Aging and Health in Resource-Poor Settings in Sub-Saharan Africa: A Ghanaian Study

by

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ABSTRACT

The population of older adults in Ghana is growing rapidly, and is projected to increase two-fold over the period 2015 to 2050. Despite the unprecedented growth, not much is known about the living conditions and wellbeing of older Ghanaians, in part due to a paucity of research in this area. This thesis presents the findings of a mixed methods study exploring the health and quality of life (QoL) of older adults residing in two contrasting neighbourhoods in Accra, Ghana. Data were collected in a slum and non-slum neighbourhood by means of: (1) a cross-sectional survey of community residing older adults (n = 603); and (2) in-depth qualitative interviews with a purposive sample of older adults (n = 30), community leaders (n = 2), health workers (n = 5), and policymakers (n = 5). QoL was self-assessed in four domains – physical, psychological, social, and environment – using the World Health Organization's quality of life assessment tool (WHOQoL-BREF). Multivariable linear regression analyses of the survey data revealed statistically non-significant differences between the slum and non-slum respondents in physical QoL (Coeff: 0.6; 95% CI: -2.1, 3.4; $p = 0.640$) and psychological QoL (Coeff: -0.2; 95% CI: -2.0, 2.6; $p = 0.893$). However, the slum respondents had statistically significant better social QoL than the non-slum respondents (Coeff: -3.2; 95% CI: -5.6, -7l; $p = 0.010$), while the non-slum respondents had statistically significant better environmental QoL than the slum respondents (Coeff: 4.2; 95% CI: 2.3, 6.2; $p < 0.001$). Religious practices of almsgiving and strong social networks in the slum and a relatively better housing and service infrastructure in the non-slum accounted for the observed variations in social and environmental QoL. Thematic analyses of the qualitative data identified similar patterns of health barriers in the slum and non-slum but with remarkably very different underlying drivers. They included poor built environments, housing precariousness, insanitary conditions, defective public services, and social incivilities. Older adults residing in the two neighbourhoods also received suboptimal

health services arising from resource, substantive, political, bureaucratic, and administrative constraints to the implementation of the National Health Insurance Scheme and its free healthcare policy. Health facilitators, such as affordable housing in the slum and an appealing outdoors in the non-slum, served to mitigate the adverse impacts of the barriers to health in the slum and non-slum. Thus, contrary to popular discourses that vilify slums as health-damaging milieus, these observations suggest they may actually be a resource for health in old age. The findings further suggest a need for housing and service improvements in the slums.

PREFACE

This thesis is the product of original work completed by Dominic Akangaamkum Alaazi and supervised by Professor Devidas Menon. Dominic undertook the conceptualization and design of the project with support from Professor Devidas Menon and Dr. Tania Stafinski of the School of Public Health, University of Alberta.

The supervisory committee consisted of Professor Devidas Menon, Dr. Tania Stafinski, Professor Gian Jhangri, Dr. Stephen Hodgins, and Dr. Joshua Evans. The fieldwork for this thesis was conducted in Ghana and funded by a research grant held by Professor Menon and Dr. Stafinski. Professor Martin Oteng-Ababio of the Department of Geography and Resource Development, University of Ghana, provided field guidance and assisted with the identification and recruitment of research assistants. Data collection occurred mostly in the Nima and Adabraka-Asylum Down coummunities in Accra, Ghana. The University of Alberta Research Ethics Board and the University of Ghana Research Ethics Committee provided ethics approval for the field research (File nos.: Pro00077928 and ECH/139/17-18, respectively).

Manuscripts, based on Chapters 2, 3, 4, and 5, have been completed for submission to peer-reviewed journals. Publication of the manuscripts is expected in the Fall (2020).

DEDICATIONS

For Kennedy, my brother, with whom I share the memories of childhood. Rest well, brother.

For the memory of Grandma and Grandpa, whose thoughts and values have shaped my life.

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TABLE OF CONTENTS

LIST OF TABLES

Page

LIST OF FIGURES

Page

LIST OF ACRONYMS

AMA	Accra Metropolitan Assembly
AMTO	Assisted Medical Treatment Order
ANCOVA	Analysis of Covariance
APHRC	African Population and Health Research Centre
CBD	Central Business District
CHFs	Community Health Funds
CVDs	Cardiovascular Diseases
GDP	Gross Domestic Product
LEAP	Livelihood Empowerment Against Poverty
MIPAA	Madrid International Plan of Action on Aging
NAP	National Aging Policy
NHIA	National Health Insurance Authority
NHIF	National Health Insurance Fund
NHIS	National Health Insurance Scheme
OECD	Organization for Economic Cooperation and Development
SSA	Sub-Saharan Africa
SSNIT	Social Security and National Insurance Trust
TIKAs	Tiba Kwa Kadi
QoL	Quality of Life
WHO	World Health Organization
WHOQoL-BREF	World Health Organization Quality of Life Asessment Tool- Brief Version

CHAPTER 1
General Introduction

1.1 Background

The population of older adults is increasing globally. By 2050, 16% of the world's population will be 65 years or older, up from 9% in 2019 (United Nations, 2019). Much of this increase will occur in resource-poor settings in Latin America, Asia, and sub-Saharan Africa (SSA). Over the next decade, SSA will record a 64% increase in the population of older adults, from 64.4 million in 2015 to 105.4 million in 2030 (United Nations, 2015). This demographic transition is accompanied by an interest in neighbourhood settings and their influence on older adults' health and wellbeing. As older adults advance further in age and become less mobile, they also tend to spend much of their time at home and in neighbourhood settings (Yen, Michael, & Perdue, 2009; Day, 2008). This intimacy renders older adults more vulnerable to adverse neighbourhood conditions than younger and more mobile populations. Understanding the nature and quality of interactions between older adults and their neighbourhoods is therefore critical to the creation of age-friendly and health supportive communities.

Studies conducted in the United States and Canada suggest neighbourhood housing and services as strong determinants of health and wellbeing in old age (Peace, Holland, & Kellaher, 2006; Richard, Laforest, Dufresne, & Sapinski, 2005; Feldman & Oberlink, 2003). Perceptions of neighbourhood safety and social cohesion have also been found to have a strong influence on older adults' sense of place attachment and psychosocial health (Collins & Marron, 2015; Wiles et al., 2009; McKee & Milner, 2000). In advanced economies, such as the United Kingdom and United States, knowledge of neighbourhood effects on health has been incorporated into aging

policies and programs, including interventions to support aging-in-place and related community services for older adults (Burton & Mitchell, 2006; Peace et al., 2006).

Research to support similar interventions has yet to emerge in SSA, despite the unprecedented surge in the population of older adults in this region. Research to inform the creation of age-friendly communities in SSA is important because: (1) modernization pressures, including changing value systems, have weakened traditional family ties and caused a need for greater independence among older adults (Alli & Maharaj, 2013; Aboderin, 2004); and (2) rapid urbanization of aging populations is putting enormous pressure on urban governments to provide age-appropriate housing and community infrasturcture. The demand for age-friendly infrastructure coincides with and exacerbates an existing urban housing crisis in SSA, which includes a housing backlog of more than 500,000 units in Accra alone (Dudwick, Hull, Katayama, Shilpi, & Simler, 2011). Although data on the living conditions of older adults in SSA are scant, there is evidence indicating a growing presence of this group in urban slums, where living conditions are deemed to be extremely poor (Atinga, Abiiro, & Kuganab-Lem, 2015; Falkingham, Chepngeno-Langat, Kyobutungi, Ezeh, & Evandrou, 2011; Ezeh, Chepngeno, Kasiira, & Woubalem, 2006). The Madrid International Plan of Action on Aging (MIPAA) sought to address some of these challenges, declaring in particular a need for action to improve the living conditions and advance the nutritional and health status of older adults globally (United Nations, 2002).

Ghana's response to the MIPAA includes a National Aging Policy (adopted in 2003, revised 2010) and a National Health Insurance Scheme (adopted in 2003) that, among others, guarantee free healthcare for older adults aged 70 years and above. However, it still remains

unknown the extent to which these policies have shaped the living conditions and wellbeing of older Ghanaians, especially the health and quality of life (QoL) of individuals residing in socioeconomically disadvantaged neighbourhoods. The purpose of this research project was therefore to explore the living conditions, health, and QoL of older slum dwellers in Accra, Ghana, and by so doing contribute to a global understanding of the intersection of aging, neighbourhoods, and health.

1.2 Research question and objectives

Available evidence indicates an increasing number of older adults in Ghanaian urban slums. The 2010 Population and Housing Census estimated 9,500 older adults in the Nima-Maamobi slum alone (Ghana Statistical Service, 2014). Despite this growing awareness, a systematic exploration of the living circumstances, health, and QoL of older slum dwellers has yet to occur in Ghana, let alone a comparison with the wellbeing of non-slum older populations. This research project addresses this gap. A central question in this investigation was whether health and QoL disparities existed between slum and non-slum older adults. The objectives of the study were to:

(1) map out existing research on the health and QoL of older slum dwellers in SSA and identify gaps for future research;

(2) explore and compare the health and QoL status of slum and non-slum older adults in Ghana;

(3) identify and explain barriers and facilitators to health and QoL among older slum and non-slum dwellers;

(4) identify strategies for improving the health and QoL of slum and non-slum older adults.

1.3 Theoretical perspectives

The following theoretical perspectives guided the collection, analyses, and interpretation of data. *Ecological Theory of Aging:* After a careful consideration of several theoretical frameworks, including social ecological perspectives (Libman, Fields, & Saegert, 2012) and Bronfenbrenner's (1979) bioecological theory, Powell Lawton's Ecological Theory of Aging was adopted to guide the conduct of the study exploring barriers and facilitators to health (Chapter 4). This choice was based on the latter's explanatory power, which draws together perspectives connecting individual characteristics and biophysical and social features of neighbourhoods to explain health and QoL outcomes pertaining to older adults.

The ecological framework conceptualizes health and QoL status of older adults as a function of interaction between *environmental press* and *personal competence* (Lawton & Nahemow, 1973). By definition, environmental press are those features of the socio-physical environment that drive human behaviour (Lawton, 1977), for example social networks, housing quality, healthcare facilities, transportation systems, and regulations and policies influencing people's environmental experiences. Competence "describes essentially what lies within the person [or] the givens within the individual" that drive behaviour (Lawton, 1977, p. 8). Competence includes intellectual capacity, knowledge, skills, biological endowments, physical and mental strength, and cognition. The model's hypothesis holds that compatibility between *press* and *competence* would produce positive adaptation and hence good health and QoL outcomes, whereas a mismatch would often lead to poor adaptation and adverse health outcomes. This model is useful in public health research and practice in two major ways: first, it underscores the need to consider environmental and sociodemographic characteristics when examining health and QoL outcomes; and second, it helps to connect downstream and upstream

determinants of disease causation, which can range from micro (e.g. human biology and germ environment) to macro causes (e.g. policies affecting access to housing and healthcare).

Policy Implementation Problem: The implementation problem in public policy explains the disconnect between policy objectives at formulation and policy outcomes at implementation (Pressman & Wildavsky, 1984; Quick, 1980). The concept highlights economic, political, bureaucratic, and substantive bottlenecks to public policy implementation, especially in Third World countries where "public policies do not get implemented at all, and those that do manage to get through the tortuous process of implementation often look very different from what their framers originally intended" (Quick, 1980, p. 40). The concept of policy implementation problem guided the analysis and interpretation of data in Chapter 4.

Neighbourhoods, Housing, and Health Relations: The intersection of neighbourhoods, housing, and health guided the interpretation of data in Chapter 3. This interlocking web of relations has been a subject of research interest for decades, although much of the work done to date has focused on developed countries and on explaining the physical and psychological impact of living in particular residential milieus. This literature identifies poor quality housing, housing insecurities, and degraded neighbourhood environments as major causes of accidental injuries (Camilloni et al., 2011), physical disability (Balfour & Kaplan, 2002), healthcare deprivation (Lang, Gibbs, Steel, & Melzer, 2008), and depression (Howden-Chapman, Chandola, Stafford, & Marmot, 2011) in older adults. In contrast, good quality housing and walkable neighbourhoods are linked to housing satisfaction, place attachment, positive affect, and favourable psychological and mental health outcomes among older adults (Berke, Gottlieb, Moudon, & Larson, 2007; Evans, Kantrowitz, & Eshelman, 2002).

Anecdotal evidence on SSA points to poor health outcomes in slum settlements, including a higher prevalence of infectious diseases (Dos Santos, de Charles Ouédraogo, & Soura, 2015; Penrose, de Castro, Werema, & Ryan, 2010; Madise et al., 2012; Kyobutungi, Ezeh, Zulu, & Falkingham, 2009). These adverse findings contrast sharply with recent evidence suggesting a positive relationship between living in slums and health (Hunter & Posel, 2012; Owusu, Agyei-Mensah, & Lund, 2008). These recent studies project sub-Saharan African slums as a source of services, employment, and affordable housing for the urban poor. Although a handful of studies have described the health status of older slum dwellers in the region (e.g. Chepngeno-Langat, 2014; Kyobutungi, Egondi, & Ezeh, 2010), there remains a need to establish causal linkages between slums and older adults' health and wellbeing. This knowledge gap deserves research attention, as the majority of urban older adults in SSA will reside in slums (United Nations, 2015).

1.4 General methods

The design and implementation of this project followed a mixed-methods approach involving a literature review and systematic collection and analyses of survey and qualitative data (Tariq & Woodman, 2010). For comparative purposes, the author undertook data collection in two socio-environmentally contrasting neighbourhoods in Accra, namely the Nima slum and Adabraka-Asylum Down non-slum neighbourhoods. The boundaries of the two neighbourhoods were those set by the Accra Metropolitan Assembly (Ghana Statistical Service, 2002). The Nima slum is a low-income neighbourhood of approximately 81,000 residents in 2010, while Adabraka-Asylum Down is a middle-income settlement with a combined population of around 50,000 in 2010

(Accra Metropolitan Assembly, 2014; Ghana Statistical Service, 2014; Agyei-Mensah & Owusu, 2010).

Data collection and analyses were completed in four overlapping phases, each designed to address specific research objectives. Phase 1 involved a scoping review of the literature to understand the scope, range, and nature of existing research on the health and QoL of older slum dwellers in SSA and to identify gaps for future research. Phase 2 involved a cross-sectional survey with community-residing older adults to understand their self-rated health and QoL status. This survey utilized the World Health Organization's Quality of Life assessment tool (WHOQoL-BREF). Phase 3 involved qualitative interviews with a purposive sample of older adults to understand the factors shaping their health and QoL. The final phase involved in-depth qualitative interviews with a purposive sample of stakeholders, including health workers, community leaders, and policymakers, to further understand the determinants of the health and QoL of older adults. The survey responses were analyzed using STATA version 15, while the qualitative interviews were transcribed verbatim and analyzed using NVivo version 12. The ethics committees of the University of Alberta and University of Ghana provided ethics clearance for the field work in Ghana.

1.5 Definition of key concepts

Slums: Housing standards are context-specific, and so are the definitions of slums (Nolan, 2015). However, the UN-Habitat's (2006) definition has proven more useful, as it provides measurable indicators for identifying slums. UN-Habitat has described slums as human settlements that lack one or more of the following: durable dwellings, sufficient living space, security of tenure, and access to safe water and sanitation. For operational purposes and at risk of oversimplifying a

complex phenomenon, the project adopted this definition; the reason being that it provided indicators for differentiating and selecting neighbourhoods for inclusion in the study.

Old Age: The term 'old age' has chronological, biological, and functional dimensions. In chronological terms, old age refers to the "measurement of time since birth" (Jett, 2008, p. 28). In the United States and OECD countries, old age is set at 65 years after birth, when one would be eligible for retirement income and other financial and material benefits (Duval, 2003). Biologically, the advancement in chronological age is accompanied by certain physiological changes in the human body that affect its strength and ability to function optimally. For example, bone and muscle tissue may become less dense with increasing age, resulting in declining physical health and mobility (Milanović et al., 2013). Old age is defined in this thesis to encompass all three dimensions, with chronological age being 60 years and over, as established by the United Nations and adopted by the Ghana Statistical Service (2013).

Health and QoL: The World Health organization (2014) defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (p. 1). It also conceptualizes QoL as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns" (WHOQoL Group, 1998, p. 1570). QoL encompasses such elements as physical health, satisfaction with life, social relationships, psychological wellbeing, and perceptions of living conditions. Although health and QoL have widely been viewed as indistinguishable concepts (Karimi & Brazier, 2016), the two in fact differ in meaning. Recent conceptualizations portray health as one of several dimensions of QoL (Brazier et al., 2014). For

example, satisfaction with life is a QoL dimension that includes all aspects of one's health and more, including social and economic wellbeing.

The WHOQoL-BREF instrument recognizes this distinction, and thus has separate questions for assessing health and QoL. Health status is self-assessed in one question, while QoL is assessed in 25 questions, partitioned into five domains – overall QoL and physical, psychological, social, and environmental domains – reflecting its multidimensional character (Appendix 4).

1.6 Organization of this Thesis

The rest of this thesis is presented in five chapters. Chapter 2 presents the findings of the scoping review. This chapter addresses study objective #1: to map out existing research on the health and QoL of older slum dwellers in SSA and identify gaps for future research. Chapter 3 presents the findings of the cross-sectional survey. This chapter addresses study objective #2: to explore and compare the health and QoL status of slum and non-slum older adults in Ghana.

Chapter 4 presents the findings of the qualitative interviews with older adults and some of the stakeholders. This chapter addresses study objective #3: to identify and explain barriers and facilitators to health and QoL among older slum and non-slum populations. Chapter 5 presents the findings of the qualitative interviews with stakeholders. This chapter addresses part of study objective #3 and the whole of study objective #4: to identify strategies for improving the health and QoL of slum and non-slum older adults. Chapter 6 presents general discussion and conclusions emerging from the previous chapters.

CHAPTER 2

Health, Quality of Life, and General Wellbeing of Older Slum Dwellers in Sub-Saharan Africa: A Scoping Review

2.0 Abstract

A growing population of older adults in sub-Saharan Africa reside in urban slums, where housing and sanitation infrastructure are poor and overstressed. Although these environmental conditions are adversarial to health, knowledge of the wellbeing of older slum dwellers in sub-Saharan Africa is generally limited. However, a nascent body of literature has emerged to address this gap. The purpose of this review was to understand the scope, extent, and nature of current research on the health and wellbeing of older slum dwellers in the region. Eight bibliographic databases, including MEDLINE, Embase, PsycINFO, Global Health, Web of Science, CINAHL, EconLit, and Cochrane Library, were searched in July 2019 for studies investigating the health and wellbeing of older slum dwellers in sub-Saharan Africa. A grey literature search was also completed. The database and grey literature search together yielded 2,205 records, of which 25 were included in the review. The selected studies investigated a variety of health issues affecting older slum dwellers: (1) disease and injury prevalence; (2) self-assessed health and quality of life status; (3) physical/mental health impairment and disability; (4) healthcare access and utilization; and (5) sociodemographic disparities in health and wellbeing. The gaps in this literature include a regional bias in research efforts, near absence of non-slum control samples, and limited research on the influence of slum built environments on older adults' health and wellbeing. Suggestions for addressing these gaps are presented.

2.1 Introduction

The United Nations World Assembly on Aging (2002) has been instrumental in pushing for improvements in the living conditions and wellbeing of older adults globally (Esser & Ward, 2013). Available data on sub-Saharan Africa (SSA) indicate a 64% projected increase in older populations over the next 10 years, from approximately 64.4 million in 2015 to more than 105.4 million by 2030 (United Nations, 2015). Per current projections, the majority of this population will reside in urban areas, where housing infrastructure are already poor and overstressed (United Nations, 2015; Chepngeno-Langat & Ezeh, 2007; Gugler, 2002). In 2015, Africa ranked second behind Asia in growth of urban older populations, having increased by a staggering 82% since the year 2000 (United Nations, 2015).

A major concern of this demographic shift in the region has been the challenge of providing adequate housing for older urban populations. Since the 1980s, social housing programs in SSA have dissipated in response to the neoliberal turn in urban development (Obeng-Odoom, 2009; Kamete, 2006). Despite the substantial growth in private capital investment in the housing sector, there remains a wide gap between housing demand and supply, resulting in a housing deficit that affects vulnerable urban populations, including the elderly (Republic of Ghana, 2014; Mangizvo & Dzikiti, 2009; Roberts, 2008). Consequently, the number of older adults living in depressed urban neighbourhoods is reported to be rising (Chepngeno-Langat & Ezeh, 2007; Gugler, 2002). Kenya's National Aging Policy (2014) has, for example, identified the rising number of older "beggars" and "slum dwellers" as an issue of public concern. A survey of urban living conditions in Tanzania also found large proportions of older adults living in insanitary conditions in slums (Spitzer, Rwegoshora, & Mabeyo, 2009).

As human settlements, slums vary in environmental characteristics but typically experience a lack of durable dwellings, tenure security, sufficient living space, and access to safe water and sanitation (UN-Habitat, 2006). Slum dwellers lack basic property rights and have little motivation to invest in housing improvements. As such, most slum dwellings are constructed with flimsy materials, such as mud, plastic, cardboards, and wattle (La Ferrara, 2002). The region's slums are also overcrowded, with room occupancy ranging from four persons per room in Lagos, Nigeria (Adelekan, 2010) to approximately eight persons per room in Accra, Ghana (Songsore, 2003). A typical one-bedroom space in a slum has multiple uses, including as space for sleeping, cooking, and sitting (Ezeh, Chepngeno, Kasiira, & Woubalem, 2006). Municipal environmental services in slums are poorly provided; only a small proportion of solid waste generated in slums is collected for proper disposal. In Accra's slums, for example, the proportion of solid waste collected ranges from just 2.9% in Chorkor to 8.6% in Nima (Agyei-Mensah & Owusu, 2010).

Water consumed in slums is usually of poor quality, as most slum residents remain disconnected from municipal water supply systems across the region. Rather, kiosks and nearby wells serve most of the domestic water supply needs of slum dwellers, despite a high risk of pathogenic contamination (Ayeni, 2014; Kimani-Murage & Ngindu, 2007). In addition, sanitation facilities in slums are unsafe and inadequate (Corburn & Hildebrand, 2015), as in Dar es Salaam (Tanzania) where only 8% of slum dwellers have access to hygienically safe sanitation facilities (Jenkins et al., 2014). Air pollution caused by biomass burning presents enormous health challenges in slums, including respiratory problems. Particulate concentrations in the slums of Addis Ababa (Ethiopia) and Warri (Nigeria) are reportedly higher than the World

Health Organization's permissible exposure limit (Rim-Rukeh, 2015; Sanbata, Asfaw, & Kumie, 2014).

These environmental adversities intersect with high levels of poverty and declining social supports to exert physical and psychosocial stress on older slum dwellers, a health risk exacerbated by limited formal education, long periods of unemployment, and oftentimes a complete lack of pension income (Lam, Leibbrandt, & Ranchhod, 2006). As such, most slum dwellers lack the resources and supports needed to support health in old age (Du Rand & Engelbrecht, 2001). These adversarial environmental and social conditions can have negative impacts on the health and wellbeing of older slum dwellers. However, an emerging literature on the region also portrays slums as offering critical resources for health, including affordable housing, informal services, and employment opportunities (Ezeh et al., 2017; Hunter & Posel, 2012; Obeng-Odoom, 2011; Owusu, Agyei-Mensah, & Lund, 2008; La Ferrara, 2002). These contrasting views of slums raise critical questions about the state of health and wellbeing of older slum dwellers in SSA. Yet, research to address pertinent questions about the wellbeing of older slum dwellers in the region is underdeveloped. The objectives of this review were therefore to:
(1) understand the scope, extent, and nature of existing research on the health and wellbeing of older slum dwellers in SSA;
(2) identify knowledge gaps and inform future research into the health and wellbeing of older slum dwellers in the region.

Conceptually, the review adopted the World Health Organization's definition of health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (World Health Organization, 2006, p. 1).

2.2 Aging, place, and health

Theoretical understandings of the interconnectedness of aging, place, and health guided the conduct of this review. Research in environmental gerontology points to a strong relationship between older adults and their residential settings (Wiles, 2005). Aging-in-place policies recognize this relationship and seek to enhance the health and wellbeing of aging populations through interventions that support older adults to remain living in their homes and communities of usual residence (Sixsmith & Sixsmith, 2008). Research conducted with older adults has so far demonstrated a clear preference for independent living at home and in community settings (Haak, Fänge, Iwarsson, & Dahlin-Ivanoff, 2011; Gitlin, 2003; Burholt & Windle, 2001). The literature identifies, at least, three pathways through which home and neighbourhood environments influence health and quality of life. First, home is not merely a physical dwelling but a site that offers important health resources, including material, emotional, and caring supports (Annison, 2000). Second, the autonomy, privacy, self-worth, and identity afforded by independent living at home rather than in supervised residence have intrinsic therapeutic qualities that support health (Sixsmith & Sixsmith, 2008; Moss, 1997). Finally, the familiarity, stability, and tranquility associated with the home environment are demonstrably beneficial to emotional and mental health (Sixsmith & Sixsmith, 2008).

Independent living at home and in community can, however, be injurious to health and wellbeing, especially when there is a mismatch between functional abilities and the age-appropriateness of residential environments (Wiles, Leibing, Guberman, Reeve, & Allen, 2012). Aging in unsafe places can increase risk of falls and psychological stress among the frail elderly, whose mobility and vision may be impaired in the aging process (Evans, 2003). Isolation, loneliness, and deficient access to formal supports have also been reported as downsides of

aging-in-place at home (Sixsmith & Sixsmith, 2008). Empirical research further indicates that the odds of reporting old age-related morbidity and mortality are comparatively higher among older adults who live independently in socioeconomically disadvantaged neighbourhoods (Menec, Shooshtari, Nowicki, & Fournier, 2010; Roux, Borrell, Haan, Jackson, & Schultz, 2004). In much of SSA where institutionalized care arrangements are noticeably absent, the majority of older adults live at home in neighbourhoods that are not necessarily old age-friendly. Overall, depending on their particular physical and social characteristics, residential settings can be both beneficial and harmful to the health of older adults. The intersection of aging, place, and health thus provides a guiding framework for exploring the ways in which particular residential settings might influence older adults' health and wellbeing.

2.3 Methods

2.3.1 Study design

The study followed a scoping review approach, the methodology of choice when literature on a particular subject matter is scant and underdeveloped. A scoping review, by definition, is an exploratory research process that is best suited for exploring the "extent, range and nature of research activity" in a particular subject area (Arksey & O'Malley, 2005, p. 21). Geriatric health research in slums is a small but emerging area of public health research in SSA. Given the emerging nature of this field, it is timely to explore this nascent literature, identify existing knowledge gaps, and suggest directions for future research. Arksey and O'Malley's (2005) methodological framework guided the review. This framework defines five stages, namely: (i) identify the research question; (ii) identify relevant studies; (iii) select studies; (iv) chart the data; and (v) collate, summarize, and report results.

2.3.2 Identifying the research questions

A set of questions focused on summarizing existing research on the state of health and wellbeing of older slum dwellers guided the conduct of the review. These questions were:

(1) What is currently known about the health and quality of life of older slum dwellers in SSA?

(2) What knowledge gaps exist in current understandings of the health and quality of life of older slum dwellers in the region?

(3) How can future research address these knowledge gaps?

These research questions were important in helping to narrow the scope of the review and to focus on a specific body of literature that shed light on the subject of interest.

2.3.3 Identifying relevant studies

To identify relevant studies, a research librarian assisted with conducting a systematic search in eight bibliographic databases – CINAHL, PubMed, Embase, Web of Science, PsycINFO, Global Health, Cochrane Library, and EconLIT – in July 2019. The search terms used are listed in Table 2.1.

Table 2.1: Search terms

Target age group	Neighbourhood settings	Regional focus
Elder*, Old age, Senior*, Older adult*, Older people, Older population*, Aging, Aging, Frail, Gerontolog*, Geriatric*	Slum *, Poverty area*, Depriv* area*, Informal settlement*, Ghetto*, Shanty*, Squatter*	Africa South of the Sahara, Sub-Saharan Africa*, East* Africa*, West* Africa*, Central Africa*, Southern Africa*, Angola*, Benin*, Batswana, Botswana, Motswana, Burkina Faso, Burkinabe, Burundi*, Cameroon*, Cape Verde*, Gabo Verde* or Central African Republic, Central African, Chad*, Comoros, Comoran, Congo*, Democratic Republic of the Congo, Djibouti*, Equatorial Guinea, Equatoguinean, Ethiopia*, Eritrea*, Gabon*, Gambia*, Ghana*, Guinea*, Guinea-Bissau*, Ivory Coast, Cote d'Ivoire, Ivorian, Kenya*, Lesotho, Mosotho, Basotho, Liberia*, Madagascar, Malagas* Malawi*, Mali*, Mauritania*, Mauritius, Mauritian, Mocambique, Mozambique, Mozambican, Namibia*, Niger, Nigerien, Nigeria*, Republic of the

	Congo, Reunion Island*, Reunionese, Rwanda*, Ruanda*, Sao Tome*, Senegal*, Seychelles, Seychellois, Sierra Leone*, Somalia*, South Africa*, South Sudan*, Sudan*, Swaziland, Swazi, Tanzania*, Togo*, Uganda*,Western Sahara*, Zambia*, Zimbabwe*

Note: The symbol * broadens the search to include all terms that start with the same root word

A grey literature search in Google using various combinations of the same search terms complemented the database search. The first 150 "hits" for each Google search were screened and considered for inclusion. No time restrictions were set for the literature search, since the goal was to understand the whole range and scope of geriatric health research in slums.

2.3.4 Selecting relevant studies

Stage 3 of the review process involved selecting relevant studies from a database containing records retrieved from the bibliographic database and grey literature search. The database and grey literature search together yielded 2,205 records (2,188 from the 8 databases and 17 from the Google search), of which 1,354 remained after eliminating duplicates. The remaining records were screened by title, abstract, and full-text for relevance, using the following inclusion criteria:

(1) Empirical studies assessing health and quality of life of older slum dwellers;

(2) Secondary publications reporting empirical data;

(3) Studies focusing on SSA or a sub-Saharan African country;

(4) Studies reported in English.

Non-empirical studies, such as policy briefs, opinion papers, expert commentaries, book reviews, letters, and editorials that did not report empirical data were excluded, as were studies reporting the health status of non-slum populations. Because the goal was to understand the scope and extent of existing research on the health and wellbeing of older slum dwellers, secondary sources devoid of empirical data were considered inappropriate for inclusion. Since scoping reviews do

not concern themselves with a quality appraisal of research evidence (Arksey & O'Malley, 2005), the review did not specify methodological design as an inclusion criterion.

Guided by the inclusion/exclusion criteria, a 3-step screening process was adopted. Two reviewers independently screened the titles and abstracts of the 1,354 remaining records, following which 1,323 were excluded. Six additional studies were excluded upon full-text screening of the 31 remaining records, resulting in the inclusion of 25 studies in the review (Fig. 1). The two independent reviewers met severally during the screening process to discuss and reconcile disagreements with article selection.

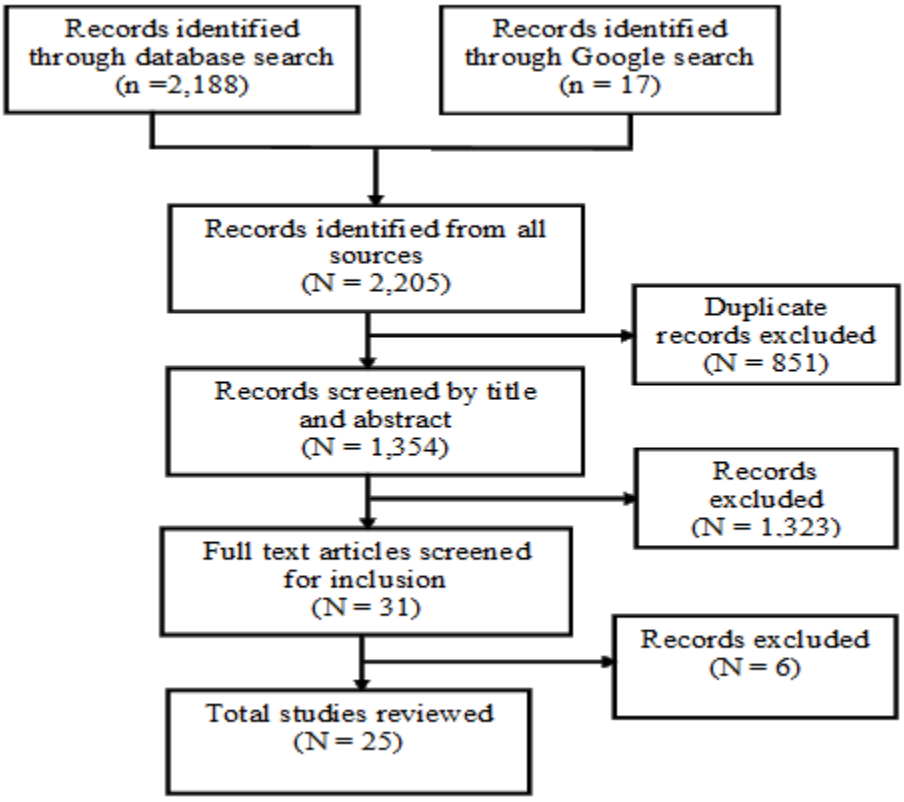

Figure 2.1: PRISMA flowchart of study selection process

The views of the three most cited authors on the health and wellbeing of older slum dwellers were sought to ensure that no relevant papers were missed in the selection process. This step resulted in the identification of no additional papers.

