accreditation board. Social accountability of medical schools, as defined by the WHO, is “the obligation to direct their education, research and service activities towards addressing the priority health concerns of the community, region or nation they have a mandate to serve.”^[108] However, despite successful accreditation of all medical schools there has been little improvement in the quality of medical services to rural and disadvantaged communities in SA. It is thus clear that the accreditation process of UG medical programmes in SA does not ensure social responsiveness of medical schools. Furthermore, the absence of a national curriculum and prescribed minimum competencies has resulted in a varied curriculum in geriatric care across the different training institutions in SA.

The design and development of undergraduate medical curricula is thus mainly influenced by intrinsic factors. The drive to provide geriatric teaching to UG medical students is reliant on the presence of dedicated teaching faculty to ensure the inclusion of explicit learning objectives in geriatric care in the curriculum. Unfortunately, not all medical schools in SA have established departments of geriatric medicine nor include teaching by medical specialists/lecturers in Geriatric Medicine.^[109] Kalula et al. 2007 have criticised the current neglect of geriatric care training in SA, stating that ‘older person’s care is not a priority in institutional planning and training curricula, and that most health professionals complete medical training without adequate exposure to geriatric medicine’.^[1] Other educators, physicians and students in SA have also commented on the neglect of geriatric care training in medical curricula.^[103, 109-111]

In the absence of prescribed core competencies by the accreditation body, medical schools should conduct institutional self-review to ensure that their curriculum meets its purpose. However, most medical schools, despite claims of stakeholder engagement, do not consider patient and community feedback when reviewing their curricula. Furthermore, there is little input by the ministry of health into UG medical curricula which has resulted in a gap between professional education and health services.^[104, 105] It is thus essential for medical schools to establish good relationships with communities and the health sector in order to better serve students and patients. Support for the UG medical programme is especially relevant in light of the numerous challenges facing medical schools. Peer review by other medical schools may also contribute to the transparency and accountability of medical schools.^[112]

Medical schools in SSA struggle to develop and implement their UG programmes amidst poor infrastructure, limited resources and faculty shortages.^[40, 113] National imperatives to increase the number of graduates are difficult to implement due to the lack of space in teaching venues and attrition of skilled staff. Innovative and resourceful initiatives are needed to address the challenges facing the development of the geriatric medical curriculum in SA. Although there is limited research on geriatric medical education in SSA, global reforms in health professions education provide opportunities for health professions educators to develop and implement curricular strategies that will produce medical graduates that are fit-for-purpose.^[40, 114]

2.6. Curricular approaches to Geriatric Medical education

Several important developments have occurred in undergraduate medical education in the last two decades that have reshaped the structure and delivery of curricula. Since the Lancet Commission on Health Professions Education in 2010 there has been wider implementation of outcome- or competency-based education (CBE) as well as increased attention to community-based education and a patient-centered care

approach in the health professions curricula.^[114] These curricular trends have been successfully applied in many medical schools and have served to enhance UG teaching and learning in geriatric care.^[115] However, most of the published work in geriatric care training has been conducted in HICs and focusses on the outcomes of students. There is a lack of conceptualisation of curricular approaches to develop the geriatric curriculum in LMICs to address the health needs of older adults in these countries. Many studies report on educational strategies employed in geriatric care training such as establishing core competencies, senior mentor programs and clerkships in geriatrics, which will be discussed further.^[116] However, these studies do not address the philosophical or social concerns of older people's health and the subjective experiences of illnesses. Medical education must be transformative in order to develop the appropriate professional attributes in medical students to enable them to meet the expectations and needs of older people.

2.6.1. Establishing core competencies in geriatric care

In line with global reforms in medical education, most medical schools in SSA have moved towards outcomes- or competency-based education (CBE) curricula.^[117] In CBE the learning objectives are identified, made explicit and communicated to all the role players. Teaching and assessment are then aligned with the prescribed competencies.^[117] Prescribing core competencies in geriatric care is a strong incentive for curriculum planners and HPEs to include teaching on geriatric care. It can also be instrumental in stimulating student interest in geriatrics and improve learning.

Unlike in HICs where specialist bodies and other stakeholder have advocated for the inclusion of core geriatric care competencies in medical training, there has been no such initiative in SA.^[38, 39] There is also no national curricula for undergraduate medical programmes. Instead, the national regulatory body, the HPCSA, has adopted the CanMEDS (Canadian Medical Education Directions for Specialists) competency framework for accreditation of UG medical programmes.^[97] This framework was modified by the UKZN to be applied to all the health professions programmes offered at the university. Each of the seven graduate roles in this competency framework (illustrated in figure 2.1.) are relevant to geriatric care, in particular the communicator and health advocate roles.

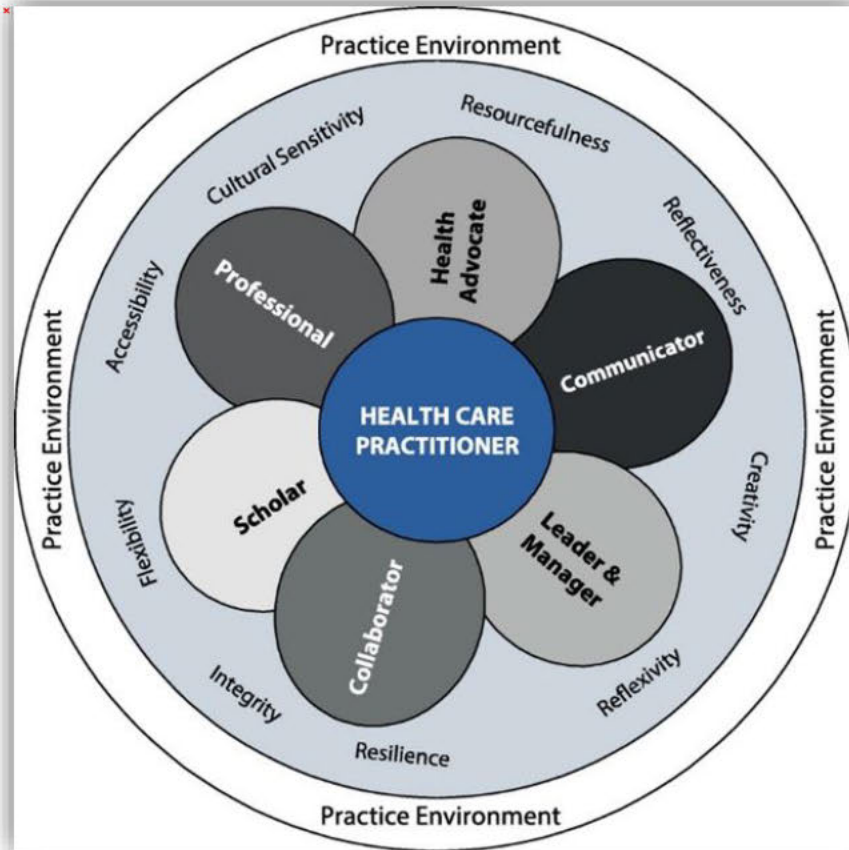


Figure 2.1. Core graduate competencies for Health Care Professionals at UKZN.

Source: Adapted from the HPCSA Core Competencies for Undergraduate Programmes in South Africa (2014) with permission of the HPCSA Undergraduate Committee obtained March 2014.

A limitation of such competency frameworks is that they are often generic and subject to interpretation. As evidenced in HICs, they do not always result in the intended outcomes.^[94, 118] Another weakness of the competency-based approach is that it assesses mainly student knowledge and skills, and not personal and professional attributes. It is thus difficult to determine if graduates are truly fit-for-purpose by teaching and assessing discrete competencies.

Greater attention is thus required at curricular level to strategies that improve the effectiveness of geriatric care training. Harden proposed the use of the SPICES model that uses a continuum of six education strategies that relate to the medical curricula.^[119] These issues can be represented as a spectrum: student-centred/teacher-centred, problem-based/information-gathering, integrated/discipline-based, community-

based/hospital-based, elective/uniform and systematic/apprenticeship-based. The trend in medical education is to move curricula towards the left of the continuum.

2.6.2. Integrated versus stand-alone teaching in geriatric care

Most medical schools have transitioned towards integrated curricula, as recommended in Harden's SPICES model. However, there is still debate on whether integrated or subject-based/stand-alone courses are more effective regarding geriatric care training. The integrated approach is where the contents and learning objectives relevant to the care of older adults is distributed throughout different courses in different years.^[120] Whereas, the subject-based or stand-alone approach is one where the teaching in geriatrics is delivered and assessed independent of other training.

A major benefit of an integrated curriculum is that it enables early exposure of students to the care of older adults. This can be instrumental in stimulating student interest in the care of older adults and shaping attitudes. Studies demonstrate that the pre-clinical exposure of medical students to geriatric patients assisted in familiarizing students with the health needs of older adults and improved student attitudes towards caring for the elderly.^[121-124] Competencies in areas such as communication skills, epidemiology and medical ethics can be addressed early on to introduce students to the care of older adults.^[122, 124, 125] Integrated curricula also allows for inclusion of new topics into pre-existing curricula throughout all years of study. Many North American medical schools have successfully added teaching on the care of older adults through integrated curricula.

At the University of Michigan, content in geriatric medicine was vertically integrated into their existing UG medical curriculum.^[126] At the beginning of their studies medical students are introduced to a web-based geriatrics portfolio with clearly stated learning objectives related to core competencies in geriatric care that they are expected to acquire before graduation. Students are then expected to periodically review their portfolio content during the course of study. Existing pre-clinical courses added on age-specific content through lectures or case presentations, and clinical teaching involved simulated and real patient encounters. Other medical schools in the USA have followed suit, and added on the Senior Mentor programme.^[127]

The educational effectiveness of integrated curricula is considered superior to that of traditional curricula as it encourages student-centered learning. This is intended to enhance student learning and improve retention of knowledge. However, it is difficult to evaluate learning in individual subjects in an integrated curriculum.^[126] Curriculum mapping is an important process in the development and review of integrated curriculum as it enables curriculum planners to identify the inclusion or omission of specific competencies.

Although students in an integrated curriculum are exposed to teaching in geriatric care, studies indicate that their geriatric knowledge, skills and attitudes are better developed during a specialized geriatric rotation.^[128]^[129] This could be due to limited opportunities for geriatric-related teaching and assessment in integrated curricula. Studies conducted at North American medical schools demonstrated that not only does a one- or two-week rotation dedicated to geriatric care improve student competencies, but that increase in knowledge is sustained.^[128] Even courses as short as three days were shown to improve student competency in caring for older adults.^[130]

The choice between integrated or stand-alone teaching is a pragmatic one. Curriculum planners have to consider what is practical to implement and will achieve the desired outcomes. Multiple disciplines compete for time in an already time-constrained period of study. Integrated curricula allow for greater flexibility and accommodation of emerging topics of medical educational interest. However, the relevance and significance of the geriatric component should be highlighted to educators and coordinators. The problem-based learning (PBL) approach accentuates the value of integrated curricula as it provides for practical application of knowledge and allows for the involvement of different disciplines in the management of real-life cases.

2.6.3. Problem-based learning (PBL)

In problem-based learning (PBL) students collaborate in teams to learn through self-directed learning.^[131] Thus, PBL provides an effective means of educating medical students on core geriatric topics, while also helping to develop clinical reasoning and teamwork skills.^[132] This active learning method is student-driven and has been used effectively to address geriatric learning objectives. PBL enables psychosocial and teamwork issues to be addressed that are critical to the care of older adults.^[133] Furthermore, PBL offers the opportunity for interprofessional education around the care of older adults with complex health conditions.^[134-136] Interprofessional care and collaboration are important principles in the care of older adults and are better learnt through the PBL approach rather than didactic lectures.^[137] Another significant benefit of PBL is the lack of need for specialised geriatric teaching faculty.^[138] In many medical training institutions geriatric topics and teaching were included at medical schools without geriatric teaching expertise through the development of appropriate PBL tools relevant to the care of older adults.^[37]

2.6.4. Senior Mentor programs (SMP)

The literature strongly suggests that community-based education and mentorship programmes with healthy community-dwelling older adults produce positive attitudinal changes in students.^[139-142] An example of this is the Senior Mentor program (SMP). This geriatric curriculum intervention began in the early 2000s in North American medical schools.^[143] The SMP is designed as a longitudinal integrated clerkship whereby

UG medical students are exposed to healthy, community-dwelling older adults over the course of their studies.^[144] Learning in geriatric care occurs through activities designed to improve knowledge of ageing and stimulate critical self-reflection.^[139, 142, 144]

Unlike in hospitals where students focus on the disease process, in the SMP students learn about the importance of health promotion and healthy ageing. Some studies have suggested that the SMP influences patient-centredness in students as they began to view elderly people as individuals and not as a homogenous group characterized by declining health.^[145, 146] The SMPs have also been used to facilitate interprofessional education around the care of older adults.^[144]

A major advantage of the SMP is that, apart from the administration of the program, there is little increase in the teaching workload. Many geriatric topics can be covered by self-directed learning facilitated by the student-mentor interactions.^[139] The main resource required is the recruitment of elderly community volunteers who meet with the students several times a year throughout the UG programme. Unfortunately many of these SMPs have been terminated, not because of inefficacy but due to restructuring at the medical schools.^[147]

Apart from the SMP there has been a lack of community-based educational strategies in geriatric care. A survey of geriatric curricula in the UK highlighted a failure to involve patients and the public in teaching.^[118] One of the few community-based studies in the UK demonstrated that first year students who conducted home visits supervised by a specialist geriatrician resulted in students becoming more comfortable with interacting with older people and dispelled stereotypes about aging.^[148] However, such strategies are not feasible with the large numbers of medical students and scarcity of specialist geriatricians in SSA.

2.6.5. Interprofessional education (IPE)

Integrated and coordinated care are fundamental principles in caring for older adults and thus, geriatric medical training should include interprofessional education.^[149] Interprofessional education (IPE) is where two or more professions learn with and about each other in order to improve collaboration and the quality of care to patients.^[150] The WHO recommends that in order to provide effective coordinated care to older adults, health professionals should possess appropriate skills in interprofessional collaboration and care.^[151] The skills required for interprofessional care include effective communication, clear understanding of roles and team dynamics and an ability to resolve conflict. The objective of IPE is not only to attain geriatric care competencies, but to develop these interprofessional practice skills. The Lancet commission highlighted the shortcomings of teaching students in “professional silos” and advocated for IPE in health professions education.

Various approaches have been applied to including IPE in geriatric care training such as lectures, case-based workshops, clinical placements, e-learning, residential care visits and simulation training with role-playing.^[135, 136] Most of these teaching methods followed a PBL approach.^[133, 152] The use of IPE has shown positive gains in student competencies relevant to the care of older adults as well as improved teamwork skills. Even IPE programmes as short as eleven hours have been effective in developing appropriate knowledge, skills and attitudes in students.^[133, 153]

Despite these positive outcomes and strong recommendations few programmes have implemented IPE for geriatric care training. This has been mainly due to the significant logistic and programmatic challenges of coordinating teaching between different disciplines.^[152] Also, many faculty express reluctance in changing the traditional model of discipline-specific teaching and lack the expertise to conduct IPE.

2.6.6. Transformative education

The complex environment in which medical graduates will practice requires medical education to be transformative in order for students to successfully transition into their professional roles. Ageism, the stereotyping, prejudice, and discrimination against people on the basis of their age, is prevalent in the medical profession and adversely affects health outcomes in the elderly.^[154, 155] While teaching in geriatric care almost invariably improves student knowledge, the same does not apply to students' attitudes.^[156] Student attitudes towards older adults have been reported to decline through medical school despite exposure to geriatric teaching.^[157] In light of this, health professions educators have attempted to target student attitudes towards elderly patients and their care through transformative learning strategies.

Transformative learning is the process of effecting change in a frame of reference.^[158] In order for educators to develop positive attitudes in students towards older adults it is necessary to get students to confront their perceptions towards older adults, critically analyse them and reframe those perceptions. The transformative learning activities employed in geriatric education include simulation of ageing, self-reflective essays, and the use of arts.^[125, 159-161] All of these methods entail a process of critical self-reflection with varying degrees of success.

In the simulation of ageing activities, students simulate age-related impairments such as wearing opaque glasses to simulate cataracts or plugging ears with cotton wool to simulate hearing impairment. The outcome of this activity was noted to increase empathy among the students but worsened attitudes towards elderly people.^[125, 162] This may be due to students' perceptions of the numerous limitations associated with ageing that increase the need for help. These studies indicate that exposure to only the negative aspects of ageing can reinforce stereotypes of elderly people. However, a systematic review

indicated that empathy-building activities such as the ageing game can be effective in improving student attitudes, especially when combined with exposure to healthy older adults.^[140]

Self-reflective activities such as reflective journaling have multiple positive outcomes on student learning. It is associated with an increase in student insight, empathy as well as cultural sensitivity.^[163] When used in geriatric care training self-reflective activities can induce changes in attitudes towards ageing.^[164] However, the design of reflective writing interventions need to be consistent with the desired learning outcomes. Reflective journaling also provides valuable insights into the process by which medical students react to the formal and hidden curriculum. This can assist educators greatly in refining the curriculum in order to improve student outcomes. Furthermore, critical reflection can help develop the health advocate role, a key graduate competency in the care of older adults.^[165]

2.6.7. Patient-centredness

Mead and Bouwer argue that patient-centredness is a core competency of health care professionals and should be addressed during training.^[166] This was reiterated by Meiboom et al. 2018 who established that the most important element in enhancing geriatric medical education was a patient-centered curriculum.^[167] Patient-centredness is a generic principle that could apply not only to geriatric training but to the entire curriculum. However, this will require a paradigm shift in teaching and learning at medical schools. Patient-centered medicine refers to understanding the whole person rather than a person with an illness.^[168] This is at odds with the traditional biomedical approach in medical training that tends to focus on identifying and treating standard disease entities. Patient-centredness is also a skill that is difficult to teach and assess, as there are no established educational models to guide the instruction of patient centeredness.^[169]

Some of the elements identified that contribute to developing a patient-centered approach in students are attention to communication skills training, IPE, community-based education including exposure to healthy older adults, and longitudinal integrated clerkships. Although most UG medical education programmes include communication skills very few address the unique communication skills needed for the care of elderly patients who have cognitive and sensory impairments. Culturally sensitive and appropriate communication is a key element of quality care of older adults. In addition, communication with elderly patients often involves interaction with their care-giver. Communication is a skill that cannot be taught through lectures. Students must learn and practice verbal and non-verbal communication techniques. This can be facilitated by engaging with simulated or real patients and conducting role-playing with a skilled facilitator.^[170] Another benefit of the use of simulated patients is the reported improvement in student's self-confidence when approaching older adults and enhanced patient-centredness.^[170]

Another strategy to incorporate patient-centered learning in the curriculum is to expose students to well elderly as in the Senior Mentor programme described earlier in this chapter. The continuity of care inherent in the SMP helps students to focus on the whole person and health promotion rather than searching for a diagnosis.^[171] Exposure to ambulatory older adults may also help reshape students' approach to the care of older adults.

2.7. Chapter summary

In an effort to generate theoretical perspectives on the geriatric curriculum in undergraduate medical education, it was essential to locate the curriculum in the relevant context, and to critically review past and present educational strategies. This chapter described the socio-political context of the health of geriatric populations in SSA and provided an overview of the scientific literature on geriatric medical education. The findings were that there is a paucity of data on geriatric health needs in SSA, which has contributed to the poor implementation of policies regarding the care of older persons. As a result, older person's health has been neglected by researchers and educators. There is an evident absence of data on geriatric medical education from SSA countries. The relevant literature emphasizes the importance of including patient-centredness and interprofessional education in the geriatric curriculum.

There is therefore a gap in the research and a pressing need for data to inform the development of an UG medical curriculum that addresses the health needs of older patients. Consequently, the next chapter will introduce the methodology employed in order to address the gaps in the research literature.

Chapter 3 – Methodology

3.1. Introduction

The previous chapters outlined the context and purpose of the study, and the literature and theoretical framework used to answer the research objectives. In this chapter, the conceptual framework for the study is described, and the study design justified. Owing to the design of this thesis by manuscript, each manuscript describes the methods used as indicated in Chapters 4 to 6. Therefore, Chapter 3 provides an overview of the methodology that frames the overall study and provides the rationale for the mixed methods approach. Details of all the methods employed are given. Finally, the ethical issues related to the research are addressed, including the reflexive positioning of the researcher.

3.2. Conceptual framework

This study adopted Kern's et al. six-steps approach to curriculum development as the framework for the study (Figure 3.1.).^[172] The six steps in this curriculum development model have been specifically designed to address educational problems. The ontological assumption is that a geriatric medical curriculum has to be explored from different perspectives i.e. the needs of the patients and community served by the medical school, health professions educators who train on geriatric care, and the students who receive the training. Furthermore, a review of the curriculum should entail an investigation of the learning objectives, educational experiences and the assessment of the learning objectives.^[41]

As Kern et al. have noted, the process of curriculum development does not always progress in a sequential, linear fashion across these phases; at times, two or more phases may occur concurrently. This was the case with this study; the rationale and purpose of each objective is provided in relation to the steps in Kern's curriculum development model. The six steps in this curriculum development model include the following:

Step 1. Identification and critical analysis of the health care need involved a qualitative evaluation of the principles of quality geriatric healthcare services from the perspective of patients.

Step 2. Targeted needs assessment of learners whose geriatric knowledge and attitudes towards the care of older adults were assessed;

Step 3. Formulation of specific outcomes based on the results of the general and targeted needs assessments;

Step 4. Educational strategies in the current curriculum were mapped and reviewed;

The remaining steps i.e. 5. Implementation; 6. Evaluation and feedback were not included in the current study.

This study was able to address three of these steps, as tabulated in table 3.1. To analyse the health problem and general needs assessment of the geriatric population, it was necessary to explore geriatric patients' perceptions of the services received at primary care facilities, and their suggestions on what aspects of medical training could be enhanced. Next, a targeted needs assessment was conducted to evaluate medical students' knowledge and attitudes regarding the care of older adults, and possible factors affecting student learning in geriatric care. This was necessary to understand the outcomes of the current geriatric curriculum on student knowledge and attitudes. Finally, the current curriculum was mapped through a document review and interviews with health professions educators, in order to identify opportunities to enhance the current teaching and learning relevant to the care of older adults. The other steps were outside the scope of this study.

Table 3.1. The Kern's approach to Curriculum Development in this study

	Objectives	Step in Kern's Curriculum development model	Manuscript/Chapter
1.	To explore the experiences and expectations of geriatric patients and make recommendations for teaching and learning.	Problem identification and general needs assessment	1 (Chapter 4)
2.	To assess the knowledge and attitudes of final year medical students regarding the care of elderly people.	Targeted needs assessment of learners	2 (Chapter 5)
3.	To document the degree to which geriatric care teaching is covered in the medical UG training program at UZKN.	Map and review the educational strategies of the curriculum	3 (Chapter 6)

3.3. Mixed methods study design

The pragmatic paradigm in which this study is situated attempts to improve the quality and scientific power of data through methodological plurality.^[173] The geriatric medical curriculum that was investigated in this

study is a complex and contextually dependent entity. The pragmatic research paradigm allows for a degree of uncertainty about the findings. Thus, a mixed methods study design was selected to address the research objectives. Mixed methods research, which refers to the integration of quantitative and qualitative research methods, attempts to provide a greater breadth and depth of understanding and corroboration of evidence contributing to the purpose of the study.^[174, 175] Triangulation of data was achieved by making use of various data sources and multiple perspectives for interpretation. This study design enabled the overall study aim to be addressed through investigations of the various facets of the curriculum.

In order to address the health problem, it was crucial to explore and examine the perceptions of geriatric patients regarding the care received at primary healthcare facilities. This provided qualitative data to enhance the scientific literature on the age-related health conditions prevalent among older adults in SSA. It also provided insight into the key professional competencies valued by the recipients of care, and highlighted weaknesses in graduate outcomes that needed to be addressed.

The outcomes of undergraduate medical training was assessed, in part, by an evaluation of student knowledge and attitudes regarding the care of elderly patients. The findings regarding the students' level of geriatric knowledge and attitudes explored the factors associated with student learning and identified the learning needs to be addressed by the curriculum.

In order to evaluate the current educational strategies, the curriculum was mapped regarding geriatric topics, teaching time, teaching strategies and assessment methods. Data from the document review of the curriculum was supported by semi-structured interviews with health professions educators. This provided insight into the educational strategies and potential opportunities to enhance the geriatric curriculum.

The assessment of geriatric patient needs, evaluation of learner geriatric knowledge and attitudes, and mapping of the geriatric curriculum all provided data that converged on the overall study purpose to inform recommendations for the development of a geriatric curriculum for undergraduate medical education.

3.4. Overview of the methodology

The study employed a mixed-method design, and included both qualitative and quantitative data collection methods.^[174] A summary of the methods used for each study objective is provided in table 3.2. The quantitative component was the survey of final year medical students regarding their knowledge and attitudes regarding ageing and the care of older adults, and the curriculum mapping. The qualitative component involved focus group discussions with geriatric patients at primary care facilities in KZN, and semi-structured interviews with health professions educators.

912 **Table 3.2. Overview of methodology linked to objectives**

	Objective 1 Identification of health problem and general needs assessment	Objective 2 Targeted needs assessment	Objective 3 Review of educational strategies	
Study population	Patients >60 years at PHC facilities in KZN	Final year medical students	Health Professions Educators	Document review of electronic curriculum platform
Sampling size	28	173	5	-
Sampling strategy	Purposive sampling	Whole population sampling	Purposive sampling	-
Study instrument	Discussion guide (Appendix 5)	Questionnaire – Palmore's facts on ageing quiz & UCLA- Geriatrics attitude scale (Appendix 7)	Semi-structured interview guide (Appendix 9)	(Appendix 10)
Data type	Qualitative	Quantitative	Qualitative	Quantitative and qualitative
Data analysis	Thematic analysis	Frequencies, mean, bivariate logistic regression	Content analysis	Content analysis

3.5. Study Methods

3.5.1. General needs analysis – Geriatric patients

Study setting

This phase of the study was conducted at three primary healthcare facilities in KwaZulu-Natal, South Africa; one of which was in a rural location, one peri-urban and one urban. The facilities offer acute and chronic care to patients of all ages, and are managed by the KwaZulu-Natal Department of Health.

Study design and sampling

The interpretative exploratory design was chosen to explore older persons' perceptions of ageing and age-related health changes, and their experiences and expectations of the services provided by medical practitioners. A purposive sampling technique was employed to identify participants aged 60 years or older, who reflected the gender and ethnic profile of the population, and to ensure representation from urban, rural and peri-urban communities in KZN. Sampling continued until saturation of data.

Data collection

The focus group discussion guide was piloted to finalize the specific wording, phrasing and sequence of questions prior to conducting the focus group discussions with participants. The data collection was facilitated by an experienced, research assistant fluent in both English and isiZulu, aided by the discussion guide. Four focus group discussions were conducted between October and November 2018, on the days when participants were attending the facility for scheduled appointments. The interviews lasted between 40 and 50 minutes. Two of the four focus group discussions consisted of eight participants each and the remaining two groups of six participants each. Two of the groups were located in an urban community and one each from a peri-urban and rural community. The groups were small enough to enable all participants the opportunity to share their insights, and large enough to provide a diversity of understanding. Interviews were conducted in either isiZulu or English, depending on participants' preference.

Data management

The discussions were audio-recorded and transcribed verbatim. Field notes were written by the researcher while the research assistant was conducting the interviews, to augment these data and to record non-verbal cues and details. Before data analysis, a research associate fluent and competent in both isiZulu and English translated all isiZulu interview transcripts verbatim into English.

941 *Data analysis*

942 The transcripts were imported into Nvivo 12 software for analysis. All of the transcripts were read
943 thoroughly to get a sense of the whole, and thematic analyses was conducted of each transcript. Similar
944 concepts were clustered together, data were integrated and synthesised into a descriptive structure and codes
945 were created. Themes derived from these codes were then grouped into domains.

946 *Trustworthiness*

947 Both the researcher and an independent coder skilled in the field of research analysed the transcripts to
948 avoid interpretation bias by the researcher. This assisted in ensuring dependability. Tape-recorded data and
949 field notes were kept as an audit trail to ensure confirmability.

950 ***3.5.2. Targeted needs assessment - learning needs of final year medical students***

951 *Study setting and design*

952 The investigation of the second objective of the study was conducted at the University of KwaZulu-Natal
953 (UKZN), one of nine medical training facilities in South Africa where the MBChB curriculum spans six
954 years. Teaching in pre-clinical years of the programme follows a problem-based learning (PBL) approach
955 in the classroom, followed by three years of clinical-based teaching. The first three years are coordinated
956 by the school of Laboratory Medicine, and the final three years by the school of Clinical Medicine.

957 *Sampling and sample size*

958 All students registered for the 6th year of study were invited to complete a self-administered questionnaire,
959 distributed and collected by a research assistant. Participation was voluntary. The response rate for the
960 survey was 79% (n= 173).

961 *Data collection instrument*

962 The self-administered questionnaire (appendix 7) included questions on demographic characteristics, a quiz
963 to test students' geriatric knowledge (Palmore's Facts on Ageing Quiz) and the UCLA Geriatrics Attitudes
964 Scale to determine student attitudes.^[176, 177]

965 The Palmore's Facts on Ageing Quiz comprises of 50 true-false questions designed to assess factual
966 knowledge on ageing and geriatric care. Correct responses scored one and incorrect responses zero. The
967 total scores were converted to a percentage. Higher scores indicate a greater knowledge of ageing and
968 geriatric care.

The UCLA Geriatric Attitude Scale (UCLA-GAS) was used to measure student attitudes towards the aged and their care. This 14-item survey assesses attitudes towards the aged and their medical care on a 5-point Likert scale. The scores on the negatively worded statements were reversed, and the mean calculated for each statement as well as the overall response.

Both instruments used to evaluate geriatric knowledge and attitudes are tools that have been used extensively in the US and internationally, with good internal reliability. Minor modifications were made to reflect the South African context. The reliability coefficient of the instrument using Cronbach alpha test was 0.69.

Data management and analysis

Data collection occurred between September and November 2019. The data were captured on Excel spreadsheets and exported to the statistical software package Stata (version 15) for analysis. Statistical analyses were performed using Analysis of Variance (ANOVA) to compare mean student knowledge and attitude scores among variables (age, prior qualifications, exposure to older adults). Spearman's correlation reported to examine the relationship of knowledge and attitude scores. A p-value of 0.05 was set for statistical significance.

3.5.3. Review of educational strategies- mapping the geriatric medical curriculum

Data to answer this objective was obtained from document review and semi-structured interviews with health professions educators.

Document review

Learning objectives on the web-based curriculum platform the **Learning Opportunities, Objectives and Outcomes Platform (LOOOP)** were scanned for content, activity and outcomes relevant to the care of older adults.^[178] This electronic platform contains information on all the modules offered in the MBChB curriculum, and outlines individual learning objectives and related teaching and assessment outcomes. In addition, it reports on the contribution of each module to each of the competency domains as related to CanMEDS competency framework.^[97]

Data extracted from this electronic platform were collated on a purpose-designed data collection tool (Appendix 10). Data obtained regarding the geriatric curriculum was cross-referenced against the facilitator guides and student manuals. Findings from the document review was augmented by interviews with health professions educators.

998 *Contribution of health professions educators*

999 Sampling and sample size

1000 Participants were purposively sampled to represent health professions educators involved in teaching on
1001 geriatric topics or the curriculum (n=5). These included the chair of Geriatric Medicine, a family physician,
1002 psychiatrist, clinical tutor and specialist physician.

1003 *Data collection and analysis*

1004 Semi-structured interviews were conducted with participants aided by a discussion guide (appendix 9).
1005 Interviews were recorded, with consent, transcribed verbatim and the data was anonymised. The transcripts
1006 were returned to participants to verify data. The transcripts were then read thoroughly together with field
1007 notes, and content analysis was conducted of each transcript.

1008 **3.6. Ethical considerations**

1009 Before the study was initiated the protocol was reviewed and approved by the University of KwaZulu-Natal
1010 Biomedical Research Ethics Committee. (BE287/18 & BE049/19) (Appendices 11 & 16). Gatekeepers’
1011 permission to access the primary healthcare facilities was obtained from the provincial department of health
1012 as well as from each facility (Appendices 12-14). Permission from the university registrar was also obtained
1013 (Appendix 15) in order to undertake the student survey. The purpose of the study was explained to
1014 participants prior to conducting interviews, discussions and surveys, and written informed consent obtained
1015 (Appendices 1,2,3,4,6,8). Participation was voluntary and participants were informed of their right to
1016 withdraw from the study at any time and without providing a reason. To eliminate bias research assistants
1017 were employed to assist with data collection from patients and students. All participants were assigned a
1018 study code to ensure anonymity. Data from the study was stored in a locked cupboard or password-protected
1019 laptop, accessible only to the researcher.

1020 **3.7. Researcher background and reflective statement**

1021 Reflexivity has been described as an explicit self-aware analysis by the researcher with regard to how
1022 his/her subjectivity impacts upon the research.^[179] A brief history of the researcher and her journey is
1023 provided below.

1024 As a family physician I have worked in primary care for over twenty years, caring for patients of all ages.
1025 I have observed how older adults are neglected in a healthcare system that is fragmented and focused on
1026 curative care. I also realised that my medical training was inadequate to address the challenges of geriatric

care. My concern for the medical care of elderly patients stems from personal observations of poor quality of care and unnecessary suffering of our senior citizens. Levels of empathy are reportedly declining among health professionals who are not cognisant of the impact of sub-optimal care on the lives of older adults, nor aware of the benefits of interprofessional collaboration and care. This study provided an opportunity to advocate for better health care for elderly patients.

Since joining the medical school as a lecturer I realised that undergraduate medical students are still poorly prepared to care for elderly patients. There is minimal coverage of conditions such as chronic non-communicable diseases in the undergraduate curriculum, which are the most prevalent conditions seen in ambulatory care departments at primary care facilities. There is also little emphasis on the psychological and social factors that impact greatly on the health of older adults. Even more worrying is the self-absorption of the millennial generation students, who fail to appreciate how influential they can be on the healthcare system and society in general.

This PhD study is part of my academic journey. I recently completed a fellowship in Health Professions Education by the sub-Saharan Africa-FAIMER institute (SAFRI). The fellowship has enabled me to collaborate with other like-minded people to further scholarship in Health Professions Education in Africa. I am fortunate to be in a position to influence both undergraduate and postgraduate medical training, as well as provide direct care to older adults. The SAFRI fellowship has empowered me to implement changes at my institution to improve the quality of teaching and learning, particularly in the area of interprofessional education. This study represents my attempt to raise awareness of the neglect of older adults in SA and guide evidence-based recommendations to improve the quality of care of older adults.

3.8. Conclusions

This chapter provides insight into the research design of this body of work. An overview of the research methodology is provided as well as the rationale for the methods chosen. The details of the methods specific to each component of the study is discussed more extensively in the manuscripts in Chapters 4 to 6. The relevance of the methods related to each research objective is presented, and the relationship to the overall study aim clarified. Also, ethical considerations, methodological challenges, and the reflexive positioning of the researcher are thoroughly elucidated.

Chapter 4: What the elderly experience and expect from primary care services in KwaZulu-Natal, South Africa

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4.1. Introduction

Medical schools should ensure that their curricula address local population needs in order to be socially accountable and responsive to the communities served.^[180] However, there is a paucity of data on geriatric health services from the patient perspective to inform the curriculum. A few studies in South Africa report that elderly patients in South Africa have many negative perceptions of health professionals and the care received.^[4, 10] Further investigation is required to explore the reasons for this and elicit recommendations from patients to improve current service delivery.

Ageism, the stereotyping, prejudice, and discrimination against people based on their age, is known to negatively influence older people's perceptions of themselves and their access to healthcare.^[154] Ageist attitudes among health professionals can result in negative behaviour towards older patients, thereby adversely affect health outcomes among older adults.^[154, 155, 181] Medical practitioners are ideally positioned to confront patients' perceptions of aging and challenge stereotypes.^[182] They could potentially facilitate the adoption of preventive health strategies by the elderly and improve the quality of life in their later years.^[183, 184] Furthermore, by providing appropriate care to older adults, health professionals can help reduce disabilities and care dependency in old age. It is thus necessary to examine and confront how older adults are cared for in health facilities in order to inform reforms to the health system and health professions training.

The CanMEDS framework outlines seven roles that students should become proficient in as a future medical practitioners. These roles are the professional, communicator, collaborator, scholar, leader, health advocate and medical expert. The attainment of each of these roles will greatly contribute to the care of geriatric patients. However, there are few studies available that describe the professional attributes that older patients associate with quality healthcare. The views of older patients, who are the recipient of health services, should be considered when planning and reviewing the geriatric curriculum.

This chapter explores the perceptions of patients aged 60 years and older regarding the health services received at primary care facilities. In additions, their recommendations for improving the quality of care for older patients was obtained. The findings presented in this manuscript provide empirical evidence to

inform interventions in the primary healthcare system and health professions education to improve the quality of care for older people in SA.

4.2. Publication details

The findings of this study has been published and the details summarized below.

Title	What the elderly experience and expect from primary care services in KwaZulu-Natal, South Africa
Authors	Keshena Naidoo, Jacqueline Marina van Wyk
Journal	African Journal of Primary Health Care & Family Medicine
Details	Peer reviewed (double-blinded). Open-access journal Listed with department of higher Education and training (DoHET)
Status	Published

4.3.1. Journal information

The African Journal of Primary Care and Family Medicine publishes one issue each year. This is an open access journal which means that all content is freely available without charge to the user or his/her institution. Articles are published online when ready for publication and then printed in an end-of-year compilation. Users are allowed to read, download, copy, distribute, print, search, or link to the full texts of the articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author. This is in accordance with the Budapest Open Access Initiative (BOAI) definition of open access.

The African Journal of Primary Care and Family Medicine seeks to publish innovative research, reviews, country profiles, editorials and opinion pieces on all aspects of primary health care and family medicine in the African context. The research includes education and training of professionals and health workers in family medicine and primary health care on the African continent.

4.2.2. Publication details

The manuscript was submitted to the journal on the 3rd April, 2019 and was published on the 10th of October, 2019.

4.2.3 Contribution Record

The candidate conceptualised the paper, collected and analysed the data, and was the main author. Professor Van Wyk refined the study protocol and the writing of the manuscript.

4.3 Key Findings and Contribution of the Manuscript to the Thesis

This paper addressed the first step in Kern et al's six-step framework for curriculum development, which was to identify the health care need. The findings highlighted the areas of health professions education in need of improvement by identifying the gap between the current and ideal care for older patients. The key principles for quality care of older adults that were elicited from patients were compassion, respectful communication, appropriate prescribing, patient-centredness and coordinated care. This research identified areas to improve undergraduate medical training in geriatric care, particularly regarding behavioural and attitudinal attributes. The findings of the paper affirmed the need to review the geriatric curriculum for undergraduate medical students, and to develop and implement minimum core competencies in geriatric care. This generated the need to evaluate the current geriatric curriculum at UKZN to establish the extent to which patient health needs are addressed. This investigation is reported in Chapter 6 of the thesis.

What the elderly experience and expect from primary care services in KwaZulu-Natal, South Africa



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Background: People aged 60 years and above are predicted to outnumber those aged under 5 years in South Africa for the first time by 2040. This will put increased demands on the health system to address geriatric health needs. However, data on geriatric populations in sub-Saharan Africa are scarce. Health policymakers need to be informed of the expectations of the elderly people regarding health services, especially at primary care level.

Aim: The aim of this study was to explore the experiences and expectations of people aged 60 years and above regarding ageing and health services, and the factors that might improve the quality of primary care services for geriatric patients.

Setting: The study was conducted at three public health primary care facilities in KwaZulu-Natal province, South Africa: one in a rural setting, one in a peri-urban and one in an urban setting.

Methods: This qualitative study involved a purposive sample of 28 participants, aged 60 years and above. Four focus group discussions were conducted in either isiZulu or English, depending on the preference of the participants. Data were analysed thematically using an inductive approach.

Results: Nineteen of the 28 participants were women. Five key findings emerged from the study: (1) long waiting times – participants were distressed by lengthy waiting times, (2) illness-centred care – participants felt that they were seen as diseases to be treated, (3) lack of caring – health providers were perceived to lack compassion, (4) pill burden – participants experienced adverse effects of prescribed medication and (5) need for priority care – participants wanted a separate queue for the elderly.

Conclusion: Health systems and health professions educators should consider the need for patient-centred and integrated care for geriatric populations. Further research is required on the unmet needs of geriatric people in the community.

Keywords: geriatric; older adult; primary care; sub-Saharan Africa; KwaZulu-Natal.

Introduction

The geriatric population in sub-Saharan Africa (SSA), which is defined by the World Health Organization (WHO) as people aged 60 years and above, is predicted to increase from 42.6 million in 2010 to 160 million in 2050.¹ The rapid ageing of populations in this region is attributed to the success of programmes directed at reducing maternal and infant mortality and enhanced access to antiretroviral therapy.^{2,3} In South Africa, the number of people aged 60 years and above is predicted to outnumber those aged under 5 years for the first time by 2040.⁴ Despite the anticipated shift in age-specific health demands, there has been little response from health systems on the continent to address geriatric healthcare. This could be partly because of the lack of data on the health needs of older adults in SSA to inform policymakers.⁵ Most evidence on geriatric health needs is derived from high-income countries (HICs) and thus cannot be generalised to geriatric populations in SSA.

The majority of older adults in SSA utilise primary healthcare facilities for their health needs. Community clinics are the most commonly used providers of health services, while a small number of pensioners also access services from private general practitioners or traditional healers.^{6,7} Specialised geriatric services and specialist geriatricians are rarely available. As reported in 2017, there was only one geriatrician per 275 000 older adults in South Africa.⁸ Despite improved access to primary care services post-democracy, the elderly in South Africa face several challenges in meeting their healthcare needs.⁹ The major barriers that the elderly face in utilising health

services include cost, transportation and accessibility. More than 60% of older adults in low- and middle-income countries reportedly did not access healthcare because of the cost of the visit or lack of transportation.¹⁰ High out-of-pocket expenses are associated with chronic diseases where frequent clinic or hospital visits are required.⁹ Transport is another major barrier to accessing healthcare, especially for the elderly in rural areas and in those with restricted mobility.¹¹ Primary care health facilities in KwaZulu-Natal (KZN), South Africa, face resource constraints that present several challenges to geriatric patients. Older adults with physical impairments and urinary incontinence may be discouraged to attend health facilities with long queues and lack of accessible toilets.⁹ Despite policies to improve healthcare access for patients with disabilities, infrastructure at health facilities is still lacking.¹² Studies in South Africa have reported that elderly patients associated service delivery at the clinics with long waiting times, averaging between 2 and 5 h.⁶ Few facilities prioritise the elderly and physically impaired. Also, existing healthcare services are fragmented with little coordination between care providers.

Currently, the clinical guidelines endorsed for use by primary care providers in South Africa are designed for the management of single diseases, and they inadequately address the problem of multi-morbidity.¹³ Multi-morbidity, defined as the presence of two or more medical conditions, is more prevalent in the elderly people aged 60 and above than in people of other age groups.^{14,15} As a consequence of multi-morbidity and poor coordination of care, polypharmacy in geriatric patients is common. A study conducted by Saka et al. in 2018 described the high prevalence of inappropriate drug prescription for elderly patients in Nigeria and South Africa.¹⁶ The management of geriatric patients is further compounded by age-related sensory and functional impairments. These impairments could result in poor quality of life and adverse health outcomes in the elderly if not identified and managed appropriately.⁶ Health systems and health professions training assign greater importance to curative medicine than to preventative health and rehabilitation.¹⁷ Consequently, the complex health needs of geriatric patients are often ignored.

Ageism, defined as the stereotyping or discrimination against people because of their age, is another factor that contributes to the poor quality of healthcare for older adults. A recent study found multiple manifestations of ageism in the healthcare system, ranging from inappropriate treatment to discriminatory communication practices.¹⁸ A study in Cape Town reported that over 80% of indigent elderly considered staff members at clinics to be unhelpful.⁶ Health professionals with low expectations of health outcomes in the elderly may neglect to address treatable conditions.¹⁹ Sub-standard clinical care can reinforce negative perceptions of patients towards ageing and the ability to be treated successfully. Evidence indicates that elderly people value a relationship with their healthcare providers based on care for the individual and not focus on disease management.²⁰ Training courses for health professionals need to consider a change from traditional

disease-focused care to patient-centred care in order to improve the quality of care provided to the elderly.

Little attention has been directed towards health professions training in geriatrics. A survey of medical curricula in SSA revealed little inclusion of geriatrics.²¹ As a result, most medical professionals working in primary care have had little training in geriatric care.²¹ Almost all health professionals in SSA will encounter older adults and will therefore require an understanding of the needs and challenges of geriatric patients. Health professions educators must consider the growing demand of geriatric health services and how to prepare graduates for this. Health policymakers also need to consider how primary care services can be modified to improve the quality of care for the elderly. Given the paucity of literature on the needs of people aged 60 years and above in SSA, this study was conducted to explore the experiences and expectations of older adults regarding ageing and health services, and the factors that might improve the quality of primary care services for geriatric patients.

Methodology

Study design

This qualitative exploratory study involved people aged 60 years and above attending primary care facilities in KZN. The interpretative exploratory design was chosen to explore older persons' perceptions of ageing and age-related health conditions, and their experiences and expectations of health services.

Population and sampling

A total of 28 participants were purposively selected from four community health centres to reflect the gender and ethnic profile of the population, and to ensure representation from urban, rural and peri-urban communities in KZN. All clinic attendees aged 60 years and above were eligible for the study.

Demographic data

Of the 28 participants, 19 were women (67.9%). Participants represented different ethnic backgrounds, that is, black, Indian, mixed race and white. The main languages spoken were isiZulu and English.

Bias

Sampling bias was avoided by carefully selecting participants based on their age, thus representing the group of interest for the research. Interviews were held at a time and place convenient to participants and in a language of their choice. An independent coder was employed to assist in preventing interpretation bias.

Setting

Data were collected from three health facilities in KZN. These community health centres are managed by the KZN

Department of Health. One facility was in a rural location, one in a peri-urban and one in an urban setting. All health facilities from which participants were recruited provide a package of primary care services to the general population and are staffed by medical, nursing and other health professionals.

Data collection

Four focus group discussions were conducted between October and November 2018. The interviews lasted for about 40–50 min. Two of the four focus group discussions consisted of eight participants each and the other two groups consisted of six participants each. Two of the groups were located in an urban community and one each from a peri-urban and a rural community. The groups were small enough to enable all participants the opportunity to share their insights, but large enough to provide a diversity of understandings. Data were collected on days when the participants were attending the primary care facility for scheduled appointments. Participation in the study did not compromise or facilitate services at the facility. The managers and staff at the facilities assisted the researcher in organising the venue for the interviews and inviting participants to take part. The research assistant explained the purpose of the research and the process of data collection. Interviews were conducted in either isiZulu or English, depending on participants' preferences. An interview guide was used by a research assistant to collect the data. The discussions were tape-recorded and transcribed verbatim.

Data analysis

Before data analysis, a research associate fluent and competent in both isiZulu and English translated all isiZulu interview transcripts verbatim into English. The transcripts were imported into Nvivo 12 software. The researcher read through all of the transcripts, together with field notes, and conducted content analysis of each transcript. Similar concepts were clustered together, data were integrated and synthesised into a descriptive structure and codes were created. Themes derived from the codes were categorised into four domains (see Box 1).

Trustworthiness

The use of an independent coder skilled in the field of research assisted in ensuring dependability. Tape-recorded data and field notes were kept as an audit trail to ensure confirmability.

Ethical considerations

Participation in the study was voluntary. Written informed consent was obtained from all the participants before the study commenced. All personal data of participants were anonymised. The recordings and transcripts of the focus

group discussions were stored on a password-protected laptop accessible only to the researcher and the research assistant. Approval for the study was obtained from the University of KwaZulu-Natal Biomedical Ethics Committee (BE 287/18) and the managers of the health facilities.

Findings

Five key themes emerged from the data: long waiting times, illness-centred care, lack of caring from professionals, pill burden and the need for priority care. Each theme is discussed below.

Long waiting times

Participants reported being frustrated by the long waiting times, especially when waiting to see a health professional. It was the most significant concern expressed about visiting health facilities. Multiple visits were sometimes necessary because of shortages of medication:

'The biggest worry is the queue ... sometimes you spend the whole day here.' (Participant 4, Group 1, 66-year-old female)

'Sometimes you're standing in a queue for a long time ... over 60 years and you are standing!' (Participant 4, Group 2, 65-year-old female)

'All of us have to wait, and they can tell us to come back next day.' (Participant 1, Group 2, 70-year-old female)

'We are in our 70s. Imagine ... paying all the taxi fare, coming back the next day.' (Participant 2, Group 1, 72-year-old female)

Illness-centred care

Health professionals were perceived to view elderly patients as diseases to be treated rather than individuals with health needs. Patients attending the clinic for a chronic disease were not seen as important, and little interest was expressed about patients' concerns. This reinforced participants' negative perceptions about chronic illnesses associated with ageing, and significantly altered the identity and self-esteem of participants. Quotes supporting this theme included the following:

'Every 6 months I must come for my heart, take my medication – I am chronic.' (Participant 1, Group 1, 66-year-old female)

'As long as you are chronic, they don't care They just write down your medication and tell you to go. They don't even look at you. Chronic is just for medication.' (Participant 3, Group 2, 70-year-old female)

'If you are a chronic, doctors don't look at you, just write the prescription.' (Participant 2, Group 1, 72-year-old female)

'I try to analyse that word chronic case ... it means that you are no more, you will die with it.' (Participant 5, Group 1, 69-year-old female)

Lack of coordination regarding the various aspects of care needed was also evident. Patients with chronic illnesses received medical services in a designated section of the facility dealing only with patients on chronic medication. If they expressed new symptoms, they would be referred to another department. Participants were confused and

BOX 1: Domains of data coding.

1. Patients' experiences of ageing and related health condition	2. Patients' experiences of health services
3. Concerns related to ageing	4. Patients' expectations of healthcare

frustrated about this fragmentation of services. Participants expressed the following frustrations:

'The doctor I'm seeing cannot help me, they refer me to the general doctor. What is the purpose of this doctor I'm seeing?' (Participant 3, Group 3, 68-year-old female)

'They do not want us to do two things at the same time.' (Participant 4, Group 3, 66-year-old female)

'I hear, sometimes not well, but I don't know where I can get help.' (Participant 2, Group 4, 74-year-old male)

Lack of caring from health professionals

Participants perceived health professionals to lack respect or care for older patients. Their lack of interest in patients' concerns was interpreted as a lack of caring. Patients craved physical contact with the doctor. The need for kindness and empathy was frequently mentioned by most of the participants. This was evident from the following quotes:

'They do understand but they don't speak the right way to you, and they wouldn't do that to their parents.' (Participant 3, Group 2, 70-year-old female)

'We worked all our lives ... and they feel like they are doing us a favour when you come to a state hospital.' (Participant 4, Group 2, 65-year-old female)

'Just be polite, we don't want to take long.' (Participant 1, Group 2, 70-year-old female)

'I think the education has gone so much into them [that] they forgot about love and care.' (Participant 4, Group 1, 66-year-old female)

'To be kind, even to ask some questions relating to your life ... then you will see he is really taking care of you.' (Participant 5, Group 1, female)

'The way he talks can be able to release your pains, your aches.' (Participant 4, Group 1, 66-year-old female)

Pill burden

Patients struggled with the multiple medications prescribed or 'pill burden'. There was poor understanding of the purpose of the medications as health professionals provided little information or education about prescribed treatment. Sometimes, drugs were out of stock and participants were instructed to purchase them at their own cost, or do without. Furthermore, multiple adverse effects were experienced with prescribed medication. Some participants discontinued the medication on their own, while others persisted despite the negative side effects. Participants expressed this in the following ways:

'Maybe, you have BP and they give you lot of tablets and I do not know what these tablets are for.' (Participant 3, Group 3, 65-year-old female)

'I take the tablets but I don't know where they are helping me.' (Participant 2, Group 2, 68-year-old female)

'The doctor gives you tablets without explaining what they are for.' (Participant 3, Group 2, 70-year-old female)

'... [S]hortage of medicine, now we have to buy medicine. Now we get so less pension money and now you expect us to go buy the tablets.' (Participant 4, Group 1, 66-year-old female)

'Another doctor gave me tablets that made my heart beat hard ... made me dizzy, I do not drink them and I never went to the doctor. I am right without them.' (Participant 2, Group 3, 69-year-old female)

Need for priority care

The participants indicated that they wanted priority care for the elderly, especially for the very old (i.e. over 80 years) and frail patients who attend the facility. Participants in all the groups agreed that there should be a separate queue for the elderly. Quotes supporting this theme included the following:

'The doctors need to understand we are old, see to us first and not put us with children.' (Participant 2, Group 1, 66-year-old female)

'A clinic for old people must be separate.' (Participant 7, Group 3, 71-year-old male)

'They should see us first because we are older and do not have the strength.' (Participant 3, Group 4, 72-year-old female)

Discussion

This study identified five key findings regarding the perceptions and expectations of people aged 60 years and above about primary healthcare services in KZN province, South Africa. These were (1) long waiting times, (2) illness-centred care, (3) lack of caring from professionals, (4) pill burden and (5) the need for priority care. Participants were dissatisfied with several aspects of primary care services, that is, long waiting times, lack of caring from health professionals, fragmentation of services and multiple medications prescribed.

The main concern expressed was the long waiting times experienced at the clinic. This was exacerbated by return visits to collect medications that were out of stock. Chronic diseases were common among people aged 60 years and above, and necessitated regular clinic visits and multiple medications. The participants found the prescription of multiple medications confusing and sometimes associated with unpleasant side effects. Previous studies have reported that polypharmacy and inappropriate drug prescription are a common occurrence in the elderly. This is associated with an increased risk of adverse drug reactions.¹⁶ In this study, there was poor communication about the prescribed drugs. Little information was provided in this regard, and there was a lack of knowledge among participants about their medications. As a result, the participants often self-managed the adverse effects experienced with medication without discussing with their healthcare providers. Greater vigilance is required by prescribers when treating the elderly patients.

Clinic services were disease-centred, resulting in fragmentation of the care provided to elderly patients. Participants were required to see different health providers at the same clinic to attend to different health concerns. Participants perceived healthcare professionals to lack respect or care for them, as they showed little interest about patients' concerns. It was important for the participants that health professionals demonstrate kindness and compassion towards them.

Recommendations emerging from this study to make primary care services more age-friendly included the following: medical staff members need to be more empathetic, clinics should have an integrated service for all health concerns and there should be a priority queue for the elderly and very ill patients. Patient-centred and integrated care for older adults are well-documented principles considered essential for age-friendly services.²² The participants were in agreement with these principles. However, despite the economic and health benefits of organising integrated healthcare services for the elderly, there has been little success globally in achieving this objective.²³ A survey of people over 60 years in 11 HICs reported a lack of coordination of care in 41% of cases.²⁴ Countries in SSA need to look at innovative and resource-efficient models of providing quality care to geriatric patients in our context. Collaboration between health professionals is essential to provide comprehensive care to geriatric patients and reduce polypharmacy and inappropriate drug prescription. Integral to this is the inclusion of geriatric care training in health professions education that emphasises patient-centredness and integrated care.

Limitations

This study was a community clinic-based study and was conducted over a short period of time. It may not represent all people aged 60 years and above in KZN, especially those who do not regularly use health services. Further research is required on the elderly population in the community.

Conclusion

This study provides data on the quality of primary healthcare services provided to the elderly people in KZN from the perspective of the recipients of care. The challenges experienced by people aged 60 years and above who attend community health facilities included long waiting times, lack of caring from health professionals, high pill burden, illness-centred care and low priority care to the elderly. There was strong support for facilities to have a priority queue to attend to the very old (i.e. above 80 years) and frail patients. The fragmented services reported by the study participants highlighted the need for integrated healthcare services at primary care level. As geriatric patients are prone to multiple health problems, they would benefit from integration of various services required, and there should be an emphasis on function rather than on single-disease treatment.^{25,26} This would potentially reduce waiting times and improve the overall quality of geriatric healthcare. Training of health professionals should consider the need for a compassionate and comprehensive approach when seeing geriatric patients. Greater exposure to geriatric medicine and awareness regarding the unique needs of older adults are critical to health professions training in KZN, South Africa.

The key recommendation for health policymakers and educators is to align geriatric health services with a patient-centred and integrated approach. This study was limited to facility-based care of the elderly in KZN, South Africa. Further research is required regarding the unmet health

needs of the elderly in the community. There is also a need for research on health professions education regarding geriatric healthcare, particularly in SSA.

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Competing interests

This article has not been published before nor has it been submitted to any other journal for publication. Each author has substantially contributed to conducting the underlying research and drafting of the manuscript. In addition, the authors have declared that they have no conflicts of interest, financial or otherwise.

Authors' contributions

K.N. was responsible for conceptualising the study, data collection, analysis of results and write-up of the manuscript. J.v.W. refined the study protocol and writing of the manuscript.

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Data availability statements

Data are available from the authors upon request.

Disclaimer

The views and opinions expressed in this article are those of the authors and do not necessarily reflect the official policy or position of any affiliated agency of the authors.