2.3.5 Charting the data

Stage 4 of the review entailed data charting. A data extraction table was developed and used for the data extraction. The two reviewers randomly selected 10% of the included studies, independently read each, and agreed upon a data extraction format that reflected the review objectives. The extracted information included names of authors, year of publication, study location, study objectives, methodological design, and study findings (Table 2.3). The author (who doubled as the first reviewer) undertook all data extraction activities, while the second reviewer (DM) checked the data extraction table for completeness.

2.3.6 Collating, summarizing, and reporting results

The final stage involved collating, summarizing, and reporting the results of the review. A thematic analysis approach helped to synthesize and categorize the findings of the individual studies into three broad topics (Table 2.4), from which themes reflecting the review objectives were explored. In the exploration of themes, attention was paid to the ways in which the socio-environmental features of slums, as places, influenced patterns of health and wellbeing among older slum dwellers. This analytical process involved comparing study findings, identifying meaningful patterns, and explaining these patterns as they relate to the health and quality of life of older slum dwellers in SSA. The emerging themes were discussed and agreed upon by the two reviewers and later by a larger team of researchers who were consulted for critical feedback.

2.4 Results

2.4.1 Sample characteristics

The majority of included studies were based on research conducted in Kenya (n = 18) and South Africa (n = 3). Most studies were published between 2011 and 2019 (n = 16), reflecting the emerging nature of geriatric health research in slums. The majority of studies were longitudinal (n = 11) and cross-sectional (n = 8) by design. Most studies examined sociodemographic disparities in health and wellbeing (n = 17), self-assessed health and QoL status (n = 14), and disease/injury prevalence (n = 11) among older slum dwellers. All research participants were at least 50 years old.

Table 2.2 Study characteristics and numbers

Characteristics	n	%
Country		
Kenya	18	72
South Africa	3	12
All others	4	16
Publication date		
Before 2000	1	4
2000 to 2010	8	32
2011-2019	16	64
Study design		
Cross-sectional studies	8	32
Longitudinal studies	11	44
Qualitative studies	2	8
Mixed methods (Quant. + Qual.)	3	12
Unspecified	1	4
Study topic		
Disease & injury prevalence	11	19.0
Impairment & disability	7	12.1
Self-assessed health & QoL	14	24.1
Healthcare access & utilization	8	13.8
Sociodemographic disparities	17	29.3
Mortality risks	1	1.7

Note: Some studies investigated multiple topics (N = 58)

The scope, extent, and nature of research on the health and wellbeing of older slum dwellers in SSA are summarized in five themes (Table 2.4), namely disease and injury prevalence, self-

assessed health and QoL, physical/mental impairment and disability, healthcare access and utilization, and sociodemographic disparities in wellbeing.

2.4.2 Prevalence of diseases and injury

Self-reported and clinically determined health problems of older slum dwellers in the region included chronic diseases, infections, bodily injuries, and musculoskeletal problems. The most prevalent self-reported and clinically diagnosed chronic health conditions were cardiovascular diseases, genitourinary diseases, respiratory illnesses, neurological problems, hypertension, lung diseases, diabetes, cancer, and asthma (Iitoolwa, 2016; Joshi et al., 2014; Govender & Barnes, 2014; Mugure, Karama, Kyobutungi, & Karanja, 2014; Kodzi, Gyimah, Emina, & Ezeh, 2010; Mudege & Ezeh, 2009; Ezeh et al., 2006; Du Rand & Engelbrecht, 2001; Ezenwaka, Akanji, Akanji, Unwin, & Adejuwon, 1997). The prevalence of chronic health conditions among the slum elderly ranged from approximately 46% in Kenya to 98% in Namibia (Iitoolwa, 2016; Chepngeno-Langat & Evandrou, 2013).

Only a handful of studies investigated the prevalence of infectious diseases among older slum dwellers. The most prevalent of these diseases were gastrointestinal illnesses, diarrhea, and tuberculosis (Govender & Barnes, 2014; Mudege & Ezeh; 2009; Ezeh et al., 2006). The prevalence of gastrointestinal illnesses ranged from approximately 7% among frail older slum dwellers in South Africa to 8% among male slum dwellers in Kenya (Ezeh et al., 2006; Du Rand & Engelbrecht, 2001). Non-life threatening wounds and bruises were the most prevalent forms of bodily injury among older slum dwellers, the majority of which were caused by falls associated with uneven ground surfaces in the slums (Govender & Barnes, 2014; Du Rand & Engelbrecht, 2001).

Musculoskeletal problems, such as joint pain, back pain, and arthritis, were also prevalent among older slum dwellers in the region (Aboderin & Nanyonjo, 2017; Mudege & Ezeh, 2009; Ezeh et al., 2006). The proportion of older slum dwellers with arthritis ranged from 44% in Kenya to 70% in South Africa (Aboderin & Nanyonjo, 2017; Du Rand & Engelbrecht, 2001), while the proportion experiencing chronic pain ranged from 10 to 44% in Kenya (Wilunda, Ng, & Williams, 2015; Aboderin & Nanyonjo, 2017). Arthritis, cancer, and diabetes-related neuropathies were major causes of chronic pain in the slum elderly.

2.4.3 Self-assessed health and quality of life

Using a variety of measurement instruments, several of the reviewed studies examined self-assessed health and quality of life status of older slum dwellers in the region. A significantly large number of older slum dwellers rated their health as either poor, bad, or moderate (Bennet, Chepngeno-Langat, Evandrou, & Falkingham, 2016; Govender & Barnes, 2014; APHRC, 2013; Kyobutungi, Ezeh, Zulu, & Falkingham, 2009; Gilbert & Soskolne, 2003; Du Rand & Engelbrecht, 2001). Others indicated experiences of, at least, one severe/serious health problem (Chepngeno-Langat, 2014; Kodzi, Gyimah, Emina, & Ezeh, 2011). The prevalence of poor health among the slum elderly ranged from 13% in Kenya to 47% in South Africa (Bennet et al., 2016; Gilbert & Soskolne, 2003). The prevalence of poor health was much higher among elderly AIDS-caregivers and frail older adults (Chepngeno-Langat, Madise, Evandrou, & Falkingham, 2011; Du Rand & Engelbrecht, 2001). Reports of good health were notably present; in one study, up to 60% of older slum dwellers reported good health (Kyobutungi et al., 2009).

Quality of life of older slum dwellers was assessed in four longitudinal studies (Wilunda et al., 2015; APHRC, 2013; Kodzi et al., 2011; Kyobutungi, Egondi, & Ezeh, 2010). The authors observed an increase in the number of older slum dwellers reporting poor quality of life or unhappiness with life. The prevalence of poor quality of life was estimated to range from 43 to 58.4% in Kenya (Wilunda et al., 2015; Kyobutungi et al., 2010). These adverse findings contrast sharply with previous research in South African where an overwhelming majority (96.7%) of a sample of older slum dwellers expressed happiness with life (Du Rand & Engelbrecht, 2001).

A few studies examined the socio-environmental factors influencing self-assessed health and quality of life. One study linked perceptions of poor living environments to bad health (Gilbert & Soskolne, 2003), while others addressed the health and quality of life impacts of AIDS-caregiving. As the HIV/AIDS pandemic rages amidst underdeveloped and fragmented healthcare systems, much of the responsibility for AIDS-related caregiving in SSA falls on older family members. The burden of caregiving among older adults is even greater in the slums, where HIV prevalence rates are disproportionately high (Chepngeno-Langat, Falkingham, Madise, & Evandrou, 2012). Caregiving, including the task of providing functional, nutritional, and material supports for AIDS patients and orphaned children, exerts detrimental impacts on the wellbeing of older slum dwellers. Overall, AIDS-caregiving was associated with an accelerated decline in health status among older slum dwellers (Chepngeno-Langat, 2014; Chepngeno-Langat & Evandrou, 2013; Chepngeno-Langat et al., 2012; Chepngeno-Langat et al., 2011; Kyobutungi et al., 2009; Mudege & Ezeh, 2009). For example, 84% of AIDS-caregivers in one study reported a severe health problem, as opposed to 43% of non-caregivers (Chepngeno-Langat et al., 2011). In another study, HIV-infected older slum dwellers reported significantly lower composite health scores than uninfected older persons (Kyobutungi et al., 2009). The

major AIDS/HIV concerns affecting the psychosocial health of older slum dwellers in the region included stress, loss of social supports from ailing adult children, loss of community networks, and fear of HIV infection (Chepngeno-Langat et al., 2012; Kyobutungi et al., 2009).

One study assessed risk of mortality among older slum dwellers (Bennet et al., 2016). After statistically adjusting for age differences among respondents, the mortality risk of older slum dwellers was slightly higher than the mortality risk of older Kenyans. Indeed, 10% of the study respondents died between baseline (2006-7) and follow-up (2012). The higher mortality risk in the slum could possibly be attributed to the corresponding high prevalence of poor health and severe disability among the older slum dwellers.

2.4.4 Impairment and disability

Vision and hearing impairments were major health challenges among older slum dwellers in SSA (Wilunda et al., 2015; Govender & Barnes, 2014; Aga, 2001; Du Rand & Engelbrecht, 2001). A significantly large number of older slum dwellers were either blind or vision impaired. The prevalence of vision problems in the slum elderly ranged from approximately 4.5% in Kenya to 27% in Ethiopia (Wilunda et al., 2015; Aga, 2001). Cataracts, glaucoma, trachoma, maculopathy, and surgery-related aphakia were the leading causes of visual impairment in slum older populations (Du Rand & Engelbrecht, 2001; Aga, 2001). A similarly large proportion of older slum dwellers experienced hearing and cognitive impairment. In South Africa, the prevalence of hearing problems among older slum dwellers varied between 43% and 56% (Govender & Barnes, 2014; Du Rand & Engelbrecht, 2001), while the prevalence of cognitive impairment among Kenya's slum elderly was approximately 8.3% (Wilunda et al., 2015).

Mobility problems in the slum elderly were also widespread (Aboderin & Nanyonjo, 2017; Wilunda et al., 2015; Govender & Barnes, 2014; Chepngeno-Langat et al., 2011; Du Rand & Engelbrecht, 2001). The proportion of older slum dwellers reporting mobility problems ranged from 9.5% in Kenya to nearly 97% in South Africa (Wilunda et al., 2015; Du Rand & Engelbrecht, 2001). Older slum dwellers who were ill, advanced in age, and frail were more likely than others to report mobility problems and to express need for walking supports.

These impairments were linked to experiences of severe and moderate disability (Bennet et al., 2015; Chepngeno-Langat & Evandrou, 2013). In one study, the prevalence of moderate and severe disability were 33% and 7%, respectively (Bennet, Chepngeno-Langat, Evandrou, & Falkingham, 2015). Several longitudinal studies suggested an increase in the proportion of older slum dwellers reporting declines in functional health (Wilundat et al., 2015; Chepngeno-Langat & Evandrou, 2013; Chepngeno-Langat et al., 2011). However, these declines appeared to be age-related, as disability generally increases with advancement in age. It was thus probable that baseline and follow-up comparisons of functional health would indicate increased disability. The observed declines in functional health were also associated with the physical, emotional, and financial stress of providing care to AIDS-affected persons. The majority of older slum dwellers who initiated caregiving roles between baseline and follow-up reported declines in functional health (Chepngeno-Langat, 2014; Chepngeno-Langat & Evandrou, 2013; Chepngeno-Langat, 2011).

2.4.5 Healthcare access and utilization

Access to and utilization of healthcare is a critical element of health and quality of life for older adults worldwide. Yet, in SSA, access to healthcare has remained a chronic challenge for the

majority of older slum dwellers. In general, healthcare access for older slum dwellers in the region was poor; less than 50% had access to healthcare (Wairiuko, Cheboi, Ochieng, & Oyore, 2017; Ezeh et al., 2006; Iitoolwa, 2016). As with access, utilization of healthcare among older slum dwellers was low. In one study, only 32% of ailing older slum dwellers sought medical services (Kodzi et al., 2010). The reasons for non-utilization of health services varied considerably but typically included inadequate healthcare facilities and personnel leading to prolonged waiting times, absence of age-appropriate healthcare, dissatisfaction with service quality, shortages of medication, financial barriers, and lack of transportation to services (Wairiuko et al., 2017; Iitoolwa, 2016; Govender & Barnes, 2014; Ezeh et al., 2006; Du Rand & Engelbrecht, 2001).

Of the healthcare barriers, dissatisfaction with quality of care was the most recurrent. The proportion of older slum dwellers reporting this problem ranged from 42% in Kenya to 90% in South Africa (Wairiuko et al., 2017; Govender & Barnes, 2014). The low satisfaction with services affected enrolment in voluntary health insurance schemes, despite knowledge of their potential for addressing financial barriers to healthcare for the slum elderly (Atinga et al., 2015).

2.4.6 Sociodemographic disparities in health and wellbeing

Sociodemographic gradients in health, quality of life, and disability existed among older slum dwellers. In several of the included studies, older age and female sex were associated with greater odds of reporting poor health, poor quality of life, and functional difficulties. In contrast, individuals in younger age groups reported better health, quality of life, and physical functioning than those in advanced age categories (Wilunda et al., 2015; Kyobutungi et al., 2010; Kyobutungi et al., 2009). The prevalence of chronic diseases also increased with age. However,

one study found a higher prevalence of cardiovascular diseases (CVDs) in younger age groups than in older ones (Mugure et al., 2014).

In terms of sex differences, older men reported significantly better health, quality of life, and physical functioning than older women, although this gradient tended to attenuate with increasing age (Aboderin & Nanyonjo, 2017; Bennet et al., 2016; Wilunda et al., 2015; Kyobutungi et al., 2010; Kodzi et al., 2011; Kodzi et al., 2010; Kyobutungi et al., 2009; Ezeh et al., 2006; Gilbert & Soskolne, 2003; Ezenwaka et al., 1997). However, in the context of AIDs-caregiving, older female slum dwellers demonstrated a health advantage over their male counterparts (Chepngeno-Langat & Evandrou, 2013; Chepngeno-Langat et al., 2011; Mudege & Ezeh, 2009). Perhaps, the feminization of caregiving throughout the life course ensured that female caregivers were more adapted to AIDs-caregiving in old age than men. Despite the female disadvantage in health, quality of life, and physical functioning, older female slum dwellers were less likely to seek healthcare but more likely to live longer (Bennett, 2016; Ezeh et al., 2006).

Similarly, having low income and being uneducated, unmarried, socially disengaged, and Catholic were associated with inferior health and quality of life status. Health and quality of life scores were consistently much lower for uneducated older slum dwellers than for educated individuals (Wilunda et al., 2015; Kyobutungi et al., 2010; Kodzi et al., 2010; Kyobutungi et al., 2009), possibly because low levels of education restricted access to employment and increased the psychosocial stress associated with low incomes (Bennett et al., 2016; Mudege & Ezeh, 2009; Gilbert & Soskolne, 2003). Being married correlated positively with good health and satisfaction with life, as was the relationship between social networks and satisfaction with life

(Kyobutungi et al., 2010; Kodzi et al., 2010; Kodzi et al., 2011). Thus, unmarried older slum dwellers and the least socially engaged reported poorer health and higher risk of mortality than married and socially connected individuals (Bennet et al., 2016; Kodzi et al., 2011; Kodzi et al., 2010; Mudege & Ezeh, 2009). In terms of religion, non-Catholics were more likely to report good health and satisfaction with life than Catholics and Muslims (Kodzi et al., 2010; Kodzi et al., 2011). This disparity was attributed to the uniqueness of the doctrinal messages of non-Catholics (e.g. Pentecostals, Evangelicals, etc.), whose teachings conveyed a feeling of hope and healing to their followers (Kodzi et al., 2011).

2.5 Discussion and conclusion

Drawing upon the results of 25 grey and peer-reviewed papers, this chapter describes the scope of existing research on the health and quality of life of older slum dwellers in SSA. The most researched topics were disease and injury prevalence, self-assessed health and quality of life, disability prevalence, healthcare access and utilization, and sociodemographic disparities in health and wellbeing. Overall, the health and quality of life of older slum dwellers in the region ranged from moderate to poor, although elements of good health were also present. The prevalence of chronic diseases, such as hypertension, diabetes, cancer, and musculoskeletal problems was high, and may have been the single most important driver of poor health status among older slum dwellers in the region.

The observation of moderate and poor health among older slum dwellers appears somewhat consistent with findings from research with older slum populations from elsewhere in the developing world. For example, at 13.7%, the prevalence of poor health among older slum dwellers in Kenya compared favourably with the prevalence (43%) reported for older slum

dwellers in Beirut, Lebanon (Kyobutungi et al., 2009; Sibai, Rizk, & Chemaitelly, 2017). Similarly, the prevalence of visual impairment among older slum dwellers in India varied between 58% and 83.3% (Barua, Borah, Deka, & Kakati, 2017; Thakur, Banerjee, & Nikumb, 2013), which is significantly higher than the 4.5% and 27% prevalence rate reported for older slum dwellers in Kenya and Ethiopia, respectively (Wilunda et al., 2015; Aga, 2001). In addition, across all age categories, older slum dwellers in Kenya recorded higher quality of life scores than their counterparts in India (Kyobutungi et al., 2010; Guthi et al., 2019; Mudey, Ambekar, Goyal, Agarekar, & Wagh, 2011). However, interpretation of such cross-country comparisons must be approached cautiously, given the differences in cultural contexts and psychometric properties of the research tools used.

Despite the high prevalence of poor health among older slum dwellers in SSA, less than half of this population had access to healthcare (Wairiuko et al., 2017; Ezeh et al., 2006; Iitoolwa, 2016). This claim is fairly consistent with the international literature, especially in India and Bangladesh where low utilization of healthcare has also been reported among older slum dwellers (Pal & Hussain, 2016; Sarode, 2014; Thakur et al., 2013). These observations reflect a larger systemic problem confronting slum dwellers globally. In fact, research in Ghana (Arku, Mkandawire, Luginaah, & Baiden, 2013), Pakistan (Aleemi, Khaliqui, & Faisal, 2018), and Bangladesh (Uddin, 2018) reported limited access to healthcare in slums. Policy discourses framing slums as illegal, undeserving settlements are largely responsible for this neglect. Nonetheless, the health situation of older slum dwellers in SSA calls for targeted interventions to address their barriers to healthcare, especially ones that address prolong waiting times and lack of age-appropriate care.

The review also demonstrates age, sex, income, and other sociodemographic disparities in health and quality of life. Older age, female gender, and low income status were associated with poorer health and quality of life outcomes. The sociodemographic gradient in health and quality of life were not unique to older slum dwellers, as non-slum older populations also exhibited similar patterns of health disparities. In an international study involving older adults from multiple countries in Africa and Asia, younger age, six or more years of formal education, and greater household wealth were associated with significantly higher health scores (Ng et al., 2010). Given this broad understanding, health and social interventions prioritizing the needs of older slum women and individuals in advance age groups can help address some of these disparities. In particular, social security schemes guaranteeing access to basic income for older slum dwellers can reduce poverty and improve health among the most vulnerable of this demographic.

The review identified several knowledge gaps. First, there is a limited understanding of the influence of slum built environments on older adults' health and wellbeing. This omission, except Gilbert and Soskolne (2003), is noteworthy, given the enormous adversity posed by the physical environmental features of slums. Various attributes of the slum physical environment have been causally linked to health and safety hazards among older slum dwellers, including increased risk of falls in Turkey (Keskinoglu et al., 2008), psychological stress in India (Subbaraman et al., 2014), and breathing difficulties, headaches, mental stress, and high blood pressure in the Philippines (Ballesteros, 2010). An understanding of such cause-and-effect linkages is nearly non-existent in SSA but which is necessary to inform appropriate interventions. Empirical studies are thus needed to help shed light on interactions between the physical environmental features of slums and the wellbeing of older slum dwellers.

Second, the dominance of Kenya-based studies in the sample points to geographical skewness of slum geriatric health research in SSA. Of the 25 studies reviewed, 18 were conducted by researchers affiliated to the African Population Health Research Centre (APHRC) in Nairobi, whose research activities have yet to expand beyond Kenya. The lack of geographical balance in research efforts precludes cross-country comparison of the health status of older slum dwellers in the region, although such comparisons have the potential to foster policy learning and cross-context fertilization of methodological approaches to research with older slum dwellers.

Finally, all the reviewed studies were conducted with singular samples of older adults residing in specific slums, with nearly no non-slum controls. The absence of comparative samples has reduced these studies to mere unidirectional descriptive reports, with no evidence or even a hint of health disparities between slum and non-slum older populations. These research efforts therefore provide very little empirical support for policy and program interventions for older slum dwellers. Future research to address these gaps should, among others, address the need for:

(1) empirical evidence on health and quality of life (in)equalities between slum and non-slum older populations. Such research efforts would necessarily involve comparative analyses of the health and quality of life status of diverse samples of older populations in different geographical milieus, including urban slum and non-slum neighbourhoods, small townships, and rural areas. The findings of an empirical study responding to this suggestion are presented in Chapter 3;

(2) a better understanding of the extent to which social and physical environmental conditions in slums affect the health and wellbeing of older slum dwellers. Here, research employing mixed methods designs can help to illuminate the effects of slum neighbourhoods on older adults'

health and wellbeing. The findings of an empirical study addressing this knowledge gap are presented in Chapter 4;

(3) a region-wide research program that addresses the intersection of aging and urban marginality. This would entail expanding the current research focus on the East Africa region, and Kenya in particular, to include West and Southern African countries where rates of population aging and urbanization of older adults have been reported as some of the region's highest (Velkoff & Kowal, 2006).

In conclusion, this review presents a more nuanced understanding of the health and quality of life status of older slum dwellers in SSA, as well as the intersection of aging, place, and health in a resource-poor setting. Overall, the health and quality of life status of older slum dwellers in SSA compares favourably with the wellbeing of older slum populations in other parts of the developing world. Nonetheless, there is a need to expand access to health and social services for older slum dwellers in the region. The review identified several knowledge gaps and suggests measures for addressing these gaps, including a need for a region-wide research program to afford cross-country comparisons of the health and quality of life status of older slum dwellers in the region.

Table 2.3: Summary of selected studies

Author(s)	Study objective(s) and location.	Methodological approach	Study findings
Aboderin & Nanyonjo (2017)	Examine prevalence, predictors, and sequelae of musculoskeletal health conditions among older slum dwellers in Nairobi, Kenya.	Cross sectional surveys of slum dwellers aged 60+ years. Samples: 831 (first survey); 1,026 (second survey).	• 42.6% of respondents reported musculoskeletal problems as the most severe of their health problems. • Prevalence of back pain and arthritis was 44% and 42.6%, respectively. • Back pain and arthritis were associated with higher odds of reporting poor quality of life, depression, poor life satisfaction, mobility problems, and difficulties with self-care. • A higher proportion of women (55.8%) than men (34.6%) reported back pain. • A higher proportion of women (32.3%) than men (20.0%) diagnosed with arthritis.
Aga (2001)	Identify causes of visual impairment in older slum dwellers in Addis Ababa, Ethiopia	Survey of older people above 50+ years old (N = 571).	• 9% were blind;18% reported poor vision. • Leading causes of visual impairment included cataract (48%), glaucoma (15.3%), trachoma (11.5%), surgery-related aphakia (11.5%), and maculopathy (5.8%) • 239 respondents received medication and 156 received spectacles.
APHRC (2013)	Understand coping strategies of older slum dwellers in Nairobi, Kenya.	Not specified.	• The majority of older people rate their health to be moderate. • An increase in the number of older slum dwellers reporting unhappiness and poor quality of life.
Atinga et al. (2015)	Identify factors influencing slum residents' decision to dropout of health insurance scheme in Accra, Ghana.	Cross-sectional survey of 22 slums. Sample: 600 (586 aged less than 60 years and 14 aged 60-69).	• Of the 14 elderly in the sample, 11 expressed intention to renew health insurance membership in the future; 3 had no intension of renewing. • Service quality and scheme benefits were the two factors that influenced older people's decision to drop out of health insurance.
Bennet et al. (2015)	Understand the mediating role of social networks on older people's wellbeing in the Korogocho slum in Nairobi, Kenya.	Longitudinal study of people aged 50 years and over: baseline in 2006/7 (N = 1762); follow-up in 2009 (N=1193).	• Prevalence of moderate disability was 33% and severe disability was 7%. • Older people who increased their formal social networks during the post-election violence had higher odds of happiness and life satisfaction than those who experienced a drop in social networks.
Bennet et al. (2016)	Compare risk of mortality among men	Longitudinal Survey of older people 50+	• 10% of the respondents died between baseline and follow-up.

	and women residing in slums in Nairobi, Kenya.	years (n = 2,417); baseline in 2006/07, and follow-up in 2012.	• Age-adjusted mortality rate for older slum dwellers was slightly higher than the rate for older Kenyans (41.6 deaths/1000 persons vs. 40.9 deaths/1000 persons). • 7% of respondents experienced severe disability, and 26% moderate disability; 13% reported poor health. • Being wealthy and participating frequently in religious ceremonies protected men against mortality. • Older men reported significantly better self-rated health status and less disability than older women; 9% of men and 23% of women reported poor or very poor health, while 4% of men and 14% of women experienced severe disability. • After controlling for individual characteristics (e.g. age, socioeconomic status, health status, & social networks), women's risk of mortality was 41% lower than the mortality risk of men.
Chepngeno-Langat & Evandrou (2013)	Understand transitions in caregiving and health trajectories of older slum dwellers in Nairobi, Kenya.	Longitudinal Survey of older people aged 50 years and over (N = 1,489); baseline in 2006/07, and follow-up in 2009.	• Overall, participants indicated an increase in disability during follow-up. • 46% of women who initiated caregiving reported severe health problems, compared to 100% of men.
Chepngeno-Langat (2014)	Understand relationship between caregiving transitions and health and financial status of older caregivers in slums in Nairobi, Kenya.	Longitudinal survey of older people aged 60 years or more (N = 1,485); baseline in 2006, and follow-up in 2009.	• 88% of older people who initiated caregiving reported experiencing a major health problem, compared 63% of older non-caregivers. • Caregiving was associated with poorer health; odds of reporting a major health problem were 2.13 times higher for older people who continued caregiving, compared to those who discontinued caregiving.
Chepngeno-Langat et al. (2012)	Understand HIV/AIDS-related concerns of older people in two Nairobi slums, Kenya	Longitudinal survey of older people aged 50 years and over (N=2,061); baseline in 2006/7.	• HIV/AIDS-related concerns of older people included caring for orphaned children (64.7%), caring for HIV-infected persons (48.1%), loss of support from adult children (36.4%), HIV-infection among older caregivers (37.7%), and loss of community support (16.9%). • A statistically significant higher proportion of women than men (67.8% vs. 62.8%) were concerned about caring for orphaned children, while a statistically significant higher proportion of men than women (41.2% vs. 31.1%) were concerned about HIV infection.

Chepngeno-Langat et al. (2011)	To investigate gender differences in health status among older people caring for AIDS patients in Nairobi, Kenya.	Longitudinal survey of older people aged 50+ years (N = 1,429); baseline 2006-07.	• Across all caregiving categories (mobility, life activities, cognition, self-care), men reported lower disability scores than women. But after adjusting for age and other confounders, male AIDS-caregivers were more likely than female AIDS-caregivers to report a severe health problem (odd ratio of 7.98 vs. 1.89). • 84% of AIDS-caregivers reported experiencing a severe health problem, compared to 43% of non-caregivers.
Du Rand & Engelbrecht (2001)	To describe the living conditions and needs of frail older people in three informal urban settlements in South Africa.	• Survey of random cluster sample (N = 30). • Interviews using semi-structured questionnaire.	• 46.7% visited outpatient department of a polyclinic; 46.7% visited private physician; only 3.3% visited community clinics. • Barriers to health care – transportation to services (76.7% of participants); long waiting times before medical consultation (63.3%); long waiting times to receive medication (40%); medication out of stock (16.7%); no money for consultation or medication (43.3%). • 90% of participants reported not feeling well (19% of complaints were cardiovascular and neurological, 15% respiratory, 11% vision, 7% gastrointestinal, 7% genitourinary, and 43.3% hearing problems). • Confirmed diagnosis – arthritis reported by 70% of respondents, 60% hypertension, 10% wounds, 6.7% bruising, 36.7% oedema of ankles or legs, & 23.3% eye cataracts. • Service needs – 33% of respondents suggest a clinic be provided in vicinity. • 96.7% of participants reported they were happy where they lived, despite experiences of poverty & adverse physical environment.
Ezeh et al. (2006)	To explore the living conditions of older people in informal settlements in Nairobi, Kenya.	• Longitudinal survey of slum dwellers aged 60+ years (N = 791). • Qualitative interviews and focus groups.	• 30% of women and 18% of men reported being sick. • Musculoskeletal illnesses accounted for 57% of illnesses in women and 43.8% of illnesses in men. • Other illnesses reported included respiratory problems (15% of women and 23% of men), gastrointestinal illnesses (6% of women and 8% of men), and illnesses of the central nervous system (13% of women and 16% of men). • Less than 50% of the sick sought medical treatment (40% of women and 48% of men). • Lack of transport fare and unavailability of healthcare personnel were barriers to healthcare.
Ezenwaka et al. (1997)	Assess prevalence of coronary heart disease risk factors in healthy	Cross-sectional survey with 500 older people aged 55+ years (urban	• Overall, slum residents had greater BMI, waist & hip circumference, and diastolic and systolic blood pressure, compared to rural residents.

	older populations in rural and slum areas in Igbo-Ora and Ibadan, Nigeria.	slum = 240; rural area = 260).	• Slum residents were more insulin resistant than rural residents (1.8 ± 0.2 vs. 1.5 ± 0.1 mmol/1). • Women had greater hip circumference and higher systolic and diastolic blood pressure than men. • Women had greater insulin resistance than men. • Slum residents had greater insulin resistance than rural residents.
Gilbert & Soskolne (2003)	Assess relationship between health and social differentials among older people in Soweto, South Africa.	Cross-sectional survey involving older people (N = 626).	• 47% reported bad health. • 50% of low-income earners reported bad health, compared to 30% of high-income earners. • Prevalence of bad health was higher among respondents with low levels of education than in those with higher education (51.4% vs. 42.1%). • A higher proportion of women than men reported bad health (51.4% vs. 42.1%). • Respondents without social networks were more likely than those with social networks to report bad health (54.2% vs. 42.1%). • 51.4% of respondents who assessed the quality of their living environment to be poor reported bad health, compared to 37% of respondents who assessed their living environment as good.
Govender & Barnes (2014)	Investigate health status and health needs of older people in four impoverished districts in Cape Town, South Africa.	Cross-sectional survey of older pensioners (N = 703) in the Khayelitsha, Gugulethu, Mitchells Plain, and Bonteheuwel districts.	• Most respondents reported poor health status; ~ 83% on chronic medication. • 32% experienced diarrhea; 24% had TB; 36% experienced heart attack; 56% had hearing problems. • 17% experienced falls and 24.3% experienced hospitalization. • 4% visited private practice in community and paid for service; the rest accessed free healthcare from government clinic in community. • Waiting times for medication ranged from 2-5hrs. • 90% of respondents were dissatisfied with services provided at community clinic.
Iitoolwa (2016)	Understand psychosocial support systems for older slum dwellers in Windhoek, Namibia.	Qualitative interviews with 50 older slum dwellers, aged 60 years and over.	• Older slum dwellers were overburdened by the responsibility of providing material and financial supports to their families. • 98% of respondents reported a chronic health condition; some had no access to needed medical care and medication. • 95% of respondents were dissatisfied with their physical environment.