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Chapter 5- The knowledge and attitudes of final year medical students' regarding the care of older adults

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5.1. Chapter overview

This chapter introduces the next step of this curriculum development study, which is a targeted assessment of medical students' learning needs. The previous chapter highlighted the professional attributes valued by geriatric patients and the perceived shortcomings in current health professional services. The paper described in this chapter expands on the analysis of medical geriatric training by evaluating the level of knowledge and attitudes of final year medical students regarding the care of older adults. It also reports on factors influencing student knowledge and attitudes towards the care of older adults, and highlights educational strategies to address the gaps in student learning.

Student learning is dependent not only on the planned curriculum but also intrinsic factors and the hidden curriculum. Having a clearer understanding of student learning in geriatric care and the factors influencing their knowledge and attitudes regarding the care of older adults contributes to the emerging body of knowledge on geriatric care training of health professionals in SSA. Studies from HICs indicate that medical students have little interest in geriatric medicine.^[185, 186] Evidence also suggests that students possess negative attitudes towards the care of elderly patients and that their attitudes decline during the extended study period at medical school.^[155] Low levels of interest and negative attitudes may adversely affect student learning in geriatric care competencies, and contribute to the poor quality of care for geriatric patients as reported in the previous chapter. Conversely, student interest and learning in geriatric care could provide the impetus for medical professionals to advocate for quality healthcare for their older patients.

Socially responsive medical schools must periodically review their curricula to determine whether the needs of the population served are adequately addressed.^[187] Curriculum review is also necessary to evaluate whether graduate outcomes are consistent with those intended in the stated learning objectives. In view of the rapid increase in the older population in SA it is important for students to be sensitized to the health inequities experienced by older adults, as described in chapter 2, and attain the necessary competencies in order to care for older patients. In chapter 4 the expectations of geriatric patients were elucidated regarding the services provided by health professionals. This chapter focusses on the recipients of the training program, and documents the degree to which current medical students are prepared to care for older patients.

5.2. This manuscript has been accepted for publication and the details summarized below.

Title	The knowledge and attitudes of final year medical students' regarding care of older patients
Authors	Keshena Naidoo, Jacqueline Marina van Wyk
Journal	African Journal of Health Professions Education
Details	Peer reviewed (double-blinded). Open-access journal Listed with department of higher Education and training (DoHET)
Status	Accepted for publication

5.2.1. Journal information

The African Journal of Health Professions Education (AJHPE) is a journal for health professions educators. It carries research articles, short scientific reports, letters, editorials, education practice, personal opinion and other topics related to the education of health care professionals.

A double-blind review process is followed to optimise the quality of the published papers. AJHPE is an Open Access Journal and provides immediate open access to its content on the principle that making research freely available to the public supports a greater global exchange of knowledge. The journal is published online quarterly (one volume comprising 4 issues per annum). Users are permitted to read, download, copy, distribute, print, search, or link to the full text of these articles, or use them for any other lawful, non-commercial purpose, without asking prior permission from the publisher or the author.

5.2.2 Publication Record

The manuscript was submitted to the journal on the 3rd March, 2020, was accepted 27th May, 2020.

5.2.3 Contribution Record

The candidate was primarily responsible for the conceptualisation of the paper, data collection and drafting of the manuscript. Prof. Van Wyk contributed substantially to the finalisation of the manuscript. Both student and supervisor read and reviewed the final manuscript.

5.3. Key Findings and Contribution of the Manuscript to the Thesis

This chapter describes an investigation into the knowledge and attitudes of final year medical students at the UKZN regarding the care of elderly patients. The results indicate that final year medical students displayed a minimal level of geriatric knowledge despite their perceptions of having had adequate exposure to geriatrics in the current curriculum. However, it was encouraging to note that the majority of students had positive attitudes towards working with elderly patients.

Most students found elderly patients pleasant and interesting to listen to, but also reported that it was laborious to take a medical history from them. Students would thus benefit from increased communication skills training relevant to the older patient. Older students and those with a prior higher education qualification were seemingly better prepared to care for older adults. This finding has implications for the admissions policy of medical schools. Increasing the intake of mature students into medical programmes could indirectly improve the quality of care for older adults. Of note, there was no association between geriatric knowledge and attitudes. Further qualitative investigation is needed into the reasons for this.

The poor knowledge demonstrated by students is significant to the overall study aim as it further validates the need to enhance the current geriatric curriculum to improve students' preparedness to care for older adults. The findings are also concordant with the report in the previous chapter that geriatric patients were dissatisfied with the level of communication and prescribing skills of health professionals. Identifying student learning gaps is a crucial component of curriculum development and informs changes to the curriculum that will produce the desired outcomes. The findings imply that greater attention should be directed to communications skills training, particularly around the challenges of communicating with older adults.

The principle of constructive alignment is an underlying concept in curriculum development and is aimed at achieving intended learning outcomes.^[188] Attention to the alignment between geriatric care learning objectives and outcomes will presumably better enable medical graduates to provide quality care to older adults.^[187]

The findings of this investigation provide insight into the knowledge and attitudes of final year medical students regarding the care of elderly patients. The following chapter examines the current geriatric care training in view of the findings of chapter 4 and 5.

The knowledge and attitudes of final year medical students' regarding the care of older patients

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Background

Medical graduates in South Africa, in almost all disciplines, will encounter older adults in their professional lives due to the rapid ageing of the population.⁽¹⁾ The number of people aged 60 years and above in South Africa (SA) is predicted to double from 7.8% of the total population in 2012 to 14.8% in 2050.⁽²⁾ This will result in an increased demand for health services that are responsive to the health needs of older adults. Studies in South Africa indicate that older patients receive poor quality and inadequate medical care at primary care level.^(3,4) This is partly due to the limited geriatric training and perceived ageist attitudes of health professionals.^(3,5) The planned implementation of a National Health Insurance (NHI) scheme in South Africa is dependent on primary care providers' ability to deliver quality health services to all, including elderly patients. However, it is unclear whether medical graduates possess an appropriate level of knowledge and attitudes towards caring for older patients.

A recent systematic review indicated that medical students have little interest in geriatric medicine.⁽⁶⁾ Geriatric medicine, the field of medicine that focuses on the healthcare of the elderly, is a relatively new and neglected area in medical education, and is often perceived by medical students as unimportant.⁽⁷⁾ The pensionable age in SA is 60 years, and geriatric medicine in SA is therefore directed at people aged 60 years and older.⁽⁸⁾ There is a scarcity of geriatric teaching faculty in SA often resulting in limited geriatric teaching in the undergraduate (UG) medical curriculum.⁽⁹⁾ Lack of exposure to geriatric teaching may contribute to students' lack of interest in caring for older patients. Furthermore, due to a lack of interest, student learning in geriatrics may be poor.⁽¹⁰⁾

Apart from the formal curriculum, students' geriatric knowledge and attitudes towards their elderly patients are influenced by cultural factors, experiences with older adults and the hidden curriculum.⁽¹¹⁾ Meiboom's investigation into the hidden curriculum in the Netherlands revealed that medical students were influenced by negative attitudes from their role models towards caring for elderly patients.⁽⁶⁾ This finding is supported by evidence indicating that students' attitudes towards the care for older people declined as they progressed

through medical school.⁽¹²⁾ This phenomenon could also be due to students' exposure to high levels of morbidity and mortality among geriatric patients, resulting in students' perceived futility of caring for the aged. Whilst most studies indicate that medical students' possess negative attitudes towards the elderly and their care, at least one study from Malawi demonstrated positive attitudes among medical and nursing students.⁽¹³⁾ The positive finding may be attributed to cultural factors and exposure to community-based education. In most traditional African societies, the elderly are both revered and respected. It is likely that these traditional values and attitudes may persist during undergraduate training if supported by on-going engagement with the community.

Given that health professions educators are being increasingly challenged to prepare medical graduates to care for aging populations, this study was conducted to explore the knowledge and attitudes of final year medical students towards caring for the elderly. The information on student geriatric knowledge and attitudes will inform the design of educational interventions targeted at improving student preparedness to care for older patients.

Aims

To explore and describe final year medical students' knowledge of and attitudes towards the care of elderly people.

Objectives

1. To evaluate medical student knowledge of medical care for elderly patients
2. To evaluate medical student attitudes towards the care of elderly patients.
3. To investigate factors influencing student knowledge and attitudes towards caring for elderly patients.

Methodology

This cross-sectional, descriptive study was conducted at the University of KwaZulu-Natal (UKZN) between September and November 2019. The UG medical program spans six years and uses a problem-based learning approach. Teaching and assessment of geriatric topics are integrated into other modules across most years of the academic programme.

The study population consisted of all UG medical students registered for the final (6th) year of the medical programme at the University of KwaZulu-Natal (N=219). A research assistant distributed a self-administered questionnaire to all eligible participants at the end of teaching sessions.

Data collection tools

The self-administered questionnaire included questions on demographic characteristics, prior qualifications, exposure to older adults outside the curriculum, and assessments of geriatric knowledge and attitudes. Both the knowledge and attitude assessment instruments have been used globally, with good internal reliability. Minor modifications were made to reflect the South African context. (Appendix A). The tool was piloted prior to data collection.

Students' geriatric knowledge was assessed using the Palmore's Facts on Ageing Quiz.⁽¹⁴⁾ This survey comprises of 50 true-false questions to assess factual knowledge on ageing and geriatric care. Correct responses scored one and incorrect responses zero. The total scores were converted to a percentage. Higher scores indicate a greater knowledge of ageing and geriatric care.

The University of California at Los Angeles Geriatric Attitudes Scale (UCLA-GAS) is a 14-item survey assessing attitudes towards the aged and has previously been used among medical students.⁽¹⁵⁾ The survey uses Likert-scale responses to indicate whether the respondent agrees or disagrees with the statement.

Data management and analysis

Data were exported to the statistical software package Stata (version 15) for analysis. One outlier was noted, and included in the statistical analyses. Statistical analyses were performed using Analysis of Variance (ANOVA) to compare mean student knowledge and attitude scores among variables (age, prior qualifications, exposure to older adults). Spearman's correlation reported to examine the relationship of knowledge and attitude scores. A p-value of 0.05 was set for statistical significance.

Ethical approval

Ethical approval was obtained from the UKZN Biomedical Research Ethics Committee (BE479/19) prior to data collection. Participants were assigned a study number, and no personal identifying data were recorded.

Results

The response rate for the survey was 79% (N= 219). Nearly 60% (n=103) of the cohort consisted of female students and the median age was 24 years (IQR 23-24). Twenty four of the respondents (14%) had a prior higher education qualification in fields of study that included science, finance and optometry. Of all respondents, 38% had some exposure to geriatric patients outside the formal curriculum.

Geriatric knowledge of medical students

The mean score on the Palmore's Facts on Ageing quiz was low (56.84% +/-10.42). As indicated in table 1, students aged 26 years and older (n=24) had a significantly higher mean score than younger students.

1301 The students' knowledge scores did not differ significantly by gender or ethnicity. Possession of a prior
 1302 higher education qualification was associated with greater geriatric knowledge.

1303 **Table 1. Mean geriatric knowledge percentage scores per variable**

	n (%)	Mean+/-SD	p value
Age group			
<23	56 (32.4)	57,6 +/- 9.6	0,0004*
23-24	74 (42.8)	54,2 +/- 10,4	
24-25	16 (9.2)	54,5 +/- 10.5	
26-34	27 (15.6)	63,9 +/- 9.6	
Gender			
Female	103 (59.5)	57,3 +/- 10.5	0,47
Male	70 (40.5)	56,1 +/- 10.6	
Ethnicity			
Black	116 (67.0)	55,4 +/- 10.6	0,05
Colored	9 (5.2)	60,6 +/- 6.5	
Indian	43 (24.9)	59,3 +/- 10.6	
White	4 (2.3)	64,5 +/- 5.7	
Not specified	1 (0.6)	56.8	
Other qualifications			
Yes	24 (13.9)	62,3+/- 9.6	0,01*
No	149 (86.1)	56,0+/- 10.4	

Student attitudes towards caring for elderly patients.

The UCLA-GAS measured attitudes on a scale of 1 to 5, with the scores reversed on the negatively worded statements. Scores above 3.5 indicate a mostly positive attitude towards the aged, and a score less than 3.5 indicates a negative attitude. In this study, participants demonstrated a mean score of 3.67, indicating a slightly positive attitude towards the elderly. The Cronbach alpha was 0.69.

Table 2. Associations between student attitudes and demographic characteristics

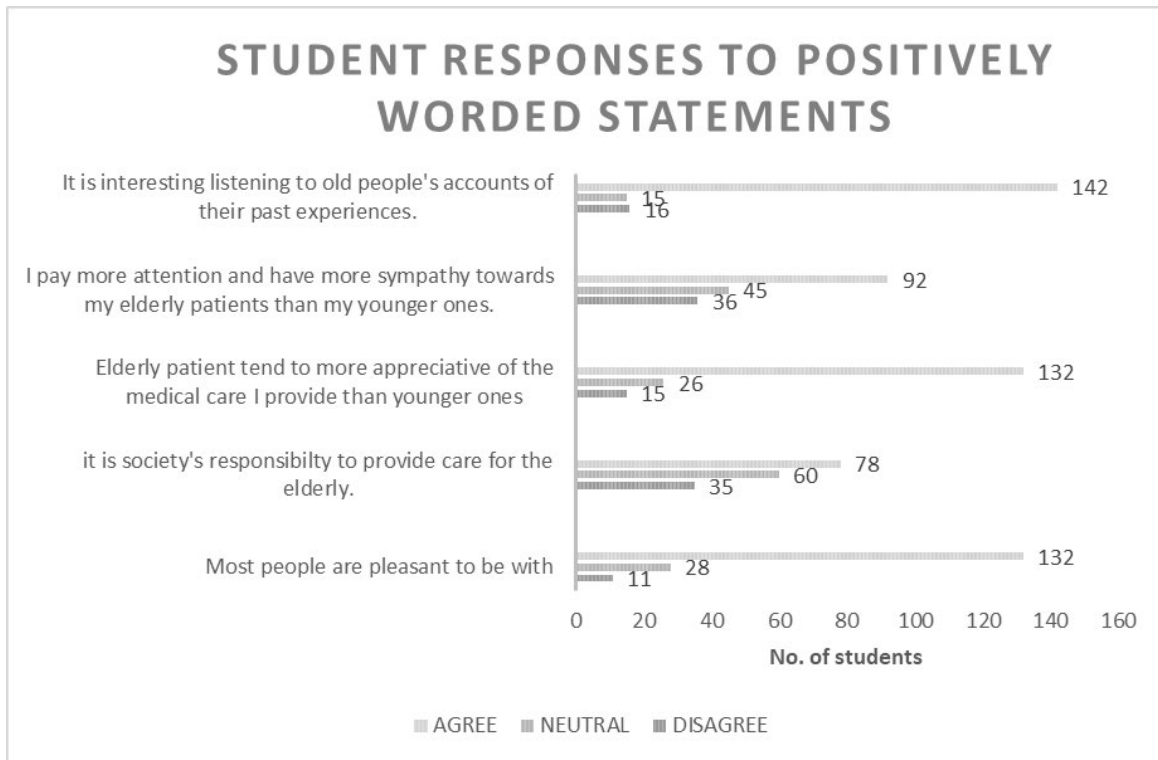
	% (n)	Mean+/-SD	p value
Age group			
<23	56 (32.4)	51,4 +/- 5.6	0,11
23-24	74 (42.8)	49,9 +/-6.7	
24-25	16 (9.2)	50,8+/-8.5	
26-34	27 (15.6)	53,5+/-6.5	
Gender			
Female	103 (59.5)	51,2+/-6.4	0,78
Male	70 (40.5)	50,9+/-6.8	
Ethnicity			
Black	116 (67.0)	51,2+/-6.8	0,42
Colored	9 (5.2)	53,4+/-5.0	
Indian	43 (24.9)	50,7+/-6.4	
White	4 (2.3)	47,0+/-6.7	
Not specified	1 (0.6)	51.3	

Other qualifications			
Yes	24 (13.9)	52,9+/-7.6	0,15
No	149 (86.1)	50,8+/-6.4	

There were no factors identified in this study that contributed to positive or negative student attitudes towards caring for the elderly. Although students aged 26 years and older were found to hold more positive attitudes than younger students, this was not a statistically significant difference. There were also no significant differences in student attitudes between male and female students, nor between those of different ethnicities. (Table 2) Respondents with prior higher education qualifications held more positive attitudes, but again this was not statistically significant. There was no association between previous exposure to older patients and student attitudes.

Student responses to each of the statements was analysed to obtain a deeper understanding of their attitudes towards elderly patients. The numbers of students that agreed, disagreed or were neutral to each statement are summarised in figures 1 and 2.

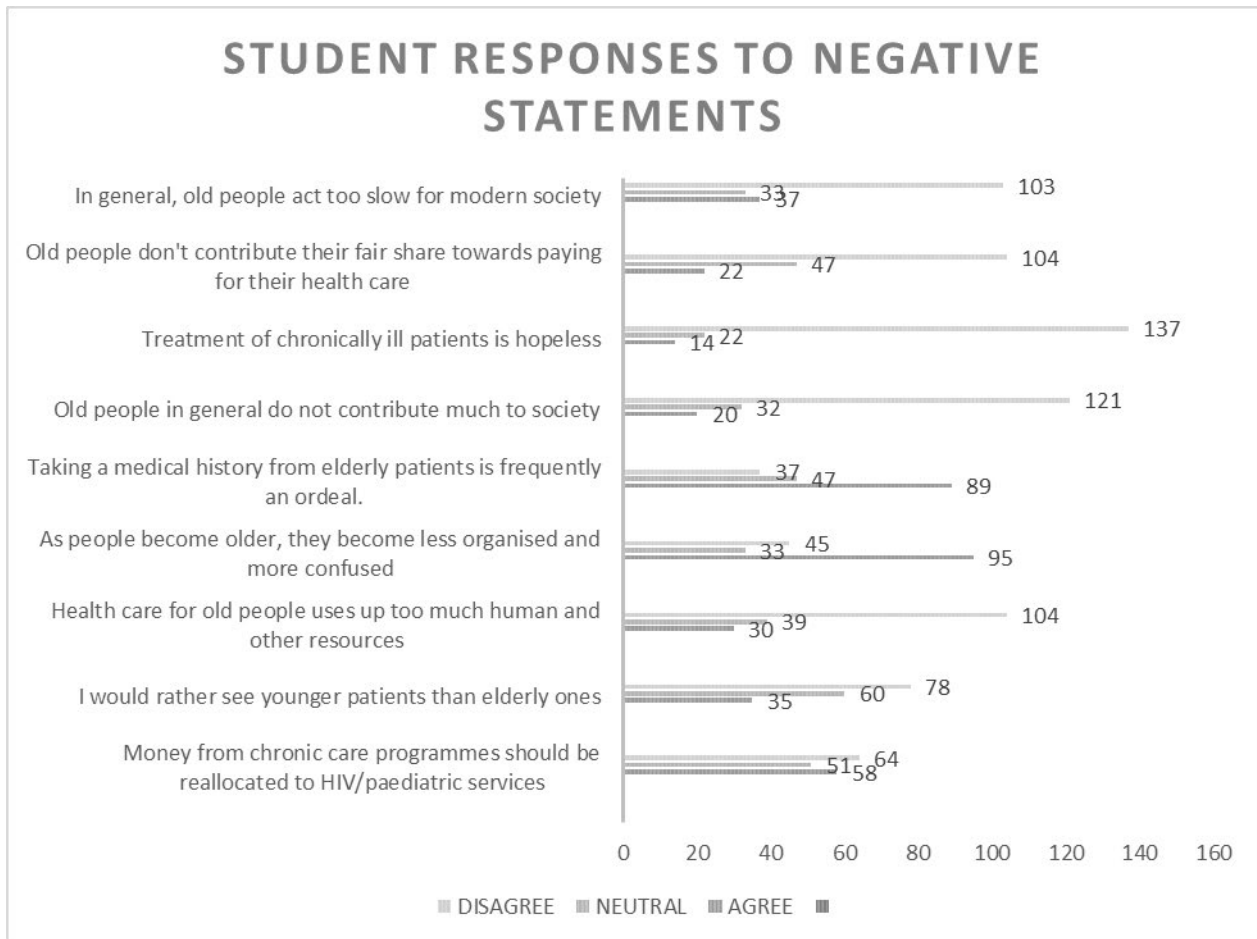
Figure 1. Geriatric Attitudes Scale- responses to positively worded statements



Over 82% (n=142) of students agreed that it was interesting to listen to old people's accounts of their past experiences. There were 76% (n=132) of students who also agreed that elderly patients were pleasant to be with and that they tended to be more appreciative of medical care than younger patients. However, fewer students (53%) reported that they were more sympathetic to older patients than younger ones (53%) and that it was society's responsibility to care for the elderly (45%).

Student responses to negatively worded statements are indicated in Figure 2.

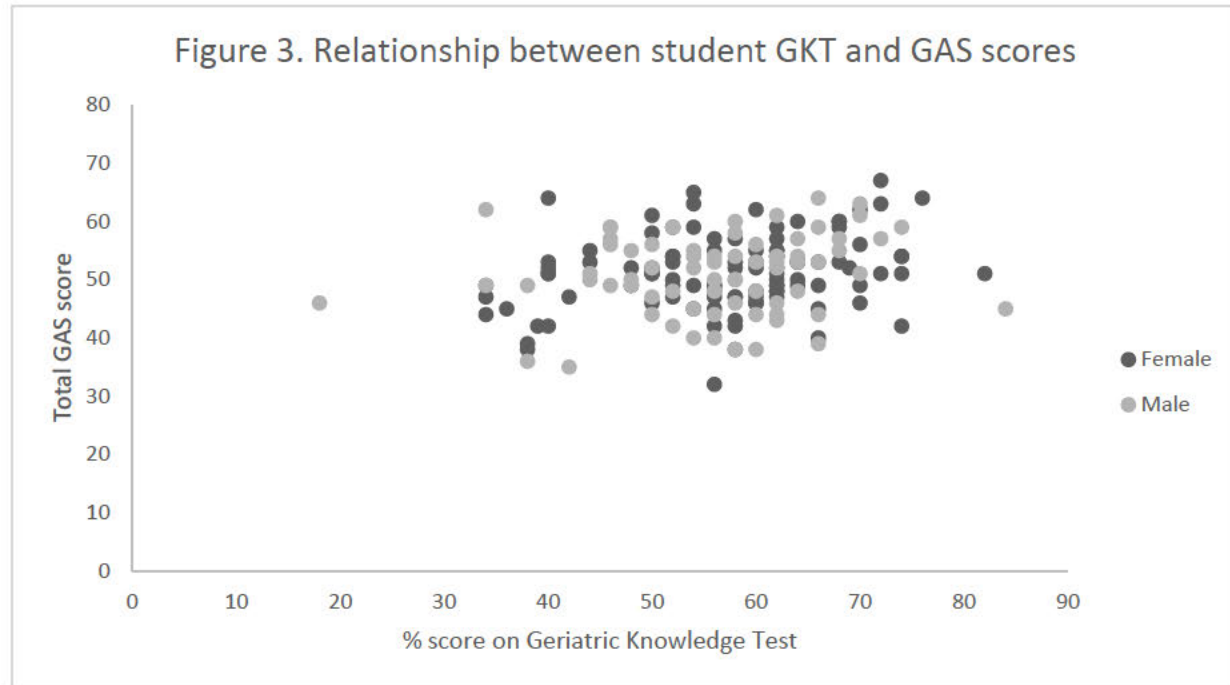
Figure 2. Student responses to negatively worded statement



Over 79% (n=137) of students disagreed with the statement that treatment of chronically ill patients is hopeless. Almost 70% of students (n=121) also disagreed with the statement that old people do not contribute much to society. However, more students agreed than disagreed that people become more confused as they grow older and that it was laborious to take a medical history from older patients.

Relationship between geriatric knowledge and attitude

Figure 3. Relationship between student knowledge and attitude scores



GAS- total Geriatric Attitudes score; GKT – Geriatric knowledge Test percentage

As depicted in Figure 3, there was no correlation between students' knowledge scores and their attitude scores regarding the care of older patients.

Discussion

Current literature suggest that limited knowledge and negative attitudes of health professionals result in the neglect and sub-optimal care of geriatric patients.⁽¹⁶⁾ Health professions educators are challenged to prepare medical graduates who will be both able and willing to provide quality medical care for their elderly patients. Despite student perceptions of receiving an adequate level of teaching in geriatrics, they displayed a minimal level of knowledge with a mean score of 56.84% (SD 10.42).

This finding is worrying, given the inclusion of geriatric topics in almost all years of the UG medical curriculum. It is possible that the lack of sub-minima in the assessment of geriatric content contributed to students' poor learning in this discipline.⁽¹⁷⁾ It is also uncertain how this knowledge is translated into practice. To address medical students' relatively low knowledge of aging, there should be a greater

emphasis on teaching and assessment of geriatric learning objectives in the curriculum. Given the limited time afforded to geriatric teaching in the curriculum, it is crucial to evaluate the efficacy of educational strategies that can improve student learning in this neglected discipline.

It was encouraging to note that most students had positive attitudes towards working with elderly patients. Similar findings were noted among students in Singapore and Malawi.^(13,18) However, this conflicts with reports of negative attitudes and behaviours of medical professionals towards their elderly patients.⁽³⁾ It is possible that student attitudes after graduation could be negatively influenced by the organisational culture in health facilities and by the role models they observe in practice. Since this study only examined the attitudes of final year medical students it could not be determined if student attitudes towards caring for older patients improved or declined over the course of study. Further investigation is needed on the changes in attitudes at different stages of study and professional practice, and other factors influencing the attitudes of medical professionals towards their elderly patients.

An analysis of students' attitudes indicated that communicating with older patients is a challenge to most students. Greater attention is thus required in communication skills training, especially regarding older adults with sensory and cognitive impairments. Furthermore, teaching and assessment of communication skills should be integrated with practical skills in order to provide a more realistic and comprehensive approach to the care of older adults.⁽¹⁹⁾ Communication skills is also a key educational strategy in developing patient-centred practices in students, a key element in quality care for older adults.^(20,21)

Studies report that female students and those who had exposure to the elderly outside the prescribed curriculum were more inclined to have positive attitudes towards the elderly.⁽¹¹⁾ However, this was not the case in this study. It is likely that students in our study were exposed for six years on the same medical curriculum resulting in equal levels of empathy at exit level. Further research is needed to explore the influence of role models and intrinsic factors in students that could contribute to student attitudes towards caring for older adults. The seemingly better knowledge and attitudes of older students would suggest that intake of mature students into the medical profession could produce graduates better able to provide quality healthcare to elderly patients. Older students may also be more likely to choose to work with older patients.

Of note, our findings showed no association between geriatric knowledge and attitudes towards caring for elderly patients. Other studies have also noted the poor relationship between geriatric knowledge and attitudes in students.⁽²²⁾ Many initiatives in geriatric medical education have been noted to improve student knowledge in geriatrics but not attitudes.⁽²³⁾ Hence, simply increasing the geriatric content in the undergraduate medical curriculum is unlikely to develop empathy in students towards caring for elderly patients. Medical educators need to include teaching and assessment approaches that target the attainment

of positive attitudinal and behavioural attributes in graduates regarding the care of older adults. The use of critical reflective activities, such as self-reflection journals, would be of particular value as they assist students identify and examine their perceptions towards elderly people.

Current literature indicates that educational interventions that involved community engagement and mentorship programmes with healthy community-dwelling elderly produce positive attitudinal changes in students.⁽²⁴⁾ Community skills training and interprofessional education (IPE) are considered to be of particular importance in preparing health professionals to care for older adults. These educational strategies have been shown to help develop patient-centred competencies in students and improve attitudes towards older patients.⁽¹¹⁾ Short-term clinical placements, as practiced in the current curriculum, were shown to wear down student empathy towards elderly patients.

This study highlights the need to review and enhance the UG medical curriculum regarding teaching, learning and assessment of geriatric competencies. Given the overall poor geriatric knowledge of final year students, there is an evident need for educators to reach consensus on the minimum competencies required by medical graduates for effective geriatric care. Educational interventions are required to stimulate student interest in geriatrics, and improve learning in this field. Further studies should address the role of curricula in developing student attitudes, and identify the reasons for the discordance between student attitude and graduate behaviour towards elderly patients. In addition, it is evident that continuing medical education is required to enhance the limited geriatric knowledge of our graduates, particularly those working with aged patients.

Strengths and limitations

The results of this study have limited generalizability because it was carried out at a single academic institution. The questionnaire only provided for binary classification of gender, and did not allow for ethnic classification other than the four groups enrolled at the facility.