Joshi et al. (2014)	Understand prevalence and correlates of hypertension among residents of the Kibera slum, Nairobi, Kenya.	Cross-sectional survey of residents (N = 2,045).	• Crude prevalence of hypertension was 12.6% (11.7% in males and 13.7% in females). • Hypertension increased with age, and was significantly higher among respondents aged 55-65 years.
Kodzi et al. (2010)	Investigate the effects of religious affiliation on self-reported health status of older slum dwellers in Nairobi, Kenya.	Longitudinal survey of people aged 50+ years (N = 2,606).	• Prevalence of arthritis was 16.7%, diabetes 3.3%, lung disease 6%, and hypertension 8.6%. • 32.16% utilized health services in last 3 months. • Participants who had employment and secondary school education reported better health. • Being rich and married was also associated with better health. • Being a woman and older was associated with poorer health. • Non-Catholic Christians reported better health than Muslims and Catholic Christians. • Number of close friends correlated positively with self-rated health.
Kodzi et al. (2011)	Examine the relationship between older slum dwellers' health and their religious and secular social involvements in Nairobi, Kenya.	Longitudinal survey of older slum dwellers aged 50+ years. (n = 2,524).	• Generally, life satisfaction was rated fair. • 32.2% of participants sought healthcare in last 3 months. • 45.3% of participants reported no severe illness. • Muslims were also more likely than others to report experiencing severe illness and hence poor health status. • Non-Catholic Christians were more satisfied with life than Catholics and Muslims. • Women had lower life satisfaction than men. • Married participants were more satisfied with life than unmarried participants.
Kyobutungi et al. (2010)	Describe the health and wellbeing of older slum dwellers in Nairobi, Kenya.	Longitudinal survey of individuals aged 50+ years (N = 2,072).	• Across all age groups, health and QoL status was significantly better for men than for women. • Health and QoL scores declined with advancement in age. • People with low levels of education reported significantly poorer QoL and health than those with higher education. • Married people were less likely to report poor QoL and poor health than unmarried persons.
Kyobutungi et al. (2009)	Assess the direct and indirect impact of HIV/AIDS on health of	Longitudinal survey of older people aged 50+ years (N = 2,078).	• Less than 1% were HIV positive; 1.8% had lost social or financial support due to illness or death of adult child(ren); 4% lost community support, and 0.3% lost a spouse to HIV/AIDS.

	older slum dwellers in Nairobi, Kenya.		• Mean composite health score of HIV-infected persons was much lower than the score of uninfected persons (66.8 vs. 71.1). • 59.7% of respondents reported good health, 26.6% fair health, and 13.7% poor health. • A higher proportion of women (22.2%) than men (8.9%) reported experiencing poor health; men had a higher mean composite health score than women (73.1 vs. 66.1). • Being older (80+ years) and uneducated were associated with poor health.
Mudege & Ezeh (2009)	Investigate how public-private sphere divisions influenced survival and adaptation of older slum dwellers in Nairobi, Kenya.	• Focus groups (n = 8) • In-depth-interviews (n = 32).	• Women performed mostly domestic chores, stayed longer in communities and had better community social networks, were more employable as domestic workers, were less affected by poverty, and were therefore more adapted to old age than men. • Because older men were not used to domestic chores, the added burden of caring for AIDS-affected orphaned grandchildren had more adverse impact on their health and survival than women.
Mugure et al. (2014)	Understand prevalence and correlates of cardiovascular diseases among diabetic/hypertensive patients attending outreach clinics in two Nairobi slums, Kenya.	Cross-sectional study of diabetic/hypertensive patients (N = 206).	• Prevalence of CVD was 43.8% for respondents aged 51-65 and 33.3% for respondents aged 66 years and above, compared to 18.2% for respondents aged 18-35years. • Across all age groups, CVD prevalence was higher in men than in women (47.8% vs. 29.2%).
Wairiuko et al. (2017)	Identify factors influencing older people's access to healthcare in the Kibera slum, Kenya	• Cross sectional survey of older adults (N = 399). • Qualitative interviews.	• Low access to healthcare; only 40.4% of respondents had healthcare access. • 32.8% of respondents were dissatisfied with the quality of healthcare they received, while 9.5% were strongly dissatisfied. • Healthcare services were not tailored to the specific needs of older slum populations.
Wilunda et al. (2015)	Describe functional health and quality of life of older slum dwellers in Nairobi, Kenya.	Longitudinal survey of people aged 50+ years (N = 1,878).	• 42.6% reported poor quality of life; 9.5% reported mobility problems, 8.3% cognition problems, 6.2% sleep problems, 9.6% pain, and 4.5% vision problems • Prevalence of poor QoL was higher among women than men. • Women experienced more functional difficulties than men in all age groups; men and women aged 80+ years had similar levels of functional difficulties. • Older age and low education were associated with poor QoL and functional health.

Table 2.4: Summary of themes

Author(s)	Health, QoL, & disability status	Socio-demographic differences in health & QoL	Healthcare systems & services
Aboderin & Nanyonjo (2017)	– High prevalence of musculoskeletal problems (42.6%), including back pain, joint pain, and arthritis. – Musculoskeletal problems linked to poor QoL, depression, low life satisfaction, mobility problems, and difficulties with self-care.	– A higher proportion of women (55.8%) than men (34.6%) reported back pain. – Prevalence of clinically diagnosed arthritis was 32.3% for women and 20.0% for men.	–
Aga (2001)	– 9% of respondents were blind; 18% had poor vision. – Leading causes of visual impairment included cataracts, glaucoma, trachoma, surgery-related aphakia, and maculopathy.	–	Interventions to address visual impairment included surgery for cataracts, medication, and spectacles.
APHRC (2013)	– Increase in the number of older slum dwellers reporting unhappiness and poor QoL. –The majority of older people rated their health as moderate.	–	–
Atinga et al. (2015)	–	–	– 3 of the 14 older slum dwellers had no intention of renewing their health insurance. – Service quality and scheme benefits influenced the decision to drop out of health insurance.
Bennet et al. (2015)	– Prevalence of moderate disability was 33% and severe disability was 7%.	– Formal social networks was a protective factor against impacts of post-election violence. – Increase in formal social networks during post-election violence was associated with higher odds of happiness and life satisfaction.	–
Bennet et al. (2016)	–10% of the respondents died between baseline and follow-up; age-	– Men had significantly better health status and less disability than women.	–

	adjusted mortality rate was slightly higher in the slums than in the national older population. – Prevalence of severe disability was 7%, moderate disability 26%, and poor health 13%. – Good health and low disability were associated with lower risk of mortality.	–Higher socioeconomic position translated into better health outcomes for men. –After adjusting for sociodemographic characteristics, women had lower risk of mortality than men.	
Chepngeno-Langat & Evandrou (2013)	–Disability increased between baseline (2006/7) and follow-up (2009). – AIDS caregiving was associated with poor health and increased disability.	– Male caregivers reported a higher increase in disability score than female caregivers. –The proportion of new male caregivers reporting a severe health problem was far greater than the proportion of new female caregivers reporting a severe health problem.	–
Chepngeno-Langat (2014)	– Compared to non-caregivers, AIDS caregivers experienced the worst health outcomes. – 88% of new caregivers and 63% of non-caregivers reported a severe health problem.	Gender was not an independent predictor of becoming a caregiver.	–
Chepngeno-Langat et al. (2012)	HIV/AIDS-related concerns of older slum dwellers were: caring for orphaned children, caring for HIV-infected persons, loss of support from adult children, HIV-infection, and loss of community support.	A higher proportion of women than men were concerned about caring for orphaned children, while a higher proportion of men than women were concerned about HIV infection.	–
Chepngeno-Langat et al. (2011)	– AIDS-caregivers experienced the worst health outcomes; 84% of AIDS-caregivers, 69% of other chronic disease caregivers, and 43% of non-caregivers reported a severe health problem.	In logistic regression, male caregivers had higher odds of reporting a severe health problem than female caregivers.	–

	– Older AIDS-caregivers reported the highest mean disability scores.		
Du Rand & Engelbrecht (2001)	– Majority (90%) of slum dwellers reported not feeling well. – Self-reported illnesses were: cardiovascular, neurological, respiratory, vision, gastrointestinal, genitourinary, and hearing problems. – Clinically confirmed diagnosis included arthritis, hypertension, wounds, bruising, oedema of ankles or legs, & eye cataracts.	–	– Healthcare challenges: prolonged waiting times, shortages of medication, financial barriers, and transportation to services. – Frail slum dwellers needed help with walking, getting out of bed or chair, use of lavatory, and dressing. – Healthcare need: a clinic in vicinity.
Ezeh et al. (2006)	Musculoskeletal, respiratory, and gastrointestinal illnesses constituted the majority of health problems.	A higher proportion of women than men reported being sick prior to the survey.	– Less than half of ailing participants sought medical care. – Barriers to healthcare: lack of transport and unavailability of healthcare personnel.
Ezenwaka et al. (1997)	– Slum residents had higher BMI, waist/hip circumference, blood pressure, and insulin resistance than rural residents. – Both slum and rural older residents were not at risk of coronary heart disease.	– Women had greater hip circumference, insulin resistance, and systolic and diastolic blood pressure than men; thus risk factors of coronary heart disease were more prevalent in women than in men.	–
Gilbert & Soskolne (2003)	Prevalence of bad health was 47%.	– A higher proportion of low-income earners and uneducated persons reported bad health. – Bad health was more prevalent in women. – Respondents lacking social connections were more likely to report bad health than those who were socially connected. – Prevalence of bad health was higher among respondents in poor living environments.	–

Govender & Barnes (2014)	– Most respondents reported poor health status. – Common health conditions: diarrhea, TB, heart problems, hearing problems, vision problems, and mobility problems. – 17% experienced falls and 24.3% experienced hospitalization.	–	– 4% visited a private practice within community; the majority received free healthcare from a community clinic. – Waiting times for medication ranged from 2-5hrs. – 90% of respondents were dissatisfied with services provided.
Iitoolwa (2016)	– 98% of respondents reported a chronic health condition. – Chronic health conditions: diabetes, cancer, and hypertension.	–	– Some respondents had no access to medical care and medication. – Barriers to healthcare: lack of funds and transportation.
Joshi et al. (2014)	Crude prevalence of hypertension was 12.6%.	– Hypertension increased with age, and was significantly higher among respondents aged 55-65 years. – Crude prevalence of hypertension was 11.7% in males and 13.7% in females.	–
Kodzi et al. (2010)	Disease conditions: arthritis, diabetes, lung disease, and hypertension.	– Older age, female gender, and social disengagement were associated with poor health. – Being employed, married, and educated up to secondary school was associated with favourable health outcomes. – Non-Catholic Christians were more likely to report good health than Catholics and Muslims.	32.16% utilized health services in last 3 months.
Kodzi et al. (2011)	– Life satisfaction was rated fair. – More than 50% of respondents reported severe illness.	– Women had lower life satisfaction than men. – Non-Catholic Christians and married individuals were more satisfied with life than Catholics, Muslims, and unmarried persons. – Muslims were also more likely than non-Catholic Christians to report severe illness and poor health status. – Community participation and social engagement were associated with good health.	Only 32.2% of participants sought healthcare in last 3 months.
Kyobutungi et al. (2010)	– Mean health and WHOQoL scores declined with increasing age.	– Across all age groups, men reported significantly higher health and QoL scores than women.	–

		– Married and educated persons were less likely to report poor health and QoL than unmarried and uneducated persons.	
Kyobutungi et al. (2009)	– Approx. 60% of respondents reported good health, 26.6% fair health, and 13.7% poor health. – HIV/AIDS-affected respondents reported slightly lower composite health scores than unaffected respondents.	– Being older (80+ years), income poor, and uneducated was also associated with poor health – A higher proportion of women (22.2%) than men (8.9%) reported poor health.	–
Mudege & Ezeh (2009)	– Common illnesses: TB, diabetes, asthma, and whooping cough. – Prevalence of backache, joint pains, and limb pains. – Caregiving for AIDS-affected orphans decreased QoL.	– Women were more adapted to old age, and had better health status than men. – Being employed, being familiar with domestic and caregiving work, and having longstanding community social networks were associated better health outcomes for women.	–
Mugure et al. (2014)	– 70% of diabetic/hypertensive patients were aged 51+ years. – Prevalence of CVD was 43.8% for respondents aged 51-65 and 33.3% for those aged 66+ years.	Across all age groups, CVD prevalence was higher in men than in women (47.8% vs. 29.2%).	–
Wairiuko et al. (2017)	–	–	– Low access to healthcare; only 40.4% of respondents had healthcare access. – 32.8% were dissatisfied with the quality of healthcare they received, while 9.5% were strongly dissatisfied. – Healthcare services were not tailored to the specific needs of older persons.
Wilunda et al. (2015)	– Prevalence of poor QoL: 42.6%.	– QoL and functional health declined with advancement in age.	–

	– 9.5% reported mobility problems, 8.3% cognition problems, 6.2% sleep problems, and 4.5% vision problems – 9.6% experienced pain.	– Functional difficulties and poor QoL were more prevalent in women than in men; men and women aged 80+ years had similar levels of functional difficulties. – Low levels of education were statistically associated with poor QoL.

CHAPTER 3

Quality of Life of Older Adults in Two Contrasting Neighbourhoods in Accra, Ghana

3.0 Abstract

The world's population is rapidly aging. In fact, estimates for 2015 to 2050 indicate a two-fold expected increase in the global population of older adults. Nearly 80% of this increase will occur in low and middle-income countries in Asia, Latin America, and sub-Saharan Africa (SSA), where population health is already under pressure from poverty, degraded environments, and deficient healthcare systems. Although the poorest of the world's major regions, SSA is witnessing some of the fastest growth in older populations. An emerging body of evidence suggests that the majority of older adults in this region will reside in urban slums, where housing and sanitation conditions are poor. Despite this knowledge, very little research has systematically explored the health and wellbeing of older adults residing in these resource-poor settings. This chapter presents the results of a study exploring the quality of life (QoL) of older adults in two contrasting neighbourhoods in Accra, Ghana. Data collection occurred in a slum and non-slum neighbourhood, by means of a cross-sectional survey with a sample of community-residing older adults (N = 603). The survey utilized the World Health Organization QoL assessment instrument (WHOQoL-BREF), a tool designed to self-assess QoL in four domains, namely physical, psychological, social, and environmental aspects of health. Multivariable linear regression analyses of the data revealed statistically non-significant differences between the slum and non-slum respondents in physical QoL (Coeff: 0.6; 95% CI: -2.1, 3.4; $p = 0.640$) and psychological QoL (Coeff: -0.2; 95% CI: -2.0, 2.6; $p = 0.893$). In contrast, the slum respondents had statistically significant better social QoL than the non-slum respondents (Coeff: -3.2; 95% CI: -5.6, -0.7l; $p = 0.010$), while the non-slum respondents had statistically significant better

environmental QoL than the slum respondents (Coeff: 4.2; 95% CI: 2.3, 6.2; $p < 0.001$). The existence of religion-based social supports in the slum and better housing and neighbourhood conditions in the non-slum accounted for the statistical variation in social and environmental QoL. Thus, contrary to popular discourses that vilify slums as health-damaging milieus, these findings suggest that slums may actually be a health resource for older slum dwellers. The paper presents arguments against mass slum demolition campaigns in SSA and instead suggests housing and service improvements in slums.

3.1 Introduction

The global population of older adults (aged ≥ 60 years) is projected to more than double, from 900 million in 2015 to over 2 billion in 2050 (World Health Organization, 2018). Much of this increase will occur in developing countries in Asia, Latin America, and SSA, where recent improvements in healthcare and nutrition have made it possible for a greater number of people to live longer (Kpessa-Whyte, 2018; Sadana, Foebel, Williams, & Beard, 2013; Ng, Hakimi, Byass, Wilopo, & Wall, 2010). Although SSA will remain demographically the most youthful among the world's regions (United Nations, 2011), its older population is expected to rise substantially over the next three decades, increasing from approximately 46 million in 2015 to 161 million in 2050 (United Nations, 2016).

Aging is associated with significant changes in health and QoL. Empirical studies suggest an inverse relationship between aging and self-reported health and QoL (Fonta, Nonvignon, Aikins, Nwosu, & Aryeetey, 2017; Kyobutungi, Egondi, & Ezeh, 2010; Netuveli, Wiggins, Hildon, Montgomery, & Blane, 2006). This decline has been attributed to the onset of physiological and psychosocial changes that weaken the body's immunity and render it susceptible to infections, chronic illnesses, disability, pain, depression, and ultimately a diminished satisfaction with life (Lena, Ashok, Padma, Kamath, & Kamath, 2009; Fry, 2000; Woo, Kwok, Sze, & Yuan, 2002). For example, chronic diseases, such as diabetes, cancer, hypertension, and chronic obstructive pulmonary disease, are more prevalent in older populations than in younger age groups (De Marco et al., 2013; Lima et al., 2009; Marengoni, Winblad, Karp, & Fratiglioni, 2008; Fries, 2002). Thus, longevity may not necessarily be advantageous to those living longer, especially when old age becomes a source of burden to older adults and their caregivers (Fry, 2000). Hence, the focus of health promotion among older

adults is gradually shifting from an emphasis on mortality and morbidity to one that prioritizes QoL and healthy aging (Beard et al., 2016; World Health Organization, 2015a; Borowiak & Kostka, 2004). The World Health Organization (2015a) particularly recognizes and prioritizes home and community environments as important settings for interventions to achieve healthy aging for older adults.

The growing recognition of socio-physical environments in a healthy aging agenda has spiked research interest in the health effects of neighbourhoods. However, much of the work done in this regard has focused on developed countries. This literature identifies poor housing conditions, housing insecurities, and degraded neighbourhood environments as major risk factors for accidental injuries (Camilloni et al., 2011), physical disability (Balfour & Kaplan, 2002), healthcare deprivation (Lang, Gibbs, Steel, & Melzer, 2008), and mental health problems (Howden-Chapman, Chandola, Stafford, & Marmot, 2011) among older adults. In contrast, good quality homes and walkable neighbourhoods have been linked to housing satisfaction, place attachment, positive affect, and favourable psychological and mental health outcomes for older adults (Berke, Gottlieb, Moudon, & Larson, 2007; Evans, Kantrowitz, & Eshelman, 2002).

Although data on the living conditions of older adults in SSA are limited, there is evidence indicating a growing presence of this demographic in urban slums (Atinga, Abiiro, & Kuganab-Lem, 2015; Ezeh, Chepngeno, Kasiira, & Woubalem, 2006). Described as depressed urban settlements with no durable housing, sufficient living spaces, secure tenure, and access to safe drinking water and sanitation infrastructure (UN-Habitat, 2006), slums can inhibit the health of older adults. Yet, research examining the health and QoL of older slum dwellers in SSA is limited, in both geographical scope and content. First, existing research in this area has

overemphasized Kenya's slums to the neglect of other countries with growing older slum populations (see Wilunda, Ng, & Williams, 2015; Kyobutungi et al., 2010; Mudege & Ezeh, 2009; Ezeh et al., 2006, etc.). Second, these studies lack control samples, making it nearly impossible to compare and contrast the health and QoL of older slum dwellers with those of non-slum older adults. Without comparative samples, claims of health (in)equalities between slum and non-slum older populations cannot be defended using these studies. This paper addresses these gaps. The study objectives were to: (1) explore and compare the QoL of older slum and non-slum dwellers in Ghana; and (2) determine the extent of QoL disparities between slum and non-slum community-residing older adults.

QoL, defined succinctly as individuals' subjective evaluation of their wellbeing (Theofilou, 2013), is a strong predictor of morbidity and mortality among older adults globally (Bilotta et al., 2011; Tsai, Chi, Lee, & Chou, 2007). Knowledge of the QoL status of older slum dwellers can thus help inform interventions to reduce morbidity and mortality among this population.

3.2 Aging in Ghana

The demographic transition in Ghana mirrors the trends observed globally. The proportion of older adults in the Ghanaian population has reportedly increased from 4.6% in 1960 to 5.9% in 1984, and 6.7% in 2010 (World Health Organization, 2014; Kpessa-Whyte, 2018). Although Ghana already has one of the highest proportion of older adults in SSA (Ghana Statistical Service, 2012), the country's older adult population is expected to reach 6 million or 12% of the national population in 2050, up from approximately 1.6 million or 6.7% in 2010 (Ghana Statistical Service, 2013; Biritwum, Mensah, Yawson, & Minicuci, 2013).

In Ghana, population aging is unfolding within a context of rapid urbanization and growing urban poverty. Data from the 2010 Population and Housing Census show that an estimated 46% of older Ghanaians resided in towns and cities across the country. A further increase in the population of urban older adults is expected, according to recent demographic forecasts (Ghana Statistical Service, 2013). Given this demographic terrain, some of the most pressing social and health challenges confronting older Ghanaians will occur in cities and towns that are already grappling with multiple and often complex development problems, including squalor and shortages of critical infrastructure and services (Obeng-Odoom, 2011; Mba, 2004; Ayee & Crook, 2003). For example, research conducted in the city of Accra (Ghana) has found declining family and public supports for older adults, many of whom also reported experiences of poverty, destitution, and desperate living conditions (Aboderin, 2004). In 2010, the Nima slum in Accra was home to some 11,000 people aged 50 years or older (Ghana Statistical Service, 2014). For older adults, the challenge of living in poor environmental conditions in slums is amplified by problems of the aging process, including the onset of chronic illnesses and disability (Aikins & Apt, 2016). This intersectionality can have implications for the health and QoL of older slum dwellers.

Although Ghana has a long history of aging research (Aikins & Apt, 2016), the health and QoL of older slum dwellers have been woefully understudied. So far, much of the research conducted with older Ghanaians demonstrates a rural bias (see Apt, 2013; Debpuur, Welaga, Wak, & Hodgson, 2010; Mba, 2004; Van der Geest, 2002). Studies that deviate from this norm tend to have a national focus (e.g. Minicuci et al., 2014; Biritwum et al., 2013), which still does not address the need to understand the wellbeing of older adults in specific urban milieus, such

as slums and inner city neighbourhoods. This gap is significant, given the teeming population of older adults in Ghana's urban centres. Gaps have also emerged around the need for analyses of health disparities between slum and non-slum older populations. Perhaps, this paper is the first systematic attempt at exploring the QoL of older slum dwellers in Ghana.

3.3 Methods

3.3.1 Study settings

The study was carried out in the Nima slum and Adabraka-Asylum Down non-slum neighbourhoods in Accra, Ghana. Accra is itself a city of immense contradictions; it is characterized by the splendour of a thriving modern city on one hand and the squalor of a 19th Century American tenement on the other. As a modern city, Accra can boast of world class shopping malls, gated communities of architectural elegance, and a multitude of banking institutions (Owusu, Agyei-Mensah, & Lund, 2008). This image contrasts sharply with pockets of depressed and densely populated residential settlements, characterized by poverty and squalor. The Nima slum and Adabraka-Asylum Down non-slum neighbourhoods somewhat encapsulate this dual image of Accra.

Located just 5 miles from the center of Accra, the Nima slum began in the early 1930s as a pastureland for cattle (Essamuah & Tonah, 2004), and thereafter grew rapidly into a permanent settlement by the 1940s, when demand for residential land expanded during World War II (Owusu et al., 2008). Nima's population has since expanded, reaching 29,797 in 1960 (Agyei-Mensah & Owusu, 2012), 69,044 in 2000 (Ghana Statistical Service, 2002), and 80,843 in 2010 (Ghana Statistical Service, 2014). Covering a land area of only 1.6km^2 (Agyei-Mensah & Owusu, 2012), Nima is densely populated. The neighbourhood's population density was

18,623/km^2 in 1960 and 50,527/km^2 in 2010, a density four times higher than Accra's population density in 2010 (Ghana Statistical Service, 2014). Available data indicate that some 5,756 older adults (aged 60+ years) resided in Nima in 2010 (Ghana Statistical Service, 2013). Although Nima is not an illegal settlement (Paller, 2015), as is the case with most sub-Saharan African slums, the settlement is mostly unplanned, and the majority of its houses are visibly at odds with modern building and spatial planning standards. The physical appearance of housing infrastructure in Nima, including its characteristically rusted corrugated iron sheets, portrays the image of a distressed settlement blighted by poverty, congestion, environmental decay, and governmental neglect (Owusu et al., 2008).

Adabraka-Asylum Down is a middle-income neighbourhood located approximately 2km from central Accra – the nucleus of the city's commercial activities (Grant, 2009). The neighbourhood was established in 1910 as a low-income settlement for the Hausa tribe, but became a middle-class neighbourhood in the 1920s, following construction of the Adabraka market and later the arrival of civil servants (Agyei-Mensah & Owusu, 2010; Weeks, Getis, Hill, Agyei-Mensah, & Rain, 2010; Pellow, 2002). Since its establishment, population growth in Adabraka-Asylum Down has been modest, having slowly increased from 25,425 in 1984 to 28,108 in 2000 (Yankson, 2012). In 2010, there were 36,510 people in Adabraka, of whom some 2,867 were older adults (aged ≥ 60 years), distributed across some 10,736 households (Ghana Statistical Service, 2013).

Unlike Nima, Adabraka-Asylum Down is a planned neighbourhood, with an interconnected network of streets and functional drainage systems (Braimah & Lawson, 2014; Yankson, 2012). In addition, 70% of households in Adabraka-Asylum Down have solid waste

disposal systems, compared to just 9% in Nima (Agyei-Mensah & Owusu, 2010). Similarly, approximately 69% of households in Adabraka-Asylum Down and 31% of households in Nima have pipe-borne water on premises. However, the Adabraka-Asylum Down infrastructural and service advantage has been eroded by perennial flooding along the banks of the Odawna River, which runs through parts of the neighbourhood (Tengan & Aigbavboa, 2016; Songsore et al., 2006). It was hypothesized that the historical and environmental peculiarities of the two neighbourhoods would have varying impacts on the QoL of their older residents.

Nima was chosen for the study because it is the largest Ghanaian urban slum in terms of population size (Morinville & Harris, 2014). As such, it offered better chances for adequate sample recruitment. Adabraka-Asylum Down was chosen because of its proximity to Nima and its status as a middle rather than high income neighbourhood. The plan was to select neighbourhoods that were not widely dissimilar in environmental and socioeconomic characteristics as to suggest obvious differences in QoL outcomes. In addition, the field advisor and the research assistants had previous research experience in these neighbourhoods and could help facilitate access to and recruitment of research participants.

3.3.2 Sample and data collection

Following ethics clearance from the ethics committees of the University of Alberta and University of Ghana, a cross-sectional survey was carried out in the Summer of 2018 with a snowballed sample of older adults residing in the Nima slum (n = 302) and the Adabraka-Asylum Down non-slum neighbourhood (n = 301). The sample size was computed using Dhand and Khatkar's (2014) statistical tool and the pooled mean difference and pooled standard deviation of Izutsu et al. (2006), whose research involved estimating QoL scores for slum and

non-slum adolescents in Dhaka, Bangladesh. Subsequently, Borm, Fransen, and Lemmens's (2007) ANCOVA technique was used to adjust for maximum sample size. The sample size computation suggested 255 respondents for each neighbourhood, which was deemed to: (1) have a 90% statistical power for detecting statistically significant differences in mean QoL scores between the two independent samples, if any existed; and (2) be adequate for statistically adjusting for the confounding influence of covariates in multivariable regression analyses or ANCOVA.

The use of snowball sampling for participant recruitment was appropriate, since older adults constituted a small and hard-to-reach population in both the slum and non-slum, and as such could not have been reached with conventional statistical sampling techniques (Heckathorn, 2011; Housing the Masses, 2010; Browne, 2005). Several previous QoL life studies involving older adults also utilized snowball sampling techniques in their recruitment (Trentini et al., 2011; Kirchengast & Haslinger, 2008). Guided by suggestions of existing respondents, our team visited house-to-house in a continuous process of referral until the required sample size was obtained.

3.3.3 Measurement procedures

The survey was conducted using the World Health Organization QoL assessment tool (WHOQoL-BREF), a 5-point Likert scale questionnaire that self-assesses QoL in four domains – physical, psychological, social, and environment (Gholami et al., 2016). The four domains consist of 24 items, which include questions about respondents' perception of their functional health, social relationships, safety, and satisfaction with home and neighbourhood environments (Table 3.1 and Appendix 4). Scores for domain questions are "scaled in a positive direction" (WHOQoL Group, 1996, p. 10), with higher scores denoting better QoL. This study adopted the

WHO tool because of its: (1) global recognition as a cross-culturally validated QoL assessment instrument, having been tested in 23 countries representing all the world's major regions (Skevington, Lotfy, & O'Connell, 2004); and (2) widespread usage in QoL assessment with older slum dwellers in developing countries (Ghosh, Bandyopadhyay, Bhattacharya, Misra, & Das, 2014; Kyobutungi et al., 2010).

Table 3.1: The four WHOQoL-BREF domains

Quality of life domain	Domain facets
Physical	Pain and discomfort; Mobility; Sleep and rest; Activities of daily living; Dependence on medication and medical aid; Energy and fatigue; Capacity for work.
Psychological	Positive and negative feelings about life; Bodily image and appearance; Self-esteem; Spirituality, religion, and personal beliefs; Thinking, memory, and concentration.
Social relationships	Social supports; Personal relationships; Sex activity.
Environment	Physical environment (e.g. pollution, noise, traffic, etc.); Home environment; Access to health and social care; Freedom, safety, and security; Transport; Financial resources; Access to information; Opportunities for recreation and leisure.

Source: WHOQoL Group (1996)

Two trained research assistants with in-depth knowledge of the neighbourhoods assisted with completing the survey. The research assistants were graduate students, who were identified and recruited with the assistance of a field advisor affiliated to the University of Ghana. The field advisor himself had many years of experience working in the selected slum and non-slum neighbourhoods. The research assistants were trained in the use of the WHOQoL-BREF tool at the University of Ghana. The tool was pretested in two neighbourhoods with sociodemographic and environmental profiles similar to the slum and non-slum neighbourhoods of interest. Ten pretest interviews were completed in each neighbourhood. Prior to the pretest, each of the 26 WHOQoL-BREF questions was thoroughly discussed for the understanding of the research assistants. The pretest exercise afforded an opportunity to: (1) further familiarize the research

assistants with the administration of the tool; and (2) test the respondents' understanding of the WHOQoL-BREF questions. The pretest resulted in a minor adjustment to the cultural and local language translation of the social domain question emphasizing the participants' sex life. The field advisor participated in discussing the translation and rephrasing of this question. In administering the tool, the research assistants approached potential respondents in their homes, explained the study's objectives, and afterwards requested their participation. They read the domain questions aloud to each consenting respondent, whose responses were then recorded on a printed questionnaire and submitted to the author at the end of each day's work.

3.3.4 Outcome and predictor variables

The outcome variable was self-reported QoL scores, assessed using the WHOQoL-BREF questionnaire. The primary predictor variable was neighbourhood residence, which had slum and non-slum as dummy variables. The sociodemographic characteristics of the respondents, including sex, age, marital status, religion, formal education, residential tenure, living arrangements, homeownership, income status, and illness status were recorded as covariates of the primary predictor variable (i.e. neighbourhood residence). The WHOQoL-BREF tool and previous QoL research with older adults in SSA informed the inclusion of these sociodemographic variables. Following Debpuur et al. (2010), age was categorized into 60-69, 70-79, and 80+ years, while sex was categorized as male and female. Marital status was categorized into four groups: single/separated, married, widowed, and divorced, while religion was categorized as Christian and Muslim. Formal education was categorized into: none at all, primary, secondary, and tertiary, and residential tenure into: <5 years in neighbourhood and ≥5 years in neighbourhood. Living arrangements were categorized into: living alone and living with

family; homeownership into: renting and own property; and income status into: yes (has regular source of income) and no (lacks regular source of income). Finally, illness status was categorized into: yes (currently ill) and no (not currently ill).

3.3.5 Statistical analyses

The participants' responses to questions in each domain were added up and transformed into scores ranging from 0 to 100 (as described in the WHOQoL-BREF manual), where higher scores denoted better QoL (WHOQoL Group, 1996). Missing values were handled as stipulated in the WHOQoL-BREF manual. Subsequently, statistical analyses were performed using STATA version 15 (StataCorp, 2017). Numbers and percentages were reported for categorical varibles, while means and standard deviations were reported for continuous variables. Chi-square tests were used to compare the sociodemographic characteristics of the respondents. Mean QoL scores were computed and compared for the various sociodemographic categories of the respondents using either two-sample t-tests or one-way analysis of variance (ANOVA), wherever appropriate. A p-value < 0.05 was considered statistically significant.

To estimate the strength of association between neighbourhood residence and the various mean domain scores, multivariable linear regression analyses were performed to adjust for the confounding influence of relevant sociodemographic factors. Assumptions of normality of the QoL domain scores and independence of the predictor variables were tested using histograms and the Cramer's V, respectively. Per the histograms, the domain scores were normally distributed, while the Chi-square test of association using the Cramer's V indicated no evidence of strong association between any two of the predictor variables. For each QoL domain, the backwards stepwise elimination method of variable selection was applied, wherein variables with

p-values ≤ 0.2 at the univariate level were included in the first model as covariates (see Luger et al., 2016; Blay & Marchesoni, 2011). In subsequent models, the variables with the highest *p*-values were eliminated sequentially until the final model was fitted. Confounding, set at a threshold of ≥15% change in regression coefficient (Bursac, Gauss, Williams, & Hosmer, 2008), was checked in each re-estimated model. Whenever a confounding relationship occurred between any two variables, both were retained in the model, and the variable with the next highest statistically non-significant *p*-value was considered for elimination. This iterative process of variable elimination and retention persisted until the best fitted model was obtained for each QoL domain. Because of their role as biologically important determinants of QoL, sex and age were deliberately retained in all subsequent models, regardless of their level of statistical significance (see also Telenius, Engedal, & Bergland, 2013; Paskulin, Vianna, & Molzahn, 2009). In each final domain model, interactions between covariates were investigated. However, no interaction terms were included in any of the final models, since no statistically significant interaction occurred between any two of the covariates. For each (domain) fitted multivariable linear regression model, assumptions of linearity, independence, normality, and homoscedasticity (equality of variance) were tested and confirmed using residual plots and residual histograms (Appendix 3).

3.4 Results

3.4.1 Sample characteristics

The sociodemographic characteristics of the respondents are presented in Table 3.2. The majority of respondents were women (60.9%), Christian (70.9%), widowed (46.4%), aged 60-69 years (59%), and regular income earners (69.3%). There were a few statistically significant differences

in sample distribution between the slum and non-slum. The non-slum respondents were predominantly Christian (92%), while the slum sample consisted of nearly equal proportions of Muslims and Christians. Compared to the non-slum sample, the slum respondents were less educated and more likely to be renters, married, and living with family. The sex and age differences between the two neighbourhood samples were statistically non-significant, as were the differences in income and illness status.