Conclusion

South Africa's growing elderly population needs good quality medical care. Findings from this study identified that students held mainly positive attitudes towards older patients but that they had poor geriatric knowledge. This requires an urgent analysis of the undergraduate geriatric curriculum to assist health professions educators to enhance teaching and learning of core geriatric competencies. These could possibly include communication skills training, interprofessional education, greater community engagement and mentorship programs with healthy community-dwelling elderly. There is also an urgent need to gain consensus on the minimum geriatric care competencies for inclusion in the undergraduate medical

curriculum. The poor geriatric knowledge of soon-to-be medical graduates also highlights the importance of continuing medical education in geriatric care for medical professionals worked with aged patients.

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Author contributions

KN was primarily responsible for the conceptualisation of the study, data collection and drafting of the manuscript. JvW contributed substantially to the finalisation of the manuscript; and all authors read and approved the final manuscript.

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Conflicts of interest

None

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Chapter 6: Preparing medical graduates to care for geriatric patients: A case study of the undergraduate medical curriculum at a South African university

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6.1. Introduction

The previous chapter reported that final year medical students had poor knowledge and mildly positive attitudes regarding the care of elderly people. In this chapter I present the findings of the investigation into the geriatric curriculum. In line with the overall purpose of the study to conceptualise the key principles for the development of a geriatric curriculum, this objective aimed to identify and describe learning opportunities to enhance teaching and learning of geriatric care competencies. The paper deliberated on how older patients' health needs and expectations, as reported on in chapter 4, could be addressed in the curriculum.

The paper highlighted the necessity of curriculum mapping in the curriculum development process. Most medical schools in SSA have adopted a PBL approach to the curriculum in line with global reforms in medical education. Such programmes entail the integration of topics across modules and years of study, creating challenges for health professions educators to track teaching and learning in specific topics. My investigation of the curriculum involved the use of an electronic curriculum platform, LOOOP, and provides insight into the strengths and weaknesses of this novel methodology.

The findings from this paper not only contributes to enhancing medical education in geriatric care, but can facilitate the development of IPE in geriatric care by providing a reference for other health professions programmes regarding teaching and learning relevant to the care of older adults.

6.2. Publication details

The results of this study has been published and the details summarized below.

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Status	Published

1548

1549 **6.2.1. Journal information**

1550 The South African Family Practice (SAFP) journal is a peer-reviewed scientific journal, which strives to
 1551 provide primary care physicians (and their teams), as well as researchers, with a broad range of scholarly
 1552 work in the disciplines of family medicine, primary health care, rural medicine, district health and other
 1553 related fields. The journal publishes at least one issue each year. Articles are published online when ready
 1554 for publication and then printed in an end-of-year compilation. This is an open access journal which means
 1555 that all content is freely available without charge to the user or his/her institution, and is in accordance with
 1556 the Budapest Open Access Initiative (BOAI) definition of open access.

1557 SAFP adheres to the international acceptable editorial standards, as published by The International
 1558 Committee of Medical Journal Editors (ICMJE). The journal has a double-blinded peer review process.
 1559 Manuscripts are initially examined by editorial staff and are sent by the Editor-in-Chief to two expert
 1560 independent reviewers, either directly or by a Section Editor. The journal's editors are supported by an
 1561 editorial board, which consists of South African members representing the nine academic training
 1562 programmes as well as a representative from RuDASA (Rural Doctors Association of South Africa), and
 1563 key members from the international family medicine and primary care community.

1564 **6.2.2. Publication details**

1565 The manuscript was submitted to the journal on the 16th December 2019, was accepted 27th February 2020,
 1566 and published on the 20th April 2020.

1567 **6.2.3 Contribution Record**

1568 The candidate conceptualised the paper and was the main author. Dr Van Wyk contributed towards the
 1569 concept and reviewed the paper.

1570 **6.3 Key Findings and Contribution of the Manuscript to the Thesis**

This paper mapped the current geriatric curriculum as part of the curriculum development process outlined in Chapter 2. The findings of the study were that there is inclusion of teaching on a wide range of geriatric topics, which contrasts findings from chapter 5 of the poor geriatric knowledge of students. However, teaching and learning mainly targets the attainment of geriatric knowledge and skills, while student attitudes are not addressed. Professional attributes such as compassion and patient-centered care that were valued by geriatric patients (chapter 4) were not explicitly taught or assessed in the curriculum. Greater attention should be directed to teaching and assessment of behavioural and attitudinal attributes, considering the poor health professional attitudes reported on in chapter 4.

Despite the opportunities afforded by the PBL approach in the curriculum for team-based learning and collaboration, there was an absence of IPE in the delivery of teaching and learning relevant to older adults. There was also a lack of attention to communication skills training, an area that that was identified in the previous chapter as problematic for students.

The main findings of the curriculum review paper were that a consensus is needed on the core geriatric competencies to avoid gaps in geriatric knowledge, skills and attitudes of medical graduates. Also, greater stakeholder involvement from professional bodies and geriatric communities is required in the development of a core geriatric curriculum. Consensus on the core curriculum will also inform the educational strategies such as community-based education and early and longitudinal student exposure that will result in the development of appropriate graduate attitudes. Greater attention also needs to be paid to the efficacy of teaching strategies, and inclusion of compulsory assessments of geriatric learning objectives.

Further discussion of the strengths, limitations, and contribution of this work to the research literature is presented in the next chapter of this thesis.

Preparing medical graduates to care for geriatric patients: A case study of the undergraduate medical curriculum at a South African university



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Background: Medical schools in South Africa must be responsive to the health needs of the rapidly ageing population. Reports of the poor quality of care received by elderly patients raises concerns about the training of medical students. A review of the curriculum can help to assess current geriatric care training and identify the areas in need of improvement. This study was conducted to describe the nature and scope of undergraduate medical education in geriatric care at a South African university.

Methods: An exploratory, descriptive case study was conducted to analyse the learning objectives, opportunities and outcomes of the 6-year undergraduate medical program. Data included an electronic curriculum supported by student and teacher guides. Semi-structured interviews were conducted with health professions educators.

Results: The curriculum covered key geriatric competencies that included addressing geriatric syndromes and conducting a comprehensive geriatric assessment. Teaching on geriatric competencies occurred mainly in the clinical years, was integrated and no sub-minima was applied in its assessment. Teaching occurred in disciplinary silos with little involvement of the multidisciplinary team. Learning objectives and assessments focussed on geriatric knowledge and skills.

Conclusion: The curriculum targets the development of student geriatric knowledge and skills, but not student attitudes towards caring for older patients. However, a national curriculum will ensure greater coverage of geriatric care competencies, particularly advocacy and attitudes towards caring for geriatric patients. Greater engagement with stakeholders in geriatric health care will inform suitable educational guidelines for undergraduate medical education in geriatric care at this institution. This may also contribute to a standardised national curriculum.

Keywords: medical education; health professions education; geriatric; elderly; curriculum.

Background

Health care professionals in South Africa are facing a rapidly ageing population with increased demands for age-related health care services.¹ Old age is associated with chronic illnesses and functional impairments that result in an increased burden of disease among older adults.² The high prevalence of multi-morbidities and sensory impairments in older adults requires an integrated approach from health care professionals with a focus on function and quality of life.³ The National Health Insurance Bill, which aims to provide Universal Health Coverage (UHC) to all South African citizens, is dependent on health professionals' ability to deliver comprehensive health services to all at primary care level.⁴ It is thus essential that all medical students receive training in the core competencies of geriatric care to ensure the delivery of quality primary care services to elderly patients.⁵ The World Health Organization (WHO) highlighted the necessity of including geriatric training in undergraduate (UG) medical curricula almost two decades ago, but medical schools have been slow to implement this recommendation.⁶

Geriatric medicine, the field of medicine that deals with ageing and health conditions associated with advancing age, is a relatively new and neglected area in health professions education.⁷ A global survey conducted by the WHO in 2002 revealed a lack of attention to geriatrics in UG medical curricula.⁵ It was also disconcerting that data from only one sub-Saharan African (SSA) country, namely Ghana, had been included in that study. A 2015 survey of 25 medical schools across 11 countries in Africa reported on inclusion of geriatric topics at UG level in only 60% of the participating institutions.⁸ Dedicated teaching time for geriatrics was very limited, consisting

of < 10 h in relation to the entire degree programme. Furthermore, < 30% of the medical schools surveyed in SSA included examinable learning objectives in geriatrics. The main factor identified for the limited inclusion of geriatrics in UG medical curricula in SSA medical schools was the absence of a national curriculum.⁵ The low priority afforded to geriatric training at UG medical level was reportedly because of limited space in the curriculum, scarcity of teaching faculty in geriatrics and low levels of interest by staff and students.⁹

Most initiatives to prepare medical graduates to care for geriatric patients are from high-income countries (HICs), which have markedly different resources and health systems than those of SSA. Professional bodies in HIC such as the American Geriatric Society, British Geriatric Society and Australian Society for Geriatric Medicine have advocated for the inclusion of geriatric medicine in the UG medical curriculum of their countries.^{10,11,12} These bodies of specialist geriatricians have developed and proposed minimum core competencies for geriatric medical education, many of which are derived from recommendations of the International Association of Gerontology and Geriatrics (IAGG), a non-governmental organisation that aims to promote training in geriatric care globally (Online Appendix 1).^{10,11,12,13,14,15} Although the IAGG recommendations are no longer available online, the principles of geriatric training for medical students remain largely the same. Medical educational reforms worldwide have focussed on a competency- or outcomes-based approach within the context of population needs.¹⁶ The development and adoption of minimum core competencies for geriatric care in national curricula have resulted in significant improvements in UG medical education in geriatrics in HICs.¹⁷

South Africa has, however, few specialist geriatricians and limited input from special interest groups towards prescribed geriatric training at UG medical level in South Africa.^{9,18} Furthermore, the Health Professions Council of South Africa (HPCSA), the body that regulates and accredits the training of health professionals in South Africa, does not have a prescribed national curriculum for UG medical training. Instead, the HPCSA has adopted a revised Canadian Medical Education Directions for Specialists (CanMEDS) framework to develop and assess seven attributes of medical graduates in the curricula.¹⁹ This core competency framework originally developed for physicians in the 1990s by the Royal College of Physicians and Surgeons of Canada has been refined and adopted by the HPCSA to guide a competency-based education approach for medical curricula. Each of the nine medical schools in the country has total autonomy over its UG medical programme, subject to accreditation by the HPCSA. A lack of attention to core minimum standards has resulted in either the omission or selective coverage of examinable geriatric competencies at UG level at South African medical schools.²⁰ It is crucial that both local health systems and the curricula of medical schools represent and address the needs of the local population. This will ensure that medical schools are socially accountable and responsive to those communities being served by its graduates.^{21,22}

Several studies conducted in South Africa report that geriatric patients in South Africa have many negative perceptions of health professionals and the care that they received.^{23,24,25} A recent study conducted in KwaZulu-Natal documented that geriatric patients described health care professionals as uncaring and lacking in respect for their elderly patients.²³ Health services to older adults were perceived as 'disease-centred' and fragmented. These studies indicate the need to improve geriatric care training of health professionals, especially regarding behavioural and attitudinal attributes. There is strong evidence that patient-centred care, in particular, is highly valued by older patients and is essential for the management of complex health issues in older age.^{23,24} Curricula review is critical to determine how geriatric knowledge, skills and attitudes are addressed at UG medical level, and how medical educators can enhance current offerings to be more socially accountable.

Given the limited literature available on geriatric training for UG medical students in SSA, this study was undertaken to map the geriatric curriculum offered at the University of KwaZulu-Natal (UKZN) and identify inclusion of core geriatric competencies for medical graduates to attain. As proposed by Harden, this curriculum mapping study was conducted with a view to gaining insight into the content, teaching strategies and assessment methods relevant to the care of elderly patients.²⁶ This will provide a benchmark of current teaching and assessment of geriatric-related learning objectives and provide part of the overall review of the geriatric curriculum at the UKZN.

Methods

Study design

This was a descriptive exploratory mixed methods study.

Setting

This study was conducted at the UKZN, one of nine medical training facilities in South Africa where the undergraduate medical (MBChB) curriculum spans 6 years. Teaching in pre-clinical years of the programme follows a problem-based learning (PBL) approach, which exposes students to theoretical paper-based patient cases to stimulate their learning. There is a greater focus on clinical medicine in the latter 3 years of the programme. Geriatric topics and teaching were introduced into the UG medical curriculum in 2001, the same year that the UKZN appointed a chair in the Department of Geriatric Medicine.

Data collection

A document review of the curriculum was undertaken, and semi-structured interviews were conducted with a purposive sample of health professions educators ($n = 5$). The participants were lecturers or tutors involved in geriatric-related teaching and curriculum development and were from the professions of family medicine, internal medicine, anatomical pathology and psychiatry.

Ethical approval was obtained prior to data collection from the UKZN Biomedical Research Ethics Committee. Data collection occurred between April and August 2019.

Learning objectives relevant to geriatric care were identified through a search on the web-based curriculum platform LOOOP (Learning Opportunities, Objectives and Outcomes Platform).²⁷ This electronic platform contains information on all modules offered in the undergraduate medical curriculum and outlines individual learning objectives and related teaching and assessment. In addition, the contribution of the modules to each of the competency domains that medical doctors should master (CanMEDS competencies) is tabulated.¹⁹ Additional data were obtained from student and facilitator study guides, and semi-structured interviews with key informants. Interviews were audio-recorded and transcribed.

Analysis

Learning objectives relevant to the care of older adults were extracted from LOOOP, collated on an Excel spreadsheet and categorised according to the year of study as documented in Online Appendix 1. A summary of the information regarding the teaching and assessment methods used for each domain in geriatric care is reported per academic year of study as indicated in Table 1. The qualitative data from the interviews with the health professions educators ($n = 5$) were analysed for content that contributed to the study objectives.

Ethical considerations

Ethical clearance was obtained from the University of KwaZulu-Natal Biomedical Research Ethics Committee (BE287/18).

Results

Geriatric content

There were 15 domains of geriatric care training identified in the curriculum, as tabulated in Table 1. Common conditions

among geriatric patients such as urinary incontinence, falls, infections, dementia, frailty, confusion, syncope and osteoporosis were formally taught and assessed. Geriatric clinical skills such as the Comprehensive Geriatric Assessment (CGA)²⁸ and Mini-mental State Examination (MMSE)²⁹ were also taught to students. The CGA is an evaluation conducted by a multidisciplinary team to determine an elderly person's medical, psychosocial, functional and environmental resources and problems. This is linked with a coordinated plan to improve overall patient functioning and independence.

Teaching methods in geriatric topics

The geriatric content is delivered through a total of 40 h of didactic lectures and a few case discussions, and approximately 10 h of practical or bedside teaching mainly to students in years 4–6. Additional resources including journal articles serve as electronic resources for self-directed learning among students. Formal teaching of communication skills, as offered at the first- and second-year level, did not include strategies to address the challenges of communicating with elderly patients.

Clinical teaching in geriatrics occurred mainly at academic hospitals and was predominantly achieved during the internal medicine modules, with some coverage in psychiatry and family medicine. The limited involvement of other disciplines to include teaching in geriatrics was highlighted by a comment from a geriatric teacher:

'... there is no interest from the other divisions to include geriatrics. For instance, in cardiology there is discussion on how it develops from childhood to adulthood, but there is little emphasis on changes from adulthood into old age.' (Participant A, female senior lecturer, more than 20 years experience, Clinical Medicine Department)

The review of the LOOOP platform did not reflect any planned bedside teaching around geriatric topics as these occurred infrequently and depended on the availability of geriatric inpatients. Bedside teaching, when it did occur, was not standardised. The programme did not include clinical

TABLE 1: Domains of geriatric care taught and assessed in the MBChB curriculum.

No.	Geriatric topic	Year	Learning	Assessment
1	Principles of geriatrics	1	Lecture	MCQ
2	Prescribing for the elderly	3	Lecture	MCQ, OSPE
3	Legal and ethical issues of ageing	3	Lecture	MCQ, OSPE
4	Physiological changes of ageing	3	Lecture	MCQ, OSPE
5	Dementia – risk factors, assessment and management	3,4,5,6	Lectures	MCQ, OSPE, case study(p), long case†, DOSCE
6	Comprehensive Geriatric Assessment (CGA)	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
7	Urinary incontinence	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
8	Falls	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
9	Infections in the elderly	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
10	Frailty	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
11	Confusion	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
12	Syncope	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
13	Osteoporosis	3,4,5,6	Lectures, clinical	MCQ, OSPE, case study(p), long case†, DOSCE
14	End-of-life care (palliative care)	5	Lectures, small group seminars	Case study (p), MCQs
15	Geriatric psychiatry – neurocognitive disorders	6	Lectures, clinical	MCQs, OSCE, case studies (p)

MCQ, multiple-choice questions; OSPE, objective structured practical examination; OSCE, objective structured clinical examination; DOSCE, directly observed clinical assessment, (p), portfolio of evidence for assessment.

†, Long case – Assessment of long clinical case.

teaching on ambulatory or community-dwelling older adults despite the awareness of some of the teachers of the benefits of this exposure to students' learning:

'Students need to go out and see geriatric patients. That's what really sticks with students.' (Participant B, male senior lecturer > 20 years, Family Medicine)

Another participant expressed concern about the lack of an integrated patient-centred approach to geriatric patients as currently practised in the teaching in separate disciplines:

'The assessment of the geriatric patient is so patient-centred. Each individual patient differs so much in the way you approach them.' (Participant C, female clinical tutor > 10 years, Family Medicine)

Apart from a single lecture being offered by occupational therapy on the management of dementia, almost all the lectures are delivered by a specialist geriatrician or psychiatrist. The current programme includes neither the use of multidisciplinary teams nor interprofessional educational strategies in delivering the geriatric curriculum.

Assessment methods

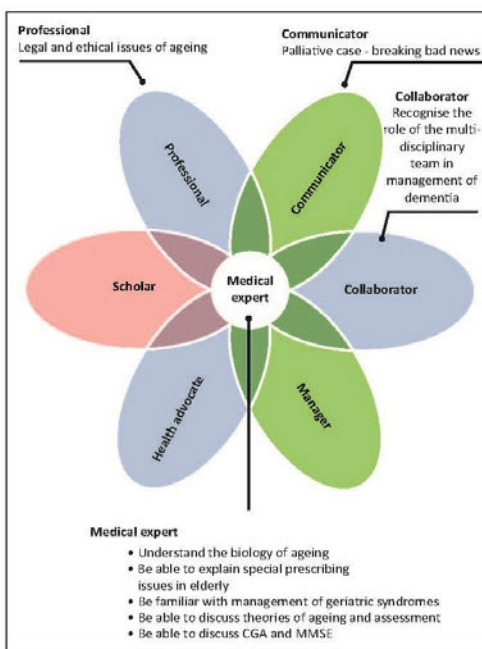
The assessment of geriatric content in years 1 to 3 forms part of the integrated module assessment and no sub-minima are applied to the geriatric content. The assessment of geriatric knowledge and skills contributes to approximately one-tenth of the internal medicine assessment of students in years four, five and six, also with no sub-minima. Assessment methods include multiple-choice questions, clinical examination, objective structured clinical examinations (OSCE), directly observed clinical assessment (DOSCE) and the assessment of portfolios of learning, as listed in Table 1. All the assessment methods are targeted at assessing students' geriatric knowledge and skills, and none examine attitudinal components of geriatric competencies.

Inclusion of recommended geriatric competencies

The domains of geriatric care taught and assessed were related to each of the seven graduate roles in the CanMEDS framework, as depicted in Figure 1. The central role of the 'medical expert' integrates the other six roles of 'collaborator', 'communicator', 'health advocate', 'manager', 'professional' and 'scholar'. Learning objectives relevant to geriatric care contributed to four of the seven graduate attributes outlined in the CanMEDS framework (Figure 1). There were no learning objectives in the geriatric care that specifically contributed to graduate attributes of scholar, health advocate and manager (Figure 1).

Discussion

This study indicates that the UG medical curriculum at UKZN includes a wide range of examinable learning objectives relevant to the care of older patients. The programme offers good coverage of key geriatric topics including geriatric syndromes and CGA. This is possibly because of the presence



Source: Adapted from the Royal College of Physicians and Surgeons of Canada

FIGURE 1: Mapping geriatric competencies as interpreted through the CanMEDS framework.

of a dedicated department of geriatric medicine to drive teaching and learning.³⁰ Although the total contact time for teaching geriatric-relevant topics at UKZN was greater than that reported by Frost et al. in other SSA medical schools, the proportion of teaching time in geriatrics is still small in relation to the entire programme.⁸ The curriculum coverage does not adequately represent the high demand for health care services by older adults in relation to the general population.

Most of the teaching is furthermore concentrated in the last 3 years of the curriculum, with only a few lectures and seminars in the first and third years. Studies have shown that early exposure to geriatrics improves both knowledge as well as attitudes of medical students regarding care of elderly patients.^{31,32,33} Learning opportunities for students in the early years could include communication skills with older adults as well as some of the IAGG-recommended competencies not currently included in the curriculum.³⁴

The methods of teaching are mostly classroom based with emphasis on students' acquisition of knowledge. There is limited clinical exposure to geriatric patients in hospital settings, who represent only a small segment of the population requiring medical care. Most of the medical care to geriatric patients is delivered at primary care level, among whom the burden of disease is higher than in any other age group because of the high prevalence of chronic

diseases and multi-morbidity. Exposure to geriatric inpatients with complex health problems has been shown to reinforce negative stereotypes about older patients and adversely affect students' attitudes towards caring for elderly patients.³⁶ It is essential that teaching in geriatric care be expanded to more settings to ensure greater teaching and learning concordance in authentic contexts where graduates are most likely to encounter elderly patients. Students require interaction with ambulant and community-dwelling older adults to appreciate the complexities of healthcare in the aged and develop a patient-centred approach. Exposure to well elderly people in the community as practised in the Senior Mentor programme in some medical schools in the USA promotes student learning in geriatrics, as well as positive attitudes towards caring for older adults.³⁶

The current programme neither facilitates interaction between medical and other health profession students nor involves interprofessional education. Many of the IAGG core competencies in geriatric care require an understanding of the role of the multi-disciplinary team in the care of geriatric patients. Although there is some inclusion of teaching by occupational therapy on the management of dementia, there is little reinforcement of that teaching elsewhere in the curriculum. The ability to function in a multi-disciplinary team is particularly important in the management of geriatric patients where the aim is to preserve function and quality of life.³⁷ Interprofessional education has also been shown to be effective in improving student attitudes towards patients and other health professionals, as well as align medical education with patient-centred care.

Regarding the assessment of geriatric learning objectives, our study found that only students' geriatric knowledge and skills were assessed and not their attitudes towards caring for elderly patients. To assess students' attitudes towards care of older patients, appropriate tools need to be developed and validated. Current assessment of geriatric topics contributes only a small component to overall assessments, with no sub-minima. There is thus insufficient evidence to determine the actual competencies of medical graduates in geriatric care. Separate assessment of geriatric components in UG medical curricula has been shown to improve both student knowledge and attitudes in geriatric care.³⁸ However, the feasibility of this model for the SSA context will have to be explored, especially given the context of overcrowded health care curricula. Introducing a sub-minimum in the assessment of geriatric topics would at least simulate student learning in those domains of geriatric care that is taught.

Our analysis of the curriculum showed that only geriatric knowledge and skills are targeted, and student attitudes are not addressed. In addition, the medical graduate roles of scholar, manager and health advocate regarding geriatric care were not addressed. This omission may partly be responsible for the low priority afforded to the health needs of older patients in South Africa. In view of the negative

reports regarding poor attitudes of health professionals towards elderly patients, it is essential that development and assessment of professional attitudes are an explicit part of the curriculum. The findings of this study highlight the need for consensus by relevant stakeholders on the minimum medical graduate competencies in geriatric care to guide medical curriculum planners. This will ensure that all medical graduates possess the minimum competencies necessary to care for their older patients.

Because of the low priority afforded to geriatrics in the curriculum, students may perceive the discipline as unimportant and fail to attain essential competencies necessary to care for the elderly patients. Similar to the findings reported on the geriatric curricula of other health professions trained at UKZN, this study identified a need for a policy to inform curriculum development for health professions training in geriatric care.³⁹ The next step of the curriculum review framework⁴⁰ suggests a targeted needs assessment of the local geriatric community and an evaluation of the outcome of the current geriatric curriculum on student knowledge, attitudes and perceptions regarding medical care of elderly patients. This would inform educational guidelines for UG medical and other health professions training in geriatric care.

Study limitations

This study was conducted at a single institution, and therefore the findings may not be generalisable to other medical curricula. This study only examined the planned and delivered geriatric curriculum as captured on the LOOP platform as of July 2019. Data from student manuals and participants highlighted that some teaching activities, such as the case discussions, were not recorded on the electronic platform. Hence, teaching and learning not documented may have been omitted from this analysis. This study also did not explore the 'hidden' curriculum in geriatrics. This is the unwritten and unintended lessons and perspectives that students learn in the educational environment.⁴¹

Conclusion

This study evaluated the geriatric curriculum at the UKZN, and the findings provide a benchmark for comparison with the curricula at other medical schools in SSA. The presence of a department of Geriatric Medicine at the UKZN has helped to drive and implement teaching and assessment of key learning objectives in geriatric care. However, geriatric teaching faculty are in short supply, and innovative strategies are required to enhance geriatric teaching that is relevant to the SSA context. These should include interprofessional education and community partnerships, the importance of which has been highlighted in this study.

Consensus over a national core geriatric competency list is needed to standardise health professions training in geriatric care. It will require greater stakeholder involvement from professional bodies and geriatric communities to ensure that

there is adequate representation of geriatric competencies in the UG curriculum. Consensus on the core curriculum will also inform discussion about suitable early and longitudinal student exposure and the educational settings that will result in the development of appropriate attitudes in medical graduates.

This study forms part of an internal curriculum review process. Further evidence is needed on the outcome of the curriculum on medical student knowledge and attitudes regarding the care of geriatric patients, and the feasibility of interprofessional education models for geriatric care training of health professions students. This will inform the development of educational guidelines for UG medical education in geriatric care at the UKZN.

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Competing interests

The authors have declared that no competing interests exist.

Authors' contributions

All authors contributed equally to this work.

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Data availability statement

Data sharing is not applicable to this article as no new data were created or analysed in this study.

Disclaimer

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Chapter 7: SYNTHESIS AND CONCLUSIONS

7.1. Introduction

This final chapter provides an overview of the study and summarizes the main findings in response to each research question. The intention is to demonstrate how each manuscript provides evidence to address the gaps in research that were outlined in Chapter 2. The findings that emerged are then examined and discussed in relation to the implications for policy, health professions education and research.

The chapter also synergistically connects the findings from the investigation of each research objective to the overall study aim. It discusses the strengths and limitations of the study. In addition, the potential contribution of the study to the field of medical education inquiry is highlighted and the conclusions are presented.

7.2. Summary of objectives and main findings

The overall aim of this study was to determine how the undergraduate medical curriculum at the UKZN could improve medical students' preparedness to care for older adults. It explored the experiences and expectations of geriatric patients regarding professional health services at primary care level and the knowledge and attitudes of medical students regarding the care of older patients. It also mapped the current UG medical curriculum to identify opportunities to enhance teaching and learning relevant to the care of older adults. Each of these objectives has been achieved and summarized in Table 7.1.

This body of work is described in six chapters. Chapter 1 introduced the rationale for the study and the changing context requiring the review of the medical geriatric curriculum in SA. The chapter also provided the aims and objectives of the study within the conceptual framework used.

Chapter 2 detailed the literature review. The chapter described how the health needs of older adults in SSA are underrepresented in policies, research and education. There was little evidence of interventions to address the health inequities experienced by older populations nor the inclusion of relevant stakeholders in decision making. It also provided an overview of the academic literature on curriculum development and educational strategies in geriatric medical education. As discussed in the chapter, almost all of the published work on geriatric medical education originated from studies conducted in high-income countries. The literature did not provide an adequate examination of undergraduate medical education in geriatric care in SSA and failed to conceptualise curricular approaches suitable for the SSA region. Due to the paucity of

evidence on the age-related health needs of geriatric populations in the SSA region, a scoping review was proposed, the protocol of which has been published and is included as supplementary file 1.

Chapter 3 provides an overview of the research design, conceptual framework and methodology used. It provides the rationale for the mixed methods study design that was employed. The details of the research methods were described, which were also included in the relevant manuscripts. In addition, the ethical issues related to the research were addressed, including the reflexive positioning of the researcher's role during the conduct of the study.

Conceptually, the study was framed by Kern et al.'s six-step approach to curriculum development.^[172] Each of the study objectives represented a step in the curriculum development process and together addressed the aim of the study. The research objectives entailed identifying and critically analysing the health problem to be addressed by the curriculum, evaluating the learning needs of medical students and mapping the current geriatric curriculum. The other steps in the curriculum development model, which were defining the goals and objectives, implementation and evaluation of the geriatric curriculum, were outside the scope of this study.