Table 3.2: Sociodemographic characteristics of respondents

	Total = 603	**Slum = 302**	**Non-slum = 301**	
Variable	**n (%)**	**n (%)**	**n (%)**	***p*-value[1]**
Sex				0.301
Men	236 (39.1)	112 (37.1)	124 (41.2)	
Women	367 (60.9)	190 (62.9)	177 (58.8)	
Age group, yrs.				0.601
60-69	356 (59.0)	181 (59.9)	175 (58.1)	
70-79	176 (29.2)	83 (27.5)	93 (30.9)	
80+	71 (11.8)	38 (12.6)	33 (11.0)	
Marital status				0.002
Single/separated	52 (8.6)	17 (5.6)	35 (11.6)	
Married	234 (38.8)	126 (41.7)	108 (35.9)	
Widowed	280 (46.4)	148 (49.0)	132 (43.9)	
Divorced	37 (6.1)	11 (3.6)	26 (8.6)	
Religion				<0.001
Christian	426 (70.9)	149 (49.7)	277(92.0)	
Muslim	175 (29.1)	151 (50.3)	24 (8.0)	
Formal education				<0.001
None at all	226 (37.5)	170 (56.3)	56 (18.6)	
Primary	228 (37.8)	99 (32.8)	129 (42.9)	
Secondary	110 (18.2)	22 (7.3)	88 (29.2)	
Tertiary	39 (6.5)	11 (3.6)	28 (9.3)	
Resid tenure				0.050
<5 years	13 (2.2)	3 (1.0)	10 (3.3)	
≥5 years	584 (97.8)	295 (99.0)	289 (96.7)	
Living arrangement				0.001
Alone	71 (11.8)	22 (7.3)	49 (16.3)	
With family	531 (88.2)	279 (92.7)	252 (83.7)	
Homeownership				<0.001
Renting	254 (42.1)	170 (56.3)	84 (27.9)	
Own property	349 (57.9)	132 (43.7)	217 (72.1)	
Regular income				0.679
Yes	418 (69.3)	207 (68.5)	211 (70.1)	

No	185 (30.7)	95 (31.5)	90 (29.9)	
Currently ill				1.000
Yes	466 (77.4)	233 (77.4)	233 (77.4)	
No	136 (22.6)	68 (22.6)	68 (22.6)	

[1] Characteristics compared between slum and non-slum respondents using Chi-square test

3.4.2 Distribution of mean WHOQoL scores

Table 3.3 shows the mean WHOQoL scores, stratified by sociodemographic characteristics and neighbourhood residence. At the bivariate level, men reported statistically better QoL than women in almost all domains, 71.7 for men and 64.5 for women in physical QoL ($p < 0.001$), 73.9 for men and 68.0 for women in psychological QoL ($p < 0.001$), 75.7 for men and 72.8 for women in social QoL ($p = 0.015$), and 67.2 for men and 65.5 for women in environmental QoL ($p = 0.057$). Age was inversely related to physical QoL; respondents in the younger age category (60-69) had statistically significant higher physical QoL scores than those in older age groups ($p < 0.001$). The reverse was observed in the psychological, social, and environment domains, where older respondents reported higher scores than younger respondents. However, these age differences were not statistically significant, except in the environment domain where respondents in the age group 60-69 reported statistically significant lower QoL scores than respondents in the age group 70-79 ($p = 0.008$). Married respondents had statistically significant higher physical ($p < 0.001$) and psychological ($p = 0.022$) QoL scores than widowed respondents. Muslims had statistically significant better psychological ($p = 0.005$) and social ($p = 0.004$) QoL than Christians. Although Muslims maintained a QoL advantage over Christians in the physical domain, this difference was statistically non-significant.

An education gradient was observed in physical QoL, where mean scores increased markedly with rising levels of education. Respondents with tertiary education reported

statistically significant higher physical QoL scores than those who were uneducated ($p = 0.034$). No education gradient in QoL was observed in the psychological, social, and environment domains. Across all four domains, there were also no statistically significant differences in QoL scores between respondents who lived alone and those who lived with family, as was the difference between new and long-term residents (<5 vs. 5+ years in neighbourhood). In the environment domain, property owners reported statistically significant higher QoL scores than renters ($p < 0.001$). Homeowners and renters did not differ statistically in physical, psychological, and social QoL scores.

Regular income earners had statistically significant better physical QoL than respondents who had no regular source of income ($p < 0.001$). However, regular income earners had statistically significant lower social QoL than those without steady incomes ($p < 0.001$). Ailing respondents also reported statistically significant lower QoL than healthy respondents in the physical ($p < 0.001$), psychological ($p < 0.001$), and environment ($p = 0.032$) domains. In terms of neighbourhood residence, the slum respondents had statistically better social QoL than the non-slum respondents (Mean 75.8 vs. 72.0; $p = 0.001$). The reverse was observed in the environment domain (Mean 63.8 vs. 68.5; $p < 0.001$). The differences in QoL scores between the slum and non-slum respondents were statistically non-significant in the physical domain (Mean 67.0 vs. 67.7; $p = 0.640$) and psychological domain (Mean 70.6 vs. 70.0; $p = 0.674$).

Table 3.3: Distribution of mean WHOQoL scores by sociodemographic characteristics

	Physical		Psychological		Social		Environment	
Variable	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value	Mean (SD)	*p*-value
Sex		<0.001		<0.001		0.015		0.057
Men	71.7 (15.6)		73.9 (13.7)		75.7 (14.1)		67.2 (10.9)	
Women	64.5 (17.3)		68.0 (15.5)		72.8 (15.0)		65.5 (11.1)	
Age group, yrs.		<0.001		0.593		0.586		0.003
60-69	70.6 (15.4)[a]		69.9 (15.2)		73.4 (14.4)		64.9 (11.1)[d]	
70-79	64.1 (17.9)[b]		71.3 (14.5)		74.7 (15.7)		67.9 (10.1)[e]	
80+	58.7 (18.0)[c]		70.0 (16.0)		74.7 (14.1)		68.0 (12.2)	
Marital status		<0.001		0.019		0.016		0.554
Single/separat	68.0 (20.4)		67.9 (15.4)		68.7 (16.7)		64.5 (9.9)	
Married	71.0 (15.4)[f]		72.7 (14.9)[h]		75.4 (14.2)		65.8 (11.2)	
Widowed	64.2 (17.0)[g]		68.8 (14.8)[i]		74.0 (14.3)		66.7 (11.4)	
Divorced	66.6 (17.6)		70.1 (16.3)		71.0 (16.9)		66.3 (8.4)	
Religion		0.171		0.005		0.004		0.919
Christian	66.8 (17.2)		69.5 (15.5)		72.8(15.0)		66.2 (11.2)	
Muslim	68.8 (16.4)		72.1 (13.8)		76.6 (13.8)		66.1 (10.8)	
Education		0.005		0.081		0.447		0.103
None at all	64.4 (17.6)[j]		68.6 (14.8)		74.8 (14.4)		65.1 (10.5)	
Primary	68.9 (16.3)		71.1 (15.5)		74.0 (14.5)		66.1 (11.4)	
Secondary	68.2 (15.6)		70.5 (15.2)		72.8 (15.7)		68.2 (11.3)	
Tertiary	72.5 (18.7)[k]		74.7 (13.2)		71.3 (15.4)		66.8 (10.6)	
Resid tenure		0.569		0.915		0.598		0.728
<5 years	64.6 (15.7)		69.9 (11.6)		71.7 (14.2)		65.0 (13.8)	
≥5 years	67.3 (17.2)		70.3 (15.2)		73.9 (14.8)		66.1 (11.0)	
Living arrangmt		0.466		0.896		0.3163		0.466
Alone	68.7 (17.1)		70.1 (16.4)		72.3 (17.6)		65.3 (12.8)	
With family	67.2 (17.0)		70.4 (14.9)		74.2 (14.3)		66.3 (10.9)	
Homeownership		0.229		1.000		0.091		<0.001
Renting	68.3 (16.1)		70.3 (14.9)		75.1 (13.4)		63.9 (10.5)	
Own propert	66.6 (17.6)		70.2 (15.2)		73.1 (15.6)		67.8 (11.2)	
Regular income		<0.001		0.310		<0.001		0.562

Yes	70.4 (16.0)		69.9 (14.8)		72.5 (14.7)		66.0 (11.3)	
No	60.4 (17.2)		71.2 (15.6)		77.2 (14.4)		66.5 (10.3)	
Currently ill		<0.001		<0.001		0.719		0.032
Yes	62.8 (15.6)		68.8 (15.0)		73.8 (15.1)		65.6 (10.6)	
No	82.5 (11.9)		75.2 (14.1)		74.3 (13.5)		67.9 (12.2)	
Neighbourhood		**0.640**		**0.674**		**0.001**		**<0.001**
Slum	67.0 (16.8)		70.6 (13.8)		75.8 (12.9)		63.8 (10.5)	
Non-slum	67.7 (17.2)		70.0 (16.3)		72.0 (16.2)		68.5 (11.0)	

* a & b Bonferroni pairwise comparison: difference = 6.4; $p < 0.001$
* a & c Bonferroni pairwise comparison: difference = 12.0; $p < 0.001$
* d & e Bonferroni pairwise comparison: difference = 3.0; $p = 0.008$
* f & g Bonferroni pairwise comparison: difference = 6.7; $p < 0.001$
* h & i Bonferroni pairwise comparison: difference = 3.9; $p = 0.022$
* j & k Bonferroni pairwise comparison: difference = 8.1; $p = 0.034$

3.4.3 Factors associated with quality of life

The univariate and multivariable linear regression models provide estimates of the extent to which the slum and non-slum respondents differed in physical, psychological, social, and environmental QoL, after statistically adjusting for the confounding influence of relevant covariates. The explained variance (R^2) ranged from 5.8% in the psychological domain to 7.1% in the social domain, 9.1% in the environment domain, and 31.5% in the physical domain. Tables 3.4, 3.5, 3.6, and 3.7 present univariate and multivariable linear regression models for the four QoL domains. Table 3.4 shows that, at the univariate level, there was no statistically significant difference in physical QoL between the slum and non-slum respondents (Coeff*:* 0.6*;* 95% CI: -2.1, 3.4; $p = 0.640$). The absence of a statistically significant difference persisted after adjusting for relevant covariates in the multivariable linear regression model (Coeff: 0.5; 95% CI: -1.7, 2.8; $p = 0.642$).

Table 3.4: Physical QoL – multivariable linear regression analysis

Covariates	Univariate		Multivariable	
	Coeff. [95% CI]	*p*-value	Coeff. [95% CI]	*p*-value
Sex				
Men	Reference			
Women	-7.2 [-10.0, -4.5]	<0.001	-3.6 [-6.0, -1.2]	0.003
Age group, yrs.				
60-69	Reference			
70-79	-6.5 [-9.5, -3.5]	<0.001	-5.0 [-7.6, -2.4]	<0.001
80+	-12.0 [-16.2, -7.8]	<0.001	-7.5 [-11.2, -3.8]	<0.001
Marital status				
Single/separat	Reference			
Married	2.9 [-2.1, 8.0]	0.251		
Widowed	-3.8 [-8.8, 1.2]	0.133		
Divorced	-1.4 [-8.5, 5.6]	0.689		
Religion				
Christian	Reference			
Muslim	2.1 [-.9, 5.1]	0.171		
Education				
None at all	Reference			
Primary	4.5 [1.4, 7.6]	0.005		
Secondary	3.8 [0.0, 7.7]	0.052		

Tertiary	8.1 [2.4, 13.8]	0.006		
Resid tenure				
<5 years	Reference			
≥5 years	2.7 [-6.7, 12.1]	0.569		
Living arrangmt				
Alone	Reference			
With family	-1.6 [-5.8, 2.7]	0.466		
Homeownership				
Own property	Reference			
Renting	1.7 [-1.1, 4.4]	0.229		
Regular income				
Yes	Reference			
No	-10.0 [-12.8, -7.2]	<0.001	-6.2 [-8.8, -3.7]	<0.001
Currently ill				
Yes	Reference			
No	19.7 [16.9, 22.5]	<0.001	17.1 [14.3, 19.8]	<0.001
Neighbourhood				
Slum	Reference			
Non-slum	**0.6 [-2.1, 3.4]**	**0.640**	**0.5 [-1.7, 2.8]**	**0.642**
R-squared			0.315	
Adj R-squared			0.308	

Rather than neighbourhood residence, differences in sex, age, income status, and illness status accounted for the variance in physical QoL. Female sex, older age, lacking regular source of income, and being ill were all associated with statistically significant lower physical QoL scores.

Similarly, there was no statistically significant difference in psychological QoL between the slum and non-slum samples at the univariate level (Coeff: -0.5; 95% CI: -2.9, 1.9; $p = 0.674$). The difference attenuated even further after adjusting for relevant covariates in the multivariable linear regression model (Coeff: -0.2; 95% CI: -2.0, 2.6; $p = 0.893$) (Table 3.5). Rather than neighbourhood residence, sex, illness status, and religion accounted for the variance in psychological QoL. Women, ailing respondents, and Christians had statistically significant lower psychological QoL, compared to men, healthy respondents, and Muslims (Table 3.5).

Table 3.5: Psychological QoL – multivariable linear regression analysis

Covariates	Univariate		Multivariable	
	Coeff. [95% CI]	*p*-value	Coeff. [95% CI]	*p*-value
Sex				
Men	Reference			
Women	-5.8 [-8.3, -3.4]	<0.001	-4.1 [-6.8, -1.4]	0.003
Age group, yrs.				
60-69	Reference			
70-79	1.4 [-1.3, 4.1]	0.316	1.6 [-1.1, 4.3]	0.246
80+	0.1 [-3.8, 3.9]	0.968	1.5 [-2.3, 5.4]	0.434
Marital status				
Single/separat	Reference			
Married	4.8 [.2, 9.3]	0.039		
Widowed	0.9 [-3.6, 5.3]	0.697		
Divorced	2.2 [-4.1, 8.6]	0.489		
Religion				
Christian	Reference			
Muslim	2.6 [0.0, 5.3]	0.054	3.0 [-0.1, 6.1]	0.058
Education				
None at all	Reference			
Primary	2.5 [-.3, 5.2]	0.081	2.7 [-0.3, 5.8]	0.081
Secondary	1.9 [-1.5, 5.3]	0.276	1.6 [-2.3, 5.6]	0.417
Tertiary	6.0 [0.9, 11.2]	0.021	3.7 [-1.8, 9.3]	0.189
Resid tenure				
<5 years	Reference			
≥5 years	0.4 [-7.9, 8.8]	0.915		
Living arrangmt				
Alone	Reference			
With family	0.2 [-3.5, 4.0]	0.896		
Homeownership				
Own property	Reference			
Renting	0.0 [-2.4, 2.4]	1.000		
Regular income				
Yes	Reference			
No	1.4 [-1.3, 4.0]	0.310		
Currently ill				
Yes	Reference			
No	6.4 [3.6, 9.2]	<0.001	5.1 [2.2, 8.0]	0.001
Neighbourhood				
Slum	Reference			
Non-slum	**-0.5 [-2.9, 1.9]**	**0.674**	**-0.2 [-3.0, 2.6]**	**0.893**
R-squared			0.058	
Adj R-squared			0.051	

At the univariate level, the slum respondents reported statistically significant better social QoL than their non-slum counterparts (Coeff: -3.8; 95% CI: -6.2, -1.5; $p = 0.001$). Despite a slight reduction, the difference between the two samples remained statistically significant after adjusting for relevant covariates in the multivariable regression model (Coeff: -3.2; 95% CI: -5.6, -0.7l; $p = 0.010$). In addition to non-slum residents, social QoL was statistically significantly lower for women, single/separated respondents, and regular income earners (Table 3.6).

Table 3.6: Social QoL – multivariable linear regression analysis

Covariates	Univariate		Multivariable	
	Coeff. [95% CI]	*p*-value	Coeff. [95% CI]	*p*-value
Sex				
Men	Reference			
Women	-3.0 [-5.4, -0.6]	0.016	-4.1 [-6.7, -1.4]	0.003
Age group, yrs.				
60-69	Reference			
70-79	1.3 [-1.4, 3.9]	0.356	0.2 [-2.5, 2.9]	0.875
80+	1.3 [-2.5, 5.1]	0.503	-0.5 [-4.3, 3.4]	0.816
Marital status				
Single/separat	Reference			
Married	6.7 [2.3, 11.1]	0.003	6.3 [1.9, 10.7]	0.005
Widowed	5.3 [1.0, 9.6]	0.017	6.5 [2.1, 11.0]	0.004
Divorced	2.2 [-3.9, 8.4]	0.477	3.0 [-3.1, 9.1]	0.337
Religion				
Christian	Reference			
Muslim	3.8 [1.2, 6.4]	0.004		
Education				
None at all	Reference			
Primary	-0.8 [-3.5, 1.9]	0.574		
Secondary	-2.0 [-5.4, 1.4]	0.247		
Tertiary	-3.5 [-8.5, 1.5]	0.172		
Resid tenure				
<5 years	Reference			
≥5 years	2.2 [-6.0, 10.3]	0.598		
Living arrangmt				
Alone	Reference			
With family	1.9 [-1.8, 5.5]	0.316		
Homeownership				
Own property	Reference			
Renting	2.1 [-.3, 4.4]	0.091	0.6 [-1.9, 3.1]	0.631
Regular income				
Yes	Reference			

No	4.7 [2.2, 7.2]	<0.001	5.6 [3.1, 8.2]	<0.001
Currently ill				
Yes	Reference			
No	0.5 [-2.3, 3.3]	0.719		
Neighbourhood				
Slum	Reference			
Non-slum	**-3.8 [-6.2, -1.5]**	**0.001**	**-3.2 [-5.6, -0.8]**	**0.010**
R-squared			0.071	
Adj R-squared			0.057	

In contrast, the non-slum respondents reported statistically significant better environmental QoL than the slum respondents at the univariate level (Coeff: 4.8; 95% CI: 3.0, 6.5; $p < 0.001$). The difference between the two samples retained its statistical significance after adjusting for relevant covariates in the multivariable linear regression model (Coeff: 4.2; 95% CI: 2.3, 6.2; $p < 0.001$). Older age, living in own home, and illness-free life were also associated with statistically significant better environmental QoL (Table 3.7).

Table 3.7: Environmental QoL – multivariable linear regression analysis

Covariates	**Univariate**		**Multivariable**	
	Coeff. [95% CI]	*p*-value	Coeff. [95% CI]	*p*-value
Sex				
Men	Reference			
Women	-1.8 [-3.6, 0.1]	0.057	-1.5 [-3.4, 0.4]	0.129
Age group, yrs.				
60-69	Reference			
70-79	3.0 [1.1, 5.0]	0.003	2.6 [0.6, 4.5]	0.009
80+	3.1 [0.3, 5.9]	0.029	3.2 [0.4, 6.0]	0.023
Marital status				
Single/separat	Reference			
Married	1.4 [-2.0, 4.7]	0.423		
Widowed	2.2 [-1.1, 5.5]	0.183		
Divorced	1.9 [-2.8, 6.5]	0.433		
Religion				
Christian	Reference			
Muslim	-0.1 [-2.0, 1.8]	0.919		
Education				
None at all	Reference			
Primary	1.0 [-1.0, 3.0]	0.323	-0.7 [-2.8, 1.5]	0.540
Secondary	3.1 [0.6, 5.7]	0.014	-0.3 [-3.1, 2.4]	0.807
Tertiary	1.7 [-2.0, 5.5]	0.371	-2.4 [-6.4, 1.6]	0.240

Resid tenure				
<5 years	Reference			
≥5 years	1.1 [-5.0, 7.2]	0.728		
Living arrangmt				
Alone	Reference			
With family	1.0 [-1.7, 3.8]	0.466		
Homeownership				
Own property	Reference			
Renting	-3.9 [-5.6, -2.1]	<0.001	-2.6 [-4.5, -0.8]	0.005
Regular income				
Yes	Reference			
No	0.5 [-1.3, 2.5]	0.562		
Currently ill				
Yes	Reference			
No	2.3 [0.2, 4.4]	0.032	2.6 [0.5, 4.7]	0.017
Neighbourhood				
Slum	Reference			
Non-slum	**4.8 [3.0, 6.5]**	**<0.001**	**4.2 [2.3, 6.2]**	**<0.001**
R-squared			0.091	
Adj R-squared			0.078	

3.5 Discussion and conclusion

Across SSA, and Ghana in particular, slum settlements have often been targeted by metropolitan authorities for mass demolition campaigns. For example, in 2015, the Ghanaian police unleashed brutality on a group of residents protesting the demolition of their slum settlement (BBC News, 2015). While slum clearance is known for causing displacement and homelessness (Andoh, 2019), metropolitan authorities usually frame their activities as unavoidable public health interventions to rid cities of unhealthy environments (Alaazi & Aganah, 2019). These popular narratives portray slum dwellers as populations entrapped in endless cycles of poor health, due to a plethora of environmental afflictions. However, there is often a lack of empirical evidence to back these claims. Focusing on the QoL of older adults in the Nima slum and the Adabraka-Asylum Down non-slum neighbourhoods in Accra, the current study contributes to an improved understanding of the wellbeing of older slum dwellers in Ghana.

Contrary to popular beliefs of a health disadvantage in slums, the findings of this study demonstrate similarities in QoL outcomes between slum and non-slum older adults. The analyses revealed no statistically significant difference in physical QoL between the slum and non-slum respondents, even after controlling for the confounding effects of relevant sociodemographic variables. This observation suggests that older slum dwellers were not more disadvantaged in physical QoL than their non-slum counterparts. The absence of a statistically significant difference in physical QoL can possibly be explained by the observed similarities in age between the slum and non-slum samples (Table 3.2). Since age is a biologically important predictor of physical wellness (Reid & Fielding, 2012), samples with statistically non-significant age differences would likely produce similar physical QoL scores, as observed in both the univariate and multivariable linear regression models (Table 3.4). The statistically non-significant difference in physical QoL can possibly also be attributed to the fact that the majority of respondents in both neighbourhoods were actively working for wages, and as such were likely to have similar capacities for mobility and activities of daily living, which incidentally are two of the critical determinants of physical QoL (WHOQoL Group, 1996). Their near equal capacity for work, mobility, and activities of daily living also suggests that the two samples had similar levels of functional and musculoskeletal health, which can be strong predictors of physical QoL in old age (Kim et al., 2018; Trombetti et al., 2016).

Rather than differences in neighbourhood characteristics, sex, age, income status, and illness status explained much of the observed variance in physical QoL. Similar to findings from previous QoL studies (Gobbens, & van Assen, 2017; Sood & Bakhshi, 2014; Bodur & Cingil, 2009), men had statistically significant higher physical QoL scores than women. The sex

disparity in physical QoL may have been influenced by a culture of masculinity, which socializes African men to exaggerate the soundness of their health and QoL (see Evans, Frank, Oliffe, & Gregory, 2011). The inverse relationship between age and physical QoL also corroborates previous research findings (Gholami et al., 2016; Razzaque, Nahar, Akter Khanam, & Kim Streatfield, 2010; Kyobutungi et al., 2010; Van Minh, Byass, Thi Kim Chuc, & Wall, 2010; Kirchengast, & Haslinger, 2008). The explanation is that advancement in age often coincides with the onset of debilitating chronic illnesses, which affects physical wellness adversely. The young-old, on the other hand, experience less bodily pain, have comparatively higher muscle power, and encounter less mobility problems, allowing them to enjoy better physical QoL than their much older counterparts. Consistent with the literature (Yamada, Merz, & Kisvetrova, 2015; Tüzün, Aycan, & Ilhan, 2015), physical QoL was statistically significantly lower for ailing respondents than for healthy ones. This difference may be attributed to the fact that illness often brings with it physical pain and an inability for active living.

In a similar fashion, the slum and non-slum respondents did not differ statistically in their psychological QoL scores. The difference between the two samples remained statistically non-significant after controlling for the confounding influence of relevant sociodemographic factors. The majority of respondents were long-term residents of the slum and non-slum who may have developed similar levels of neighbourhood attachment (Zhang & Zhang, 2017; Wiles et al., 2009), with possibly similar experiences of place affect and psychosocial wellbeing. Instead, sex and illness status accounted for much of the observed variance in psychological QoL. Again, women had statistically significant lower psychological QoL scores than men in both the univariate and multivariable regression models. Bodur and Cingil (2009) also reported comparatively lower psychological QoL scores for women in their research with community-

residing older adults in Turkey. In the sub-Saharan African context, women's psychological health disadvantage can be attributed to their low socioeconomic status (Bennet, Chepngeno-Langat, Evandrou, & Falkingham, 2016; Razzaque et al., 2010), which denies them the full enjoyment of and satisfaction with life. In terms of illness status, ailing respondents reported a statistically significant lower psychological QoL than those in good health. One possible explanation is that illness may lead to mood swings, depression, and dissatisfaction with life, which are key indicators of psychological wellness in older adults (Abas, Punpuing, Jirapramupitak, Tangchonlatip, & Leese, 2009).

In the social domain, the slum respondents reported statistically significant better QoL than the non-slum respondents. The fact that a significantly higher proportion of the slum respondents were married and living with family may have contributed to their comparative advantage in social QoL. But most importantly, the slum neighbourhood was predominantly Muslim, whose adherence to the religious principle of *Zakat* obliges almsgiving and provision of social supports to vulnerable persons, including older adults (Weiss, 2002). The resulting enjoyment of social and material supports may have contributed to the superior social QoL scores of the slum respondents. In contrast, the Christian-dominated non-slum neighbourhood lacked a similar welfare system, which may have placed older adults in this community at a social QoL disadvantage.

The observed variance in social QoL was also explained by differences in sex, marital status, and income status. Female sex and single/separated marital status were associated with statistically significant lower social QoL scores. This observation differs from Mudege and Ezeh (2009), whose qualitative research in the Korogocho and Viwandani slums in Kenya suggested

better social QoL for older women than older men. Married respondents reported statistically better social QoL than single/separated respondents, an observation that resonates with previous research findings (Gutiérrez-Vega, Esparza-Del Villar, Carrillo-Saucedo, & Montañez-Alvarado, 2018; Margelisch, Schneewind, Violette, & Perrig-Chiello, 2017). The marital disparity in social QoL is likely rooted in the observation that married older adults are better able to pool resources and social networks to enhance their wellbeing (Arber, 2004). In traditional African societies where marital relationships are held as status symbols, marriage may also enhance the social acceptability of older adults in their communities (Alli & Maharaji, 2013). Surprisingly, respondents who lacked a regular source of income reported significantly higher social QoL scores than those with regular sources of income. It is possible that the economically active respondents in the sample may have been disengaged from social life in their neighbourhoods, producing for them a statistically significant lower social QoL.

In both the univariate and multivariable linear regression models, the non-slum respondents had statistically significant better environmental QoL than the slum respondents. This observation was an expected outcome, since the non-slum neighbourhood was a planned settlement with relatively better housing and service infrastructure. It thus appears that the enjoyment of a cleaner environment in the non-slum had a positive influence on the residents' perception of their environmental QoL. As an unplanned neighbourhood, characterized by poor housing and sanitation infrastructure, the slum offered its older residents limited opportunities for a comparable environment. With open gutters and fewer streets and sidewalks, mobility and recreational walking among older adults in the slum may have also been significantly impeded. These observations are remarkably consistent with a recent World Health Organization assessment portraying sub-Saharan African slums as age-unfriendly settings that undermine its

active ageing agenda (World Health Organization, 2015b). In addition to non-slum residence, older age, owning a home, and being illness-free were associated with statistically significant better environmental QoL. The observation of a positive correlation between environmental QoL and increasing age appears to be a demographic norm, as does the relationship between environmental QoL and homeownership (Hawthorne, Herrman, & Murphy, 2006; Bodur & Cingil, 2009). This normative rests on the fact that older individuals and homeowners are usually long-term residents who might hold a romanticized view of their neighbourhood and home surroundings. Ailing older adults might also spend much of their time indoors, and as such would have little appreciation for their neighbourhood environment.

Overall, the findings of this study suggest the QoL of older slum dwellers to be at par with the QoL of non-slum older populations, and that sociodemographic factors can play a critical role in determining QoL in old age. The findings also suggest that the QoL impacts of inferior slum environments may be buffered by other important QoL determinants, in particular the existence of strong social relationships and support systems. Robust social ties and supports in slums may compensate for their poor and highly disorganized physical environments, producing QoL outcomes that compare favourably with those of non-slum older adults.

The study also identified an important but less known phenomenon – the health protective qualities of slums. To elaborate, the social supports in slums provide a layer of protection against environmental adversities, allowing older slum dwellers to enjoy a QoL that equals the QoL of older non-slum populations. This observation refutes the dominant lopsided discourse that portrays slums as unhealthy environments, for which they must be cleared to avert potential public health crises. Rather, slums are complex milieus that simultaneously support and

inhibit health. Measures to optimize the QoL of older slum dwellers must thus address their need for services and improved housing infrastructure. Such interventions are critically important, as the city's intractable affordable housing deficit will continue to drive significant proportions of older adults into slums. Interventions to enhance the wellbeing of older slum dwellers should ideally also incorporate measures to address the QoL disparities arising from sex, age, and income differences.

Some methodological and conceptual limitations of the study are noteworthy. First, although the reliance on snowball samples was unavoidable in light of the hideous nature of the population, this recruitment approach, by default, limited the statistical generalizability of the findings. Second, similar to previous QoL research findings (Schrier, Schrier, Geertzen, & Dijkstra, 2016; Helvik, Engedal, & Selbæk, 2010; Tokuda, Doba, Butler, & Paasche-Orlow, 2009), the R-squares for the multivariable linear regression models were low, suggesting that the study did not account for all the variables influencing the participants' QoL. Nonetheless, the study provides broad indications of the QoL status of older slum and non-slum populations in Ghana.

CHAPTER 4

Aging and Urban Environments in Ghana: An Ecological Exploration of Barriers and Facilitators to Health Among Older Adults in Two Neighbourhoods

4.0 Abstract

In Ghana, gains in life expectancy underlie an unprecedented increase in the population of older adults. Nearly half of this population resides in resource-poor settings in cities and towns across the country. Although the wellbeing of this population is of utmost concern to public health practitioners and policymakers, not much is currently known about their living conditions and health. Drawing upon a mixed methods design, informed by the ecological theory of aging, this study explored barriers and facilitators to health among older adults residing in two socio-environmentally contrasting neighbourhoods in Accra, Ghana. Data were collected via: (1) a cross-sectional survey of older adults (n = 603) residing in a slum and non-slum neighbourhood; and (2) in-depth qualitative interviews with a purposive sample of older adults (n = 30), health workers (n = 5), and community leaders (n = 2). Statistical analyses of the survey data produced statistically non-significant differences in prevalence of poor health ($p = 0.057$) and poor quality of life ($p = 0.816$) between the slum and non-slum respondents. Thematic analyses of the qualitative data also revealed similarities in health barriers between the slum and non-slum but with remarkably very different underlying drivers. The harmful effects of these health barriers – poor built environments, housing precariousness, unsanitary living conditions, defective public services, social incivilities, etc. – were mitigated by several facilitators to health, including social supports and affordable housing in the slum and an appealing outdoors in the non-slum. This complex interplay of health barriers and facilitators may have been responsible for the statistically non-significant differences in health and quality of life between the slum and non-slum survey respondents.

4.1 Introduction

The population of older adults is increasing globally; the number of people aged 65 years and older will reach 1.5 billion by 2050, up from 524 million in 2010 (World Health Organization, 2011). The majority of this population will reside in urban areas of the developing world, where sharp increases in morbidity and mortality from non-communicable diseases have been recorded (Beard et al., 2016; Global Coalition on Aging, 2016). In Ghana, recent gains in life expectancy underlie an unprecedented increase in the population of older adults, estimated to increase from 1.4 million in 2010 to approximately 6.3 million in 2050 (Ghana Statistical Service, 2013). These demographic changes have catapulted aging issues to national and global policy agendas, the majority of which now prioritize programs and interventions to support aging-in-place at home and in neighbourhood settings (Van Dijk, Cramm, Van Exel, & Nieboer, 2015).

The focus on neighbourhoods is important, given that the duration of exposure to neighbourhood environments is comparatively longer for older adults, due to their progressive frailty and declining mobility (Satariono, Ory, & Lee, 2012; Gardner, 2011). Hence, the health effects of adverse neighbourhood environments are often more salient for older populations than for younger demographics (Glass & Balfour, 2003; Robert & Li, 2001). Cromley and colleagues (2012) have identified three pathways through which neighbourhood characteristics can influence older adults' health. The first, a structural explanation, suggests that neighbourhoods dominated by historically disadvantaged groups have a higher probability of reporting poor health outcomes than those inhabited predominantly by wealthier groups. The second, a neighbourhood disorder model, views neighbourhood incivilities (e.g. graffitti, litter, abandoned buildings, decayed houses, crime, etc.) as a precursor for despondent feelings and depressive moods in older adults. The third, an environmental stress explanation, focuses on the

(un)availability of resources (e.g. healthcare facilities, outdoor recreation facilities, housing infrastructure, groceries stores, etc) for dealing with neighbourhood disorder.