Chapters 4 -6 presented the findings to each of the research objectives in the form of a manuscript. The details of each paper is tabulated in Table 7.1, outlining how each specific research objective had been addressed and the main findings of each manuscript.

	Objective	Manuscript	Main Findings
1.	To explore and describe the experiences and perceptions of patients aged 60 years and older regarding the health services at primary care level in KwaZulu-Natal.	Chapter 4 “What the elderly experience and expect from primary healthcare services in KZN”	This publication highlighted the perceived deficits in primary health services provided to geriatric patients. These included a lack of empathy by health professionals, fragmented and disease-centered services, and inappropriate prescribing of medication. Patients expressed the need for compassionate and patient-centered care from health providers, as well as a priority queue for frail patients.
2	To evaluate the knowledge and attitudes of UKZN medical students regarding the medical care of elderly patients.	Chapter 5 “The knowledge and attitudes of final year medical students’ regarding the care of older adults.”	This paper revealed that students displayed a minimal level of geriatric knowledge despite their perceptions of having had adequate exposure to geriatrics in the current curriculum. They held mildly positive attitudes towards the care of elderly patients. Student age and prior qualification, but not gender, was associated with improved knowledge and attitudes. Students expressed challenges with communication with elderly patients. Of note, there was no association between geriatric knowledge and attitudes.

3	To map the geriatric medical curriculum at the UKZN and identify opportunities to enhance current teaching and learning.	Chapter 6 “Preparing medical graduates to care for geriatric patients: A case study of the undergraduate medical curriculum at a South African university”	The findings of the study were that UG medical curriculum at UKZN provides teaching and learning on a wide range of topics relevant to the care of older adults. Teaching is integrated into other modules with no sub-minima in the assessment of geriatric learning objectives. The lack of a national curriculum resulted in gaps in geriatric care competencies, particularly regarding graduate attitudes towards caring for geriatric patients.
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1649

1650 This study advocated for quality healthcare for older adults by highlighting health professions training and
1651 health systems issues. Greater engagement with the relevant stakeholders is needed to obtain consensus on
1652 the minimum core competencies for geriatric care. Specialist geriatricians have been the custodians of
1653 medical geriatric training at post-graduate level in South Africa. However, few medical schools have a
1654 department of Geriatric Medicine or specialist geriatricians to oversee the geriatric care training of UG
1655 medical students. Therefore, the inclusion of multiple disciplines is required to successfully implement and
1656 sustain geriatric care training at undergraduate level. In addition, input from members of the community
1657 should also be considered. These publications provide relevant information to guide curriculum
1658 development in geriatric care in South African medical schools.

1659 **7.3. Main Insights of the study**

1660 The following key insights emerged from the study:

- Insights into older patients' perceptions of the professional health services at primary care level, and quality healthcare for older adults.
- Insights into students' learning and attitudes regarding the medical care of older patients.
- Insight into curricular strategies to enhance geriatric care training.

1665

1666 ***7.3.1. Insight into geriatric patients' perceptions of professional medical services***

1667 Older adults in this study associated quality patient care with the display of compassion and interest by
 1668 health professionals in the patient as an individual. Their experiences, however, indicated that health
 1669 professionals were focused on diagnosing and treating diseases and lacked compassion and respect for older
 1670 patients. The participants, who were mainly from previously disadvantaged communities, were acutely
 1671 aware of ageist attitudes of health staff and believed that it adversely influenced their healthcare. Their
 1672 perceptions are concordant with studies elsewhere that report a high prevalence of ageism among health
 1673 professionals and the adverse effect of such attitudes on health outcomes in elderly patients.^[154] Negative
 1674 views held by health professionals towards older adults perpetuate the health inequities experienced by the
 1675 older population. Most geriatric patients in SA have already been deprived of many basic human rights for
 1676 most of their lives and now face discrimination because of their age. Health professionals are respected in
 1677 society and therefore ideally positioned to advocate for older people's health by acting as "change agents."
 1678 Instead, deficits in professional attitudes are evident from the findings and is an area that requires
 1679 improvement.

1680 Another gap noted among health professionals was the inability to provide integrated and coordinated care
 1681 to older patients with multiple health conditions. The reluctance of health professionals to comprehensively
 1682 address all health concerns of older patients is indicative of the discipline-specific teaching in medical
 1683 education that labels and manages patients according to their disease. Despite national policies on integrated
 1684 care and putting people first (the DoH motto is "Batho Pele" which means "People First"), service delivery
 1685 to patients in the public health sector is still segregated. For successful implementation of the policies,
 1686 health professionals must possess skills in interprofessional care and collaboration, as well as demonstrate
 1687 a patient-centered approach. Further research should also be conducted into how policies promoting older
 1688 people's health can be implemented at the primary care level.

1689 Patients' perceptions of compassion and patient-centered care were mostly derived from verbal and non-
 1690 verbal communication during the doctor-patient consultation. Sadly, communication skills among health

professionals were reportedly lacking. Primary care providers provided little information or education around prescribed treatment resulting in patients having a poor understanding of their medications. Many of the adverse effects from medications prescribed could have been avoided by improved communication and collaboration with other health workers such as pharmacists, nurse practitioners and community caregivers. The presence of functional multi-disciplinary teams at primary care facilities could mitigate the fragmentation of care reported by older patients. Such units should include occupational therapists, audiologists, physiotherapists, pharmacists, doctors and nurses. The findings highlight the need for health professionals to learn how to function as part of a multi-disciplinary team and to focus on providing integrated and coordinated care to their patients.

Greater attention to communication skills and interprofessional education in the medical curriculum would undoubtedly address many of the grievances reported by the geriatric patients in this study, and contribute to developing patient-centredness among medical students.^[166] However, directing more time and attention to communication skills training and IPE should not occur at the expense of neglecting other core competencies in geriatric knowledge and skills. As reported in Chapter four, there were significant deficits noted in the clinical practice of medical practitioners, such as inappropriate prescribing and failure to recognise adverse effects of medication in older adults. These physician errors may have been attributable to poor knowledge in the area of geriatric care or the poor application of knowledge. There is an evident need for continuing medical education for primary care providers who work with older adults. Knowledge-translation strategies such as interactive education sessions, audits and feedback, could be instrumental in helping medical professionals to deliver high-quality geriatric care.^[189]

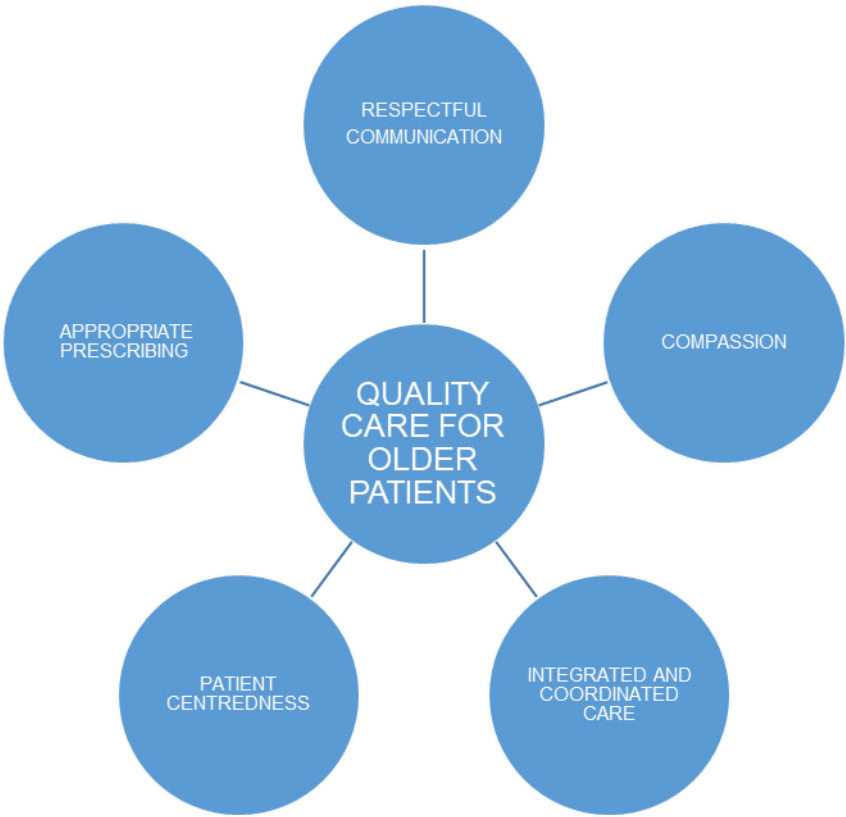
Patient-centered care, as expounded on in Chapter 2, refers to understanding the whole person rather than a person with an illness.^[168] Teaching patient-centredness to students is at odds with the traditional biomedical approach in medical training that tends to focus on identifying and treating diseases. A major shortcoming in current medical education is that students are exposed to patients with mainly acute illnesses in hospital settings. Such limited experiences in healthcare delivery can negatively influence students' thinking around the role of a doctor. Expanding the sites of teaching and learning to include community settings and healthy individuals may heighten student awareness of the value of care and compassion and addressing patient expectations. Furthermore, other graduate roles outlined in the CanMEDS framework such as health advocate, communicator and collaborator, can be better developed in partnership with communities.^[97]

The views of patients, who are the recipients of health services, are relevant to health policies and health professions education. Lay participation in health care policy and health professions training can increase professional and government accountability, as well as improve the responsiveness of medical schools to

1724 local community health needs. As much as medical expertise is essential in medical curriculum
1725 development to ensure the inclusion of relevant knowledge and skills, the integration of patient perceptions
1726 and viewpoints can guide curricular strategies to produce graduates who are fit-for-purpose.

1727 Lay people have considerable understanding and expertise around issues such as cultural sensitivity and
1728 patient-centered care, which are particularly problematic for medical educators to convey to medical
1729 students. It would thus be beneficial for medical schools to develop community capacity to participate in
1730 curriculum development. Community members can also contribute directly to student learning, as
1731 evidenced in the Senior Mentor programmes in North America.^[139, 144] The enthusiasm with which older
1732 patients participated in this study leaves no doubt of their ability to express their needs or their willingness
1733 to contribute to reconstructing the current social order.

1734 It is evident that significant reform is required to align current health systems and health professions
1735 education with the health needs and expectations of older adults. The core principles for quality care of
1736 older adults emerged from the engagement with elderly patients and are illustrated in Figure 7.1. These
1737 were compassion, patient-centredness, respectful and effective communication, appropriate prescribing,
1738 and integrated and coordinated care. Older patients appreciate a value-based health service rather than one
1739 that views patients as diseases to be treated. The specific aspects of healthcare in need of improvement are
1740 behavioural and attitudinal attributes in health professionals, coordination of care for older adults with
1741 multiple health conditions and interprofessional care and collaboration. All of these areas contribute to the
1742 delivery of patient-centered health services.



1745

1746 **Figure 7.1. Core principles for quality healthcare of older adults**

1747 Medical professionals are ideally positioned to recognise the shortfalls in the current management of
1748 geriatric patients and champion the needs of elderly patients. However, they need to understand and
1749 demonstrate the core values to deliver quality care to older adults, as illustrated in figure 7.1. It is of
1750 paramount importance that these values are emphasised in the curriculum, and greater initiatives occur
1751 around interprofessional education. Finally, stakeholder input is central to policies and initiatives aimed at
1752 improving older person’s health.

1753 **7.3.2. Insight into students learning in geriatric care**

1754 The findings from the second objective of this curriculum development study revealed that the geriatric
1755 knowledge of students was poor and their attitudes towards the care of elderly patients were mildly positive.
1756 These findings further validate the need to address the geriatric care training of undergraduate medical
1757 students.

Our findings that students possessed poor knowledge on the care of older patients correlates with studies from HICs that indicate that medical students have little interest in learning geriatric medicine.^[185, 186] Low levels of interest may adversely affect student learning in geriatric care competencies. Subsequently, gaps in geriatric knowledge are likely to translate into poor clinical practice, as reported earlier in this chapter. Conversely, student interest and learning in geriatric care could provide the impetus for medical students to advocate for quality healthcare for their older patients.

The Deliberative Curriculum theory, expounded on in Chapter 2, supports the engagement of all stakeholders in defining and addressing curriculum problems. It is thus relevant to engage with students around the issue of older person's health in SA and explore ways in which the curriculum can stimulate student interest and learning around the care of older adults. In this way, it could be possible for medical students to become "change agents" to redress the health inequities that older adults face in SA.

A key finding was that the majority of students expressed difficulties in communicating with elderly patients. This finding is espoused by earlier reports that geriatric patients were dissatisfied with the manner in which health professionals communicate with older patients in primary healthcare facilities. Communication is a complex skill, particularly in a culturally diverse society as in SA. The considerable age gap between elderly patients and medical students further widens the cultural divide. The high prevalence of cognitive and sensory impairments among older adults and the presence of caregivers create additional difficulties in communicating with older patients. The challenges experienced by students in communicating with older adults may manifest in perceived disinterest and lack of empathy. Even worse, it could result in avoidable adverse events among geriatric patients, as evidenced by the drug reactions experienced by patients. It can, therefore, be concluded that the overall quality of care to older patients will be improved if medical graduates are equipped with the necessary communication skills to interact optimally with their older patients.

In contrast to studies from HICs, students in this study demonstrated mildly positive attitudes towards the care of elderly patients. Positive attitudes towards older adults might be indicative of the influence of socio-cultural factors on student attitudes. Respect for one's elders is still prevalent in traditional communities in South Africa. However, our evaluation of positive student attitudes towards the care of older adults does not correlate with the accounts of poor health professional attitudes towards geriatric patients in this study. There is seemingly a disconnection between student attitudes and graduate behavior. One explanation for this is that student attitudes and behavior decline over time, as described in the literature.^[155, 190]

The decline in student attitudes towards the care of older adults has been attributed to negative role-models during their education. Similarly, the shift in student attitudes towards older adults after graduation could

be due to role-modelling and the organisational culture in health facilities. Public health facilities face significant challenges in terms of shortages of medical personnel who have to manage large volumes of patients. The care of elderly patients with multiple health conditions could be viewed as time-consuming and result in negative attitudes among health professionals. Since many of the behavioural and attitudinal attributes among students are influenced by the hidden curriculum, greater attention should be directed to the learning environment to ensure exposure of students to positive role models and good clinical practices in the care of older adults. An interesting finding was that older students had higher levels of geriatric knowledge and attitudes towards older adults. Seemingly, older students are more able and willing to care for older adults than younger students, which could be due to their higher levels of emotional maturity and experience. This finding has significant connotations for university admissions policies. Many medical schools reserve a portion of places for graduate students. A positive, if unintended, outcome of the admission of mature students to the UG medical programme is the potential value that older students could add to the quality of care for older adults. Further qualitative investigation is warranted into the underlying factors for student attitudes towards older people.

Overall, the sub-optimal level of student knowledge and attitudes regarding the care of older adults provide a strong argument for a core curriculum for medical students. However, a core curriculum in geriatric care does not guarantee that student learning will improve. It is also necessary for health professions educators to identify the specific learning objectives to be included in the curriculum and ensure that there is constructive alignment of those learning objectives with the teaching methods and assessments. Students reported receiving adequate teaching on geriatric topics, yet their learning was poor. Student learning is dependent not only on the planned curriculum but also intrinsic factors and subjective norms (the hidden curriculum). It is, therefore, essential for HPEs to address the teaching methods and learning environment in order to improve student learning.

Having a clearer understanding of student learning in geriatric care, and the factors influencing their knowledge and attitudes regarding the care of older adults contributes to the emerging body of knowledge on geriatric care training of health professionals in SSA. Further qualitative investigation is required into the effect of the hidden curriculum and other factors on student learning in geriatric care.

7.3.3. Insight into educational strategies for the enhancement of geriatric care training.

The mapping of the geriatric curriculum reported on in Chapter 6, provided information on the inclusion of teaching and assessment relevant to the care of older adults in the UG medical programme. Most of the teaching occurred in the latter half of the programme and consisted mainly of teacher- and hospital-based methods. The disjointed coverage of geriatric teaching over the six years is a consequence of different

schools overseeing the pre-clinical and clinical years of the undergraduate medical programme. Better coordination of the curriculum is needed to ensure improved vertical integration of geriatric relevant teaching in the programme.

The emphasis in the geriatric curriculum is on the attainment of knowledge and skills, while student attitudes are not addressed. Values such as compassion and patient-centred care, which are priority concerns for geriatric patients, are not explicitly taught nor assessed in the curriculum. The lack of emphasis on student attitudes could be partly due to the complexity of teaching and assessing attitudinal and behavioural attributes. However, it is necessary to inculcate a patient-centred approach among students to address patient needs and expectations. Generic principles and values such as patient-centered communication and compassion could be considered as a “golden thread” that runs throughout the curriculum. The inclusion of reflective activities in the curriculum are a useful strategy to get students to confront and consider their perceptions and behaviour, thereby facilitating transformative learning.

The PBL approach adopted by most medical schools has particular strengths and weaknesses in improving students’ preparedness to care for older adults. The flexibility of PBL curricula allows health professions educators to introduce new content without significant restructuring of the programme or need for additional resources. Thus, many SSA medical schools that lack geriatric care training in their UG programme could integrate teaching and learning on geriatric topics with minimal disruption of the existing curricula. Furthermore, teaching of geriatric topics could be implemented even without dedicated geriatric teaching staff. In many HICs, geriatric topics and teaching were included in medical training institutions without geriatric teaching expertise through the development of appropriate PBL tools relevant to the care of older adults.[37] The development of minimum core competencies in geriatric care for the SSA region would greatly assist in guiding such educational initiatives by assisting curriculum committees to identify specific learning objectives relevant to the care of older adults.

Another strength of PBL curricula, relevant to geriatric care training, is the involvement of teamwork during the learning process. In a PBL approach, students usually work together in small groups in order to address the learning objectives.[131] This collaborative approach to learning thus offers the opportunity for interprofessional education around the care of older adults.[134-136] Geriatrics has been at the forefront of interdisciplinary care; therefore, IPE is considered particularly relevant to the attainment of geriatric care competencies. Older adults often present with multiple health conditions, requiring a multi-disciplinary team approach in order to provide integrated and coordinated care. The findings of this study highlight the contribution of integrated and coordinated care to patient-centredness and quality care for older adults. However, despite the opportunity afforded by PBL for IPE, this was not taken advantage of. Further research is needed to explore the barriers and facilitators of IPE at SSA medical schools.

The mapping of the UG medical curriculum in this study provided a springboard for future initiatives in IPE on geriatric care as it detailed how medical student training in geriatric care overlaps with that of other disciplines. Case-based learning, as practiced in PBL curricula, has been successfully used in many medical schools to develop and implement IPE in geriatric care.[133, 136] The application of case-based learning to IPE can enhance student competencies relevant to the care of older adults, as well as improve teamwork skills. It also helps to contextualise theoretical learning and brings patient-centredness to the fore. However, IPE will require even greater oversight by the curriculum committee and engagement with other disciplines.

A significant shortcoming noted in the current PBL approach is that teaching and learning in geriatrics is integrated into other modules. While an integrated curriculum is recommended for student-centered learning, it can potentially undermine the importance of quality care for older adults. Learning objectives relevant to the care of older adults risk being overshadowed by other learning objectives deemed more important by students. Furthermore, the lack of independent assessment of geriatric learning objectives also undermines student learning. Discreet teaching and assessment of geriatric learning objectives improves learning relevant to the care of older adults.[130] Unfortunately, with the large number of disciplines that need to be accommodated in the curriculum, it would not be feasible to have a separate module for geriatric medicine. Hence, a more pragmatic approach would be to address the efficacy of the teaching methods. It is thus essential that PBL tutors are made aware of the importance of geriatric care in the curriculum and actively engage with student learning on the learning objectives relevant to the care of older adults.

A specific skill that students reported difficulty with was communicating with older adults. Although communication skills are included in the medical curriculum, little attention is paid to specific communication skills needed for older adults with cognitive and sensory impairments. Furthermore, communication skills training is usually conducted in simulated settings in the pre-clinical courses.[170] Such training methods do not adequately prepare students to consult with patients in the real-world environment of health facilities. Integrating teaching and assessment of communication skills with clinical teaching would provide a more authentic approach to the care of older adults.[191] Communication skills training is a key educational strategy in developing patient-centred practices in students.[192,193] It should, therefore, be considered as one of the “golden threads” in the medical curriculum.

An innovative educational strategy that could stimulate student learning in geriatric care is the involvement of community members in student learning, as with the Senior mentor programme (SMP).[194] Exposure of students to “real” patients could help align student-driven learning with patient needs. The SMP programs have demonstrated improved outcomes in student attitudes, knowledge, patient-centredness, and even interprofessional collaboration. It is clear that increased attention to health systems and community

needs in the UG medical curriculum is essential in order to prepare medical graduates to be fit-for-purpose.[195]

A core curriculum in geriatric medicine would undoubtedly ensure the inclusion of core competencies relevant to the care of older adults in UG medical programmes in SA. Such a core curriculum should be developed through consensus with the relevant stakeholders, such as the South African Geriatric Society, health professions educators and special interest groups. The recommendations from the IAGG provide a useful foundation on which to develop minimum core competencies applicable to the SA context. Further research is needed into the development of a national core curriculum in geriatric care.

7.4 Theoretical and Philosophical Analysis

The researcher adopted a pragmatic approach to the analysis of the findings in this study. In Pragmatic theory the focus is on the purpose and consequences of knowledge.[45] The Deliberative Curriculum theory, which considers how real teachers will teach real students, fits in with the pragmatic paradigm.[46] Schwab's deliberative theory, also referred to as "the practical," argues that it is necessary to examine the curriculum within its specific context in order to reach a common understanding of the curriculum problem and decide on the most appropriate course of action. The findings of this study are interrogated for potential applications to enhance the geriatric curriculum.

7.5 Implications of the Study

A broad range of implications emanated from various aspects of the study and these are presented for their relevance to policy, education and research.

7.5.1. Policy

Countries in Africa, such as South Africa, have made commendable progress in endorsing policies targeted at improving the lives of the older population, such as the MIPAA and the AU plan.[62] At a national level, SA has ratified reforms to the health system such as the NHI scheme and Integrated Care Disease Management (ICDM) programme that could potentially improve the quality of healthcare for older adults. However, the pace of health reforms are not in keeping with the rapid increase in the number of older adults. The mindset of policymakers in Africa seemingly reflects the ageist attitudes that are pervasive worldwide. The development and implementation of policies relevant to Older Person's health in SSA has involved little consultation with the relevant stakeholders. Policies such as the NHI, which aim towards Universal Health Coverage, ignore the specific health needs of older adults, such as the provision of rehabilitation

services at primary care level.[20] As seen in Ghana and other countries in SSA, the elderly have not benefited from NHI schemes.[196] There is an evident need for governments to engage more actively with advocates of older people's health when drafting and implementing health policies. When given the opportunity, older people are capable of articulating and expressing their needs, as evidenced in this study. One of the recommendations proposed by geriatric patients in this study was to have a priority queue in health facilities for very old (i.e., >80 years) and frail patients. This is a practical and feasible idea that could be adopted as a policy by the Department of Health to improve the quality of care to geriatric patients. It would also be in keeping with the department's "Batho Pele" (people first) motto.

Not only have the health needs of older people been underrepresented in health policies and service delivery, but they have also been overlooked in higher education.[197] While it is arguably beyond the reach of the health professions accreditation body to prescribe minimum core competencies to medical schools, there is no doubt that gaps exist in geriatric care competencies among health professionals in the absence of such regulations. Accreditation bodies such as the HPCSA have an essential role to play in helping medical schools prepare their students to meet patient needs. Improved alignment of medical curricula with societal needs can be accomplished, not by standardizing UG medical curricula, but by guiding and supporting change and reform.

Currently, the accreditation process of UG medical programmes focuses on academic quality and institutional integrity.[198] While the principles of quality and integrity promote excellence at an institutional level, they do not necessarily ensure that graduates are fit-for-purpose. An essential purpose of the Undergraduate Education and Training sub-committee of the HPCSA is to consider how community needs can be represented and advocated for during the accreditation process.[199] Unfortunately, despite successful accreditation of all SA medical schools, there has been little improvement in the quality of healthcare of marginalized populations, such as elderly and rural communities.[199] Social accountability of medical schools needs to be higher on the agenda in accreditation policies and procedures.

There is an evident need to advocate for the rights of older people who have been systematically subjected to health inequities. The publication and distribution of the study findings are intended to help improve the quality of healthcare services to older adults.

7.5.2. Education

It is the primary responsibility of each medical school to develop its UG medical curriculum to respond to changes in the health system, clinical practice and societal needs. More frequent attention to curriculum review and development is particularly pertinent in light of the imminent health system restructuring in South Africa and rapidly changing population health needs. Currently, each medical school in SA develops

its own core curriculum. Since there is no national curriculum for UG medical training nor prescribed minimum core competencies for medical graduates, medical schools should consider incorporating the recommendations of specialist bodies when developing their curricula. Globally, most core curricula in specialist areas have been developed through international and national expert consensus.[203] The minimum core competencies in geriatric care for medical students in most HICs were based on evidence-based expert-validated curricula outlining learning outcomes in geriatric medicine. Documents, such as the “Keeping Granny Safe” competencies in the USA and the Recommended Curriculum for Undergraduate Teaching specified by the British Geriatrics Society (BGS), have been well received by medical schools in their countries. The uptake of recommended core competencies in geriatric medicine by medical schools has resulted in significant improvements in undergraduate learning in ageing and geriatric medicine in those countries.[95]

In contrast, few specialist bodies in South Africa have developed core competencies for medical graduates in their field. There have been some initiatives such as consensus on core competencies for Family Medicine registrars by a Delphi consensus, but none for the UG medical curriculum, and none addressing geriatric care.[204] The recommendations of the IAGG provide a useful foundation to develop minimum core competencies in geriatric care.[93] Specialist geriatricians have been the custodians of medical geriatric training at post-graduate level in South Africa. However, in order for geriatric care training to be sustainable at undergraduate level there is a need for the involvement of multiple disciplines in the development of the curriculum and training. The input of primary care providers and community stakeholders is also crucial in developing the final document on core geriatric care competencies for medical graduates.

As seen during the COVID-19 pandemic, medical schools can respond swiftly and effectively with curriculum changes when compelled to by external factors.[200] However, medical schools should also be intrinsically motivated to review their curriculum regularly as part of institutional quality assurance and to ensure that the programme remains relevant and contemporary. The institution’s curriculum committee or health professions unit that is responsible for steering the curriculum development process must have the support of the school’s management and be delegated with the appropriate authority to coordinate and oversee curriculum review and development. Ideally, the committee should consist of individuals with experience and training in health professions education. It is thus essential for the leadership of the institution to invest in upskilling staff and establishing a functional health professions education unit.

There are multiple post-graduate courses in Health Professions Education that can improve the capacity of faculty to conduct curriculum review and development. Of note is the Sub-Saharan Africa-FAIMER Regional Institute (SAFRI), “a two-year fellowship program for health professions faculty who have the potential to improve medical education at their schools”.[201] By being part of a network of like-minded

health professions educators, SAFRI fellows can promote evidence-based medical and health professions education in their institutions. Staff with expertise in health professions education can then drive faculty development initiatives to improve staff's understanding of curriculum development.

The study identified a need for training of module coordinators regarding the electronic curriculum platform, LOOOP. The reliability of the data on LOOOP is dependent on the input of individual module coordinators. In this study, gaps were noted in some of the teaching activities recorded on LOOOP. Additional information was extracted from student and facilitator guides to address gaps on the electronic curriculum platform, and augmented by interviews with the module coordinators themselves. The use of the electronic curriculum platform, LOOOP, for curriculum mapping was a novel methodology, and has the potential to enhance future curriculum studies. Further investigation should be conducted into other applications for the software, and curriculum mapping in SSA.

At meta-level, educational institutions that produce medical graduates need to establish links with the communities they serve. In doing so, independent and original educational strategies can emerge that will enable such institutions to decolonise their curriculum. Medical schools should thus engage with and invite input from relevant stakeholders during the curriculum review process. These should include community representatives, health department officials, students and special interest groups. In the past, poor collaboration between the medical schools and the health sector created a divide between medical education and patient services. Similarly the investigation into elderly patients' perceptions of professional health services, described in chapter 4, revealed the gaps between patient expectations and graduate behavior. The mission statement of the UKZN states that it is "critically engaged with society." The institution should formalise this sentiment by including community representatives and other stakeholders on university curriculum review boards. Students, who are the recipients of the curriculum, should also be included in the deliberations on curriculum development, as commended in Schwab's deliberative curriculum theory.[46]

The study expounded on the advantages of integrated and PBL curricular designs in enhancing medical geriatric care training. However, the committee tasked with leading the curriculum review must pay attention to the vertical and horizontal integration of teaching and learning relevant to the care of older adults throughout the programme. Poor coordination of the UG medical programme can lead to poor distribution of teaching over the course of study, as revealed in the investigation of the geriatric curriculum reported on in Chapter 6. Most of the teaching on geriatric topics occurred in the latter half of the programme. By including more teaching on geriatric topics in the pre-clinical years, student learning can be improved. Students demonstrate improved attitudes towards older adults when exposed to geriatric teaching early in their training.[202]

The PBL approach is an appropriate and effective curriculum design to improve medical student preparedness to care for older adults. However, the poor knowledge demonstrated by students raise concerns about attainment of the planned geriatric learning objectives. An important driver of student learning is assessments. The inclusion of a sub-minima in the geriatric component of modules is strongly recommended to stimulate student interest in this area. Another strategy to improve learning outcomes is to have a core curriculum outlining minimum core competencies in geriatric care. Furthermore, the core curriculum should emphasise the ideal values that a medical graduate should possess to provide healthcare to older adults.