Empirical research, conducted mostly in developed countries, has helped to advance public health knowledge of the relationship between neighbourhood characteristics and older adults' health. This literature suggests that neighbourhood socioeconomic disadvantage can cause older adults to adopt unhealthy lifestyles, such as smoking, alcoholism, poor diets, and physical inactivity, which are known proximate risk factors for obesity, high blood pressure, diabetes, and other chronic illnesses (Freeman Grafova, & Rogowski, 2011; Cubbin et al., 2006). Research evidence has persistently linked neighbourhood socioeconomic disadvantage to physical inactivity (Annear, Cushman, & Gidlow, 2009), mobility difficulties (Lang, Llewellyn, Langa, Wallace, & Melzer, 2008), increased frailty (Lang et al., 2009), depressive symptoms (Kubzansky et al., 2005), cognitive decline (Sheffield & Peek, 2009), cardiovascular diseases (Roux, Borrell, Haan, Jackson, & Schultz, 2004), and poor self-rated health (Subramanian, Kubzansky, Berkman, Fay, & Kawachi, 2006) in older populations. Residing in a designated poverty neighbourhood is suggested as an independent risk factor for poor health in old age (Glass & Balfour, 2003). Some scholars therefore see poor health as a manifestation of biological and behavioural responses to individual and community-level socioeconomic disadvantage (Ellaway, Macintyre, & Kearns, 2001).

The nature and quality of neighbourhood built environments, including their spatial organization, land use patterns, and aesthetics, are critical determinants of health among older adults. For example, poor location and visibility of road signage may accentuate cognition problems, diminish life-space diameters, and discourage service utilization among older adults

(Glass & Balfour, 2003). Visible signs of environmental dereliction, such as dilapidated housing and disintegrated sidewalks, can intimidate older adults and cause them to refrain from outdoor activities (Mendes de Leon et al., 2009). Evidence from the United States demonstrates a positive correlation between richer neighbourhood land-use diversity and reduced functional dependence in old age (Clarke & George, 2005). Others have similarly observed a positive correlation between availability of pedestrian infrastructure and older adults' likelihood of walking (Michael, Green, & Farquhar, 2006). Neighbourhoods with poor street connectivity and falling sidewalks can also restrict physical activity and cause disability and depressive symptoms in older adults (Beard et al. 2009; Berke, Gottlieb, Moudon, & Larson, 2007). The nature of the built environment thus has a stong influence on older adults' subjective view of their health. Indeed, a nationwide survey in the United States has revealed that older adults residing in deteriorated neighbourhoods were more likely than those in well-maintained neighbourhoods to report declines in self-rated health (Krause, 1996).

Exposure to neighbourhhood social disorder, such as crime, excessive noise, graffiti, and street litter, has an independent association with reductions in physical activity, rising obesity prevalence, declines in physical functioning, and onset of depressive symptoms among older adults. Fear of crime is an independent predictor for mobility declines (Clark et al., 2009), overweight (Eisenstein et al., 2011), physical and functional disability (Beard et al., 2009; Schootman et al., 2006; Balfour & Kaplan, 2002), and depression (Wilson-Genderson & Pruchno, 2013) in older adults. Eisenstein and colleagues (2011) have suggested a strong association between fear of crime and risk of high BMI among a sample of US older adults.

The health effects of neighbourhoods may transcend their quantifiable physical and social features to encompass such symbolic constructs as place meaning, place identity, and sense of place. In their study examining sense of community and its relationship with health among Chinese older adults, Zhang and Zhang (2017) found a positive correlation between sense of community and subjective wellbeing. In another study using data from the 2007/08 Canadian Community Health Survey, Kitchen, Williams, and Chowhan (2012) reported a strong association between sense of community belonging and mental health, after adjusting for geography and socioeconomic status of the survey respondents.

While this body of literature has helped to advance public health knowledge of neighbourhood effects on older adults' health, it is noticeably limited in geographical and methodological scope. First, the studies examining the relationship between neighbourhoods and older adults' health have mostly been conducted in developed countries, particularly the United States. With the exception of a few on Asia and Latin America (e.g. Zhao & Chung, 2017; Gao, Ahern, & Koshland, 2016; Parra et al., 2010), this literature has largely neglected underdeveloped regions, such as sub-Saharan Africa (SSA), where much of the expected increase in older populations will occur. Second, this literature relies mostly on analyses of selected variables from large quantitative data, which do not account for the full range of complex relationships between older adults and their neighbourhood environments (Keene, 2018; Wilson-Genderson & Pruchno, 2007). This narrow focus tends to obscure older adults' own perceptions of neighbourhood effects on their health. To build on the current literature and address some of these gaps, the present study employed a theoretically-informed mixed methods methodology to explore health and quality of life (QoL) status as well as barriers and facilitators

to health among a sample of community-dwelling older adults in Accra, Ghana. The specific objectives of the study were to:

1. explore self-reported health and QoL status of older adults residing in a slum and non-slum neighbourhood;
2. identify barriers and facilitators to health among older adults residing in these contrasting neighbourhoods.

Mixed methods accounts of neighbourhood health can offer useful insights into the mechanisms through which the characteristics of neighbourhoods shape patterns of health risks and health outcomes among older adults. Health and QoL were broadly defined in this study to mean not only the absence of disease or infirmity but a comprehensive view of wellbeing, including perceptions and actual experiences of social, mental, physical, and spiritual wellness.

4.2 Ecological Model of Aging

The *Ecological Model of Aging* guided the conduct of the study. The model explains person-environment relations in old age (Lawton & Nahemow, 1973). It suggests a dynamic interaction between *environmental press* (demands of the socio-physical evironment) and *personal competence* (the ability to cope with environmental demands). Environmental press can be positive, negative, or neutral, and may range from physical environmental barriers affecting neighbourhood walkability to neighbourhood insecurity and its effects on mental health (Glass & Balfour, 2003). Personal competence refers to such individual qualities as biological endowments, cognition skills, and intelligence, which can either be high or low. In Lawton & Nahemow's schema (1973), a harmonious balance between press and competence would result in positive adaptation and wellbeing, while an imbalance would produce maladaptation and poor

health and QoL outcomes. For example, excessive press may create fear and social isolation among older adults, while an excess of competence over press may lead to boredom (Glass & Balfour, 2003).

Although operationalization of the press-competence model for research purposes has run into conceptual problems, including a lack of direction for objective assessment of environmental press (Glass & Balfour, 2003), it nonetheless provides a useful guide for examining older adults' perceptions of the health impacts of their neighbourhood environment. Recent application of the model involves studies examining perceptions of residential environments and their role in sustaining prevalence of depressive symptoms among older adults (Aneshensel et al., 2007; Byrnes, Lichtenberg, & Lysack, 2006). This theoretical model provided a guiding framework for exploring how various features of neighbourhood environments affected the health and wellbeing of a sample of older adults in Accra, Ghana.

4.3 Methods

4.3.1 Research settings

Data collection was undertaken in the Nima slum and the Adabraka-Asylum Down non-slum neighbourhhoods in Accra, Ghana's capital city. These neighbourhoods were purposively selected for comparison because of their unique historical, locational, and socio-environmental characteristics. Historically, Nima emerged in the early 1930s as a legal but unplanned settlement, or what Majale (1993) termed a 'pirate settlement.' The site of the neighbourhood was originally acquired as a transitional grazing ground for cattle meant for sale in the rapidly expanding city of Accra (Essamuah & Tonah, 2004; Arn, 1996). By the 1940s, Nima had become the centre of a haphazard housing development, by mostly migrant workers seeking

employment in a nearby military base to the northeast and a wealthy European neighbourhood to the south of the settlement (Van Riel, 2015). Nima was not incorporated into Accra's metropolitan boundaries nor subjected to urban planning regulations until the 1950s, when the neighbourhood was already a mature slum (Arn, 1996). Nima has therefore evolved from being a grazing ground for animals in the 1930s to being the largest Ghanaian urban slum today, with limited access roads and poor housing and sanitation infrastructure (Van Riel, 2015; Morinville & Harris, 2014). Nima is also highly congested, and inhabited predominantly by people of the Islamic faith. In 2010, the neighbourhood had a population of approximately 81,000, distributed across a land area of just 1.6 km^2 (Ghana Statistical Service, 2014; Agyei-Mensah & Owusu, 2012).

The Adabraka-Asylum Down twin neighbourhood is a much older settlement, having existed since 1910 (Pellow, 2008). It is a planned, middle-income neighbourhood, located 2km from downtown Accra (Verutes, Fiocco, Weeks, & Coulter, 2012). Compared to Nima, the Adabraka-Asylum Down neighbourhood has an interconnected network of streets and a functional drainage system (Yankson, 2012), although the area along its southern border is flood-prone due to inappropriate and often unapproved upstream land-use activities (Tengan & Aigbavboa, 2016). The neighbourhood's location near the city's central business district (CBD) also makes it a bustling hub for commercial activities (Bentil, 2009). In response, residential properties here are increasingly being redeveloped into corporate offices, shopping malls, and shops for businesses. Consequently, concerns have emerged around housing affordability and the neighbourhood's carrying capacity for increasing volumes of human and vehicular traffic. However, the concentration of commercial activities in the neighbourhood also means that local residents can enjoy close proximity to needed services.

Despite obvious differences, the two neighbourhoods are not distinctively apart in socio-environmental characteristics. The Adabraka-Asylum Down neighbourhood, although spatially planned, is far from being an ultra-aesthetic and socioeconomically endowed neighbourhood. Rather, it stands at crossroads between environmental decay and the splendour of a thriving modern neighbourhood. Nima, on the other hand, despite being predominantly slum and unplanned, has pockets of well-built and well-maintained houses, owned by successful businessmen, professionals, and civil servants (Jankowska, Weeks, & Engstrom, 2011). This mix of socio-environmental characteristics was thought to provide an interesting contrast of the ways in which urban neighbourhoods affect older adults' health.

4.3.2 Design and recruitment

This paper forms part of a larger mixed methods research project exploring health and QoL of older adults in two environmentally contrasting neighbourhoods in Accra. Mixed methods approaches are ideal for health and QoL research, since they offer opportunities for data triangulation and comprehension (Creswell & Clark, 2017; Curry & Nunez-Smith, 2015; Dunning, Williams, Abonyi, & Crooks, 2008). Three triangulated phases of data collection were completed in the Summer of 2018, following ethics approval from the research ethics review committees of the University of Alberta and University of Ghana. The first phase involved a cross-sectional survey of older adults in a slum and non-slum neighbourhood to understand their self-reported health and QoL status. A snowballed sample of 603 older adults, consisting of 302 older slum dwellers and 301 older non-slum residents, participated in the survey. The use of snowball rather than statistical sampling reflected the difficulty of locating older adults, as they formed a small but increasing segment of the city's slum population (Housing the Masses, 2010).

Given the size of the targeted population and the potential difficulty of locating respondents, the recruitment of a snowball sample was time and resource-efficient (Trentini et al., 2011; Kirchengast & Haslinger, 2008). The sample size for each neighbourhood was statistically determined using Dhand and Khatkar's (2014) statistical tool and the pooled standard deviations and mean differences of a previous study comparing QoL of slum and non-slum adolescents in Bangladesh (Izutsu et al., 2006). The sample size computation suggested that approximately 255 respondents were needed for each neighbourhood in order to detect statistically significant differences between the two samples with a 90% statistical power. Two trained research assistants with previous knowledge of the neighbourhoods assisted with completing the survey. In each neighbourhood, the research team undertook house-to-house visits to administer the questionnaire to consenting older adults.

The second phase utilized ethnographic methods of data collection to explore barriers and facilitators to health among older adults in the two neighbourhoods. As Herbert (2000) opined, ethnography is concerned with "…what people *do* as well as what they *say* (p. 552)." By immersing in the cultural worlds of others, the ethnographer gains a deeper understanding of societies from the standpoint of an insider. Ethnographic approaches involving qualitative interviews, focus groups, and (non)participant observations provide a novel means for data collection in studies of neighbourhood health (Walton, 2014; Keene & Ruel, 2013; Frohlich, Potvin, Chabot, & Corin, 2002). Following this lead, semi-structured interviews were completed with a purposive sample of community-dwelling older adults, recruited from among those who responded to the survey in Phase I. Older adults who demonstrated eagerness for in-depth discussion of their neighbourhood experiences during the survey were invited to participate in these interviews. The individuals selected for participation were also those considered to be

capable of providing rich and insightful information, the evaluation of which depended on their responses to the survey questions in Phase I.

The qualitative interviews lasted approximately 60 to 90 minutes long, were conducted in the participants' own homes, and included open-ended questions that sought their perceptions of neighbourhood and its health barriers and facilitators (Appendix 1). All older adults participating in the interviews received a GHc 20 gift certificate. The final phase involved in-depth qualitative interviews with health workers and community leaders. The health workers were physicians and public health nurses serving the residents of the two neighbourhoods, while the community leaders were elected local government representatives. These participants responded to questions about the living conditions of older adults in the two neighbourhoods and the health challenges confronting them (Appendix 2). The interviews with health workers occurred at the health facilities in which they worked, while those with community leaders occurred in the communities.

Prior to each interview, participants provided a written consent after comprehending fully their right to withdraw or modify participation. All interviews were conducted face-to-face, were tape-recorded, and transcribed verbatim prior to detailed analyses. Data saturation was reached when subsequent interviews became informationally redundant (Sandelowski, 1995), after lumping responses from all three categories of interview participants. Fieldnotes, based on reflections and non-participant observations, were recorded throughout the entire period of data collection.

4.3.3 Survey tool and data analyses

The survey utilized the World Health Organization Quality of Life assessment tool (WHOQoL-BREF), an internationally validated questionnaire that self-assesses QoL in 6 areas: physical QoL, psychological QoL, social QoL, environmental QoL, overall QoL, and overall health. The survey component of this paper is based exclusively on the last two domains, namely overall QoL and overall health. The survey respondents were asked to self-rate their overall QoL by responding to the question: "How would you rate your [overall] quality of life?" The participants' responses were categorized as: "Very poor", "Poor", "Neither poor nor good", "Good", and "Very good." Similarly, they self-rated their overall health status by responding to the question: "How satisfied are you with your [overall] health?" Responses were categorized as: "Very dissatisfied", "Dissatisfied", "Neither satisfied nor dissatisfied", "Satisfied", and "Very satisfied." Following Manor, Matthews, and Power (2000), Okosun, Seale, Daniel, and Eriksen (2005), and Debpuur, Welaga, Wak, and Hodgson (2010), the responses to the two questions were dichotomized and coded 0 (Poor health/QoL), if they were rated "Very poor/Very dissatisfied", "Poor/Dissatisfied", "Neither poor nor good/Neither satisfied nor dissatisfied", and 1 (Good health/QoL), if they were rated "Good/Satisfied" or "Very good/Very satisfied."

STATA version 15 aided the statistical data analyses. Descriptive statistics involving Chi-square tests were used to analyze and describe the prevalence of poor QoL and poor health, stratified by neighbourhood residence and sociodemographic characteristics. *P*-values of 0.05 or lower were considered statistically significant.

4.3.4 Qualitative data analyses

The qualitative data analyses proceeded concurrently with data collection. Aided by NVivo version 12 (QSR International, 2012), the data analysis process was thematic, simultaneously inductive and deductive, and involved using the data management functions of the software to condense a large body of textual material into nodes, categories, and subsequently themes, reflecting older adults' perceptions of health barriers and facilitators. The hybridization of data-driven (inductive) and theory-driven (deductive) approaches to thematic analysis is an emerging paradigm in qualitative research that supports a more nuanced understanding and interpretation of research data (Fereday & Muir-Cochrane, 2006).

The inductive analysis followed Green et al.'s (2007) 4-steps analytical framework of data immersion, coding, creating categories, and identifying themes (p. 547). Data immersion (step 1) was undertaken throughout the period of data collection, and continued thereafter through repeated reading of the interview transcripts. This iterative analytic strategy allowed for modification of the interview guide in response to emerging data gaps in the field. Through the process of immersion, the author was able to develop familiarity with the data and create a codebook of preliminary nodes, consisting of groups of related statements. In step 2, the interview transcripts were imported into NVivo and coded using the codebook developed in step 1. The coding process involved sorting and organizing individual words, phrases, and statements around nodes or groups of meaningful patterns. Step 3 involved exploring relationships between nodes, by sorting and merging them into categories or groups of related nodes that illuminated particular aspects of the research objectives. In the final step, the categories were further merged into themes denoting patterns of barriers and facilitators to health in the slum and non-slum. The

formation and interpretation of the emerging themes followed a deductive process that relied on the explanatory power of the Ecological Model of Aging.

Data triangulation, reflexive memos, and an engaged advisory committee afforded opportunities for methodological rigour. Data triangulation was undertaken by collecting and analyzing data from multiple sources, including a cross-sectional survey of older adults and in-depth qualitative interviews with a range of stakeholders – community-residing older adults, community leaders, and health workers. Data from these various sources were contrasted for purposes of confirming patterns identified from the first set of interviews with older adults. The use of multiple data sources thus afforded additional opportunities for a more nuanced understanding of neighbourhood effects on older adults' health and wellbeing (see also Carter, Bryant-Lukosius, DiCenso, Blythe, & Neville, 2014). The reflexive memos were based on systematic documentation of how the author's own positionality as a non-resident but a Ghanaian citizen influenced his observations and emerging understanding of the data. Multiple debriefing sessions with a multidisciplinary thesis advisory committee provided additional opportunities for methodological rigour.

4.4 Findings

4.4.1 Survey findings

4.4.1.1 Sample characteristics

The sociodemographic characteristics of the survey respondents have been described in Chapter 3 and therefore require no further elaboration. In brief, however, the majority of the 603 respondents were women, Christian, widowed, regular income earners, and homeowners (Table 3.2). There were a few important statistically significant differences in sample distribution

between the slum and non-slum. For example, while the slum sample consisted of nearly equal proportions of Christians and Muslims, the non-slum sample was predominantly Christian. The two samples also differed significantly in levels of education, marital status, and homeownership.

4.4.1.2 Prevalence of poor health and QoL

Descriptive analyses of the survey data revealed statistically non-significant differences between the slum and non-slum in the proportion of respondents reporting poor health and poor QoL (Table 4.1). Approximately 33% of the slum respondents and 32% of non-slum respondents reported poor QoL ($p = 0.816$). Rather than neighbourhood residence, differences in religion, living arrangements, income status, and illness status accounted for the variance in poor QoL. A statistically significant higher proportion of Christians, ailing respondents, non-regular income earners, and live-alone respondents reported poor QoL.

Table 4.1: Prevalence of poor health and poor QoL

Variable	Overall QoL		Overall health	
	Poor n (%)	*p*-value	Poor n (%)	*p*-value
Sex		0.814		0.006
Men	75 (31.8)		72 (30.5)	
Women	120 (32.7)		153 (41.7)	
Age group, yrs.		0.910		0.425
60-69	114 (32.0)		140 (39.3)	
70-79	59 (33.5)		59 (33.5)	
80+	22 (31.0)		26 (36.6)	
Marital status		0.958		0.413
Single/separated	17 (32.7)		23 (44.2)	
Married	73 (31.2)		79 (33.8)	
Widowed	92 (32.9)		110 (39.3)	
Divorced	13 (35.1)		13 (35.1)	
Religion		0.010		0.433
Christian	151 (35.5)		163 (38.3)	
Muslim	43 (24.6)		61 (34.9)	
Education		0.070		0.298

None at all	66 (29.2)		94 (41.6)	
Primary	84 (36.8)		80 (35.1)	
Secondary	38 (34.6)		40 (36.4)	
Tertiary	7 (18.0)		11 (28.2)	
Resid tenure		0.652		0.620
<5 years	5 (38.5)		4 (30.8)	
≥5 years	190 (32.5)		219 (37.5)	
Living arrangements		0.006		0.879
Alone	33 (46.5)		27 (38.0)	
With family	161 (30.3)		197 (37.1)	
Homeownership		0.879		0.705
Renting	83 (32.7)		97 (38.2)	
Own property	112 (32.1)		128 (36.7)	
Regular income		0.007		0.588
Yes	121 (29.0)		153 (36.6)	
No	74 (40.0)		72 (38.9)	
Currently ill		0.001		<0.001
Yes	167 (35.8)		198 (42.5)	
No	28 (20.6)		27 (19.9)	
Neighbourhood		**0.816**		**0.057**
Slum	99 (32.8)		124 (41.1)	
Non-slum	96 (31.9)		101 (33.6)	

A higher but statistically non-significant proportion of slum respondents than non-slum respondents reported poor health status (41.1 vs. 33.6%; $p = 0.057$). Rather than neighbourhood residence, differences in sex and illness status explained the variance in health status. Women and ailing respondents were significantly more likely to report poor health than men and healthy individuals. The statistically non-significant differences in health and QoL status between the slum and non-slum respondents appear to suggest similar patterns of barriers and facilitators to health in the two contrasting neighbourhoods.

4.4.2 Qualitative findings

4.4.2.1 Sample characteristics

A purposive sample of 37 participants, consisting of community-residing older adults (n = 30), health workers (n = 5), and community leaders (n = 2), completed the qualitative interviews.

Among the older adults, the average age and length of neighbourhood residence were 70.5 and 48.2 years, respectively (Table 4.2). The older adults were predominantly male (n = 19), Christian (n = 21), and regular income earners (n = 20). There were a few notable differences in sample distribution between the slum and non-slum. For example, there were more males and Muslims in the slum sample than in the non-slum sample.

Table 4.2: Demographic characteristics of older adults

Variables	Total (N = 30)	Slum (n = 15)	Non-slum (n = 15)
Age, mean (SD)	70.5 (7.4)	70.7 (8.0)	70.3 (7.0)
Gender, n (%)			
Male	19 (63.3)	11 (73.3)	8 (53.3)
Female	11 (36.7)	4 (26.7)	7 (46.7)
Religion, n (%)			
Christian	21 (70.0)	6 (40.0)	15 (100.0)
Muslim	9 (30.0)	9 (60.0)	-
Living arrangements, n (%)			
Alone	3 (10.0)	1 (6.7)	2 (13.3)
With family	27 (90.0)	14 (93.3)	13 (86.7)
Years stayed, mean (SD)	48.2 (18.5)	47.1 (19.3)	49.3 (18.4)
Homeownership, n (%)			
Own/family property	21 (70.0)	9 (60.0)	12 (80.0)
Tenant	9 (30.0)	6 (40.0)	3 (20.0)
Have regular income, n (%)			
Yes	20 (66.7)	7 (46.7)	13 (86.7)
No	10 (33.3)	8 (53.3)	2 (13.3)

The thematic data analyses identified several contextual factors influencing the health and wellbeing of older adults in the two neighbourhoods. These factors were thematically condensed into 9 themes (Table 4.3), reflecting neighbourhood barriers and facilitators to health for older adults. These themes are summarized and presented as follows.

Table 4.3: Factors influencing health and QoL

Themes	Slum	Non-slum
Poor built environments		
Open drains and infections	✓	
Safety risks	✓	✓
Floods and flood-induced infections		✓
Fewer streets and sidewalks	✓	
Housing precariousness		
Substandard housing and ventilation problems	✓	
Overage housing stock		✓
Neighbourhood revitalization and homelessness		✓
Insanitary conditions		
Insufficient toilets	✓	✓
Indiscriminate solid waste disposal	✓	
Defective public services and amenities	✓	
Water shortages	✓	✓
Waste collection problems	✓	✓
Social incivilities		
Crime and neighbourhood reputation	✓	
Noise pollution	✓	✓
Deficient healthcare		
Financial constraints	✓	✓
Lack of specialist care	✓	✓
Affordable housing		
Cheap rents	✓	
Rent-free accommodation	✓	
Neighbourhood appeal		
Appealing outdoors		✓
Political enclave		✓
Locational advantage		✓
Social supports and neighbourliness		
Social networks and supports	✓	✓
Financial and material assistance	✓	

4.4.2.2 Health barriers

Poor built environments

Open drains containing stagnant liquid waste were widespread in the slum, creating suitable breeding grounds for mosquitos and subsequently malaria infections. Health workers indeed identified malaria and fever as common causes of morbidity among the older slum dwellers. While open drainage systems were less common in the non-slum, its built environment presented

yet similar kinds of health risks. A significant portion of this neighbourhood laid within the floodplain of the Odawna River, which has become flood-prone due to unregulated upstream residential developments. Perennial flooding along the river's banks was a major source of health and safety concerns among older adults, some of whom were immobile and hence reported a greater risk of flood-induced illnesses. A particular health threat posed by the floods was the transmission of flood-related infectious diseases, such as cholera, malaria, and pneumonia.

> It is a slum, to a large extent…Commonly, the chronic diseases, like hypertension, diabetes, osteoarthritis…And of course, with the usual infections, whether urinary tract infections, malaria, or pneumonias. – HWNI002 [Slum health worker].

> The challenges I face here is this flood issue…The water level was 7 feet in our rooms. It affected me. I was sick. I had pneumonia…because they excrete themselves in the gutter. All the water that comes here is full of human excreta. – AAP15 [Male non-slum participant].

The open drains and uneven surfaces in the slum also posed significant safety hazards to its older residents. A safety hazard in the non-slum was the dilapidation of homes along the banks of the Odawna River, where the physical impacts of the flood waters were most severe. The houses there showed visible signs of dilapidation, posing significant safety risks to older occupants, particularly those who spent much of their time indoors.

Recreational walking in the slum was severely impeded by lack of streets and sidewalks. This difficulty was exacerbated in the slum by competing demands for road infrastructure from pedestrians, traders, motorists, and domestic animals. This was so because of the neighbourhood's vast expanse of closely built houses and tenements. The lack of access roads and paved sidewalks impeded free flow of traffic and prevented older adults from undertaking outdoor physical activities, such as walking and running. Given the competing demands for

available streets and sidewalks, the slum outdoors were highly unsafe for older adults. For example, road accidents involving motorists and pedestrians were reportedly far too common in the slum. Although the non-slum neighbourhood, in contrast, was spatially planned and had an interconnected network of roads, its streets and sidewalks were colonized by traders. This phenomenon affected recreational walking in the non-slum, in much the same way as the slum. In effect, what seemed like a neighbourhood environmental advantage was in fact a source of contention between local residents and invading traders.

> So, instead of us to have pavements to walk on, you would see that traders have taken over the pavements and we all have to jam up on the road. So, pedestrians don't have their way. We mix with [moving] vehicles and motorbikes…If I want to board a vehicle now, in fact you would see how cautious I would be. I have to make sure that I walk slowly and be dodging some vehicles and so forth. – NIP001 [Male slum participant].

> We need [the] pavements. They should clear the road. Even you can see opposite the house there. They (traders) are back on the pavement. If you go to Adabraka, by the Adabraka Market, they've all built something on the sidewalk. – AAP015 [Male non-slum participant].

The fear of falling into open gutters or colliding with moving vehicles was reported to have played a role in confining large numbers of slum and non-slum older adults to their immediate home environments. This problem was even more salient for older adults who relied on wheelchairs and walking aids for their mobility.

Housing precariousness

The majority of homes in the slum were haphazardly built and in such close proximity as to impede ventilation. The constructions also relied on mud bricks, overaged corrugated iron sheets, and even plywood. As such, most of the slum buildings were substandard, structurally weak, and

summarily unlivable for older adults. A female slum participant described her home as a "muddy house [with] not a single concrete block." – [NIP010]. A health worker added that the housing situation in the slum was negatively "…impact[ing] the elderly, some [of whom] get pneumonia because they are not getting proper ventilation." – [HWNI003].

The substandardization of housing in the slum also included insufficient living spaces; a single bedroom unit could accommodate as many as 10 adults. The congestion offered very little comfort for older adults who, by virtue of their age, may require a greater amount of uninterrupted rest. Although a planned neighbourhood, the non-slum had an overaged housing stock that dated as far back as colonial times. As such, a significant proportion of buildings in the non-slum were described to be structurally defective, presenting similar kinds of health risks as homes in the slum. Indeed, some of the non-slum older adults lived in damp and mouldy housing conditions, often with visible signs of microbial infestations.

> We live in a congested house that does not provide me with much freedom. As I am telling you, I have 3 children with a wife – five of us – we are living in a single room and a small porch. I don't think anybody would be happy in that accommodation…It affects my health. How many beds can we have in a [single] room? To be healthy, you have to sleep well. And that is what I don't have here. We wake up very tired. – NIP002 [Male slum participant].

> As for the house and my room, you know, the building is old. What I am experiencing is weak windows, weak doors…You know, in the olden days, they used wood to do the flooring...Adabraka is sitting on water. So when there is much rain, sometimes the water from underground enters through the patches and come into the room. This morning, behind there, you could see that the place is a little bit wet. – AA001 [Female non-slum participant].

The precarious housing conditions in the two neighbourhoods presented unique health challenges. For older slum dwellers, the challenges of living in overcrowded and poorly

ventilated housing included sleep deprivation, which they claimed affected their mental health. In the non-slum, some participants attributed their respiratory health problems to the cold, damp, and mouldy housing conditions in which they lived.

Private sector-led gentrification in the non-slum exacerbated housing precariousness among its older residents. The revitalization of the neighbourhood was due to a high demand for its land, being strategically located near Accra's CBD. The redevelopment and conversion of the neighbourhood's affordable housing stock into shops, condominiums, and hostels undergirded rent hikes and growing homelessness among older adults residing there.

> Some [older adults] are even squatters. And as I'm talking to you, I have somebody who is sleeping outside who is 60 years…So it is to do with the money for the accommodation…After pension, because their [pension] money is so small and the [rent] increments have come, by the time you realize, the person is sleeping outside. – CLAA001 [Non-slum community leader].

According to health workers in the non-slum neighbourhood, homelessness was a pathway to serious health-damaging exposures, including hunger, sleep deprivation, insecurity, and mental health problems.

Insanitary living conditions

In both neighbourhoods, participants reported poor sanitary conditions, including a complete absence of toilets in some homes. However, the problem of insanitary living conditions was more pronounced in the slum, where the majority of residents resorted to public toilets and/or open defecation. Travelling to and queueing at public toilets was time-consuming and physically grueling to older adults, more so for those who experienced impaired mobility and a compromised ability for bowel and urine control.

> As there is no toilet in the house, I have to use the public toilet. But sometimes, there are long queues at the public toilet, and it is a problem if you need to use the toilet now, now, [and] now. And using the public toilet is expensive. – NIP015 [Male slum participant].

> So, you see, when you walk around, all this gives us sickness, because the rubbish is everywhere, especially these plastic rubbers. Some people defecate in it, then leave it anywhere. There are some places where they don't have toilets. – AAP005 [Male non-slum participant].

As a result of open defecation practices, both neighbourhoods were reportedly contaminated with fecal matter. Contact with raw sewage arising from open defecation practices was associated with a variety of health hazards for older adults, including incidences of cholera and other enteric illnesses.

> A lot of houses in this community have no toilets. So, open defecation is a huge problem. So, the moment the rains come, then you start to get cholera…gastroenteritis, diarrhea, and vomiting. – HWNI001 [Slum health worker].

> It always brings sickness. Even one day, I had to be rushed to the hospital because of this cholera outbreak. It affected me, so they had to rush me to the Adabraka Polyclinic. And I went on admission there for about four days before I came back. – AAP011 [Female non-slum participant].

Despite the remarkable similarities in sanitation profiles, sanitation conditions in the non-slum were comparatively better. The slum's sanitation problem was exacerbated by the residents' own mishandling of their solid waste. They reportedly had a habit of indiscriminate disposal of solid waste, usually into open gutters and streets.

> People [in Nima] put trash in the gutter. We don't care about the environment at all. Somebody can carry his whole dustbin and go and put in the gutter…When you put trash inside the gutter, water accumulates there, what is the result? It would breed

> mosquitoes. The mosquitoes bring malaria. Sometimes, I get malaria. – NIP005 [Female slum participant].

This unchecked behaviour added to the slum's environmental health risks. Consequently, the slum participants reported more vulnerability to environmental afflictions than the non-slum participants. The turbid drains and pungent ambiance were a source of health concern to the slum participants, one of whom vented: "I don't like dirty things. So, always, I am annoyed, especially when I'm going to the [food] market." – NIP010 [Female slum participant]. Another added, "My BP (blood pressure) is not agreeing with that breeze, [and] it can give me sickness." – NIP014 [Male slum participant]. From the perspective of the Ecological Model of Aging, these narratives demonstrate ill-adaptation among the older slum dwellers, having experienced poor health arising from a possible mismatch between their aging bodies and the insanitary conditions that characterized their living environment.

Defective public services and amenities

Deficient access to services and amenities was a noted threat to the health and wellbeing of older adults in the slum and non-slum. Waste collection services and potable water supply were unreliable. The slum participants expressed grave concern about the piles of refuse littered across their neighbourhood, an environmental health problem they blamed on service capacity gaps within the operations of the Accra Metropolitan Assembly (AMA) – the agency responsible for waste collection services in the city. While the non-slum participants were equally disenchanted with the services of the AMA, they were mostly able to address their service needs using private pay-for-service operators. Nevertheless, they called for reforms in the operations of the AMA.

> We sweep our houses and the refuse is supposed to be sent to a dumping site. But our dumping inside here, there is no time you will get there and see an empty container.

> Anytime you go there, it is full. Because when they bring the container, those around there see it first, and they rush there. – NIP009 [Male slum participant].

> Years back, it's the AMA that cleans the drainage [of] the rubbish. Now, they are forcing us to clear the rubbish from the drainage…Why do we pay property rate? We pay property rate for these services. We pay property rate. So something has got to be done. – AAP015 [Male non-slum participant].

While private waste collection arrangements contributed to a more appealing outdoors in the non-slum, such was not the case in much of the slum. Consequently, the slum participants blamed the rodent infestation of their homes and surroundings on the heaps of uncollected refuse in the neighbourhood.

Access to regular potable water supply was problematic in both neighbourhoods. The residents experienced acute water shortages, despite a conspicuous presence of water supply infrastructure throughout the slum and non-slum. They rarely had water come through their home and community pipes. As such, the residents had to trek long distances to acquire water, a task most older adults were unable to perform.

> I'm very, very worried about the water…the water is a problem, because nowadays I can't carry [water]. My neck, I have a problem. My chest too has a problem. I can say my spinal cord, something like that. So, to carry water is hard. So as for water, it's difficult for me. Water problem is difficult for me. – NIP014 [Male slum participant].

> Most of the time, they put the water off, and you have to carry a bucket, go to other places before you get small water and come, and then use it to do what you have to do, which at times pains all of us. – AAP013 [Female non-slum participant].

For older adults without family supports, obtaining adequate water from distant sources was challenging. Live-alone older adults had to either pay exorbitantly for water from private suppliers or forego such basic necessities as washing, cleaning, and bathing. However, the ability

to adapt to water shortages via commercial suppliers was far greater in the non-slum than in the slum.

Social incivilities

Crime and noise pollution were prevalent in both the slum and non-slum. Located just 5km apart, the two neighbourhoods were indistinguishable by crime rates. The slum was perceived to be Accra's most notorious crime zone. Poor lighting and insufficient police presence contributed to a high prevalence of crime in the slum. Despite recent security improvements in the non-slum, arm robbery and drug-related crimes were still rampant. However, the majority of crimes in the non-slum were said to be spillovers from the slum and other surrounding neighbourhoods.

> Thieves, armed robbers, most of them are from Nima. When we came here in those days, oh, anytime you hear of thieves [it was in Nima]. Even thieves [would] move from Nima to other places to steal and come. – NIP009 [Male slum participant].

> The only problem, I will say, is due to those people from Nima and other places who have been patrolling in the nights collecting people's phones and their money. There was a time even they snatched my phone. – AAP014 [Male non-slum participant].

Older adults adapted to neighbourhood crime by restricting their movement to daytime and within short distances from their homes. However, this adaptation strategy did not insulate the slum residents from the setbacks of a poorly reputed neighbourhood. The slum's unenviable reputation as the epicenter of crime affected access to employment and critical public services for its residents. The slum residents were allegedly blacklisted by employers and service providers, such that one could not "go to hospital" and expect proper care without having to "forge someone's house number" in another neighbourhood. – NIP004 [Female slum participant]. The negative reputation of the slum as a crime-ridden neighbourhood also produced

some psychological impacts, as some older residents reportedly "felt bad" about the negative portrayal of their community as a "troublesome place." – NIP009 [Male slum participant].

The participants also expressed dissatisfaction with the level of noise pollution they experienced from human and vehicular traffic. Although the city had legislations regulating noisemaking, these were hardly enforced, thereby creating a leeway for youths, churches, and motorists to unleash intolerable levels of noise on the two neighbourhoods, typically to the discomfort of their older residents.

> There's some house here…Every day, the younger people around that area have a program. Sometimes, those smokers, they have some program, and they would come and be playing music at high volume in the night. They don't sleep – midnight, the area people can't sleep. They complain bitterly. – CLNI001 [Slum community leader].

> They make noise, especially the churches. The small, small churches, they make noise. And if they are making their outdooring and their weddings, they disturb. As for me, I want a quiet place. – AAP004 [Female non-slum participant].

For older adults, the noise pollution was emotionally and psychologically unsettling, as it disrupted their sleep and concentration. A slum participant identified "fright", "unusual heartbeat", and "sleep problems" as some of the health effects of excessive noise in her neighbourhood. – NIP007 [Female slum participant]. Another explicitly linked his hypertension to the noise pollution and sleep disruption he experienced in the slum: "That's why I have hypertension, because in the night, sometimes you hear some shout. You'll be frightened and then wake up." – NIP011 [Male slum participant]. Several others mentioned the impact of noise pollution on their mental health: "You cannot have peace of mind and you cannot have good sleep…If I don't have enough rest, you see that in the day I am disturbed." – NIP001 [Male slum participant]. These narratives were largely consistent with the Ecological Model's thesis of

person-environment (P-E) misfit. The participants' inability to sleep and concentrate suggested a misfit between their personal competencies (e.g. biological tolerance) and the demands of their social environment (i.e. noise pollution).

Healthcare deficiencies

Participants described their geographic access to healthcare as being adequate. Rightly so, the slum was served by two publicly-funded healthcare facilities and several privately-owned clinics and pharmacies, among which was a general hospital within walking distance from most residents. Similarly, the non-slum had, at least, three public healthcare facilities, including a polyclinic and an ultra-modern regional hospital, within its vicinity. However, the availability of healthcare facilities in the slum and non-slum did not translate into quality healthcare for older adults residing in the two neighbourhoods. Financial constraints, understaffing, ageist practices, deficient patient supports, and inadequate medical supplies conspired to frustrate the healthcare experiences of the older slum and non-slum dwellers.

> [Our hospital] is not the best of disability-friendly [environments]. I'm sure you have seen our wheelchairs and how bad they are…the way our system functions, there are a lot of things the patients have to do by themselves…the patient has to go to the pharmacy to get the medication. The patient has to go to the lab to do their lab tests…If the person doesn't have a caregiver, [it] makes it quite challenging. – HWNI001 [Slum healthcare worker].

> These days, if you go to hospital, they say go for tests, so many tests, with big, big, big money. Where will I get that from as a pensioner in the house? That's one of my problems…when I feel weak, I take some noni. Noni, have you heard it? Noni is a [medicinal] fruit juice…These days, I like herbs. – AAP004 [Female non-slum participant].

Amidst these structural deficiencies, older adults' confidence in the public healthcare system had waned, despite its promise of free care for individuals aged 70 years and over. As such, several

participants, from both the slum and non-slum, reported unmet healthcare needs but indicated a preference for self-medication and herbal treatments.

4.4.2.3 Health facilitators

Affordable housing

The poor housing structures in the slum represented the dwellers' creative response to the city's competitive housing market and highly commodified environment. The slum provided shelter to a large number of older adults who otherwise would be homeless. Accordingly, the slum participants described their substandard shelters as a relief from exorbitant rents and an escape from possible homelessness. Several of them described the cost of renting in the slum to be far lower than elsewhere in the city.

> I like Nima, because this is where I can get cheaper accommodation to live. So, I prefer here because there is nowhere I can get a room to rent at the cost that I am paying here. Accommodation is somehow cheaper in Nima…the landlord doesn't even care if you don't pay. – NIP002 [Male slum participant].

The slum was also a place of tremendous compassion for the poor and elderly. In some instances, the magnanimity of landlords provided a reprieve for older adults who could no longer afford their rents. According to multiple participants, it was common practice for poor older adults to be given rent-free accommodation in the slum.

> If the person is in the house for a long time before he gets old, [and] can't do anything and he has no any children around him, some of the landlords used to lift that [rent] burden on them. – CLNI001 [Slum community leader].

Others were allowed free overnight stays in various Mosques across the slum. The availability of affordable and rent-free accommodation in the slum provided a safety net against elderly

homelessness and its related health hazards, including the physical and mental stress of being shelterless.

Neighbourhood appeal

As a spatially planned and well-demarcated neighbourhood, the outdoors of the non-slum were aesthetically more appealing than several of Accra's low and middle-income neighbourhoods. It, therefore, enjoyed a reputation as one of the most desirable residential neighbourhoods in the city. For example, a participant described the non-slum as "a very nice place" and one to "feel proud of staying in." – AAP014 [Male non-slum participant]. The neighbourhood also enjoyed a reputation as a political enclave, having previously hosted some of the most influential figures in Ghanaian politics, including a former president, a sitting traditional ruler, and a multitude of current and former government ministers: "Our former president, J.J Rawlings, stayed here before…Quarshigah stayed here." – AAP010 [Male non-slum participant]. The neighbourhood's aesthetic appeal and rich political history together invoked a sense of pride and prestige that ultimately benefitted the mental and psychosocial wellbeing of its older adults: "It makes me feel fine, because Adabraka has got a good name, a fine name, and I'm within that community. So, I feel fine." – AAP007 [Male non-slum participant].

The non-slum was also a major transportation hub, with transport networks reaching almost all parts of the city. A participant noted: "[If] I want to go somewhere, it's easy for me to get car." – AAP004 [Female non-slum participant]. Beyond its more than sufficient transportation services, the non-slum offered its residents a locational advantage, being located near the CBD and in walking distance from major services, shopping centres, and government ministries.

> You can even walk to [the] post office. Here, you can walk to Bank of Ghana. From here, you can walk to the passport office. Here is the centre to get everything you want. You see, here you can go to Makola [market]. From here, you can get access to everything nicely. – AAP010 [Female non-slum participant].

The majority of the non-slum participants viewed this locational advantage as a crucial aspect of their wellbeing, given their increasing frailty and declining capacity for long distance travel to services and shopping centres.

Social supports and neighbourliness

In both neighbourhoods, the participants expressed satisfaction with the cordiality and social supports accorded by family, friends, religious bodies, and neighbours. They enjoyed financial and material assistance, as well as assistance with undertaking physical tasks.

> For about 5 years now, I have not been to the Mosque. But they come to visit me, praying for me. We chat sometimes. When it comes to fasting time (Sallah festivities), they bring me food…Somebody would just come, "Oh take this 5 cedis. Take 10 cedis. Oh, I have bought you cloth." They support me. – NIP003 [Female slum participant].

> There is a neighbour in the house, a tenant. She has taken me like her mother. They help me with everything…even cooking. If I say I can't cook, they will come and cook for me. – AA006 [Female non-slum participant].

Although social supports existed in both neighbourhoods for older adults, the supports received in the slum were far superior and much more institutionalized, in accordance with Islamic teachings. For example, in addition to receiving financial and material supports from neighbours, some older slum dwellers reportedly enjoyed rent-free housing, while others were permitted overnight stays in places of worship. All of these supports went into enhancing the physical, emotional, and psychological wellness of the older slum dwellers.

4.5 Discussion and conclusion

This study utilized a mixed methods design to explore the health and QoL status of slum and non-slum older adults, as well as barriers and facilitators to health among this demographic. Descriptive analyses of the survey data revealed statistically non-significant differences in poor health and poor QoL between the slum and non-slum respondents. The similarities in sex and age distribution of the slum and non-slum samples may have accounted for the observed patterns, as individuals of the same age and sex tend to have greater probability of reporting similar health/QoL status, as well as similar levels of *competence* for dealing with environmental adversities.

Guided by the Ecological Theory of Aging, the study went a step further to identify factors that might have influenced the health and QoL of the older slum and non-slum dwellers. Mobility and recreational walking among older adults in the slum were curtailed by the neighbourhood's spatial disorganization, particularly the open drains, limited streets, and crumbled sidewalks that characterized much of its built environment. Walkability of the non-slum was also negatively impacted, not by a lack of walking infrastructure but by invading traders who seized the sidewalks and other open spaces for their commercial activities. Consequently, in both neighbourhoods, participants reported fear of walking and pointed to a lack of opportunities for physical activities. The resulting sedentary lives and diminishing life-space diameter of the older adults signify a poor P-E fit (Iwarsson, 2005). This troubling trend may lead to physical inactivity among older adults, which is a proven risk factor for chronic illnesses, including obesity, diabetes, and cardiovascular diseases (Knight, 2012).

The participants' intolerance for neighbourhood social upheavals exemplifies a common P-E misfit in old age. This observation corroborates a new scientific consensus suggesting a general decline in noise tolerance with increasing age, a physiological change that is widely associated with hypersensitivity of the aging brain (Schreckenberg, Griefahn, & Meis, 2010; Matsumura & Rylander, 1991). Excessive neighbourhood noise can cause sleep disruption and mental health problems for older adults (Muzet, 2007). The participants' experiences of anxiety and irritation resulting from neighbourhood noise reflected this general pattern but also a disharmony between their changing physiology and the environmental conditions in which they lived. A similar P-E misfit was reported in relation to older adults' endurance of neighbourhood crime, whether actual or perceived. Consistent with earlier observations in the United States (Wilson-Genderson & Pruchno, 2013; Gallagher et al., 2010), this study found fear of crime to be a restrictive factor in the free movement and psychosocial wellbeing of older Ghanaians. Although an adaptation strategy, the resulting sedentary life of the older adults suggested a compromised ability for dealing with neighbourhood crime.

The susceptibility of older adults to microbial infections arising from open drains in the slum and floods in the non-slum demonstrates a further disunity between the personal competences of this demographic and the neighbourhood settings in which they resided. The clogged open gutters and piles of uncollected refuse in the slum provided suitable breeding grounds for disease vectors, including mosquitoes and rodents, while the flood waters in the non-slum provided a transport medium for disease-causing viruses and bacteria, including *Vibrio cholerae*, *Streptococci,* and *Mycoplasma pneumoniae.* These deleterious environmental conditions were widely reported by participants as the leading causes of malaria among older adults in the slum and cholera and pneumonia in the non-slum. With a compromised biological

immunity, older adults demonstrate a greater susceptibility to infections from these and other related diseases (Gavazzi, Herrmann, & Krause, 2004). Such infections, combined with old age-related chronic diseases (e.g. hypertension, diabetes, musculoskeletal problems, etc.), presented a double disease burden to older slum and non-slum dwellers.

Both neighbourhoods experienced housing precariousness among older adults. Most residents in the slum resided in overcrowded, poorly ventilated, and insanitary housing conditions which, participants noted, was a risk factor for respiratory problems and sleep deprivation among older adults. Gentrification of an overaged housing stock was a major risk factor for homelessness among older adults in the non-slum. Both neighbourhoods thus presented housing-related health risks that appear to have overwhelmed the coping capabilities of older adults, as exemplified by the multiple complaints of sleeplessness, anxiety, and respiratory problems. However, some of the housing and sanitation-related *press* experienced in the slum and non-slum was externally driven. In particular, the city's inability to provide adequate domestic water supply and waste collection services added to the experiences of health barriers in the two neighbourhoods.

The challenge of healthcare access for the slum and non-slum older adults is symptomatic of a systemic problem in SSA, where limited capacities exist for dealing with the 'double burden of disease.' The rapid increase in older populations and growing prevalence of chronic diseases have added to the challenges confronting health systems in the region, most of which are severely under-resourced (Aikins, Kushitor, Koram, Gyamfi, & Ogedegbe, 2014). Amidst the gamut of structural challenges, experts suggest a growing unmet need for chronic disease care for older adults (Kushitor & Boatemaa, 2018; Aikins et al., 2014). In Ghana, the high cost of

chronic disease diagnostics, treatment, and management appears to deter any real attempt at a comprehensive healthcare coverage that would accommodate the critical care needs of older adults, including those presenting with complex medical conditions. Hence, the observed dissatisfaction with healthcare among the study's participants should be situated within the broader context of under-funded and poorly resourced healthcare systems in SSA. For example, the participants' frustration with prolonged waiting times, shortages of essential medical supplies, and poor services points to a healthcare system in distress and one ill-equipped for an aging population. From the perspective of Lawton's Ecological Theory, these structural challenges present a *press* that requires policy rather than individual solutions. In this regard, an enhanced implementation of Ghana's National Health Insurance Scheme is needed to address some of the shortcomings in healthcare access for older adults.

Several other attributes of the two neighbourhoods served to mitigate the health hazards associated with the foregoing environmental incivilities. The non-slum residents benefitted psychosocially from their neighbourhood's aesthetic appeal and social prestige as an enclave for famous Ghanaian politicians and statesmen. A culture of gift-giving, enshrined in Islamic ethos, provided a safety net against poverty and destitution among older adults in the slum. In this regard, slums may be reimagined as ambiguous places that offer both "hope" and "despair" (Stoke, 1962). While slums may be spatially disorganized, unaesthetic, and a deviation from conventional urban development (Roy, 2005), the health and QoL of older slum dwellers can still compare favourably with the wellbeing of non-slum older populations. Per the participants' narratives, the explanation for this paradox rests on the therapeutic qualities of slums – e.g. affordable housing, social supports, and a strong sense of community belonging (Shortt & Hammett, 2013; Shetty, 2011). However, care must be taken to avoid a romanticized view of

slums. As Lewis (1966) warns, a "culture of poverty" may act to normalize housing deprivation and foreclose any attempt at addressing unhealthy living conditions in slums. Lewis's warning must be heeded, if discursive practices perpetuating slums are to be averted. Rather, the future of slums should be debated with knowledge of their full range of social and environmental characteristics, including their health impacts.

In conclusion, despite obvious spatial and socioeconomic differences between the slum and non-slum, these two contrasting neighbourhoods were remarkably similar in health/QoL status and health barriers. However, the factors underlying the health barriers were, in many instances, unique to each neighbourhood. For example, while open, stagnant drains were responsible for mosquito breeding and malaria infections in the slum, the source of this disease in the non-slum was the receding flood waters along the banks of the Odawna River. A more critical examination of causal relations points to structural explanations for these health barriers, including urban poverty and a neoliberal political economy that has yet to prioritize the living conditions and wellbeing of older adults across the country. Given these broad observations, enhancing the health and QoL of the slum and non-slum older adults will, among others, require: (1) a social policy framework that provides a range of housing options for older adults; (2) improvements to the existing housing and neighbourhood conditions of older adults, including their access to potable water, waste collection services, crime-free outdoors, and appropriate sanitation infrastructure.

A major limitation of this study was its inability to infer causal relationships between the participants' neighbourhood experiences and their self-reported health and QoL status. As such,

only broad inferences about possible linkages were drawn. Nonetheless, the findings provide broad indications of neighbourhood effects on older adults' health in a Ghanaian urban context.

CHAPTER 5

Challenges of Healthcare Coverage for Older Adults in Ghana: An Analysis of Policy Implementation Gaps

5.0 Abstract

Access to healthcare is a critical determinant of health in old age. Although Ghana has adopted a health insurance policy to eliminate financial barriers to healthcare for older adults, no research to date has systematically explored their care experiences with a view to identify implementation gaps. This paper presents the findings of a study exploring how implementation of the National Health Insurance Scheme has shaped the healthcare experiences of older Ghanaians. Data were collected by means of qualitative interviews with a purposive sample of older adults (n = 30), health workers (n = 5), community leaders (n = 2), and policymakers (n = 5). Thematic analyses of the data identified resource, bureaucratic, substantive, administrative, and political constraints to the policy implementation. These constraints, in turn, affected optimal delivery of healthcare to older adults. Key adverse experiences reported by older adults included long waiting times, care fragmentation, and challenges with accessing medications and age-appropriate care. The findings are discussed in the broader context of universal healthcare coverage for older adults in the sub-Saharan African region.

5.1 Introduction

The health and wellbeing of older adults have taken centre-stage in global policy agendas in recent times. The World Health Organization (2016) has, for example, called for medical training in gerontology and geriatrics in dealing with the healthcare needs of older adults. The Organization recognizes age-appropriate healthcare as a critical element in the survival and quality of life (QoL) of older adults globally. Indeed, research in low-income countries demonstrates a correlation between healthcare access and QoL of older adults (Kelly, Mrengqwa, & Geffen, 2019; Pramesona & Taneepanichskul, 2018).

The call to restructure health systems and address the care needs of older adults is particularly pertinent in sub-Saharan Africa (SSA), where older populations (aged ≥ 60 years) are increasing more rapidly than anywhere else in the world (Aboderin & Beard, 2015). Older adults in this region experience health vulnerabilities arising from: (1) biological susceptibility to illness and disability due to age-related factors – for example, over 9% of older adults, compared to less than 3% of young adults, in Ghana have at least one form of disability (Van Der Wielen, Falkingham, & Channon, 2018); (2) acute resource constraints that force governments to prioritize other development agendas over those affecting older populations (Niño-Zarazúa, Barrientos, Hickey, & Hulme, 2012; Aboderin & Ferreira, 2008); (3) income insecurities due to low coverage of pension schemes (Niño-Zarazúa et al., 2011; Kpessa-Whyte, 2010); (4) neoliberal development agendas that have dramatically scaled back or caused to discontinue many of the welfare programs that characterized the immediate post-independence period (Loewenson, 1993); (5) lifelong exposure to unemployment, underemployment, and low earnings that inhibit meaningful savings for income security in old age (Ogwumile & Aboderin, 2005); and (6) modernization pressures that erode intergenerational resource transfers between

young and older kinsmen (Apt, 2012). These vulnerabilities place older adults in SSA at a greater risk of poverty, undernutrition, and poor health (United Nations, 2016; World Health Organization, 2015; Kimokoti & Hamer, 2008). The prevalence of poverty among older adults ranges from 44% in Ethiopia and Guinea to approximately 46% in Ghana and 79% in Zambia (Barrientos, 2006).

The task of caring for family members affected by the HIV/AIDS pandemic adds to the health vulnerabilities and physical, emotional, and psychological burden of older adults in the region (Aboderin & Ferreira, 2008; Ogwumike & Aboderin, 2005). An estimated 60% of children orphaned by HIV/AIDS in South Africa, Zimbabwe, and Namibia are reportedly in the care of elderly grandparents (Apt, 2012), who are often compelled to work well past the established age of retirement. Caregiving and labour force participation by older adults are most notable in some east and southern African countries (Rost, Hunt, Samman, & Samuels, 2018; Mudege & Ezeh, 2009), where the ravaging impacts of the HIV/AIDS pandemic persist to this day. In 2015, for instance, 52% of men and 33% of women aged 65 years or more were active in labour force activities in Africa, compared to 38% of men and 17% of women the same age in Latin America, and 10% of older men and 6% of older women in Europe (United Nations, 2016). In addition, older sub-Saharan African women are noted for carrying out stressful unpaid domestic work, including cooking, cleaning, and washing, that may take a heavy toll on their health and wellbeing as they age (Bohman, Vasuthevan, Van Wyk, & Ekman, 2007).

Coincidentally, after a long period dominated by austerity-oriented development agendas, the global policy community has recommitted itself to human development and welfare spending, as seen in recent global mobilizations for poverty and disease eradication (Sachs,

2012). This shift in global policy orientation has opened up a window of opportunity for public policies that address the health needs of vulnerable populations, including those of older adults. Ghana is among a long list of sub-Saharan African countries that have adopted social protection policies to advance the wellbeing of older adults. Ghana's National Health Insurance Scheme (NHIS), adopted in 2003, includes a policy directive that entitles older adults 70 years and over to free healthcare at publicly-funded hospitals and clinics across the country (Kanchebe Derbile & van der Geest, 2012).

Despite an enormous amount of public interest in the implementation of the NHIS and its exemptions for vulnerable groups, there is surprisingly very little systematic research on older adults' experiences of the policy implementation. Studies examining the NHIS implementation have so far concerned themselves with explaining rates and correlates of enrolment among older adults rather than their actual experiences of free healthcare delivery (e.g. van Der Wielen et al., 2018; Duku, van Dullemen, & Fenenga, 2015; Parmar et al., 2014), although "enrolment does not necessarily imply that patients actually receive the recommended care" (Schang, Thomson, & Czypionka, 2016, p. 282). The purpose of this study was therefore to identify gaps in the implementation of free healthcare for older Ghanaians and how these gaps, in turn, shaped their healthcare experiences. In the concluding sections of the paper, the findings are discussed and reflected upon within the broader context of universal healthcare coverage and free care for older adults in SSA, the goal being to draw policy lessons and suggest new policy directions for Ghanaian health policymakers. The paper adds an experiential dimension to the health policy implementation literature on SSA, which has been eviscerated by an overemphasis on the mechanics of health sector reforms and disease prevention (e.g. Hadley, 2011; Bonu, Rani, & Razum, 2004; Gilson & Mills, 1995).

5.2 Literature review

5.2.1 The global and local policy contexts

The year 2002 marked an important moment in global policymaking on aging populations. For the second time in human history, world leaders gathered in Spain to proclaim the Madrid International Plan of Action on Aging (MIPAA), which today provides a blueprint for policy action to enhance access to income, food, shelter, and healthcare for older adults globally (Apt, 2012; Aboderin & Ferreira, 2008). Several sub-Saharan African countries have, since the MIPAA's proclamation, introduced or expanded social protection policies and programs for their older populations. These interventions vary in scope and structure, reflecting particular economic and political circumstances of countries (Niño-Zarazúa et al., 2011; Kpessa-Whyte, 2010). In the middle-income countries of South Africa, Mauritius, Botswana, and Seychelles, where per capita incomes are relatively high, non-contributory cash transfers have been adopted as a social protection mechanism for older adults (Kpessa-Whyte, 2010; Aboderin & Ferreira, 2008). In the vast majority of countries, including Ghana, Nigeria, Uganda, Tanzania, and Kenya, market-based pension and health insurance schemes have been introduced to protect and enhance the wellbeing of older adults (Dei & San Sebastian, 2018; Parma et al., 2014; Tawiah, 2011).

Ghana's health policy trajectory reflects these global trends, having shifted from a preoccupation with cost recovery and user fees to an emphasis on universal healthcare coverage, including for older adults. In the mid-1980s, Ghana, acting on directives of the International Monetary Fund and World Bank, began implementing a structural adjustment program which, among others, sought drastic cuts in public spending and subsequently introduction of user fees in healthcare delivery (Briggs & Yeboah, 2001). The social and health consequences of the neoliberal turn in health policy in SSA have been well-documented elsewhere in the literature

(e.g. Asenso-Okyere, Anum, Osei-Akoto, & Adukonu, 1998; Creese, 1991), and therefore requires no further explication. After decades implementing austerity-focused healthcare policies, Ghana is now on a mission to eliminate user fees and universalize healthcare access, as are others in the SSA region, including Tanzania, Zimbabwe, and South Africa (McIntyre et al., 2008). In 2003, the Parliament of Ghana passed the NHIS bill into law (Act 650) as the first of a series of progressive steps towards abolition of out-of-pocket payments for healthcare (Agyepong & Nagai, 2011; Apoya & Marriot, 2011). The NHIS is funded predominantly from taxes, mandatory payroll deductions, and annual insurance premiums (Alhassan, Nketiah-Amponsah, & Arhinful, 2016). To achieve its goal of equitable healthcare access, vulnerable groups such as the indigent, children under-18, expectant mothers, and older adults aged 70 years or more are premium-exempted. This shift in policy orientation coincides with a period of rapid increase in the population of older Ghanaians. In 2010, 7% of Ghana's population was 60 years or over in age. This population is projected to reach 12% of the country's total population by 2050 (World Health Organization, 2013).

5.2.2 Theoretical perspectives

This analysis was guided by the concept of policy *implementation problem* (Quick, 1980; Pressman & Wildavsky, 1984), a theoretical construct describing "the myriad of generic factors that act to constrain the optimal achievement of policy goals" (Morah, 1996, p. 81). The implementation problem is a suitable concept for analysis of health policy implementation in developing countries, where political and economic volatility often disrupts the realization of policy goals (Quick, 1980). The concept brings to light the economic, political, bureaucratic, and substantive bottlenecks confronting public policy implementation. In most developing countries,

macroeconomic conditions are unpredictable, and can therefore determine the amount of resources available for policy implementation. The (non)availability of policy resources is a function of prevailing macroeconomic conditions, which can change dramatically from what existed at formulation. Macroeconomic uncertainties in resource-poor settings are often complicated by competing demands for limited resources, resulting in policy 'implementation nightmares' where policies are either poorly implemented or abandoned altogether (Morah, 1996).

Implementation problems in developing countries may also arise from bureaucratic corruption and politicization of policy implementation processes (Makinde, 2005). The political problem in policy implementation can be attributed to political interference and uncertainties associated with change of government, especially when a new government opposes a policy or is less committed to its implementation (Makinde, 2005; Morah, 1996). Politico-bureaucratic dalliance can prove particularly lethal to public policy implementation, especially when such relations lend themselves to advancement of parochial interests. In echoing the thesis of the principal-agent framework[1], Cook and Wood (1989) question the autonomy of state institutions in American bureaucracy. They argue that the founding, financing arrangements, and leadership of American state institutions render them susceptible to political control. Political manipulation of state bureaucracies is even more entrenched in the new and often weak democracies in Africa, where resource allocation decisions and political appointment of institutional leadership have

[1]The principal-agent framework suggests vertical hierarchical relations between elected principals (usually governments) and bureaucrats. The former is superior, and has power and resources to manipulate the behaviour of the later. In the words of Dan Wood (1988), "Elected institutions appoint leadership, manipulate personnel, control organizational structure, provide vital resources, employ oversight mechanisms, and exercise direct authority to evoke a response from bureaucratic agents" (p. 214).

become instruments of political control (Kopecký, 2011). This realization thus also suggests a possibility of sacrificing public policy implementation for political expediency.

In other instances, the policy implementation problem is of a substantive nature, more so when public policy formulation is top-down and devoid of stakeholder participation. A top-down, politically-driven, and non-consultative formulation may produce ambiguous policy goals that are problematic in implementation, including emergence of discretionary implementation decisions that may deviate substantially from the original intentions of the formulators (Morah, 1996). The substantive problem in developing countries may also relate to the disenfranchisement of citizens in policy implementation processes and subsequently a lack of local ownership of implementation outcomes, which can have implications for long-term sustainability of policy initiatives (Makinde, 2005; Morah, 1996).

Public policy implementation in the Third World can suffer maladministration arising from weak governance and vertical disharmony within government structures. Implementing agencies may be administratively weak, and in some instances totally dysfunctional and lacking the checks and balances required to stir policy implementation. Vertical disharmonies are often the result of a mismatch of *ideas* between policy formulators higher up in government and street-level bureaucrats charged with implementation responsibilities (Béland & Ridde, 2016). Such disharmonies can cause implementing agencies to adapt policies to local conditions and institutional practices in a manner that may be inconsistent with their intended purposes at formulation (Morah, 1996). Ideological conflicts between formulators and implementers have, for example, frustrated health policy implementation in several African countries, where policies formulated to influence outcomes of political elections often have little resonance with those

tasked with their implementation (Béland & Ridde, 2016). Street-level implementers can resist, undermine, and even derail the implementation of policies that differ from their ideologies and institutional cultures (Béland & Ridde, 2016). This dissonance can cause administrative fragmentation and coordination problems that, in turn, can produce suboptimal policy outcomes (Makinde, 2005).

The concept of policy *implementation problem* and its economic, political, bureaucratic, and substantive basis provide an organizing framework for understanding why policy implementation succeeds or fails in the developing world. These theoretical perspectives guided the analysis and interpretation of the data in this study.

5.3 Methods

5.3.1 Participant recruitment

This paper is based on data obtained from qualitative interviews with older adults and key stakeholders in Ghana. Following ethics approval from the research ethics committees of the University of Alberta and University of Ghana, qualitative interviews were conducted in the Summer of 2018 with a purposive sample of older adults, health workers, community leaders, and policymakers in Accra, Ghana's capital city.

The older adults were recruited from a low-income neighbourhood and a middle-income neighbourhood. The environmental and sociodemographic characteristics of the two neighbourhoods were representative of the vast majority of older adults and their living circumstances in Ghanaian urban society. While the low-income neighbourhood is a densely populated unplanned settlement with poor housing infrastructure (Morinville & Harris, 2014),

the middle-income neighbourhood is spatially planned and boasts some of the best public infrastructure in the city. The older adults were interviewed in their homes using a semi-structured interview guide designed to capture their healthcare experience of the NHIS exemption policy. These interviews lasted approximately 60 minutes long and were tape-recorded with participants' written consent. Each older participant received an honorarium of GHc 20 in compensation.

The community leaders were elected representatives of the two neighbourhoods at the local government assembly, while the policymakers and health workers were identified *a priori* based on institutional affiliations and work responsibilities. The policymakers were individuals representing the government's health, social protection, and housing ministries, while the health workers were physicians and public health nurses recruited from healthcare facilities serving the two neighbourhoods. All stakeholder interviews were semi-structured, and each participant was asked to respond to questions about the policy implementation process and its impacts on the healthcare experiences of older adults. The interviews with community leaders occurred in the communities, while those with the health workers and policymakers occurred in their offices, except one with a policymaker which occurred in a university library. On average, the stakeholder interviews lasted approximately one-hour long and were tape-recorded with participants' written consent. Fieldnotes, recorded throughout the period of data collection, complemented the interview data.

5.3.2 Data analyses

All interviews were transcribed verbatim, imported into QSR NVivo software, and analyzed through an inductive process of reading, coding, interpreting, and organizing texts into

meaningful patterns and themes. Following Braun and Clarke (2006), two members of the research team independently read a sample of the transcripts and jointly developed a coding framework for condensing the entire dataset into analytic categories or constellations of ideas. These categories were further explored, condensed, and merged into themes reflecting the policy *implementation problem* as it relates to gaps in healthcare delivery to older Ghanaians. Reflexivity and triangulation of multiple data sources afforded opportunities for corroboration and methodological rigour.

5.4 Findings

5.4.1 Sample characteristics

The study sample consisted of 30 older adults (15 from each neighbourhood), 2 community leaders, 5 health workers, and 5 policymakers (Table 5.1). The sociodemographic characteristics of the older adults have been described in Chapter 2 and need no further elaboration. In summary, the majority of older adults were male (n = 19), Christian (n = 21), and regular income earners (n = 20) with an average age of 70.5 years.

Table 5.1: Interview participants

Participants	Low-income area	Middle-income area	Total
Older adults	15	15	30
Health workers	3	2	5
Community leaders	1	1	2
Policymakers	-	-	5
Total	**19**	**18**	**42**

The thematic analyses of the data identified several themes that conform to the policy implementation problem, as presented in the pioneering works of Quick (1980) and Pressman and Wildavsky (1984). These themes are summarized as follows.