A weakness of competency-based education is that discrete competencies are assessed, often overlooking attainment of important professional attributes in graduates. The prescribed learning objectives relevant to the care of older adults did not adequately address the five key principles identified for quality care of older adults i.e. compassion, patient-centredness, appropriate communication, appropriate prescribing, and integrated and coordinated care. (Illustrated in Figure 7.1.). Teaching and assessment of learning objectives relevant to the care of older adults mainly addressed student knowledge and skills, but not student attitudes. Thus, the UG medical curriculum did not adequately address the health needs and expectations of older adults.

The findings of this study highlighted the importance of a patient-centred approach to the care of older adults. Patient-centredness is a generic principle that needs to be incorporated into the curriculum as a “golden thread.” The Core graduate competencies for Health Care Professionals at UKZN (figure 2.1.) encompasses the principle of patient-centredness, but does not explicitly outline this concept. Further deliberation is needed to develop a uniform agreed-upon framework to inculcate a patient-centred approach among students. Patient-centredness could thus potentially be a professional characteristic of the UKZN medical graduate.

Since the study identified communication skills as a core principle in quality healthcare of older adults, specific learning objectives relevant to communicating with older adults should be formulated and implemented in the curriculum. The teaching and assessment of communication skills should also include the exposure of students to older adults in ambulatory settings, and feedback to students by patients. This could be effected by integrating communication skills training with clinical teaching to provide authentic learning environments, instead of limiting teaching and assessment of communication skills to pre-clinical courses.[191] Educational strategies such as communication skills training and community-based education will reinforce attention to patient-centredness in the curriculum.[192,193]. Furthermore, teaching and assessment methods should be diversified to include empathy-building activities and interprofessional

education. Although there is some evidence from HICs on pedagogies that address student attitudes towards the care of older adults, there has been little research conducted in the SSA region.

One major conclusion of the study was that there is inadequate interprofessional education in the UG medical curriculum. Opportunities do exist for the involvement of other health disciplines in teaching medical students, such as the teaching on dementia by occupational therapists. However, this is an isolated teaching event not reinforced elsewhere. The PBL approach provides ample opportunity to include learning objectives relevant to interprofessional care and practice, and capitalize on the collaborative learning approach.

However, foreseeable challenges to implementing IPE include planning of logistics and the lack of expertise among HPEs.[152] Faculty development is thus required to capacitate health professions educators to develop and implement models of IPE that are suitable for the local context. A useful strategy would be to identify “champions” in the different disciplines to drive institutional change around interprofessional education. The process of curriculum mapping can also facilitate IPE by identifying common areas of teaching and learning in the different health professions programmes. Similar studies in other health professions, such as nursing, pharmacy, and occupational therapy, are thus also needed. An investigation into shared geriatric care competencies in the medical and nursing curricula identified several areas for shared learning (supplementary file B). Professional accreditation bodies can add impetus to the implementation of IPE by agreeing on interprofessional collaborative practice as a common exit outcome for all health professions programmes.

One of the most notable educational initiatives in medical geriatric training is the Senior Mentor programmes. In this programme, pairing students with ambulant older adults in community settings produced several positive outcomes regarding student attitudes towards the care of older adults. These included developing a more patient-centered approach to the care of older adults, increased willingness to work with elderly patients, and improved empathy. Community-based programmes are feasible for low-resource settings such as SSA as they do not increase teaching time and do not require any geriatric teaching faculty. The involvement of volunteers from the community will also help improve partnerships between the university and the community. These volunteers would also develop insight into undergraduate medical training and thus be able to provide valuable input into the curriculum review process.

Developing compassion and patient-centredness in students requires careful consideration of transformative learning. Transformative learning activities such as self-reflective journaling and small-group discussions can be effective in enabling students to confront their perceptions towards older adults, critically analyse them and reframe those perceptions.[161] Targeting student attitudes is especially important to halt the

2078 decline in their attitudes towards older adults and reverse ageist attitudes. The context of learning also
2079 influences student perceptions.

2080 The limited exposure of students to older adults mainly in hospitals does not reflect the context in which
2081 most medical practitioners will care for older adults. Hospital-based teaching reinforces negative
2082 perceptions of older adults and promotes a disease-centred approach to patients. Greater emphasis is needed
2083 on preparing students to work at primary care level and in communities as proposed in the NHI scheme.
2084 The curriculum should therefore incorporate teaching on health policies and programmes relevant to clinical
2085 practice such as the Integrated Chronic Disease Management programme. Also, more student teaching and
2086 learning should occur in authentic work settings such as primary health facilities and in the community.
2087 Exposure to ambulant community-dwelling older adults can increase students' awareness of patient
2088 expectations and has been shown to positively influence student attitudes towards older adults as well as
2089 develop patient-centredness among students.[139-142]

2090 The findings led to the development of an "Action Plan" for preparing medical students at the UKZN to
2091 care for older adults. (Table 7.2.)

2092

2093 **Table 7.2. Action Plan to prepare medical students to care for older adults**

1	Faculty development focused on Interprofessional Education and patient-centred care.
2	Develop and implement model for Interprofessional Education.
3	Periodic curriculum review, including curriculum mapping.
4	Inclusion of community members on curriculum review board.
5	Apply sub-minima in the assessment of geriatric learning objectives.
6	Consensus on and adoption of core competencies in geriatric care.
7	Communication skills training to address unique communication challenges in older adults.
8	Exposure to ambulant older adults in the community and at primary healthcare level.
9.	Develop and implement tools to teach and assess behavioural and attitudinal attributes in students.
10	Incorporate “patient-centredness” as a golden thread in the UG medical curriculum
11	A conscious effort to address the learning environment/the hidden curriculum.

2094

The recommendations tabled above will be proposed to the UKZN Teaching and Learning committee and the curriculum review committee/health professions unit. This will be accompanied by applications for funding of faculty development workshops on IPE.

7.5.3. Future Research

The slow pace at which policies relevant to the care of older adults has been implemented are concerning. Researchers in public health should examine the barriers and facilitators for policies such as the NHI and ICDM programme, and examine the responses of older populations to these policies. One of the factors contributing to the poor implementation of policies for older people is the lack of evidence on the health needs of older populations in this region.[205] This body of work highlighted the gaps in literature on older person's health in SA. It also revealed the disparity between the health needs of older adults and health service delivery at primary care level in one province. Until recently, governments in SSA only collected health-related statistics on children under five years and pregnant women, thereby excluding older adults from consideration in health policies. Even now, most researchers still classify people in Africa aged 50 years and older as older adults, and do not consider the specific health services required by those of advanced age. In an attempt to address the information gap a scoping review was proposed on the age-related health conditions among older populations in SSA. The protocol for the scoping review has been developed and published and is included as supplementary file A.

One way to address the lack of research on older people in SSA is for institutions of higher education to include gerontology and geriatric training into the curricula of professional programmes.[197] Older peoples' health is an issue that requires transdisciplinary and intersectorial collaboration – including social work, public health, law, and humanities. It is therefore of importance to investigate how older people's health is addressed in other professional programmes. Findings from curriculum mapping studies, as evidenced in this body of work, can identify potential opportunities for shared learning. Greater research is needed into how models for IPE, such as case-based learning, can be adapted for local universities. The Senior Mentor programme, in particular, offers a low-cost community-based model for professional education and should be explored further.

This study adds to the body of knowledge on medical geriatric education in SSA. Due to the absence of national curricula and minimum prescribed core competencies, studies are needed in other SSA medical schools to compare geriatric care training. This will help to provide a wider understanding of geriatric medical education in this region. Research into the development of core competencies for geriatric care is needed to inform future curriculum development.

The findings of this study provided useful evidence on student learning in geriatric care, some of which requires further investigation. The areas recommended for future research include the hidden curriculum and its effect on student learning, a qualitative analysis of older students' preparedness to care for older adults, and the discordance between student geriatric knowledge and attitudes. In addition, the development and implementation of an IPE model for geriatric care model should be explored.

7.6. Study contributions

This study contributes to the body of knowledge on older persons' health and geriatric medical training in the SSA region. It presents a critique of the primary healthcare services for older adults from the perspective of older patients, and conceptualizes the core values regarded by older patients to represent quality healthcare. By providing a patient perspective it presents empirical evidence to inform recommendations to improve primary health services for older adults. It thereby advocates for older person's health by highlighting areas for health systems strengthening and health professions training.

The study also provided information on the level of knowledge and attitudes of students regarding the care of elderly patients, which sheds insight into student learning in geriatric care. Having a clearer understanding of student learning in geriatric care, and the associated factors contributes to the emerging body of knowledge on geriatric care training of health professionals in SSA. The finding that older students are seemingly better prepared to care for older adults has implications for the admissions policies of medical schools, and highlights a need for further research into the factors influencing student attitudes towards older adults.

This is the first known study to map the geriatric curriculum at a SSA medical school, and provides a benchmark for health professions educators in this region to review their own curricula. While researchers have remarked on the general lack of data from SSA regarding geriatric medical education, this study highlighted specific gaps and recommends areas for future research. These include an exploration into IPE models and partnerships with the community. The action plan that emanated from this study is intended to guide the development of the geriatric medical curriculum at UKZN and possibly other SSA medical schools.

The paucity of data on geriatric populations in SSA described in this study resulted in the development and publication of a protocol for a scoping review of the age-related health needs of geriatric populations in SSA.^[206] Health inequities among older adults in SSA are partly due to the low priority afforded to them by researchers and governments. Findings from the investigation into geriatric patients highlighted some of

the barriers that elderly patients experience when accessing health services, and provides recommendations to improve the quality of care provided by primary healthcare providers.

The mapping of the geriatric curriculum provided insight into the use of the electronic curriculum platform, LOOOP, and will assist future curriculum reviews. The necessity of mapping individual components in an integrated curriculum was also highlighted by the gaps in vertical integration of geriatric topics. This study explored the strengths and weaknesses of current curricular approaches and identified opportunities to better prepare medical graduates to care for older adults. Of note was the poor correlation between prescribed learning objectives and the health needs expressed by geriatric patients. There was an emphasis on the attainment of student knowledge and skills, and a neglect of core values such as patient-centredness and compassion. Greater initiatives will be required by medical schools to engage with the communities they serve in order to respond appropriately to their needs.

The poor knowledge of students suggests that graduates will require continuing medical education in geriatric care to improve their ability to care for older adults. The gaps in training identified in this study should contribute to the development of teaching material for continuing medical education on the care of older adults. Public health programmes such as the ICDM need to be accompanied by in-service training of health staff.

Most medical schools, despite claims of stakeholder engagement, do not include community representatives when reviewing their curricula. Furthermore, there is insufficient collaboration between the ministries of health and education resulting in a gap between professional education and health services.^[104, 105] Greater attention to health systems and community needs in the UG medical curriculum is essential in order to prepare medical graduates to be fit-for-purpose.^[195]

Overall, this study has provided insight into the role of health professions education in improving the quality of healthcare for older adults in the SSA context. With this new understanding it is necessary to apply the curricular strategies conceptualized by this study to enhance current geriatric care training of UG medical students. The study advocates for quality health services for older adults by addressing the geriatric training of undergraduate medical students and draws attention to areas of the health system in need of strengthening.

7.7. Study strengths and limitations

Since a case study approach was used to map the geriatric curriculum, the findings and implications are context specific. However, a high level of trustworthiness and validity was ensured in the study by making use of original module handbooks in addition to the web-based curriculum platform. Analyses of other

medical schools in SSA with similar UG medical curricula may reveal similar results. To my knowledge, this is the first study of the medical geriatric curriculum at a SSA medical school and provides a benchmark for other researchers.

The use of an electronic curriculum for data collation is a novel methodology in curriculum studies. However, omissions were noted on the electronic curriculum platform, which was subsequently addressed by supplementing data from student and tutor study guides and interviews with HPEs.

This study was conducted at a single medical training facility in SSA. This was due to the feasibility of the study and to provide a more in-depth analysis of the medical geriatric curriculum in the province. Since the UG medical curriculum is not standardized the findings from this study are not generalizable to the other SA medical schools.

A limitation of the student survey was that, despite the good response rate, it is uncertain how the non-responders could have influenced the results of the data. Students with the least interest in geriatric medicine are most likely to have been non-participants.

Another limitation was the small sample size of health professions educators interviewed in the study (n=5). Due to the feasibility of the study it was not possible to sample HPEs from all departments. Therefore, the most information-rich participants were selected.

The main strength of this study was that it covers one of the first attempts to conceptualise geriatric care training of medical students in SSA. Importantly, the findings from this body of work can be used stimulate geriatric training and curriculum development studies in the SSA region.

7.8. Future research directions

The following are recommended for future research:-

1. A scoping review on the age-related health needs of geriatric populations in SSA. (A protocol for a this was developed and published by the candidate- supplementary file 1)

2. Quantitative and qualitative research on the unmet health needs of community-dwelling older adults in South Africa to identify how Universal Health Coverage can be achieved.

3. A qualitative inquiry into students' learning on the care of older adults, including the influence of the hidden curriculum, could help deepen understanding of the knowledge gaps or barriers medical students encounter in their training.

4. Research involving relevant stakeholders in order to reach a consensus on the minimum core competencies for medical graduates in SSA.
5. Research on the geriatric curricula in other SSA medical schools is needed to add to the body of research.
6. Feasibility studies are needed on the development and implementation of patient-centred pedagogies in the UG medical curriculum at UKZN, including an interprofessional education model for geriatric care training of health professionals.
8. Research on the barriers and facilitators for IPE at the UKZN.
9. Health systems strengthening research is also required to improve the coordination of care for older adults at primary healthcare level.
10. Research on the geriatric learning needs of medical practitioners working with older adults will inform the design of continuing professional development programmes in the care of older adults.

7.9. Conclusions

This study highlights the pivotal role of Colleges of Health Sciences in redressing the health inequities experienced by older adults. It affirmed the need for health professions educators to improve geriatric care education and training of health professionals. An exploration of primary health services from the perspectives of patients aged 60 years and older revealed that the care of older patients was perceived to be fragmented and “disease-centered”. The core values identified for quality care of older adults were compassion, respectful communication, appropriate prescribing, patient-centred care and coordinated and integrated service provision. A supplementary exploration between the medical and nursing curricula revealed opportunities for possible collaboration. The study also recognized a need for increased attention to behavioural and attitudinal attributes in health professions training.

The investigation into the medical curriculum revealed inclusion of teaching and learning relevant to the care of older adults in almost all years of study. However, only student knowledge and skills were targeted and not attitudes. Teaching and learning on the care of older adults occurred in hospital settings, and there was an absence of interprofessional education in the programme. Despite student perceptions of adequate exposure to geriatric medicine, they displayed poor knowledge and mildly positive attitudes towards the care of elderly patients. Reasons for students’ poor learning in geriatric care could be their limited exposure to older adults at primary care and community level, poor role-modelling and the lack of sub-minima in the assessment of learning objectives relevant to the care of older adults. The findings highlighted the need for

engagement with relevant stakeholders to reach consensus on the minimum core competencies relevant to the care of older adults.

Overall, the findings suggest that communication skills training is fundamental to improving the quality of care to older adults. The study thus recommends that specific learning objectives relevant to communicating with older adults are taught and assessed. Furthermore, patient-centredness should be incorporated into the curriculum as a “golden thread.” The problem-based learning approach of the curriculum offers opportunities for team-based learning and interprofessional education around the care of older adults. Such learning would improve the capacity of health professionals to collaborate to provide integrated and coordinated care to their older patients. In addition, students should learn how to care for their older patients from older adults in the community. The Senior Mentor programme, a community-based educational initiative which pairs students with community-dwelling older patients, offers a cost-effective model to improve student learning, as well as improve patient-centredness.

One major conclusion from this study highlighted the need for regular curriculum review and the benefits of the curriculum mapping process. The views of patients, as recipients and stakeholders of health services, are relevant to health policies and health professions education, and should thus be included in the processes of policy making and curriculum development. The curriculum review board should therefore include community representatives. The results of the study has implications for policy, education and research.

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Supplementary file A: Protocol for a scoping review of age-related health conditions among geriatric populations in sub-Saharan Africa

PROTOCOL

Open Access

Protocol for a scoping review of age-related health conditions among geriatric populations in sub-Saharan Africa



Keshena Naidoo^{1*} and Jacqueline van Wyk²

Background

Sub-Saharan Africa has the most rapidly growing older population compared to any other region in the world [1]. Although the chronological age of 65 years is used to define geriatric populations in high-income countries, the United Nations agreed to the use of age 60 years to refer to geriatric populations in Africa [2]. In this scoping review, “older adults” or “geriatric population” refers to those aged 60 years and above. The geriatric population in sub-Saharan Africa (SSA) is predicted to increase from 42.6 million in 2010 to 160 million in 2050 [1]. Healthcare services for this population are delivered predominantly through the public health system at primary care level [3]. Despite the expected increase in geriatric patients that will require primary care, most primary care providers in SSA receive little to no training on geriatrics [4]. Very few countries in SSA have specialist geriatricians and there is little inclusion of geriatrics in medical curricula [5]. As a result, there has been little awareness of age-related health conditions in older adults. Most of the health care responses to geriatric health needs are based on evidence collected from populations in the high-income countries (HIC).

Advancing age is associated with physiological decline and increased risk for non-communicable diseases [6]. Geriatric syndromes, such as falls, frailty, dementia and incontinence, are complex age-related conditions that are associated with significant morbidity and poor outcomes [7]. Dementia is particularly problematic as it frequently results in disabilities and care-dependencies [8]. These age-related health conditions increase health costs and adversely affect the quality of life. The management and outcomes of health conditions in the aged are influenced by multiple factors, such as environment and management of co-morbidities [9]. People in SSA are subject to resource-poor health care systems and a dynamic social and political landscape. Since

the scale-up of anti-retroviral therapy in SSA in the mid-1990s, more HIV-positive people are surviving into old age [10]. HIV infection itself is an independent risk factor for the development of geriatric syndromes, such as frailty [11]. It is unclear what effect communicable diseases, such as HIV, and limited access to healthcare have had on the health of older adults in SSA.

The World Health Organization calls for the alignment of health systems with the needs of older populations in the Global Strategy Plan on Ageing and Health [12]. This has been echoed on the African continent in the African Union Policy Framework and Plan on Ageing (AU plan) [13]. However, due to limited data on the health and well-being of the aged on the continent, public health systems in SSA have been unable to plan adequately for the needs of ageing populations. National Health Insurance Schemes (NHIS), such as the one implemented in Ghana, aim to provide Universal Health Coverage (UHC) to all, but do not consider the increased burden of age-related health conditions by older adults [14]. National Health Insurance Schemes focus on primary health care as the foundation for UHC, but do not provide coverage for most age-related health conditions such as disabilities, visual and auditory impairments [15]. Less than one in five people over the age of 60 years in SSA receives a pension or benefits from social security [16]. The failure of health systems to address the needs of older adults can lead to catastrophic out-of-pocket expenditure and neglect of treatable age-related health conditions.

The main objective for the proposed scoping review is to identify, explore and map literature on age-related health conditions and associated factors in older adults accessing primary care in sub-Saharan Africa. It is anticipated that the results of a scoping review will inform governments and policymakers of the geriatric health services required by older adults in sub-Saharan Africa and identify gaps for further research. The results will also ensure that health professions educators are aware

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of the appropriate geriatric competencies that need to be included in local medical curricula.

Methodology

Scoping review

This protocol is for a systematic scoping review of literature reporting on age-related health conditions in geriatric populations (i.e. people 60 years and older) in sub-Saharan Africa. A scoping review method was selected as it aims to outline different types of evidence on the area of interest and the gaps for further research. The proposed review will be guided by the methodological framework proposed by Arksey and O'Malley [17]. Thus, the following five steps will be followed in this scoping review: (i) identifying the research question, (ii) identifying relevant studies, (iii) selection of eligible studies, (iv) charting the data, and (v) collating and summarising the results. Quality appraisal will not be done as this review aims to map all research activities in this field.

Identifying the research question

The main research question is “what are the age-related health conditions reported on in people aged 60 years and older who access primary care services in sub-Saharan Africa?”

The research sub-questions are:

1. What are the different age-related health conditions reported on in people aged 60 years and older in SSA at primary care level?
2. What are the factors associated with age-related conditions in people aged 60 years and older in SSA?
3. How can primary care services address age-related health conditions in people aged 60 years and older in SSA?

This study will use the PEO format (Table 1) to align the study selection with the research question.

Identifying relevant studies

A search will be conducted for published and unpublished (grey) literature on the research area in the following electronic databases: Cochrane Library, World of Science, PubMed and WorldCat. Studies published prior

to June 2019 that have the keywords or Medical Subject Headings (MeSH) terms “older adults” or “aged”, “primary care” or “health” and “sub-Saharan Africa” will be identified. The search strategy will be piloted to check the appropriateness of keywords and databases. Keywords may be refined to include specific geriatric syndromes such as “dementia”, “falls” and “functional impairment”. A hand search will be also conducted of the references of the included studies and websites such as the World Health Organization (WHO) and the Directory of Research on Ageing in Africa to identify potential relevant literature. Potentially relevant grey literature will be identified through targeted searches of dissertations/theses (ProQuest Dissertations & Theses Global) and conference abstracts (EMBASE Conference Abstracts, Conference Proceedings Citation Index—Science and Social Science & Humanities).

Selection of eligible studies

Title and abstract screening will be guided by the PEO framework (Table 1). Further eligibility criteria will ensure that the content of the included studies is relevant to the research question.

Inclusion criteria

For studies to be included, they must meet the following criteria:

- Focus on people or populations aged 60 years or older
- Report on health or primary care services provided to older adults
- Include participants from SSA
- Published prior to June 2019
- Qualitative and quantitative studies

Exclusion criteria

Studies will be excluded if they have any of the following characteristics.

- Studies that do not include participants or studies from SSA
- Studies looking at geriatric in-patients or specialised services for geriatrics
- Studies where full-text article could not be obtained

The search strategy will be piloted to check the appropriateness of keywords and databases. The electronic database search will be recorded in a table. A draft is provided in Table 2.

All eligible articles will be uploaded into Endnote X9 software, and duplicates identified and removed. Between July and August 2019, the authors plan to conduct title and abstract screening of all eligible articles to

Table 1 A PEO framework for eligibility of studies

Criteria	Determinants
P-Population	Adults 60 years and older in SSA
E-Exposure	Ageing
O-Outcomes	<ul style="list-style-type: none"> • Geriatric syndromes • Chronic illnesses • Functional status • Primary healthcare needs

Table 2 Electronic database searches

Date of search	Electronic database	Keywords searched	Number of studies retrieved	Number of studies selected
01/07/2019	World of Science	"older adults" or "aged", AND "primary care" or "health" AND "sub-Saharan Africa"		

determine whether the study should be included in the review or not. All attempts will be made to obtain full texts of selected articles, by searching the web, engaging with the UKZN librarian or contacting the author if necessary. Both authors will conduct full-text screening of the selected studies. A third reviewer will be employed if there are significant discrepancies that cannot be resolved by discussion and consensus. The degree of agreement between reviewers will be calculated and reported.

The selection process will follow the recommendations in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) checklist [18] and be mapped using the PRISMA-P chart [19]. Selection of studies to be included in the review is expected to be completed within 6 weeks.

Charting the data

A data charting form will be used to electronically capture relevant information from each included study. This is planned for September 2019. The extracted data will include the following fields (Table 3).

Table 3 Data charting form

Author and date	
Title of study	
Publication	
Aim of study	
Study setting	
Study population	
Sampling method	
Study design	
Data collection methods	
Data analysis	
Conclusion	
Outcome	Study findings relevant to study objectives
Most relevant findings	Identification of age-related health condition, and associated factors, primary care service provision for age-related health condition
Comment	

Collating, summarising and reporting the results

A narrative report will be produced to summarise the extracted data around the following outcomes: region of study, category of age-related health condition, prevalence, associated factors for age-related health conditions and primary care services for older adults. These results will be described in relation to the research question and in the context of the overall study purpose. Gap identification will detect areas, such as countries in SSA that lack data on the health of older adults, and if there is a paucity of data on significant geriatric health conditions.

Discussion

The proposed scoping review aims to identify and describe age-related health conditions in geriatric populations in sub-Saharan Africa. It will also highlight gaps regarding knowledge of geriatric health in SSA.

This review will be the first part of a study to develop guidelines for health professions education in geriatric primary care. An understanding of the primary health-care needs of older adults in SSA will assist health professions educators to design and implement age-friendly medical training programmes. This will capacitate medical graduates to suitably care for older adults at primary care level. This review also has the potential to create greater awareness into the growing health care needs of older adults in the region and will provide evidence to assist health policymakers and stakeholders to address the needs of this vulnerable population.

A limitation of this review is that it may omit studies that include participants of all ages, including those aged 60 years and older. Studies that define older adults as 50 years and older may be omitted from the review if data on people aged 60 years and older cannot be isolated from the results. This may result in the exclusion of important studies such as the World Health Organization's multi-country Study on global AGEing and adult health (WHO SAGE) [20]. Also, since the quality of the studies will not be assessed, the reliability of data extracted from selected studies cannot be commented on.

Abbreviations

AU: African Union; HIV: Human immunodeficiency virus; MeSH: Medical Subject Headings; NHIS: National Health Insurance Schemes; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; PRISMA-ScR: Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews; SSA: Sub-Saharan Africa; UHC: Universal Health Coverage; WHO: World Health Organization

Acknowledgements

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Authors' contributions

KN conceptualised the study and prepared the draft protocol under the supervision of JWW. Both KN and JWW contributed to the development of the background, design of the study and planned output of the research. KN

prepared the manuscript and JYW reviewed it. Both authors read and approved the final manuscript.

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Availability of data and materials

All data generated or analysed during this study will be included in the published scoping review article.

Ethics approval and consent to participate

This study will not include humans or animals as participants. Data will be sourced from published literature.

Consent for publication

Not applicable

Competing interests

The authors declare that they have no competing interests.

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Supplementary file B – Scientific report

A review of geriatric care training in the undergraduate nursing and medical curricula at the University of KwaZulu-Natal, South Africa

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Background

The lack of attention to geriatric care training in health professions curricula is concerning given the rapid increase in the number of people aged 60 years and older in South Africa (SA).^[1] Most older adults in SA access health services at primary care level. Nursing and medical graduates who are at the forefront of primary care services must be prepared to care for the increasing number of older adults needing care for chronic and age-related health conditions. However, studies indicate that the level of primary care provided to older adults in SA is lacking due to inadequate training of health professionals.^[2, 3]

Older adults are prone to multiple health conditions and thus require coordinated care to preserve function and improve their quality of life.^[4] Reports of polypharmacy and adverse drug reactions in elderly patients are ascribed to fragmented and inappropriate management of older adults.^[5]

The World Health Organisation (WHO) highlights the need for greater interdisciplinary team skills among primary care providers to improve the care of older adults.^[6] While interprofessional collaboration and care are inherent in general nursing practice, there is little inclusion of interprofessional education (IPE) within nursing education to prepare graduates to provide coordinated care to older adults.^[7] It is thus critical that geriatric care training be included in all undergraduate (UG) health professions curricula, and that training includes interprofessional education. Interprofessional education (IPE) occurs “when two or more

professions learn about, from and with each other to enable effective collaboration and improve health outcomes”.^[8] Such a collaborative approach has the potential to reduce health care costs and care dependencies in the aged.

Despite the evident need for geriatric care training of nurses in SA, the South African Nursing Council (SANC) has removed specialist gerontology from nursing curricula. Gerontology and geriatrics has also been neglected in undergraduate health professions education worldwide, and in sub-Saharan Africa, in particular.^[9] Furthermore, nursing and medical undergraduate curricula in SA are developed and implemented independently of each other. It is therefore unclear whether these programmes adequately equip graduates to care for older adults as part of a multidisciplinary team in primary care.