5.4.2 Resource constraints

Under-funded healthcare

In Ghana, healthcare is funded from multiple sources – tax revenues, pension deductions, insurance premiums, and annual budgetary allocation to the National Health Insurance Fund (NHIF). Despite the multiple sources of healthcare financing, free healthcare for older adults faced serious financial constraints. Shortages of essential drugs and medical supplies were common complaints among older adults, most of whom were only able to access cheaply available analgesics that had little therapeutic value to those presenting with complex chronic conditions. Owing to cost considerations, expensive drugs for treatment and management of most chronic conditions were not included in the NHIA's Medicines List, and often had to be prescribed for out-of-pocket purchase. An older adult explained his difficulty with obtaining medication:

> You go to a doctor, they will give you a prescription to go and buy medicine. Sometimes, you don't have [the money]. That is the problem that some of us are facing…I have health insurance, but health insurance can't buy all the drugs. The expensive ones, you can't use health insurance. – [AAP005].

Another added:

> As I told you, if you go to the hospital, they don't give me anything that will support me. I have to look elsewhere for herbal products. That is what has been helping me…those are the things that are sustaining me – the herbal products that I am using. – [NIP001].

Citing frequent out-of-pocket payments for prescription medications, some older adults alluded to a deliberate attempt to sabotage their healthcare access. Accordingly, some have resorted to self-medication and use of herbal products as a stopgap remedy to their unmet healthcare needs.

Understaffing and long waiting times

Understaffing of healthcare facilities due to resource constraints presented an impediment to optimal healthcare delivery to older adults. Waiting times for physician services had reportedly increased amidst government's own admission of challenges with the NHIS, particularly its growing indebtedness. With limited staff for service delivery, healthcare workers usually had to make difficult choices, including prioritizing the care needs of children and expectant mothers over those of older adults. According to one older adult:

> [Health workers] waste too much time unnecessarily when you go to the hospital. You have to join the queue at the hospital. At times, you spend the whole day there before it gets to your turn, whereas we are not supposed to be queueing from 70 years…A man from 70, 75 [years] shouldn't queue for hours. – [AAP015].

A health worker corroborated the concerns of older adults and pointed to a need to expedite care for older adults each time they present at healthcare facilities.

> If we were to have sufficient manpower, the elderly should not join the queue at the OPD and at records…But as of now, because we don't have more hands in handling, they also join the queue, and you know elderly people, they are weak already. So they need to be attended to faster. – [HWNI001].

For most older adults, the long wait for healthcare was pernicious, given their natural propensity for fatigue. It discouraged healthcare utilization, increased the likelihood of self-medication, and escalated mistrust between health workers and older patients.

5.4.3 Substantive constraints

Age of eligibility

The age criterion for free healthcare also posed an implementation problem. Per the policy formulation, only individuals 70 years or older were eligible for free healthcare; those younger

than this age must be indigent or Social Security and National Insurance Trust (SSNIT) pensioners to qualify for free healthcare. This eligibility criterion was counterproductive in a country where average life expectancy at birth was only 63 years. A policymaker questioned the logic of the age eligibility criterion:

> The National Health Insurance has not got any exemption for an older person [aged] 60 or 65…You have to get to age 70 before you're exempted. Is this exemption for the living or the dead? – [NGO001].

In reality, the majority of older Ghanaians would not live long enough to benefit from the free healthcare policy. As a result, some participants argued that the age requirement may well have been a deliberate formulation to disqualify the majority of older adults and minimize the cost of free care. A major effect of the eligibility criterion was widespread perception of free healthcare as a nonexisting policy, even among those who qualified for insurance exemptions. Thus, the design of the free healthcare policy to limit access to a segment of older adults has proven problematic in implementation, as it signalled in the consciousness of its intended beneficiaries the image of an irresponsive policy.

Limited coverage

Among older Ghanaians, widespread misgivings remained around the selective coverage of the NHIS. Although the NHIS was touted as covering 95% of disease conditions, much of this coverage was primary care oriented; the remaining 5% consisted of mostly chronic conditions affecting older adults. Indeed, chronic illnesses such as musculoskeletal disorders, vision problems, cardiovascular diseases, stroke, trachoma, and most cancers remained outside the NHIS coverage (Kpessa-Whyte, 2018). Justifying the focus on primary care, a Ghanaian policymaker quipped:

> If you ask me, we may just have to prioritize and begin to deal with primary health care…Malaria, anybody can get it, but it's not everybody who gets cancer…It is better for government to cover 50 percent of the diseases so that we know that, at least, children are not dying of malaria. Hard working people, able bodies, are not dying of malaria. – [PMG002].

Cost-cutting for the NHIS was achieved using price ceilings, by which service providers could only request payment for services that fell within the reimbursable limits of the NHIS. The scheme, by design, also forbade copayments, which meant that medical expenses could not, under any circumstances, be shared between the scheme and individual patients. To forestall financial losses at the facility level, older patients were compelled to pay out-of-pocket for the diagnostics and treatment of conditions whose cost was higher than the NHIS price ceiling. The result of such payments were catastrophic healthcare expenses and unexpected financial hardships for low-income older adults. An older adult remarked:

> These days, if you go to hospital, they say go for tests, so many tests [that cost] big, big, big money. Where will I get money from as a pensioner sitting in the house? – [AAP004].

Thus, despite the promise of free healthcare, financial barriers to care remained for a significant number of older adults, as they had to pay out-of-pocket for most chronic disease-related drugs and treatments. This financial difficulty continued to disconnect older adults from the care they needed.

Absence of geriatric care

An implementation problem also arose from the lack of incorporation of geriatric care in the formulation of the NHIS and its free healthcare policy. As such, no geriatric specialist portfolios existed in the Ghanaian healthcare system, although older adults tended to have peculiar healthcare needs that required geriatric medical expertise. The result of this omission was a

conspicuous lack of expertise for diagnostics, treatment, and management of chronic health conditions affecting older adults. In particular, participants observed a mismatch between the disease conditions they presented at healthcare facilities and the sort of care available to them. For example, relational challenges, including complaints of ageism, disrespect, and mistreatment involving older adults were far too common in Ghanaian healthcare settings. A policymaker noted:

> We have health workers who are not trained in gerontology, and sometimes the way they relate to these older people, they don't like. We have not made provision for older people in our health centres…Sometimes it's even a bother and a problem to go to the hospital. – [NGO001].

An older adult explained his healthcare experience:

> Some doctors are good. But some of them have nonchalant attitude. They don't care. They would just walk pass you. I went to one doctor, because he was the one who was supposed to help treat me. So, when they removed the stitches and I went to see him, do you know what he told me? He said, I had cancer [and]… "You are going to pay 29 million cedis."…Some of these doctors are thieves. – [NIP005].

Relations between health workers and older adults were reportedly characterized by a combination of nonchalance, lack of appropriate expertise, and perceived financial exploitation, all of which affected quality of healthcare delivery.

Fragmentation of care

The NHIS lacks incorporation of a continuum-of-care model for older adults in its formulation. Clinical care and home-based care existed as disparate spheres of care, although integration of the two was a necessary step for effective medical treatments for older adults. Transportation services, medical care, and home-based supports remained fragmented but which should be integrated in a care continuum to reap the full range of therapeutic benefits associated with

clinical care. A significant proportion of older adults interviewed lacked transportation to health services, while others lived alone with no capability for self-adherence to treatment regimens.

> When you need transport to the hospital…That too is another challenge. Transport cost, right now, government is increasing transport [fares]. Each and every year, it goes up. So that is the challenge. – [AAP005].

A health worker identified a need for access to basic income for older adults:

> [When] they give you medicine [and instruct you] to take two or three times a day after meals…how will you take the medicine when you don't have money to eat? You get me? So, it's better you find some [money]. Some people are not sick. It's poverty that makes them sick. – [HWAA001].

The lack of formal support systems to assist older adults with optimal utilization of healthcare was thus a major shortcoming of the free healthcare policy. According to health workers, older adults with limited access to basic income and transportation services had a tendency to truncate care. These narratives pointed to a need for integration of clinical and nonclinical care in promoting healthcare access for older adults.

5.4.4 Bureaucratic constraints

Reimbursement delays and shortfalls

Reimbursement delays and shortfalls characterized the implementation of the NHIS and its free healthcare policy. Reimbursement payments could take several months to process. Worse still, insurance claims were almost never fully reimbursed by the NHIA. These delays and shortfalls impeded the operations of service providers and their ability to procure essential medical supplies for service delivery. Consequently, some service providers were alleged to rely on 'cash and carry' as their primary source of funding for their operations. Two health workers stated:

> And the people that you've even given the service for, the reimbursement is like one year in arrears, and you are having to run your facility based on the people who would come and pay cash and carry. It won't be fair. – [HWAA002].

> At a point in time, the pharmacy shops don't give them (patients) the drugs, because the NHIS is indebted to them. So, they can't supply the drugs. With that one, you would see that the [hospital] attendance decreases. – [HWNI001].

These reimbursement delays and shortfalls meant that service providers were not always able to provide the best of care for older adults. In some instances, fracas occurred between patients and health workers over poor services. However, the latter attributed much of the reimbursement delays and resulting suboptimal services to an over-centralization of the NHIS operations.

Insurance registration and renewals

Although exempted from insurance premiums, older adults who qualified for free healthcare were still required to register for scheme membership and thereafter pay annual (subsidized) renewal fees to stay eligible for free healthcare. This requirement was problematic for older adults, particularly those in advance age with no capacity to keep track of their insurance status. According to health workers, it was commonplace for older patients to present at healthcare facilities with invalid NHIS membership cards, yet in critical need for care. Logistical problems complicated the insurance registration and renewal process for older adults. A health worker explained the difficulties older adults faced enrolling in the scheme:

> And some too, because of ignorance, they don't know that the insurance card has expired. They don't know, and they would just bring [it]. So, it will be detected at the hospital that your health insurance has expired. – [HWNI003].

Another heath worker explained the logistical problems affecting the scheme's enrolment:

> I hear there are long queues [at the registration centres]. At a point, they were short of the cards…They were short of materials. So, there was a very long gap that they were not issuing new cards…Aside that, they said they are short of ribbon to print the renewal at the back of the card for people. That one is Health Insurance related, not the clinic. – [HWNI001].

Citing these difficulties as barriers to enrolment, several older adults interviewed had no active NHIS membership and were thus ineligible for free healthcare, despite having attained the eligible age of 70 years. Their scheme membership expired after a year and they were never able to renew.

5.4.5 Political and administrative constraints

Political influence

In a lot of instances, free healthcare was hijacked and deployed as an instrument of political patronage. Revenues from insurance premiums stagnated due to political interference in the NHIS implementation. Politicians, out of ignorance and eagerness to win elections, had misinformed the Ghanaian electorate about the scheme's operations, creating a public mood that obviated the stipulated graduated premium. Politicians also used their influence to obtain insurance exemptions for party loyalists and cronies, resulting in chronic funding shortfalls for the NHIS. Consequently, funds from insurance premiums were negligible and had yet to reach their expected contribution to healthcare financing in Ghana. A policymaker stated:

> The National Health Insurance, even though has got graduated premium, they are taking a flat premium, because politicians have told people that government is bringing it and when you pay just GHc 7 or GHc 8, you get it. It is not true…But because they make it a big political issue, nobody could take the proper premium…I went and visited one of the Mutual Health Insurance schemes. [The manager] told me if you come and you indicate that you are in favour of government or you belong to the party and can give evidence, you

> get free [health insurance].…We are able to come out nicely with social intervention ideas but when it gets to implementation, they will use politics to destroy it. – [NGO001].

Participants saw political interference and the resulting shortfalls in revenue as a major source of the scheme's indebtedness. These corrupt practices thus played a role in immobilizing the financial sustainability of the NHIS and undermining its capacity for free healthcare delivery to older adults.

Administrative inefficiencies

There was a general feeling, particularly among health workers, that funds accruing to the NHIS were misspent on activities that had no bearing on the scheme's core mandate of healthcare financing. Unnecessarily large administrative costs arising from monumental salaries and acquisition of luxurious cars and office complexes for NHIA officials took a chunk of resources away from free healthcare implementation. Participants observed an entrenched culture of frivolous administrative spending and financial mismanagement at the NHIA. They suspected that any additional funding allocation to the scheme would be channeled into defraying needless administrative costs rather than strengthening free healthcare delivery to deserving citizens. A health worker explained the extent of financial mismanagement at the NHIA:

> How come the Health Insurance [Authority] takes money and puts it there? [And] waste the money on unnecessary things…They would rather employ a lot of people, buy cars, employ CEOs and pay them. It's not right. For me, covering all disease doesn't [become a problem], if they manage the resources well… It's not that it can't cover. It is mismanagement of the NHIS finance. – [HWAA001].

This misuse was in addition to the more debilitating problem of administrative embezzlement. Insurance fraud occurred at all levels of the scheme, from service provider to senior management. A health worker observed:

> The number two thing on the National Insurance is stealing. People are filing ghost claims, taking thousands, including medical officers. Our system is getting sick. And if you don't address the issue of corruption, we will never be able to effectively look at social interventions. – [HWAA002].

Overbilling, procurement fraud, and false insurance claims were popular methods of embezzlement within the scheme. These corrupt practices deprived deserving citizens, including older adults, of their right to adequate healthcare.

5.5 Discussion

This paper examines the policy *implementation problem* as it relates to free healthcare for older adults in Ghana. Similar to patterns explained elsewhere in the literature (Makinde, 2005; Morah, 1996), the analysis identifies financial, substantive, bureaucratic, administrative, and political constraints to health policy implementation in Ghana. These implementation constraints, in turn, influenced the quality of healthcare delivery to older Ghanaians. As an emerging economy with fiscal challenges, public spending on health in Ghana as a proportion of GDP has lagged behind the 5% minimum threshold required for progress towards universal healthcare coverage (Micah et al., 2019; McIntyre, Meheus, & Røttingen, 2017). The shortfalls in public spending on health affect the availability of resources for healthcare delivery. For example, owing to cost considerations, some rehabilitative medical procedures, including heart surgery, were deliberately not covered by the NHIS, as were essential drugs for treatment and management of chronic conditions. The continuous reliance on out-of-pocket payments has had some catastrophic impacts on low-income older adults. Understaffing due to inadequate funding also affected the timeliness of care delivery to older adults.

Ghana is not alone in the struggle to enhance healthcare access for older adults in SSA. Tanzania, Zimbabwe, South Africa, Lesotho, and very recently Kenya and Mali have adopted policies to eliminate financial barriers to healthcare for older adults and other vulnerable populations (Naidoo & van Wyk, 2019; Yates, 2019; Arie, 2019; Nyamai, 2018; Mwita, Tunzo, Jande, & Hamasaki, 2017; Frumence, Nyamhanga, & Anaeli, 2017; Dhemba & Dhemba, 2015; Shemdoe, William, Saronga, Msambichaka, Hildon, 2012). These countries now have aging and social protection policies exempting older adults from user fees and health insurance premiums, thereby guaranteeing their access to free healthcare at public-funded healthcare facilities. However, similar to Ghana, implementation of free healthcare in these countries has run into various degrees of structural problems that undermine the care experiences of older adults.

In Tanzania, free healthcare for older adults is funded using resources accruing to the rural-based Community Health Funds (CHF) and the urban-based Tiba Kwa Kadi (TIKAs), which are voluntary pre-payment schemes funded partly by government through grants allocation to the District and Urban Councils (Frumence, 2017; Kapologwe et al., 2017). However, at just 4.5% in 2015, the contributions of the CHFs and TIKAs to healthcare financing in Tanzania have been marginal due to low enrolment rates (Renggli et al., 2019; Kapologwe et al., 2017). The low revenue base of the CHFs and TIKAs affects adversely the amount and quality of care available to older Tanzanians. In particular, despite the announcement of free healthcare, out-of-pocket payments for essential drugs and physician services have remained high among older Tanzanians (Frumence et al 2017; Mwita et al., 2017; Malalika, 2016; Ntahosanzwe, 2013; Pastory, 2013; Shemdoe et al., 2012). Similar to Ghana and Tanzania, out-of-pocket payments and long waiting times arising from chronically under-resourced healthcare systems have been reported among older adults in South Africa, Zimbabwe, and Lesotho

(Naidoo & van Wyk, 2019; Dhemba & Dhemba, 2015). Addressing the financial barriers to healthcare for older adults in SSA, and Ghana in particular, should include but not limited to: (1) establishment of a drug insurance scheme for older adults, paid for by government, to run concurrently with the NHIS and NAP; (2) introduction of copayment arrangements for drugs, diagnostics, and treatments not covered under the NHIS and NAP; and (3) expansion of existing income support programs, such as Ghana's LEAP, to include the majority of older adults with no pensions.

In a purported attempt to limit cost, Ghana provides free healthcare to only those older adults who have attained age 70 years or older. However, this eligibility criterion is counterproductive, as the average life expectancy at birth in Ghana is nearly a decade lower. While Tanzania's NAP, in contrast, has been more generous in setting the minimum eligibility age at 60 years, its implementation has obvious fiscal implications. Part of the resource constraints facing the implementation of the NAP can be attributed to its ambitious target to extend free healthcare to a much larger population. South Africa boasts a comparatively superior healthcare system, in terms of coverage. The country operates a public healthcare system that provides universal coverage for its population, although most of the services are primary care-oriented (Marten et al., 2014). There is thus considerable scope to, at least, revise downwards the minimum eligibility age for free healthcare in Ghana. The cost of the increased coverage can then be absorbed by increased resource allocation to the NHIS and reductions in administrative expenses.

Ghana's NHIS, by design, provides for no comprehensive coverage of disease conditions. There is, in fact, little coverage beyond the primary care level. As such, patients have to assume

full financial responsibility for the cost of investigating, treating, and managing chronic diseases not covered by the NHIS. While cost-containment is a motivation for the selective coverage, it invariably also exposes the majority of older Ghanaians to catastrophic medical expenditures, for which some die with one or more unmet healthcare needs. In Zimbabwe, although specialist medical services for chronic illnesses have been declared free for older adults, these services are paid for in practice, due to the country's enduring economic crisis (Galvani, Stefanoni, & Williamson, 2017). The resulting catastrophic cost has served to discourage utilization of specialist medical services among older adults with chronic health conditions (Mhaka-Mutepfa, 2018). Similarly, Tanzania's NAP promises only 'basic' healthcare for older adults, suggesting a lukewarm concern for treatment and management of non-communicable diseases affecting this population. Here, out-of-pocket payments for physician services have become the principal source of funding for chronic disease treatment and management (Shemdoe et al., 2012). Ghana, just like Tanzania and Lesotho, has no geriatric specialists (Kandoya, 2018; Dotchin et al., 2013), which adds to the difficulties of care access for older adults. A need has thus arisen for Ghana and sub-Saharan African countries to: (1) develop innovative strategies for funding chronic disease care; and (2) integrate geriatric specialist training into medical/nursing education curricular, as did Singapore (Teo, Chan, & Straughan, 2003).

A barrage of bureaucratic and administrative lapses characterized the free healthcare policy for older adults in Ghana. Reimbursement delays and frivolous administrative expenditures affected public confidence in the NHIS and its financial capacity for free healthcare provision. Consequently, some Ghanaians, including a large number of older adults, have refrained from enrolling in the scheme. In contrast, the reimbursement process in Tanzania is more decentralized. Matching grants from the central government and funds accruing to the

CHFs from membership contributions are managed and controlled by local government authorities (Wang & Rosemberg, 2018), from whom service providers can request operational funds, usually without experiencing the sort of long delays that plagued Ghana's reimbursement process. Similar to Tanzania, South Africa operates a devolved healthcare system. Each of the 9 provinces has a provincial department of health that controls its healthcare budgets and healthcare spending (Malakoane, Heunis, Chikobvu, Kigozi, & Kruger, 2020; Benatar, Sullivan, & Brown, 2018). These local government bodies are directly responsible for the organization, distribution, and delivery of health services in their respective jurisdictions, thereby streamlining the operations of health facilities and eliminating the occurrence of costly delays in the healthcare system. Ghana's bureaucratic and administrative deficiencies can be addressed by: (1) introducing accountability measures that enhance transparency and public scrutiny of the financial statements of the NHIA; (2) imposing administrative expenditure caps to stimulate efficiency and reduce management costs; and (3) devolving some of the financial management functions of the NHIA to the various District and Metro Mutual Health Insurance Schemes to reduce reimbursement delays.

Evidence has also emerged in Ghana of attempts to mobilize the policy implementation process for political gain. The implementation of the NHIS and its exemptions started a few months prior to the 2004 presidential and parliamentary elections (Agyemang-Duah, Peprah, & Peprah, 2019; Fusheini, 2016), raising suspicions of a political overture. Since its inception, political control of the operations of the NHIS has been evident. The Chief Executive of the NHIS is appointed by the President.[2] This leadership arrangement exemplifies a principal-agent

[2] The president appoints the chief executive of the National Health Insurance Authority (NHIA), an apex body set up to manage the operations of the NHIS. The chief executive is typically a party loyalist. The

relationship that renders the scheme vulnerable to political capture. Accordingly, some politicians have reportedly captured the scheme's exemption package for the benefit of party loyalists, thereby threatening its financial buoyancy. The prevailing public sentiment is that the NHIS has been over-politicized, overtaxed, and hence weakly positioned to finance the healthcare needs of older Ghanaians, the evidence of which is the scheme's endless need for government stimulus funding. Tanzania, by contrast, operates a decentralized and fragmented market-based healthcare financing system (Maluka, 2013). Thus, political influence in the management and utilization of health funds, if any at all, has been minimal in Tanzania. Measures to depoliticize and restore public confidence in Ghana's NHIS and its exemptions must, among others, include open recruitment of the scheme's chief executives and district/metro managers, as opposed to the current system of political appointment.

Furthermore, Ghana still relies on an enrolment procedure that requires older adults to register and renew scheme membership periodically. This requirement, which involves payment of subsidized renewal fees, poses financial and bureaucratic barriers to healthcare for older Ghanaians. In comparison, fee exemptions for older Tanzanians are funded from pooled funds belonging to the CHFs and TIKAs. This way, the need for membership renewals does not arise to pose a barrier to healthcare for the elderly. Through this community-based enrolment model, Tanzania has performed relatively better in terms of eliminating needless bureaucratic barriers to healthcare for older adults. Despite prevailing economic difficulties affecting public service delivery in general, healthcare for older adults in Zimbabwe is expedited through the Assisted Medical Treatment Order (AMTO), thereby minimizing the occurrence of delays at the point of

leadership of the NHIA has changed multiple times in the last decade, in accordance with the political party in power.

service delivery (Galvani et al., 2017). Ghana can also address bureaucratic barriers to healthcare for older adults by: (1) introducing lifelong health insurance coverage for older adults; and (2) renewing scheme membership for older adults at the point of service. Lifelong health insurance coverage can prove particularly effective in improving enrolment and reducing catastrophic healthcare expenditures for older adults.

5.6 Conclusion

In Ghana, defective implementation of a major health policy has emboldened rather than resolved barriers to healthcare for older adults – e.g. financial barriers, absence of geriatric medical expertise, care fragmentation, administrative inefficiencies, bureaucratic constraints, etc. Fortunately, Ghana can look to other sub-Saharan African countries for policy learnings and promising policy solutions. South Africa and Tanzania, for example, have performed much better than Ghana in terms of devolving decision-making powers to local government authorities for health policy implementation. Owing to this devolution, South Africa and Tanzania have yet to experience the magnitude of reimbursement delays that characterize the NHIS implementation in Ghana. Tanzania's devolved and market-based approach to management of the CHFs and TIKAs also appears to have somewhat insulated healthcare financing from political influence and elite capture. Ghana thus can learn from other sub-Saharan African countries as it seeks improvements to the implementation of the NHIS and its free healthcare policy for older adults.

CHAPTER 6
General Discussion and Conclusion

6.1 Introduction

Advancement in modern medicine and nutritional improvements in the last century have made it possible for an unprecedented number of people to survive past age 60 years. Life expectancy at birth has increased globally, from approximately 62 years in 1980 to 72 in 2015 (Wang et al., 2016). SSA recorded the largest gains in life expectancy over the period. While this increase represents a remarkable achievement for humanity, it imposes on nations an enormous amount of responsibility. It now behooves governments and communities to reconfigure health systems and community environments to accommodate the unique needs of an aging population.

Residential neighbourhoods have particularly become critical sites of supports for older adults. It is within neighbourhood settings that the majority of older adults conduct their daily lives. Research undertaken in advanced economies has helped to advance public health understanding of neighbourhood effects on older adults' health, and in so doing has served to inform the design of age-friendly communities. A notable gap in this literature is the absence of perspectives from resource-poor settings in SSA, where some of the largest increase in older populations will occur (United Nations, 2019). Evidence emerging from SSA indicates that much of the expected increase in older populations will be absorbed into urban slums. Yet, the health and wellbeing of older slum dwellers in the region remain poorly understood, in part due to a general pattern of scholarly disinterest in issues affecting older adults in the region. The nascent literature examining the health status of older slum dwellers in SSA tends to focus too narrowly on East Africa and Kenya in particular. The present study explored the health and QoL of older

adults residing in two contrasting neighbourhoods in Accra, Ghana. This chapter presents a general discussion and summary of the study's key findings.

6.2 Health and QoL of slum and non-slum older adults

A cross-sectional survey of older adults residing in a slum and non-slum neighbourhood in Accra, Ghana, was completed in the Summer of 2018 to understand and compare their health and QoL. The analyses of the survey data, as reported in Chapter 3, showed statistical similarities as well as differences in health and QoL scores between the slum and non-slum respondents. Multivariable linear regression analyses adjusting for relevant covariates indicated statistically non-significant difference in physical QoL between the two independent samples. Physical QoL, however, varied statistically significantly according to age, sex, and income status. After statistically adjusting for confounders, female sex, advance age, and lacking regular source of income were significantly associated with lower physical QoL scores. These observations suggest that interventions to improve physical QoL among older adults should not target neighbourhoods per se but such social categories as female sex, oldest-old, and non-regular income earners. Similarly, after controlling for relevant confounding variables, a statistically non-significant difference in psychological QoL was observed between the slum and non-slum respondents. Rather, sex and illness status accounted for the variance in psychological QoL; female and ailing respondents reported statistically significant lower psychological QoL scores in the multivariable model. Hence, interventions to improve psychological QoL for older adults must prioritize the needs of women and individuals in poor health.

After adjusting for relevant covariates in the multivariable regression model, the slum respondents reported statistically significant better social QoL than the non-slum respondents. Social supports and a culture of almsgiving dictated by the Islamic faith contributed to the slum's social QoL advantage. However, the social QoL scores of the slum and non-slum respondents were both high – a difference of only 3.2 points in the multivariable regression model. In this regard, measures to strengthen the social wellbeing of older slum dwellers can focus on building community resilience and creating opportunities for enhanced participation in community life. In contrast, the non-slum respondents reported statistically significant better environmental QoL than the slum respondents, and this difference remained so after adjusting for relevant covariates. The slum's poor housing infrastructure and unfriendly built environment may possibly have contributed to its lower environmental QoL scores. Interventions to address this disparity should, among others, include housing and sanitation improvements in the slums. In totality, across all four QoL domains, both the slum and non-slum respondents had comparatively higher QoL scores than older slum dwellers residing elsewhere in the developing world (see Guthi et al., 2019; Mudey, Ambekar, Goyal, Agarekar, & Wagh, 2011).

6.3 Community-level determinants of health and QoL of older adults

In Chapter 4, thematic analyses of the qualitative data resulted in identification of barriers and facilitators to health in the slum and non-slum neighbourhoods. The older residents of the two neighbourhoods experienced health barriers arising from poor built environments, housing precariousness, insanitary living conditions, defective public services, social incivilities, and deficient healthcare. However, the factors undergirding these barriers were, in some instances, remarkably different for the slum and non-slum residents. For example, while the poor built

environment in the slum was driven by open drains and fewer streets and sidewalks, its non-slum equivalent was the result of siltation and flooding along the banks of the Odawna River, which runs through parts of the neighbourhood. Similarly, while substandard and overcrowded housing undergirded housing precariousness in the slum, gentrification of an overaged housing stock and subsequently soaring rental prices were the underlying causes of this health barrier in the non-slum. However, despite the observed similarities in patterns of health barriers, the built environmental conditions of the slum were more averse to health and QoL than those of the non-slum.

In both neighbourhoods, a number of health facilitators served to mitigate the harmful impacts of the reported barriers to health. Affordable rental housing and rent-free accommodation in the slum provided shelter for scores of older adults with no ability to obtain housing in the city's highly competitive rental market. Social, material, and financial supports from neighbours also contributed positively to the health and QoL of the older slum dwellers. An appealing outdoors, a long-standing reputation as a political enclave, and a locational advantage as a transportation hub interlaced with the residents' sense of community to create a protection mechanism against adverse health outcomes in the non-slum. These health facilitators and barriers somewhat corroborated the patterns of health and QoL reported in the statistical analyses in Chapters 3 and 4.

6.4 Structural determinants of healthcare access for older adults

Access to and utilization of healthcare is an important determinant of the health and QoL of older adults, which is itself shaped by the nature of public policy. Health policy design and implementation can modify patterns of access and utilization of healthcare among older adults

(Caner & Cilasun, 2019; Li et al., 2019). If properly organized and adequately delivered, healthcare can prolong life, prevent/postpone illnesses, and improve QoL for older adults.

Chapter 5 presents the findings of a qualitative study exploring how implementation of Ghana's NHIS and its exemption policy has shaped the healthcare experiences of older adults. The findings revealed suboptimal healthcare delivery to older adults. Evidently, the implementation of the free healthcare policy for older adults has run into financial, substantive, political, bureaucratic, and administrative constraints, often with dire consequences for quality healthcare delivery. Consequently, out-of-pocket payments for medications, diagnostics, and medical procedures persisted among older adults, although some of these services had coverage under the free healthcare policy. In addition, older adults experienced long waiting times whenever they presented at healthcare facilities. Overall, there was a general perception that the exemptions were ineffectively implemented, and as such contributed very little to address barriers to healthcare for older adults. These implementation challenges resonate with other sub-Saharan African countries where similar policies exist for older adults. Interventions to enhance implementation of the NHIS and improve healthcare access for older adults should, among others, include measures to: (1) depoliticize and insulate the scheme from political control; (2) cut administrative expenditures and increase spending on frontline services; and (3) decentralize the administrative functions of the NHIA.

6.5 General conclusions

This thesis project explored the health and QoL of older adults residing in two distinct neighbourhoods in Accra, Ghana. Analyses of the data revealed that despite adverse environmental conditions in the slum, the two neighbourhood samples did not differ statistically

in physical QoL, psychological QoL, overall health, and overall QoL. However, they differed in social and environmental QoL – an outcome explained by superior social supports in the slum and comparatively better housing and service infrastructure in the non-slum. The observed patterns in health and QoL scores corresponded with similar patterns of health barriers and facilitators in the slum and non-slum. The built environment, service landscape, housing infrastructure, and sanitation conditions of the two neighbourhoods presented similar but also some unique barriers and facilitators to health among older adults. Achieving improved health and QoL outcomes for older adults in the slum and non-slum should therefore include housing improvements, access to pension income, and enhanced access to quality healthcare and municipal environmental servics.

6.6 Overall limitations and future research

The conduct of the study encountered the following conceptual and methodological limitations:

(1) The choice of neighbourhoods may have influenced the observed outcomes. Perhaps, the two selected neighbourhoods had more in common in socio-environmental characteristics than was envisaged at conceptualization. However, any real-world action to address health and QoL inequalities in Ghana would utilize this broad settlement classification – slum versus non-slum – as it represents the commonest and perhaps the most accepted stratification of Ghanaian urban society. Nonetheless, future research examining health and QoL status of older slum dwellers should seek selection of neighbourhoods that differ markedly from slums, in terms of environmental characteristics and socioeconomic composition of residents.

(2) The use of snowball sampling in the survey may have biased the sample in favour of socially-connected individuals. Hence, the sample may have been skewed, and therefore was not

necessarily representative of the neighbourhoods' older residents. Future research should aim to recruit statistically representative samples.

(3) The statistically significant differences in social and environmental QoL between the slum and non-slum respondents do not necessarily suggest that these differences are meaningful enough as to warrant policy and public health interventions. Further research involving a much larger sample size is needed to ascertain the extent of meaningful differences in QoL between slum and non-slum older populations.

(4) Finally, the purposive sample recruited for the study in Chapter 4 was dominated by older adults belonging to the Christian religion. This dominance, although inadvertent, may have also biased the responses. An equal proportion of Christians and Muslims would have been an ideal sample composition for this study.

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APPENDICES

Appendix 1: Interview guide – Older adults

General questions

- What challenges do you face living in this neighbourhood as an older person?
- How do these challenges affect your life?
- How do you cope with these challenges?

Environmental context

- What do you think of your neighbourhood's environment or surroundings?
  - What do you like or dislike about your neighbourhood's environment or surroundings?
- What do you think of your house and its surroundings?
  - What do you like or dislike about your house and its surroundings?
- How does living in this house affect your life and health?
- What would you change about your house if you have the opportunity?
- Would you consider moving to a different neighbourhood if you have the opportunity? If yes, where and why?
- What do you think should be done to improve your living conditions?
- Do you sleep well in this neighbourhood?
- How does living in this neighbourhood or house affect your sleep?
  - If you cannot sleep well, what do you think is the cause of your sleeplessness?

Social context

- How would you describe your interactions with friends in this neighbourhood? And how often do you interact with these friends?

- How does your interaction/relationship with friends make you feel?

❖ How would you describe your interaction with neighbours? And how often do you interact with neighbours?

- How does your interaction/relationship with your neighbours make you feel?