A situational analysis was thus required to identify the strengths, weaknesses, opportunities and threats of current nursing and medical curricula at the UKZN in preparing graduates to care for older adults. The aim of this study was to analyse teaching and assessment of geriatric topics in the UG nursing and medical curricula at the UKZN and explore potential opportunities to enhance IPE relevant to the care of older adults.

Methods

This mixed methods study was conducted through document review of module handbooks, study guides and an electronic curriculum platform used for the undergraduate medical programme. In addition semi-structured interviews were conducted with key informants (n=5) involved in teaching and curriculum development. Data relating to the geriatric curriculum were analysed according to geriatric content, teaching methods, and assessment per year of study (Appendix A). Content and thematic analyses was conducted. Ethical approval was obtained from the X Biomedical Research Ethics Committee (BE287/18) prior to data collection between July and September 2019.

Both undergraduate nursing and medical degrees are offered in the College of Health Sciences at the UKZN. The programme for the nursing degree (BN) is four years and the medical degree (MBChB) six years.

Findings

2874 Health professions educators representing both curricula were cognizant of the increasing
2875 number of older adults requiring primary healthcare services and agreed on the importance of
2876 training students to care for older adults. However, they expressed concerns about increasing the
2877 teaching on geriatric care due to time constraints of the programme and other priorities such as
2878 maternal and child health that have to be accommodated in the curriculum. Two main themes
2879 relevant to geriatric care training emerged from interviews with participants. These were; patient
2880 centredness and exposure of students to patients in authentic settings. Patient-centredness refers
2881 to understanding the whole person rather than a person with an illness.^[10] Patient centredness
2882 was explicitly addressed in the nursing but not the medical curriculum.

2883 *“We have to teach them to be patient centred. However, compassion fatigue is so common.”*
2884 Nurse educator, more than 10 years.

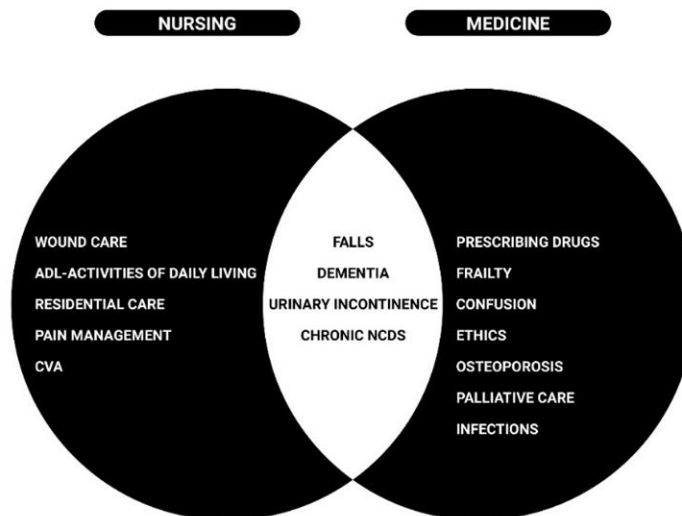
2885 *“They also do preventive and promotive health with the elderly, talking to them about diet,*
2886 *exercise, loneliness.”* Nursing educator, more than 20 years.

2887 Participants representing both programmes reflected that patient centred care for older adults
2888 could be undermined by the negative influence of role models during clinical training.

2889 *“I think that they see from other sisters or doctors that the old are left in the corners to die.”*
2890 Nurse educator, more than 15 years.

2891 An analysis of curriculum documents revealed that geriatric teaching in both disciplines involved
2892 a problem-based learning (PBL) approach (Appendix A). There is early exposure of students to
2893 paper-based cases followed up with classroom and bedside teaching in the latter years. Both the
2894 nursing and medical curricula include teaching on a wide range of geriatric topics, of which four
2895 were common to both programmes i.e. falls, dementia, urinary incontinence and chronic non-
2896 communicable conditions. (Figure A).

FIGURE A: DOMAINS OF GERIATRIC CARE IN CURRICULUM



2897

2898 Nursing students had clinical exposure to geriatric patients in multiple settings such as in the
2899 community, primary care, residential facilities and hospitals whereas medical students saw
2900 geriatric patients mainly in the hospital and community clinics. The limited exposure of medical
2901 students to older adults in the community was acknowledged as a limitation of the medical
2902 curriculum.

2903 *“They need to see more ambulatory patients, with multiple conditions, and to be able to*
2904 *communicate with these patients.”* Medical educator, more than 20 years.

2905 Teaching and assessment of geriatric content in both programmes was integrated into other
2906 modules, with no sub-minima applied in the assessment of geriatric topics. Interprofessional
2907 education (IPE) was not included in either programme. Participants perceived that the large
2908 numbers of students enrolled on the already crowded curricula would hinder the implementation
2909 of IPE.

2910 *“Being problem-based, and with big classes we can’t address everything”* Nurse educator, more
2911 than 15 years.

2912 Health professions educators in both programmes expressed that they were not only inadequately
2913 prepared, but also inadequately resourced to implement IPE or expand current geriatric teaching.

Discussion

This study highlighted the strengths and weaknesses of current geriatric training of nursing and medical students. Both curricula include teaching and learning on a range of geriatric topics, unlike many other training institutions in sub-Saharan Africa.^[11] However, there were discrepancies between the geriatric topics covered in each curriculum. A notable finding of the study was the absence of collaboration with other health disciplines in the delivery of geriatric care training. Not only does the lack of collaboration and a common foundation of geriatric conditions raise concerns about possible curricular gaps, but also about the ability of nursing and medical graduates to co-manage elderly patients in a patient centred and efficient manner. There is an evident need for relevant stakeholders, including community representatives, to reach a consensus on the minimum core competencies in geriatric care for health professionals.

The problem-based learning (PBL) approach used in both curricula provides an effective means of educating students on core geriatric topics, and to address psychosocial and teamwork issues relevant to the care of older adults. Multiple common geriatric topics were identified in this study that involve management by a multi-disciplinary team, such as dementia care. However, teaching on these topics did not include input from other disciplines. Models of IPE that include case-based PBL taught by educators with nursing and medical backgrounds are feasible options to introduce IPE in this institution.^[12] However, health professions educators in both disciplines would need faculty development in order to effectively develop and implement IPE for geriatric care training.

Although there is some exposure to older adults in the community, the programme would benefit from greater exposure to community-dwelling older adults, as this has been shown to improve patient centeredness and attitudes of students towards older adults.^[13] Most older adults in SA are cared for at primary care level or in the community, and require professional health services that include preventative and promotive health services. Training should thus occur in these authentic settings to prepare graduates to care for the majority of older adults in South Africa.

The lack of independent assessment of geriatric topics makes it difficult to ascertain whether graduates actually possess the necessary knowledge, skills and attitudes to care for older adults. Further investigation is required into graduate competencies in geriatric care.

Threats to geriatric care training in both programmes included the time constraints and lack of confidence of educators to implement IPE. One suggestion to improve the geriatric care competencies of students was to maximize the learning opportunities in facilities where interprofessional collaboration was practiced. Unfortunately, this model of care was not practiced at most of the clinical training sites. This study highlighted the need to expand current teaching and assessment relevant to the care of older adults in each discipline, and to ensure greater concordance between nursing and medical training programmes regarding primary care for older adults. This will enable graduates to work together in functional teams at primary care level to provide coordinated and quality care to older adults. Further investigation is required into the geriatric curricula of other health professions programmes in our college such as occupational therapists and physiotherapists.

Conclusion

There are opportunities to maximise student learning and readiness to co-manage older patients in primary health care facilities by ensuring that students learn together in interprofessional teams. However, faculty development is required to upskill educators on IPE. Variable coverage of geriatric topics in each programme highlight the need for consensus on the minimum geriatric core competencies for health professionals.

Keywords: older adult - geriatric – nursing education – interprofessional education - curriculum

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2997
2998

2999

Data set for scientific report

3000

Table - Geriatric teaching and learning in undergraduate nursing programme

Year of study	Curriculum components	Details	Assessment
1	Case-based discussions with PBL approach	4 x Patient studies covering falls, nutrition, wound care, urinary incontinence, bereavement and palliative care, pain management. Activities of daily living	Written tests- short questions
	Residential care nursing	1 week allocation to residential care. History taking and basic nursing care.	Written tests
2	Community evaluation	No geriatric component	
3	Clinical geriatric experience	Allocation to wards. Skills and procedures.	⁺ Triple jump, ^{**} OSCE, written test
4	Psycho-geriatrics	6 weeks of mental health block is spent with residential and ambulatory geriatric patients with mental health conditions.	Reflective journals, Written cases,
	Primary health care	40 hrs in clinics- exposure to older patients with chronic illnesses	⁺ triple jump, ^{**} OSCE

3001

3002

Table 2. Geriatric teaching and learning in undergraduate medical programme

Year of study	Curriculum components	Details	Assessment
---------------	-----------------------	---------	------------

1	Principles of geriatrics	1 hour lecture	*MCQs
3	Lecture + Case-based discussions with PBL approach	12 lectures + case discussions covering prescribing for the elderly, legal and ethical issues of ageing, physiological changes of ageing, dementia, comprehensive geriatric assessment, urinary incontinence, falls, infections, frailty, confusion, syncope and osteoporosis	*MCQ + **OSPE
4	Lectures + ward rotations	Lectures + clinical tutorials over 12 weeks– covering dementia, comprehensive geriatric assessment, falls, urinary incontinence, infections, frailty, confusion, syncope and osteoporosis.	Portfolio, ***DOSCE
5	Ward rotations	6 weeks of clinical experience with in-patients, one week of hospice attachment. Bedside teaching	*MCQ, + Long case
6	Ward rotations	7 weeks of clinical experience with in-patients.	*MCQ, ***DOSCE, Portfolio, + long case

3003

3004 ⁺Triple jump - three stage method of assessment used in problem-based learning

3005 *MCQ-multiple choice questions

3006 **OSPE/OSCE – Objective structured clinical/practical examination

3007 ***DOSCE- Clinical assessment: directly observed

3008 # (p) – Portfolio of evidence for assessment

3009 ⁺ Long case – Clinical assessment: Long clinical case

3010

Appendices

Appendix 1 – FGD Information sheet

STUDY TITLE: Geriatric patients' perceptions and expectations of primary care services

Dear medical student,

I, Dr. Keshena Naidoo, am doing research on the health needs and expectations of patients over 60yrs who use primary care services in KZN. Research is just the process to learn the answer to a question. In this study we want to know what you need and expect from health professionals providing primary care services. This will help us to know what health professionals should learn in order to care for geriatric patients

We are inviting you to participate in a research study to enable us to improve the training of health professionals to care for patients over 60 years in primary care.

What is involved in the study:

The study will be conducted in at the clinic in a private area. If you agree to take part in this Medical education research, you will be asked to participate in a group discussion with 6-9 other participants. This discussion will be audiotaped and is expected to take 30-45 minutes. Please respect the privacy of other participants by not discussing details of the group discussion with anyone. If you agree to take part in this research study you will have to sign a form to confirm you are willing to participate and understand what this entails. Your details will not be shared with anyone.

Risks and/or discomforts: You may become anxious or uncomfortable when discussing your experiences. You do not have to answer any questions you don't want to answer.

Benefits: You may get no direct benefit from being in this study, but you may get some personal satisfaction from being part of a research study on health professions education. You or others may benefit in the future from information learned in this study.

Costs to you: There is no cost to you for taking part in this study. Refreshments will be provided.

Compensation: There is no financial compensation for you. Refreshments will be provided during the discussion to all participants.

3040 **CONFIDENTIALITY**

3041 All information will be kept confidential. The recording and transcripts of the discussion will be stored on
3042 a password-protected computer that only the researcher will be able to access. No names will be
3043 mentioned. All participants are advised to respect each other's privacy.

3044 Contact details of researcher: Dr. Keshena Naidoo, UKZN Department of Family Medicine,
3045 031-2601899
3046

3047 Contact details of BREC Administrator or Chair – for reporting of complaints/problems

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3049 Private Bag X54001, Durban 4000 Email :BREC@ukzn.ac.za

3050 Telephone: +27 (0)31 2602486 Fax: +27 (0)31 2604609

3051 **Appendix 2- FGD Information sheet (isiZulu)**

3052 **STUDY TITLE: Geriatric patients' perceptions and expectations of primary care services**

3053 ***Sawubona,***

3054 Ngingu Dokotela Keshena Naidoo, ngenza ucwaningo olubheka izidingo zempilo zabantu
3055 abaneminyaka engaphezu kwewu60 abathola usizo lwezempilo emtholampilo eKwaZulu Natal.
3056 Ucwanningo indlela yokufunda kabanzi. Kulolucwaningo sifisa ukwazi kabanzi ngezidingo zakho
3057 la emtholampilo. Lokhu kuzosisiza ukuthi sazi ukuthi abazempilo kufanele bafundiswe kanjani
3058 ukuze bakwazi ukunakekela abantu abanezidingo ezifana nezakho.

3059 Sikumema ukuba ube yingxenye yalolucwaningo ukuze sithole ulwazi olubanzi mayelana
3060 nokufundisa odokotela ukuze bakwazi ukubaqeqesha kangcono ukuze bakwazi ukunakekela
3061 abantu asebekhulile ngezinga eliphezulu.

3062 Inhloso yalolucwaningo ukuqondisisa izidingo zempilo zabantu abaneminyaka engaphezu
3063 kwewu60 abathola usizo lwezempilo emtholampilo.

3064 **Uhlelo locwaningo:** Ucwanningo luzokwenzelwa emtholampilo endaweni engasese. Sizocela
3065 imizuzu elinganiselwe kwewu30 kuya kwewu45. Uma uvuma ukuba yingxenye yalolucwaningo,
3066 uzocelwa ukuba usayine ifomu lesivumelwano. Imininingwane yakho ngeke idalulwe.

3067 **Ukuhlukumezeka noma ukuphatheka kabi:** Kungenzeka uzizwe uphatheke kabi emoyeni uma
3068 uphendula imibuzo ekukhumbuzwa izinto ezikuphatha kabi. Awuphoqiwe ukuyipendula
3069 leyomibuzo. Ungakhetha ukuphuma engxoxweni noma ngabe inini.

3070 **Inzuzo:** Ayikho inzuzo ongalindela ukuyithola ngokuzibandakanya kulolucwaningo. Ayikho
3071 inkokhelo oyoyithola ngokunikela ngesikhathi sakho, futhi ayikho imali ekumele uyikhokhe.
3072 Kodwa uzothola ithuba lokuba ubeke imibono yakho mayelana nokufundiswa iziqu
3073 zobudokotela. Wena kanye nabanye ningathola ukuzuza ngemininingwane etholwe
3074 kulolucwaningo esikhathini esizayo.

3075 **CONFIDENTIALITY**

3076 Uma uvuma ukuzibandakanya nalolucwaningo, yonke imininingwane yakho, kanye
3077 nezimpendulo zakho kuyogcinwa kuyimfihlo. Okuqoshiwe kuzovalelwa kwicomputer
3078 esetshenziswa abocwaningo kuphela. Ayizukudalula imininingwane yakho eyimfihlo njengegama
3079 nesibongo sakho, umazisi wakho, kanye nezinombolo zakho zocingo. Kuzocelwa ukuba
3080 okuxoxwa kulolucwaningo kugcine kulolucwaningo.

3081 Izindlela zokuxhumana nomcwaningi: Dr. Keshena Naidoo, UKZN Department of Family Medicine,
3082 031-2601899
3083
3084 Imininingwane yenyuvesi:
3085 Biomedical Research Ethics, Research Office, UKZN, Private Bag X54001, Durban 4000
3086 Telephone: +27 (0)31 2604769/2601074
3087 Fax: +27 (0)31 2604609
3088 Email: BREC@ukzn.ac.za
3089

Appendix 3- FGD Informed consent form

Geriatric patients' perceptions and expectations of primary care services

Dear participant

You are invited to participate in a research study entitled "Preparing medical graduates to care for older adults." The purpose of this research study is to understand the health needs and expectations of people over 60 years who attend clinics.

YOUR PARTICIPATION IS VOLUNTARY. THE STUDY HAS BEEN APPROVED BY UKZN's BREC.

PROCEDURES

If you agree to take part in this Medical education research, you will be asked to participate in a group discussion with 6-9 other participants. This discussion will be audiotaped and is expected to take 30-45 minutes. Please respect the privacy of other participants by not discussing details of the group discussion with anyone.

RISKS AND/OR DISCOMFORTS

You may become anxious or uncomfortable when talking about your experiences and needs. You do not have to answer any questions you don't want to answer.

BENEFITS

You may get no direct benefit from being in this study, but you may get some personal satisfaction from being part of a research study on medical education. You or others may benefit in the future from information learned in this study.

COSTS TO YOU AND COMPENSATION

There is no cost to you for taking part in this study.

There is no financial compensation for you. Refreshments will be provided to all participants.

CONFIDENTIALITY

We will not share your details with anyone. The recording and transcripts of the discussion will be stored on a password-protected computer that only the researcher will be able to access. No names will be mentioned. All participants are advised to respect each other's privacy.

You have been informed about the study by Dr. Keshena Naidoo. You may contact Dr. Keshena Naidoo on 031-2601899 during office hours if you have any questions about the research.

You may contact the Biomedical Research Ethics Office on 031-2604769 or 2601074 or email BREC@ukzn.ac.za if you have any questions about your rights as a research participant.

PARTICIPANT AGREEMENT

The research study, including the above information, has been described to me orally. I understand what my involvement in the study means and I voluntarily agree to participate. I have been given an opportunity to ask any questions that I might have about participation in the study.

Signature of participant

Signature of Witness

Date : _____

Appendix 4 – FGD Informed Consent form (isiZulu)

IFOMU LESIVUMELWANO

Sawubona,

Igama lami uKeshena Naidoo, ngingumfundi wasenyuvesi yaKwaZulu Natali. Ngifundela iziqu zobudokotela. Uyacelwa ukuba ube yingxenye yalolucwaningo olubizwa “Preparing medical graduates for primary care of geriatric patients in sub-Saharan Africa”. Inhloso yalolucwaningo ukuqondisisa izidingo zempilo zabantu abaneminyaka engaphezu kwewu60 abathola usizo lwezempilo emtholampilo. Ulwazi esizolithola kulolucwaningo luzosiza izikhungo ezifundisa odokotela ukuze bakwazi ukubaqeqesha kangcono ukuze bakwazi ukunakekela abantu asebekhulile ngezinga eliphezulu.

AWUPHOQIWE UKUTHI UBE YINGXENYE YALOLUCWANINGO, LOKHO KUYISINQUMO SAKHO. IMVUME YOKWENZA LOLUCWANINGO SIYINIKWE ABASE NYUVESI YAKWAZULU NATALI.

Uma uvuma ukuba yingxenye yalolucwaningo, uzocelwa ukuba ube yingxenye yengxoxo nabanye abangu 7 abavume njengawe ukuzibandakanya. Ingxoxo izoqoshwa ithathe imizuzu elinganiselwe kwewu30 kuya kwewu45.

Kungenzeka uzizwe uphatheke kabi emoyeni uma uphendula imibuzo ekukhumbuza izinto ezikuphatha kabi. Awuphoqiwe ukuyipendula leyomibuzo. Ungakhetha ukuphuma engxoxweni noma ngabe inini.

Ayikho inzuzo ongalindela ukuyithola ngokuzibandakanya kulolucwaningo. Ayikho inkokhelo oyoyithola ngokunikela ngesikhathi sakho, futhi ayikho imali ekumele uyikhokhe. Kodwa uzothola ithuba lokuba ubeke imibono yakho mayelana nokufundiswa iziqu zobudokotela. Wena kanye nabanye ningathola ukuzuza ngemininingwane etholwe kulolucwaningo esikhathini esizayo.

Uma uvuma ukuzibandakanya nalolucwaningo, yonke imininingwane yakho, kanye nezimpendulo zakho kuyogcinwa kuyimfihlo. Okuqoshiwe kuzovalelwa kwicomputer esetshenziswa abocwaningo kuphela. Ayizukudalula imininingwane yakho eyimfihlo njengegama nesibongo sakho, umazisi wakho, kanye nezinombolo zakho zocingo. Kuzocelwa ukuba okuxoxwa kulolucwaningo kugcine kulolucwaningo.

ISIVUMELWANO

Mina u _____ (igama) ngichazelwe ngokwanele mayelana nocwaningo olubizwa “Preparing medical graduates for primary care of geriatrics in KwaZulu Natal olwenziwa uKeshena Naidoo.

Ngiyaluqonda uhlelo kanye nenhloso yocwaningo.

Nginikeziwe ithuba lokubuzwa imibuzo ngocwaningo, kanti imibuzo ebengiyo iphendulekile ngokugculisayo.

3183 Nginyaqiniseka ukuthi angiphoqekile ukuthi ngizibandakanye kulolucwaningo kanti futhi
3184 nginelungelo lokuhoxisa ngaphandle kokunikeza izizathu. Ukungazibandakanyi kwami
3185 kulolucwaningo aluzukuphazamisa usizo engiluthola eMtholampilo.

3186 Uma nginemibuzo mayelana nocwaningo ngiyaqonda ukuthi ngingaxhumana nomcwaningi
3187 kulenombolo 031-2601899 noma naidook7@ukzn.ac.za

3188 Uma unemibuzo noma inking mayelana nalolucwaningo ungaxhumana nalaba abalandelayo:
3189

3190 BIOMEDICAL RESEARCH ETHICS ADMINISTRATION

3191 Research Office, Westville Campus

3192 Govan Mbeki Building

3193 Private Bag X 54001

3194 Durban

3195 4000

3196 KwaZulu-Natal, SOUTH AFRICA

3197 Tel: 27 31 2604769 - Fax: 27 31 2604609

3198

3199 _____

3200 **Isignisha yozibandakanyayo** **Usuku**

3201

3202

3203 _____

3204 **Isignisha kafakazi** **Usuku**

3205 **(Uma kudingeka)**

3206

3207

3208 _____

3209 **Isignisha katolika** **Usuka**

3210 **(Uma kudingeka)**

Appendix 5. FGD - Discussion guide

Sample: Participants in the FGDs will be patients over 60 years who access care at primary care facilities. After obtaining consent from the facility, information about the study will be provided both verbally and in writing to patients attending the out-patient service at the facility. Interested participants will be screened for eligibility and written informed consent taken. Verbal consent and thumbprint will be taken for patients with illiteracy or visual impairment. Non-probability convenience sampling will be applied. Eight participants will be enrolled per focus group.

Number of focus groups: Four groups - Each focus group will consist of between 6 and 9 participants.

FOCUS GROUP DISCUSSIONS

66

WELCOME

Introductions:

 Greetings ...

My name isand my colleague's name is.....

🌱 We are from the University of KwaZulu Natal (UKZN) and today we will be discussing your health needs and expectations from the clinics with you.

Overview and process:

- Before you participate, we will first ask you to sign a form. This form is a confirmation that you have agreed to participate in this discussion knowing well what it involves.

- The discussion will only take place among those who sign the consent form.

🌀 You are asked to please remember the following ground rules during the discussion:

- This is a simple discussion which will allow everyone to share their ideas. It is not meant to test your knowledge and therefore you should not feel shy and intimidated to talk. No right or wrong answers
- The discussion will be recorded using voice recorder.
- Please respect each other's confidentiality and not share what is discussed here with anyone else.
- We will not reveal anyone's identity from this discussion.
- Everyone's opinion is important; we want to hear from each of you.
- Let everyone talk but let's avoid talking at the same time.
- Let's respect everyone's opinion.
- Let's remember to turn off the cell phones.

3260 **Consent forms:** (to be signed first).

3261 **FOCUS GROUP QUESTIONS**

3262 **Let's get started.....**

3263 **1. First, let's get to know you a little bit.....**

- 3264
 - *How did you get to the clinic today? Did anyone come with you?*
 - *How would you describe yourself in one word?*
- 3265
- 3266

3267 **2. Let's talk about your own ideas about your health.**

- 3268
 - *How would you rate your health on a scale of 1-10 (1=poor,*
 - 3269 *10=excellent)?*
 - 3270 *What does getting older mean to you?*
 - 3271 *What are some of things that affect your health?*
- 3272

3273 **3. Now, let's talk about some of the expectations, hopes and concerns you**
3274 **have when you see the nurse/doctor?**

- 3275
 - *What were your reasons for coming to the clinic today?*
 - 3276 *How do you expect/hope that the clinic staff can help you?*
 - 3277 *How do these compare to your actual experience at the clinic? (**probe***
 - 3278 ***further**)*
 - 3279 *What concerns do you have about your health? How are these concerns*
 - 3280 *addressed at the clinic?*
- 3281

3282 **Summarize & confirm**

3283

3284 **4. Please comment on your overall experience at the clinic.**

- 3285
 - *What were the good things you experienced*
 - 3286 *What were the bad things you experienced?*
- 3287

3288 **5. I would like us to discuss what you would like from the primary care health**
3289 **service.**

- 3290
 - *Interaction with staff? (**probe further**)*
 - 3291 *Physical examination & investigations? (**probe further**)*
 - 3292 *Medication? (**probe further**)*
 - 3293 *Explanation of condition? (**probe further**)*

3294

- *Other*

3295

Conclude and thank participants

3296

Appendix 6 – Student survey – Informed consent form

“Medical students’ geriatric knowledge and attitudes towards the elderly.”

Dear student,

You are invited to participate in a research study entitled “ Measuring medical students geriatric knowledge and attitudes towards the elderly”. The purpose of this research study is to measure the knowledge and attitudes of medical students’ regarding the elderly. The results will inform health professions educators at UKZN of the effect of current geriatric teaching on students; knowledge and attitudes towards caring for the elderly.

YOUR PARTICIPATION IS VOLUNTARY.

PROCEDURES

If you agree to take part in this Medical education research, you will be provided with a questionnaire that you will fill in yourself. All responses are anonymous.

RISKS AND/OR DISCOMFORTS

Nil

BENEFITS

You may get no direct benefit from being in this study, but you may get some personal satisfaction from being part of a research study on medical education. You or others may benefit in the future from information learned in this study.

COSTS TO YOU AND COMPENSATION

There is no cost to you for taking part in this study.

There is no financial compensation for you. Refreshments will be provided to all participants.

CONFIDENTIALITY

All information you share with us will be kept confidential. No names will be recorded and all completed forms will be stored in a locked file cabinet and only the researchers in this study will be If results are published, anonymity shall be maintained.

You have been informed about the study by Dr. Keshena Naidoo.

You may contact Dr. Keshena Naidoo on 031-2601899 during office hours if you have any questions about the research. You may contact the Biomedical Research Ethics Office on 031-2604769 or 2601074 or email BRC@ukzn.ac.za if you have any questions about your rights as a research participant.

PARTICIPANT AGREEMENT

The research study, including the above information, has been described to me orally. I understand what my involvement in the study means and I voluntarily agree to participate. I have been given an opportunity to ask any questions that I might have about participation in the study.

Signature of participant

Signature of Witness

Date : _____



Appendix 7: Student Survey

MEASURING MEDICAL STUDENTS GERIATRIC ATTITUDES AND KNOWLEDGE

BE 479/19

Please answer the following questions to help us improve our training in geriatrics.

1. Please tick ONE answer

Survey code			How old are you	
Gender	<input type="checkbox"/> Male	<input type="checkbox"/> Female		
Race	<input type="checkbox"/> White	<input type="checkbox"/> Black	<input type="checkbox"/> Indian	<input type="checkbox"/> Coloured
What year of MBChB are you?				

Have you had any exposure to care of the elderly outside medical school?	<input type="checkbox"/> No	<input type="checkbox"/> Yes Where? _____
Do you have any other qualifications or work experience?	<input type="checkbox"/> No	<input type="checkbox"/> Yes List: _____ _____

3369

3370

3371

2. Do you think that the current teaching in geriatrics is:

Too much	
Just enough	
Not enough	
Don't know	

3372

3. FACTS ON AGEING Quiz

3373

T F 1. The majority of old people (past 60 years) have Alzheimer's disease.

3374

T F 2. As people grow older, their intelligence declines significantly.

3375

T F 3. It is very difficult for older adults to learn new things.

3376

T F 4. Personality changes with age.

3377

T F 5. Memory loss is a normal part of ageing.

3378

T F 6. As adults grow older, reaction time increases.

3379

T F 7. Clinical depression occurs more frequently in older than younger people.

3380

T F 8. Older adults are at risk for HIV/AIDS.

3381

T F 9. Alcoholism and alcohol abuse re significantly greater problems in the adult population over 60 years than that under age 60.

3382

3383

T F 10. Older adults have more trouble sleeping than younger adults do.

3384

T F 11. Older adults have the highest suicide rate of any age group.

3385

T F 12. High blood pressure increases with age.

3386

T F 13. Older people perspire less, so they are more likely to suffer from hypothermia.

3387

T F 14. All women develop osteoporosis as they age.

- 3388 **T F** 15. A person's height tends to decline in old age.
- 3389 **T F** 16. Physical strength declines in old age.
- 3390 **T F** 17. Most old people lose interest in and capacity for sexual relations.
- 3391 **T F** 18. Bladder capacity decreases with age, which leads to frequent urination.
- 3392 **T F** 19. Kidney function is not affected by age.
- 3393 **T F** 20. Increased problems with constipation represent a normal change as people get
3394 older.
- 3395 **T F** 21. All five senses tend to decline with age.
- 3396 **T F** 22. As people live longer, they face fewer acute conditions and more chronic
3397 health conditions.
- 3398 **T F** 23. Retirement is often detrimental to health- i.e. people frequently seem to
3399 become ill or die soon after retirement.
- 3400 **T F** 24. Older adults are less anxious about death than are younger and middle-aged
3401 adults.
- 3402 **T F** 25. People 60 years of age currently make up about 20% of the South African
3403 population.
- 3404 **T F** 26. Most older people are living in nursing homes.
- 3405 **T F** 27. The modern family no longer takes care of its elderly.
- 3406 **T F** 28. The life expectancy of men at age 60 is about the same as that of women.
- 3407 **T F** 29. Remaining life expectancy of blacks aged 80 is about the same as whites.
- 3408 **T F** 30. Government pension benefits automatically increase with inflation.
- 3409 **T F** 31. Living below or near the poverty level is no longer a significant problem for
3410 most South Africans.
- 3411 **T F** 32. Most older drivers are quite capable of safely operating a motor vehicle.
- 3412 **T F** 33. Older workers cannot work as effectively as younger workers.
- 3413 **T F** 34. Most old people are set in their ways and unable to change.
- 3414 **T F** 35. The majority of old people are bored.
- 3415 **T F** 36. In general, most old people are pretty much alike.
- 3416 **T F** 37. Older adults (60+) have higher rates of criminal victimization than adults under
3417 60 do

- 3418 **T F** 38. Older people tend to become more spiritual as they grow older.
- 3419 **T F** 39. Older adults (60+) are more fearful of crime than are persons under 60.
- 3420 **T F** 40. Older people do not adapt as well as younger age groups when they relocate
3421 to a new environment.
- 3422 **T F** 41. Participation in volunteering through organisations (eg. Church & clubs) tends
3423 to decline among older adults.
- 3424 **T F** 42. Older people are much happier if they are allowed to disengage from society.
- 3425 **T F** 43. Geriatrics is a speciality in South Africa.
- 3426 **T F** 44. All medical schools include courses in geriatrics and gerontology.
- 3427 **T F** 45. Abuse of older adults is not a significant problem in South Africa.
- 3428 **T F** 46. Grandparents today take less responsibility for rearing grandchildren than ever
3429 before.
- 3430 **T F** 47. Older persons take longer to recover from physical and psychological stress.
- 3431 **T F** 48. Most older adults consider their health to be good or excellent.
- 3432 **T F** 49. Older females exhibit better health practices than older males.
- 3433 **T F** 50. Research has shown that old age truly begins at 60.

3434

3435 **4. Geriatrics Attitudes Score**

3436

3437

		1	2	3	4	5
		Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
1	Most old people are pleasant to be with.					
2	The Department of Health should reallocate money from chronic care programmes to HIV or paediatric health services					

3	I would rather see younger patients than elderly ones.					
4	It is society's responsibility to provide care for the elderly.					
5	Health care for old people uses up too much human and other resources.					
6	As people grow older, they become less organized and more confused.					
7	Elderly patients tend to be more appreciative of the medical care I provide than younger patients					
8	Taking a medical history from elderly patients is frequently an ordeal.					
9	I tend to pay more attention and have more sympathy towards my elderly patients than my younger ones.					
10	Old people in general do not contribute much to society.					
11	Treatment of chronically ill patients is hopeless					
12	Old people don't contribute their fair share towards paying for their health care.					
13	In general, old people act too slow for modern society.					

14	It is interesting listening to old people's accounts of their past experiences.					
----	---	--	--	--	--	--

3438

3439

3440

THE END

Appendix 8- Informed consent form– Semi-structured interview with Health Professions Educators

Dear SIR/MADAM,

My name is Keshena Naidoo, and I am a PhD student at the University of KwaZulu Natal. You are invited to participate in a research study entitled "Preparing medical graduates for primary care of geriatric patients in South Africa. " The purpose of this research study is to map current medical undergraduate training around geriatric care, and explore educational strategies to attain core competencies in geriatric care. This information will assist medical schools to improve training for doctors in geriatric care.

YOUR PARTICIPATION IS VOLUNTARY. THE STUDY HAS BEEN APPROVED BY UKZN's BREC.

If you agree to take part in this Medical education research, you will be asked to participate in a semi-structured interview about the study objective. This is expected to take up to 30 minutes. The study will be conducted in a private area, and at a time convenient for you. If you agree to take part in this research study you will have to sign a form to confirm you are willing to participate and understand what this entails. Your details will not be shared with anyone.

You may get no direct benefit from being in this study, but you may get some personal satisfaction from being part of a research study on medical education. You or others may benefit in the future from information learned in this study. There is no cost to you for taking part in this study. There is no financial compensation for you.

All information will be kept confidential. All documents regarding our interview will be stored on a password-protected computer or in a lockable cabinet that only the researcher will be able to access. No names will be disclosed.

PARTICIPANT AGREEMENT

I _____ (name) have been informed about the study entitled "Preparing medical graduates for primary care of geriatric patients in South Africa" by Keshena Naidoo.

I understand what my involvement in the study means and I voluntarily agree to participate. I have been given an opportunity to ask any questions that I might have about participation in the study. I have been informed about any available compensation.

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:
Biomedical Research Ethics Office on 031-2604769 or 2601074 or email BREC@ukzn.ac.za if you have any questions about your rights as a research participant.

3481
3482
3483
3484 _____
3485 Signature of participant
3486 Date : _____
3487

Signature of Witness

3488 **Appendix 9 - Discussion guide - Semi-structured interview with Health**
3489 **Professions Educators**

3490 **Preparing medical graduates for primary care of geriatric patients (BE287/18)**
3491

3492 **Let's get started.....**

3493 **First, let's get to know you a little bit.....**

3494 • *What is your current position and background?*
3495 • *How are you involved in the geriatric curriculum?*
3496 • *How important is the geriatric curriculum to you?*
3497

3498 **Please review the summary of current geriatric curriculum and comment.**

3499 • *Is this an accurate representation of the current teaching and assessment?*
3500 • *Where does the practical/clinical teaching occur?*
3501 • *Are there any other people involved in teaching?...*
3502 • *Do you think that the current teaching is adequate/inadequate? Why? ...*
3503

3504 **What were/are some of the challenges in developing the geriatric curriculum**
3505 **further?**

3506 • *What were the challenges when first introducing geriatrics into the*
3507 *curriculum? How do you deal with the challenges?*
3508 • *What would facilitate development of the geriatric programme?*
3509

3510 **What has been the feedback of students regarding teaching and assessment of**
3511 **geriatric medicine?**

3512 • *What were the positives?*
3513 • *What were the negatives?*
3514

3515 **How would you like to see geriatric teaching and assessment be implemented in the**
3516 **curriculum?**

3517 • *Development of national curriculum by consensus?*
3518 • *Accreditation and support by HPSCA*
3519 • *Improved student attitudes towards care of older adults.*

3520 • *Faculty development?*

3521 • *Other*

3522 **Interprofessional education and self-reflection are two of the educational strategies**
3523 **suggested in teaching and learning geriatric medicine. What are your thoughts on**
3524 **them?**

3525 **Summarize and conclude.**

3526

3527 Appendix 10. Curriculum mapping data

LEARNING OBJECTIVE	CMED1PC	CMED3MN	CMED4II	CMED4IM	CMED5IM	CMED6IM
Be able to discuss the requirements	LECTURE -1HR + MCQ					
Be able to explain prescribing and administration issues that occur in elderly patients & adverse drug		Lecture- 1 hr, 2 hr seminar MCQ & OSPE				
Remember and describe the legal and ethical issues of aging.		LECTURE-2hrs + 2-hr seminar MCQ & OSPE				
Be able to remember and define the definition and classification of dementia.		LECTURE-1HR MCQ & OSPE				
Be able to understand & defend the physiological changes that occur with ageing & impact of these		LECTURE-1HR MCQ & OSPE				
Be able to understand and explain the therapeutic modalities used in occupational therapy for dementia		LECTURE-1HR + 2HR SEMINAR MCQ & OSPE				
Dementia - remember and define the definition and classification		LECTURE-1HR +2 MCQ & OSPE	LECTURE-1HR			
To be able to understand and defend the physiological changes that occur		LECTURE-1HR + 2 MCQ & OSPE	LECTURE-1HR			
CGA -be able to discuss the theories of ageing and assessment			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
Be able to discuss changes with ageing in the different organ systems						
Discuss medico-legal aspects related to ageing						
Urinary incontinence - discuss causes, treatment & Mx			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
FALLS- be able to discuss causes, incidence, prevention, and			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
INFECTIONS - be able to discuss risk factors, incidence and treatment			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
DEMENTIA - be able to discuss incidence, risk factors, causes,			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
FRAILITY - be able to discuss risk factors, incidence, assessment,			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
CONFUSION - be able to discuss risk factors, assessment, causes,			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
SYNCOPE - be able to discuss risk factors, assessment, causes &			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
Be able to discuss comprehensive geriatric assessment, MMSE & mood			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
Be able to discuss the causes, risk factors, diagnosis, epidemiology of			LECTURE-1HR PORTFOLIO	LECTURE-1HR DOSCE	PRACTICAL -1HR BEDSIDE MCQ, LONG CASEMCQ,DO	
Discuss the definition, aetiology, epidemiology and classification, risk			LECTURE-1HR PORTFOLIO			

3528

3529

3530

3531

3532

3533



Dr K Naidoo (913480831)
School of Nursing and Public Health
College of Health Sciences
Naidook7@ukzn.ac.za

Dear Dr Naidoo

Protocol: Preparing medical graduates for primary care of geriatric patients in sub-Saharan Africa.

Degree: PhD

BREC Ref No: BE287/18

EXPEDITED APPLICATION: APPROVAL LETTER

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 12 February 2018.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 16 August 2018 to BREC letter dated 11 July 2018 have been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have now been met and the study is given full ethics approval and may begin as from 21 August 2018. Please ensure that site permissions are obtained and forwarded to BREC for approval before commencing research at a site.

This approval is valid for one year from 21 August 2018. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>.

BREC is registered with the South African National Health Research Ethics Council (REC-290406-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be noted by a full Committee at its next meeting taking place on 11 September 2018.

We wish you well with this study. We would appreciate receiving copies of all publications arising out of this study.

Yours sincerely

Prof V Rambiritch
Chair: Biomedical Research Ethics Committee

cc: postgraduate administrator: ramilalm@ukzn.ac.za Supervisor: yanywys2@ukzn.ac.za

Biomedical Research Ethics Committee
Professor V Rambiritch (Chair)
Westville Campus, Govan Mbeki Building
Postal Address: Private Bag X54001, Durban 4001
Telephone: +27 (0) 31 260 2408 Facsimile: +27 (0) 31 260 1808 Email: brec@ukzn.ac.za
Website: <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>

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Founding Campuses: Edgewood Howard College Medical School Pietermaritzburg Westville



UNIVERSITY OF
KWAZULU-NATAL

INYUVESI
YAKWAZULU-NATALI

RESEARCH OFFICE
Biomedical Research Ethics Administration
Westville Campus, Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

Website <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>

21 October 2019

Dr K Naidoo (913480831)
School of Nursing and Public Health
College of Health Sciences
Naidook7@ukzn.ac.za

Dear Dr Naidoo

Protocol: Preparing medical graduates for primary care of geriatric patients in sub-Saharan Africa.
Degree: PhD
BREC Ref No: BE287/18

RECERTIFICATION APPLICATION APPROVAL NOTICE

Approved: 21 August 2019
Expiration of Ethical Approval: 20 August 2020

I wish to advise you that your application for Recertification received on 10 October 2019 for the above protocol has been **noted and approved** by a sub-committee of the Biomedical Research Ethics Committee (BREC) for another approval period. The start and end dates of this period are indicated above.

If any modifications or adverse events occur in the project before your next scheduled review, you must submit them to BREC for review. Except in emergency situations, no change to the protocol may be implemented until you have received written BREC approval for the change.

The committee will be notified of the above approval at its next meeting to be held on 12 November 2019.

Yours sincerely

Prof V Ramdirth

Chair: Biomedical Research Ethics Committee

cc postgraduate administrator: ramlalm@ukzn.ac.za Supervisor:

vanwyk2@ukzn.ac.za



health

Department:
Health
PROVINCE OF KWAZULU-NATAL

Physical Address: 330 Langalibalele Street, Pietermaritzburg
Postal Address: Private Bag X9051
Tel: 033 395 2805/ 3189/ 3123 Fax: 033 394 3782
Email: hrkm@kznhealth.gov.za
www.kznhealth.gov.za

DIRECTORATE:

**Health Research & Knowledge
Management**

HRKM Ref: 210/18
NHRD Ref: KZ_201805_037

Dear Dr K. Naidoo
UKZN

Approval of research

1. The research proposal titled '**Preparing medical graduates for primary care of geriatric patients in sub-Saharan Africa**' was reviewed by the KwaZulu-Natal Department of Health.

The proposal is hereby **approved** for research to be undertaken at Wentworth Hospital and KwaMashu Community Health Centre.

2. You are requested to take note of the following:
 - a. Make the necessary arrangement with the identified facility before commencing with your research project.
 - b. Provide an interim progress report and final report (electronic and hard copies) when your research is complete.
3. Your final report must be posted to **HEALTH RESEARCH AND KNOWLEDGE MANAGEMENT, 10-102, PRIVATE BAG X9051, PIETERMARITZBURG, 3200** and e-mail an electronic copy to hrkm@kznhealth.gov.za

For any additional information please contact Mr X. Xaba on 033-395 2805.

Yours Sincerely




Dr E Lutge

Chairperson, Health Research Committee

Date: 08/08/18

3538 **Appendix 13 – Gatekeeper permission from St. Andrew’s Hospital**

3539

 health Department: Health PROVINCE OF KWAZULU-NATAL	DIRECTORATE: ST ANDREWS HOSPITAL MEDICAL DEPARTMENT
Physical Address: 14 Moodie Street, Harding / 680 Postal Address: Private Bag X1010, Harding, 4680 Tel: 039 4321865 Fax: 039 433 2419 Email: K.lumeya@kznhealth.gov.za www.kznhealth.gov.za	

Reference: Research protocol
Enquiries: Dr S.K. Lumeya
Date: 08/08/ 2018

Dr K. Naidoo
School of Nursing and Public Health
College of health sciences
Naidook7@ukzn.ac.za

RE : PREPARING MEDICAL GRADUATES FOR PRIMARY CARE OF GERIATRIC PATIENTS IN SUB- SAHARAN AFRICA

Dear Dr Naidoo

You have been granted the permission to conduct the above study in St. Andrews hospital.

Please be reminded that the permission is granted under below conditions:

1. Kindly adhere to all the policies, procedures, protocols and guidelines of the Department of health with regards to this research.
2. This research will only commence once this office has received confirmation from the provincial health research committee in the Kwazulu natal department of health.
3. Please inform this office before starting your research
4. The hospital will not provide any resources for this research.
5. You will be expected to provide feedback once your research is complete to the Chief Executive Officer of St. Andrews hospital

Yours Sincerely

DR S.K. LUMEYA
MEDICAL MANAGER/
ACTING CEO

Fighting Disease, Fighting Poverty, Giving Hope



7 Bodien Road, Jacobs 4026
Private Bag, Jacobs 4026
Tel: 031-460 5000 Fax: 031-4689854
www.kznhealth.gov.za

DIRECTORATE:

WENTWORTH HOSPITAL
PRIVATE BAG
JACOBS 4026

Reference : Research Protocol
Enquiries : Dr. S.B. Kader
Telephone : 031- 460 5001

E Mail: Suriya.Kader@kznhealth.gov.za

Date: 21ST JUNE 2018

Dr. K. Naidoo
School of Nursing and Public Health
College of Health Sciences

Naidook7@ukzn.ac.za

Dear Dr. Naidoo

RE: PREPARING MEDICAL GRADUATES FOR PRIMARY CARE OF GERIATRIC PATIENTS IN SUB-SAHARAN AFRICA.

I have pleasure informing you that permission has been granted to you to conduct the above study.

Kindly take note of the following information before you continue:-

1. Please adhere to all the policies, procedures, protocols and guidelines of the Department of Health with regards to this research.
2. This research will only commence once this office has received confirmation from the Provincial Health Research Committee in the KwaZulu Natal Department of Health.
3. Kindly ensure that this office is informed before you commence your research.
4. The hospital will not provide any resources for this research.
5. You will be expected to provide feedback once your research is complete to the Chief Executive Officer.

Yours faithfully

DR. S.B. KADER
CEO

3545 **Appendix 15 – Gatekeeper permission from UKZN Registrar**

3546



13 August 2019

Dr Keshena Naidoo
School of Clinical Medicine
College of Health Sciences
NRMSM Campus
UKZN
Email: naidoo7@ukzn.ac.za

Dear Dr Naidoo

RE: PERMISSION TO CONDUCT RESEARCH

Gatekeeper's permission is hereby granted for you to conduct research at the University of KwaZulu-Natal (UKZN), provided Ethical clearance has been obtained. We note the title of your research project is:


"Knowledge, attitudes and perceptions of medical students regarding care of elderly."

It is noted that you will be constituting your sample by handing out questionnaires to Final year MBChB students on the NRMSM campus.

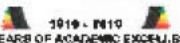





Please ensure that the following appears on your notice/questionnaire:

- Ethical clearance number;
- Research title and details of the research, the researcher and the supervisor;
- Consent form is attached to the notice/questionnaire and to be signed by user before he/she fills in questionnaire;
- gatekeepers approval by the Registrar.

You are not authorized to contact staff and students using 'Microsoft Outlook' address book. Identity numbers and email addresses of individuals are not a matter of public record and are protected according to Section 14 of the South African Constitution, as well as the Protection of Public Information Act. For the release of such information over to yourself for research purposes, the University of KwaZulu-Natal will need express consent from the relevant data subjects. Data collected must be treated with due confidentiality and anonymity.

 **ERIC NJABULO ZUMA**
DIRECTOR: GOVERNANCE & ADMINISTRATION
OFFICE OF THE REGISTRAR
UNIVERSITY OF KWAZULU-NATAL
UNIVERSITY ROAD
CHILTERN HILLS, WESTVILLE, 3628

Postal Address: Private Bag X54001, Durban, South Africa
Telephone: +27 (0) 31 260 8005/2206 Facsimile: +27 (0) 31 260 7624/2204 Email: registrar@ukzn.ac.za
Website: www.ukzn.ac.za

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3547 Appendix 16 – Ethical approval UKZN BREC for sub-study

3548



04 September 2019

Dr K Naidoo
School of Clinical Medicine
College of Health Sciences
Naidook7@ukzn.ac.za

Dr Naidoo

Protocol: Preparing medical graduates for primary care of geriatric patients in Sub-Saharan Africa
Non-Degree
BREC Ref No: BE479/19

EXPEDITED APPLICATION: APPROVAL LETTER

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application received on 22 July 2019.

The study was provisionally approved pending appropriate responses to queries raised. Your response received on 26 August 2019 to BREC letter dated 05 August 2019 has been noted by a sub-committee of the Biomedical Research Ethics Committee. The conditions have been met and the study is given full ethics approval and may begin as from 04 September 2019. Please ensure that outstanding site permissions are obtained and forwarded to BREC for approval before commencing research at a site.

This approval is valid for one year from 04 September 2019. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 7-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be noted by a full Committee at its next meeting taking place on 08 October 2019.

Yours sincerely

Prof V Rambiritch
Chair: Biomedical Research Ethics Committee

cc: Post grad admin: jantjies@ukzn.ac.za Scmpgrad@ukzn.ac.za

Biomedical Research Ethics Committee

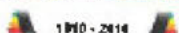
Professor V Rambiritch (Chair)

Westville Campus, Govan Mbeki Building

Postal Address: Private Bag X54001, Durban 4001

Telephone: +27 (0) 31 263 2478 Fax/mobile: +27 (0) 31 263 4808 Email: brec@ukzn.ac.za

Website: <http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx>



100 YEARS OF ACADEMIC EXCELLENCE

FOUNDER CAMPUSES: Edgewood Medical School Wagners

Appendix 17 - Accepted journal article, African Journal of Primary Care and Family Medicine

Ref. No.: 2100

Manuscript title: What the elderly experience and expect from primary care services in KwaZulu-Natal, South Africa

Journal: African Journal of Primary Health Care & Family Medicine

ISSN: 2071-2928, E-ISSN: 2071-2936

Dear Dr Keshena Naidoo

The journal has a double-blinded peer review process and your manuscript was assessed by two expert independent reviewers. Read our peer review process https://aosis.co.za/policies#peer_review.

Thank you for your revised manuscript. We have reached a decision regarding your submission. I am pleased to inform you that your manuscript has now been accepted for publication.

The Editorial Office will contact you by 19 July 2019 to finalise your manuscript for the Finalisation and Publication Office. If you need any assistance, kindly contact the Editorial Office at submissions@phcfm.org with any questions or concerns.

We remind our authors that our publisher is a member of CrossChecks plagiarism detection initiative and endorses and applies the standards of the Committee on Publication Ethics which promotes integrity in peer-reviewed research publications. This journal also conforms to the accreditation requirements by both the Department of Higher Education and Training of South Africa and Scielo SA. Be assured that upon publication, your manuscript will be indexed in various international research repositories for further dissemination and reach in readership.

Please help us to improve your experience as an author by taking a few minutes to tell us about the service that you have received. We appreciate your participation and want to make sure we met your expectations, which will give us the opportunity to better serve the community.

Feedback:

https://forms.office.com/Pages/ResponsePage.aspx?id=mXfgHQ3TR0ix-TiELOAkzi4e5bmbRrhDux1_hEph7SZUQVZUWDNTR0tLQTVQODVUNIJTT001SzhHSC4u

Thank you for submitting your interesting and important work to the African Journal of Primary Health Care & Family Medicine. We value your contribution to the journal and for the active involvement in the development of the discipline.

Your manuscript will soon form part of this open access publication and your content will be licensed under the Creative Commons Attribution License. We look forward to your future contributions.

Kind regards,

3595 AOSIS: Chanell Barnard (on behalf of Prof. Sunanda Ray) Operations Coordinator Submissions and
3596 Review Unit Scholarly Journals Department AOSIS Publishing, Empowering Africa through access to
3597 knowledge Phone +270219752602 3ts.srsupport@phcfm.org
3598 Appendix 17 – Accepted journal article, African Journal of Health Professions Education
3599
3600
3601

Appendix 18 - Accepted journal article, South African Journal of Family Practice

Dear Authors,

Ref. No.: 5081

We are pleased to confirm your manuscript was accepted for publication on 21-02-2020, and has now been sent to our publishing department for finalisation.

Kindly note:

1. If you need to make contact with the publisher during the finalisation stage of your manuscript, kindly contact us per email or phone. Your new publisher contact will be Madeleine Coetzee, email: publishing@safpj.co.za and telephone extension: 504

2. The finalisation procedure works as follows:

(a) The first stage is the language editing that is returned to the corresponding author for review. This will be the final opportunity for the corresponding author to make text changes to the manuscript.

(b) At a later stage, the editorial staff will send the corresponding author one set of galley proofs, at which time the author will have two working days to mark any typographical errors.

3. Manuscript tracking is available on the submitting authors' journal profile. The submitting Author could visit their home page frequently to assess the stage of the manuscript.

Kind regards,

Michelle King: AOSIS Submissions and Review

Phone +27 021 975 2602

Fax 086 1000 381

Office hours: 08:00-16:30 (UCT +2:00) Mondays - Fridays

South African Family Practice journal

<https://safpj.co.za>

If you require immediate assistance, please contact AOSIS Publishing:

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Support email: publishing@aosis.co.za

Business hours are weekdays between 8:00am-16:30pm

Confidentiality: The information contained in and attached to this email is

3647 confidential and for use of the intended recipient. This email adheres to
3648 the email disclaimer described on www.aosis.co.za.
3649
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3651

Appendix 19 – Letter of acceptance from African Journal of Health Professions Education

From: em.ajhpe.0.6b8d8a.8995bb32@editorialmanager.com on behalf of AJHPE

To: Keshena Naidoo

Subject: Your Submission

Date: Wednesday, 27 May 2020 11:57:58

CC: "Jacqueline van Wyk" vanwykj2@ukzn.ac.za

Ref.: AJHPE1331R1

The knowledge and attitudes of final year medical students' regarding the care of older Patients

African Journal of Health Professions Education

Dear Dr Naidoo,

We are pleased to tell you that your work has now been accepted for publication in African Journal of Health Professions Education.

Before we send to the production team however, please could you attend to the following technical issues:

1. Tables: n and % columns to be merged, mean and sd columns to be merged
2. References to follow Vancouver style and provide DOIs where possible. Journal titles to be in abbreviated form and do not include the month of publication. Please refer to the AJHPE author guidelines for details
3. Figures to be provided in pdf format.
4. Citations in text to be in superscript brackets
5. Include the following sections after the conclusion of your article:

- Acknowledgements

- Author contributions

- Funding

- Conflicts of interest

If there are none, then just add None.

Please send your amended manuscript to claudian@samedical.org

Please find payment form attached herewith. As soon as proof of payment and the completed form have been received, we will send your article into production. (Please note that we are unable to process American Express card payments). Please send proof of payment to claudian@samedical.org

Thank you for submitting your work to the journal.

Best wishes

Gonzaga Mubuke, PhD

Associate Editor

African Journal of Health Professions Education

Reviewers' comments:

Reviewer's Responses to Questions

Relevance to HPE audience – Broad interest to all health professionals

Reviewer #1: As I mention in first review this research is highly relevant to health professionals in Sub Sharan Africa. All over Africa the aging population is increasing but there are very few health professionals with training or experience in dealing with the

3697 elderly.

3698 Reviewer #2: As noted in the first review, I am of the opinion that this study falls within
3699 the scope of the journal and does address an important issue in health professions
3700 education namely preparing (medical) students to enter the workplace as health
3701 professionals with the required knowledge and attitudes to take care for the elderly.
3702 In the discussion, the author(s) not only presents a detailed argument on the need and
3703 importance of developing the geriatric knowledge and attributes of medical students but
3704 also sketch the daunting reality of the lack thereof. The lacuna was supported with relevant
3705 and current literature. The role and responsibilities of health educators in preparing
3706 students as health professionals are emphasized. The author(s) presents some practical
3707 solutions and numerous areas for further research to gain more insight into the
3708 complexities surrounding students' geriatric knowledge and attributes or the lack thereof,
3709 are discussed.

3710 Scientific rigour – Appropriate design, methods, instruments and data analysis procedures;
3711 explicit ethical review board approval; accurate, appropriate and complete results

3712 Reviewer #1: The authors have adequately addressed the points I raised in methodology
3713 specifically, data collection.

3714 Reviewer #2: Appropriate design, methods, instruments and data analysis procedures;
3715 explicit ethical review board approval; accurate, appropriate and complete results. This
3716 article touch on the interplay between geriatric care and the need for adequately prepared
3717 medical professionals to care for older patients. The study aimed to evaluate the
3718 knowledge and attitudes of final year medical students regarding the care of older patients
3719 and investigate the association between student knowledge and attitudes towards caring for
3720 older patients. All final year medical students were invited to partake in the study. Datacollection
3721 included a self-administered questionnaire focusing on final year medical
3722 students' geriatric knowledge and attitudes. Geriatric knowledge was assessed with a
3723 modified version of Palmore's Facts on Ageing Quiz, and attitudes by the UCLAGeriatric
3724 Attitude Scale.

3725 As part of the initial review, I highlighted certain areas of concern. From the second
3726 review I am satisfied that the author(s) did address these concerns satisfactory and made
3727 the suggested changes.

3728 Novel – Did you learn anything new?
3729 (New knowledge, new application, new method)

3730 Reviewer #1: Of course I learnt a lot from the literature review.

3731 Reviewer #2: As noted in the original review, I did.

3732 Quality of academic writing - Language, grammar, spelling

3733 Reviewer #1: These were adequately addressed in the revision. I am satisfied with the
3734 language, grammar etc

3735 Reviewer #2: It was difficult to review the revised version as I received it in PdF format
3736 containing all the track changes. From what I could see, the quality is acceptable.

3737 Reviewer #1: The authors have addressed the points I had raised adequately.

3738 Reviewer #2: Dear Author(s)
3739 Thank you for an interesting study. Thank you for making the requested changes and if
3740 published, I look forward to the published version.

3741