❖ How would describe your interaction with people from your Church/Mosque? And how often do you interact with people from your Church/Mosque?

❖ How do you get support for things you can no longer do by yourself? Who supports you?

- How would you describe support from family members?
- How would you describe support from neighbours?
- How would you describe support from your Church/Mosque?

❖ How would you describe the way your neighbours relate with you or behave towards you?

❖ Do you feel valued or respected in your neighbourhood?

Other health barriers and facilitators

❖ Tell me about your whole health.

- Do you think living in this neighbourhood or house has affected the way you feel about your health now?

❖ Do you experience health problems that you are unable to get treatment for?

- Why are you not able to get treatment?

❖ Where do you go to get help or advice when you are ill?

- Why do you choose to go to these places?

❖ What challenges do you face when you need healthcare?

❖ What do you think should be done to improve your health?

❖ What things help you to live a healthier and happier life in this neighbourhood?

- What other things do you need to live a healthier and happier life?
- Which of these things do you currently lack?

Appendix 2: Interview guide – Stakeholders

Health workers

- What do you think of the state of health of older persons in the Nima/Adabraka-Asylum Down neighbourhood?
- How often do older people from Nima/Adabraka-Asylum Down come to this facility for healthcare?
    - If (in)frequent, why is this so?
- What kind of heath conditions do older people from the Nima/Adabraka-Asylum Down neighbourhood present at your facility?
    - To what extent is your facility able to address these health conditions?
- Does your facility or the Ghana Health services have specific health programs targeting older persons in the urban slums?
    - Please explain your answer
- What support does your facility need to better respond to the healthcare needs of older persons in the Nima/Adabraka-Asylum Down neighbourhood?
- What things help older people in Nima/Adabraka-Asylum Down live healthier and happier lives?
    - What other things do older people in this neighbourhood need to live healthier and happier lives?
    - Which of these things do they currently lack?
- What do you think can be done to improve the health and wellbeing of older persons in this neighbourhood?

Community leaders

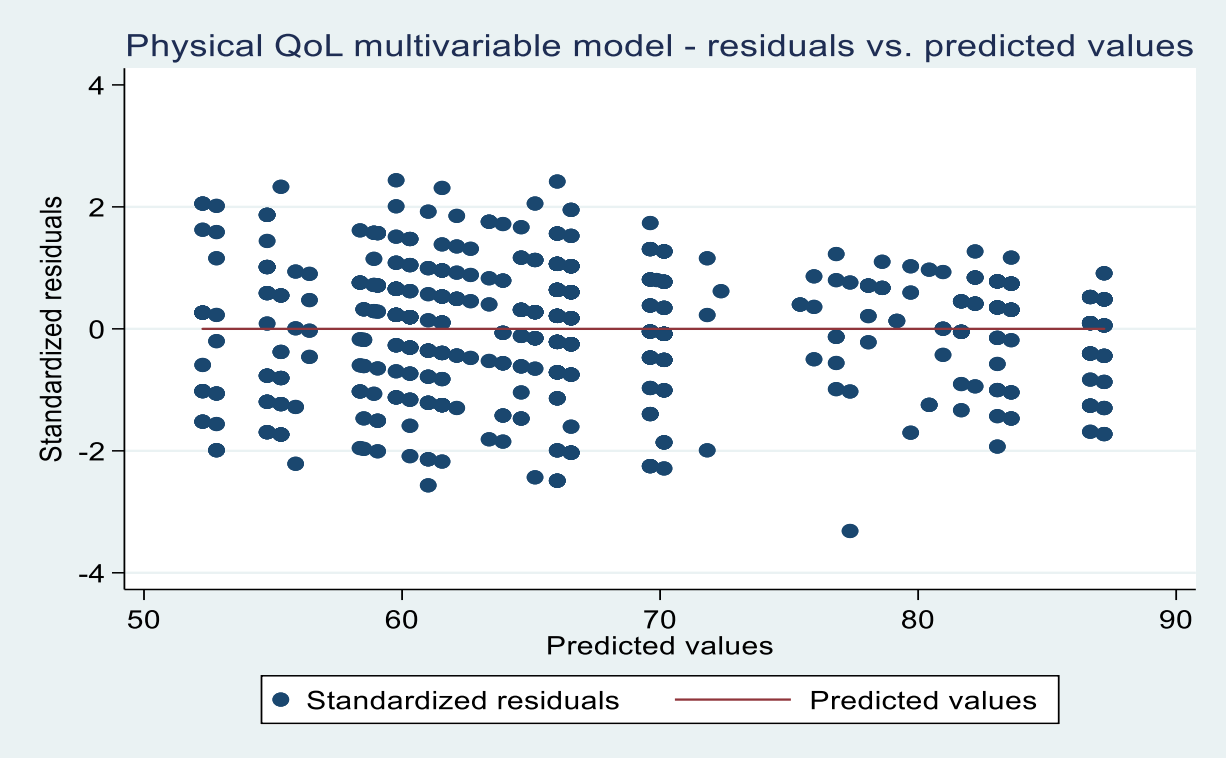
- What do you consider to be the main challenges confronting older persons in Nima/Adabraka-Asylum Down?
  - Housing challenges?
  - Health challenges?
  - Social challenges?
  - Economic challenges?
- How do these challenges affect their health?
- What do you think of the living conditions of older people in this neighbourhood?
  - How do these living conditions affect them?
- What do you think should be done to enhance the health and wellbeing of the elderly in this neighbourhood?
  - What should service providers do?
  - What sort of services should government provide?
- What things help older people in Nima/Adabraka-Asylum Down to live healthier and happier lives?
- What other things do older people in this neighbourhood need to live healthier and happier lives?
  - Which of these things do they currently lack?

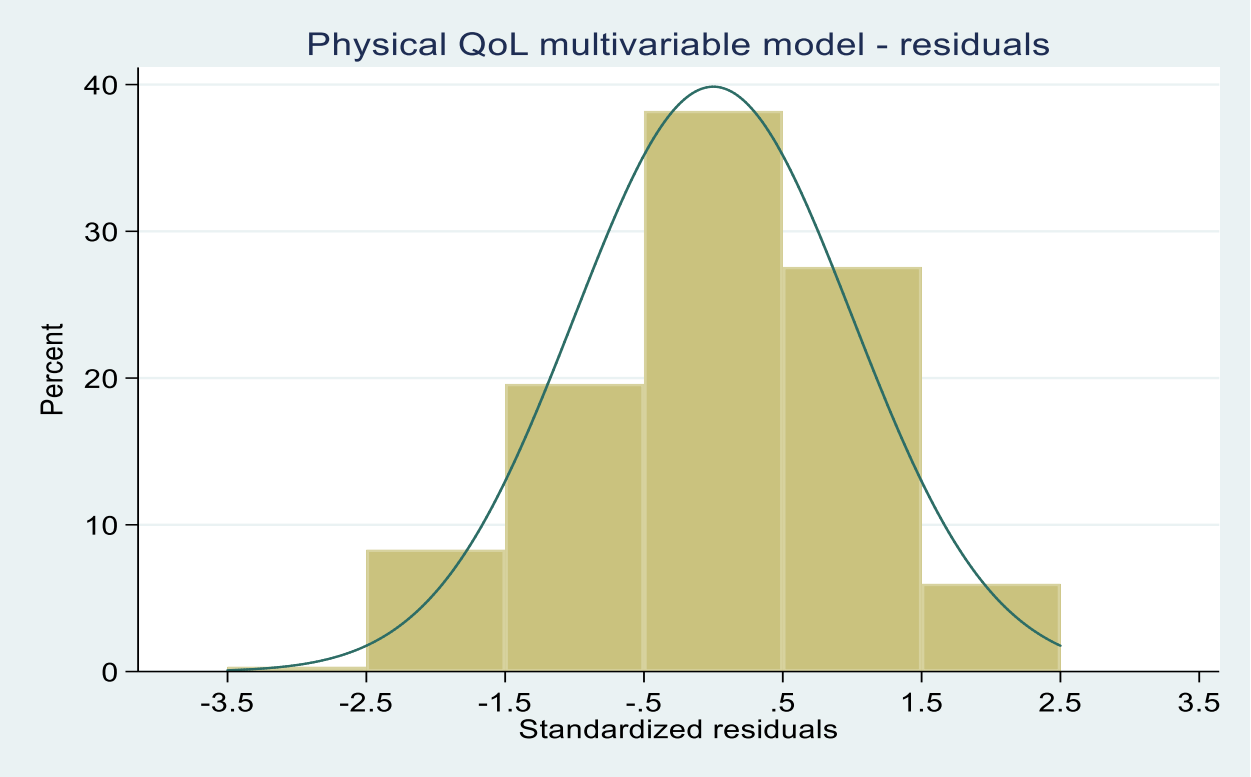
What do you think can be done to improve the health and wellbeing of older persons in this neighbourhood?

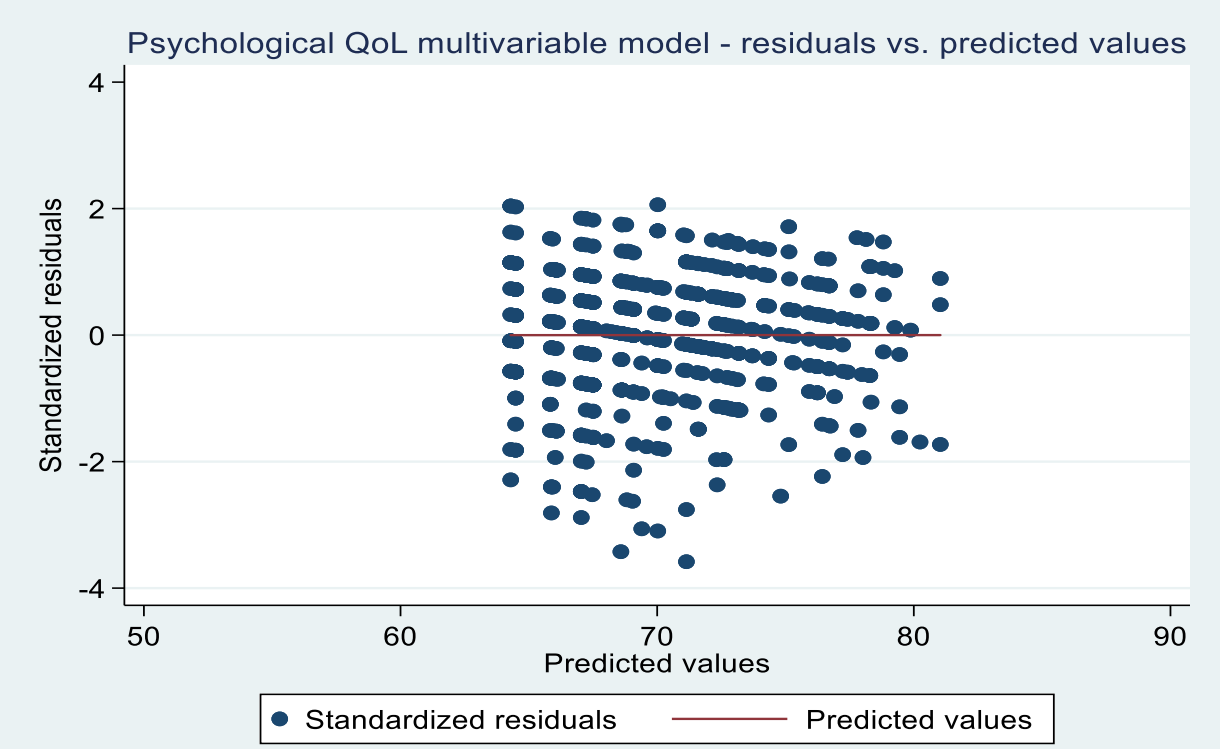
Policymakers

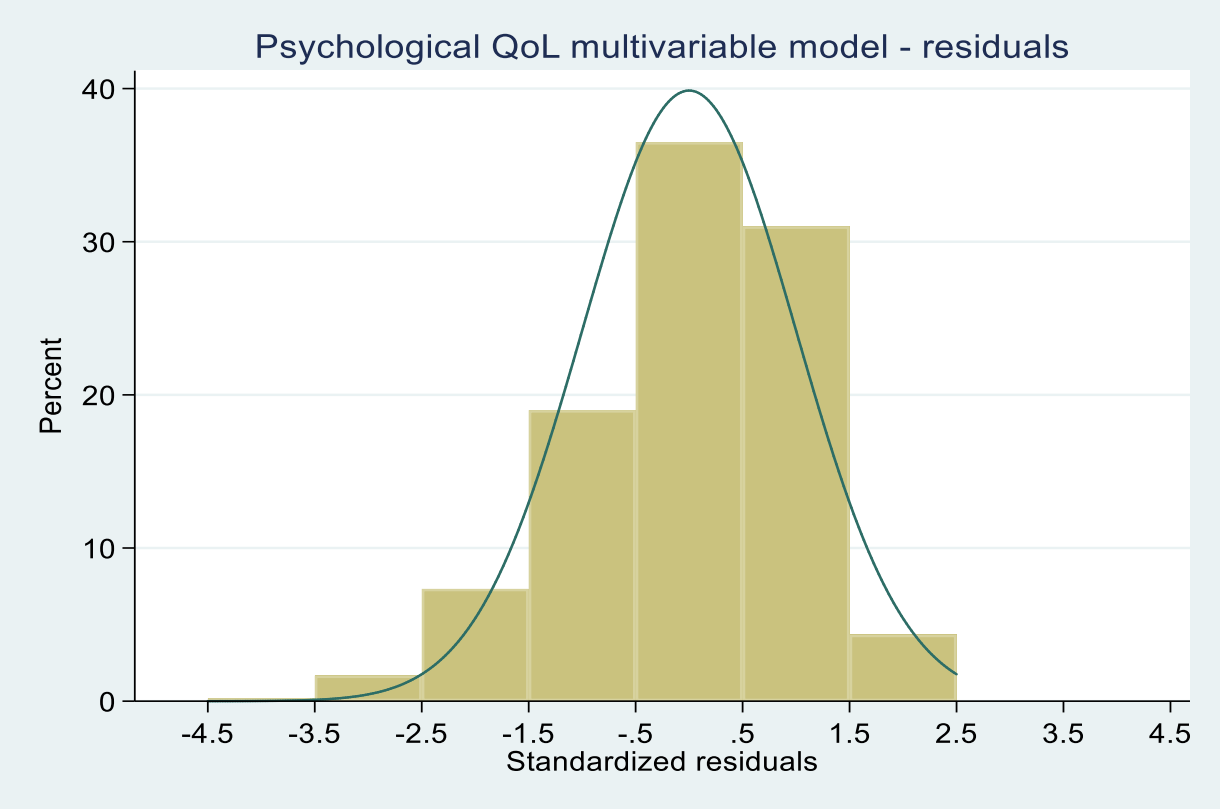
- How would you describe housing and living conditions in Accra's slums?
  - How do these conditions affect the health and wellbeing of older adults?
- What is your organization or the government doing to improve the housing and living conditions of older slum dwellers?
- What programs and interventions would you implement to improve the housing and living conditions of older slum dwellers?
- What is your organization or the government doing to improve the health of older adults across the country and older slum dwellers in particular?
- Some older adults have not registered under the National Health Insurance Scheme (NHIS). What is the cause of the low enrolment? And what is your organization or the government doing to address this problem?
- What are the challenges of delivering quality healthcare to older adults? And what is your organization or the government doing to address the service gaps?
- What programs and interventions would you suggest for improving the health and quality of life of older adults across the country and older slum dwellers in particular?
- What is your view of the National Aging Policy (2010)?
- How will implementation of this policy affect older slum dwellers?
  - How will its implementation reduce poverty among older slum dwellers?
  - How will this policy improve the health, nutrition, and wellbeing of older slum dwellers?
  - How will the policy improve the housing and living environment of older slum dwellers?

Appendix 3: Residual analyses for QoL domain models






Psychological QoL multivariable model - residuals vs. predicted values
Standardized residuals
4
2
0
-2
-4
50
60
70
80
90
Predicted values
Standardized residuals
Predicted values


Psychological QoL multivariable model - residuals
Percent
40
30
20
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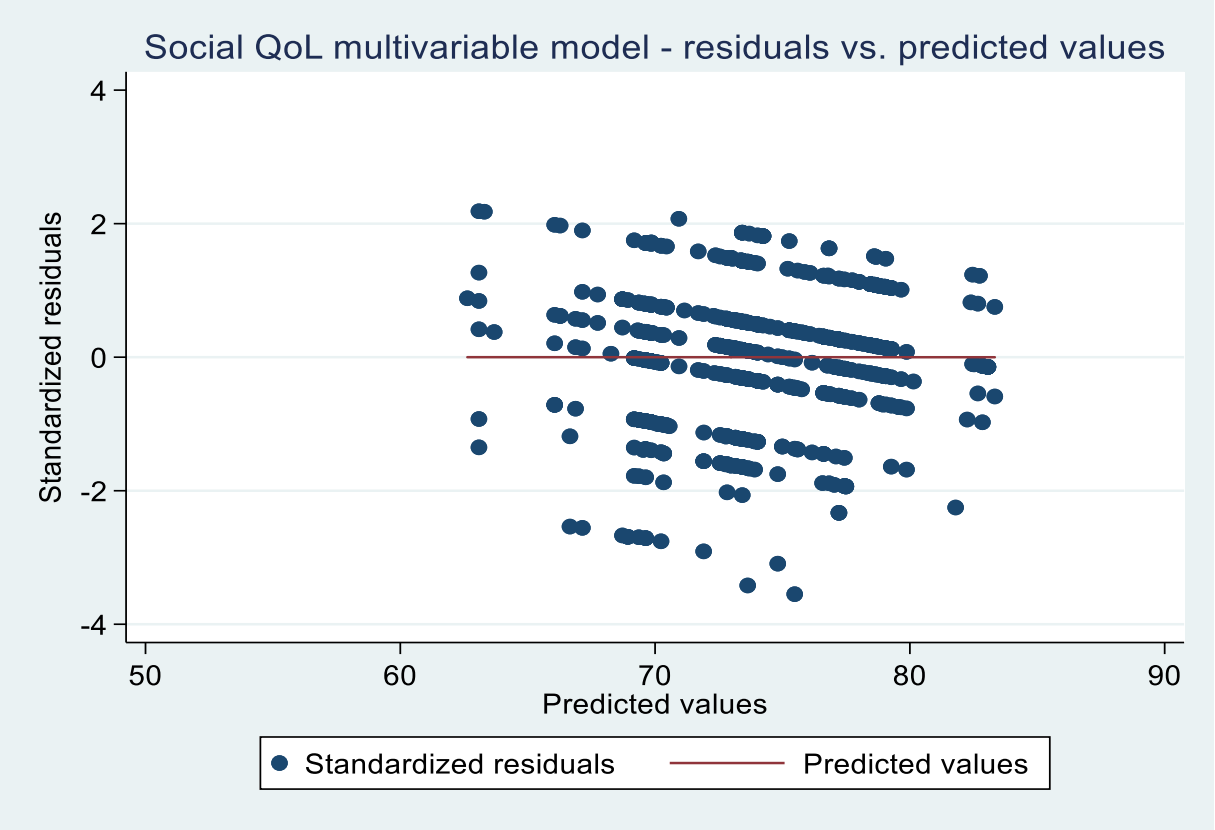
Standardized residuals


Social QoL multivariable model - residuals vs. predicted values
Standardized residuals
4
2
0
-2
-4
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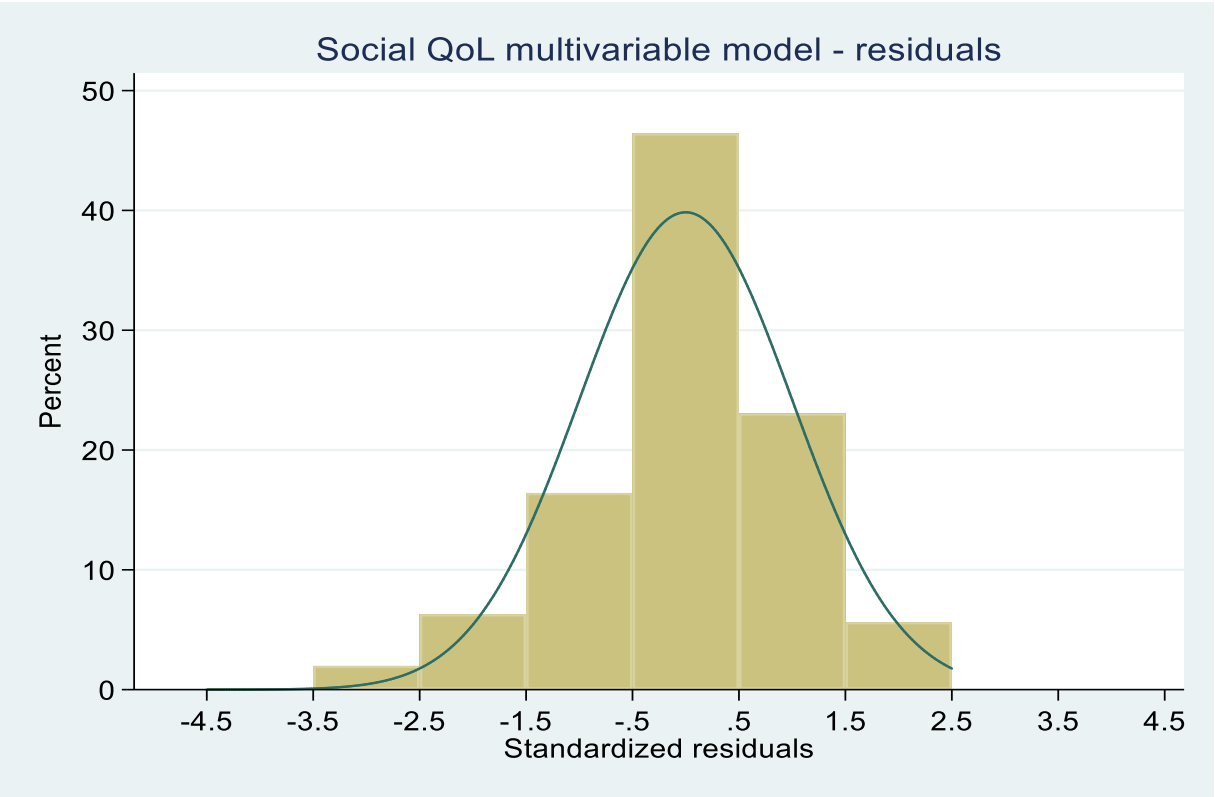
60
70
80
90
Predicted values
Standardized residuals
Predicted values


Social QoL multivariable model - residuals
Percent
50
40
30
20
10
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-4.5
-3.5
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-.5
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1.5
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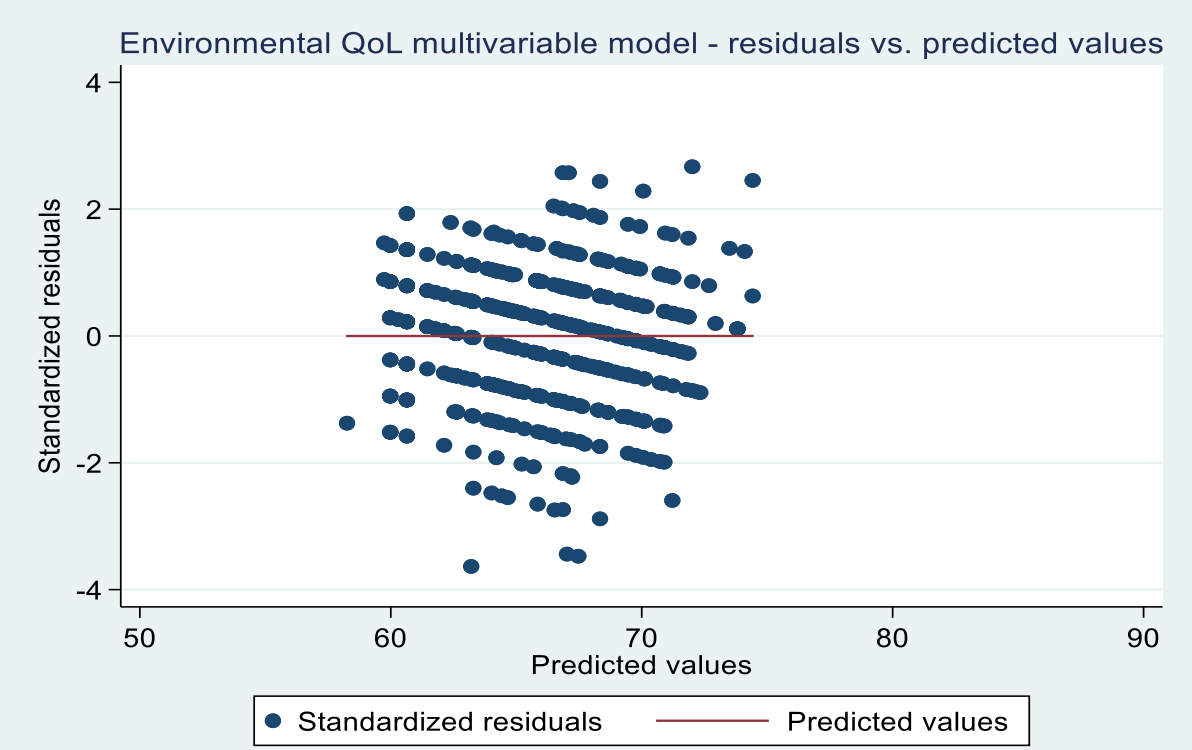
3.5
4.5
Standardized residuals


Environmental QoL multivariable model - residuals vs. predicted values
Standardized residuals
4
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-4
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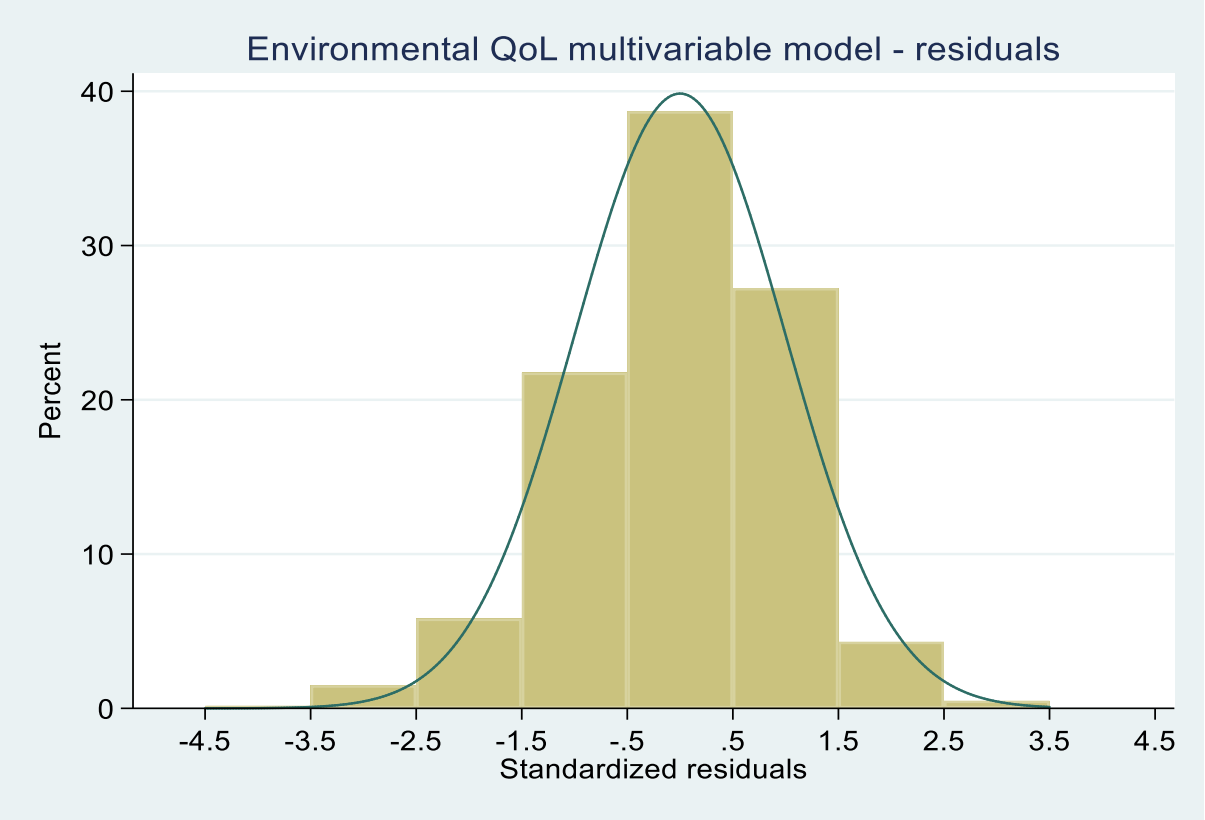
90
Predicted values
Standardized residuals
Predicted values


Environmental QoL multivariable model - residuals
Percent
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4.5
Standardized residuals

Appendix 4: WHOQoL-BREF Instrument

WHO/MSA/MNH/PSF/97.6
English only
Distr.: Limited

WHOQOL-BREF

PROGRAMME ON MENTAL HEALTH
WORLD HEALTH ORGANIZATION
GENEVA

For office use only

	Equations for computing domain scores	Raw score	Transformed scores*	
			4-20	0-100
Domain 1	(6-Q3) + (6-Q4) + Q10 + Q15 + Q16 + Q17 + Q18 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	=		
Domain 2	Q5 + Q6 + Q7 + Q11 + Q19 + (6-Q26) ☐ + ☐ + ☐ + ☐ + ☐ + ☐	=		
Domain 3	Q20 + Q21 + Q22 ☐ + ☐ + ☐	=		
Domain 4	Q8 + Q9 + Q12 + Q13 + Q14 + Q23 + Q24 + Q25 ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐ + ☐	=		

* Please see Table 4 on page 10 of the manual, for converting raw scores to transformed scores.

I.D. number

ABOUT YOU

Before you begin we would like to ask you to answer a few general questions about yourself: by circling the correct answer or by filling in the space provided.

What is your **gender**? Male Female

What is your **date of birth**? _____ / _____ / _____
Day / Month / Year

What is the highest **education** you received?
None at all
Primary school
Secondary school
Tertiary

What is your **marital status**?
Single Separated
Married Divorced
Living as married Widowed

Are you currently **ill**? Yes No

If something is wrong with your health what do you think it is?_____ illness/ problem

Instructions

This assessment asks how you feel about your quality of life, health, or other areas of your life. **Please answer all the questions.** If you are unsure about which response to give to a question, **please choose the one** that appears most appropriate. This can often be your first response.

Please keep in mind your standards, hopes, pleasures and concerns. We ask that you think about your life **in the last two weeks.** For example, thinking about the last two weeks, a question might ask:

	Do you get the kind of support from others that you need?	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5

You should circle the number that best fits how much support you got from others over the last two weeks. So you would circle the number 4 if you got a great deal of support from others as follows.

	Do you get the kind of support from others that you need?	Not at all 1	Not much 2	Moderately 3	A great deal 4	Completely 5

You would circle number 1 if you did not get any of the support that you needed from others in the last two weeks.

Please read each question, assess your feelings, and circle the number on the scale for each question that gives the best answer for you.

		Very poor	Poor	Neither poor nor good	Good	Very good
1(G1)	How would you rate your quality of life?	1	2	3	4	5

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
2 (G4)	How satisfied are you with your health?	1	2	3	4	5

The following questions ask about **how much** you have experienced certain things in the last two weeks.

		Not at all	A little	A moderate amount	Very much	An extreme amount
3 (F1.4)	To what extent do you feel that physical pain prevents you from doing what you need to do?	1	2	3	4	5
4(F11.3)	How much do you need any medical treatment to function in your daily life?	1	2	3	4	5
5(F4.1)	How much do you enjoy life?	1	2	3	4	5
6(F24.2)	To what extent do you feel your life to be meaningful?	1	2	3	4	5

		Not at all	A little	A moderate amount	Very much	Extremely
7(F5.3)	How well are you able to concentrate?	1	2	3	4	5
8 (F16.1)	How safe do you feel in your daily life?	1	2	3	4	5
9 (F22.1)	How healthy is your physical environment?	1	2	3	4	5

The following questions ask about **how completely** you experience or were able to do certain things in the last two weeks.

		Not at all	A little	Moderately	Mostly	Completely
10 (F2.1)	Do you have enough energy for everyday life?	1	2	3	4	5
11 (F7.1)	Are you able to accept your bodily appearance?	1	2	3	4	5
12 (F18.1)	Have you enough money to meet your needs?	1	2	3	4	5
13 (F20.1)	How available to you is the information that you need in your day-to-day life?	1	2	3	4	5
14 (F21.1)	To what extent do you have the opportunity for leisure activities?	1	2	3	4	5

		Very poor	Poor	Neither	Good	Very good

				poor nor good		
15 (F9.1)	How well are you able to get around?	1	2	3	4	5

The following questions ask you to say how **good or satisfied** you have felt about various aspects of your life over the last two weeks.

		Very dissatisfied	Dissatisfied	Neither satisfied nor dissatisfied	Satisfied	Very satisfied
16 (F3.3)	How satisfied are you with your sleep?	1	2	3	4	5
17 (F10.3)	How satisfied are you with your ability to perform your daily living activities?	1	2	3	4	5
18(F12.4)	How satisfied are you with your capacity for work?	1	2	3	4	5
19 (F6.3)	How satisfied are you with yourself?	1	2	3	4	5
20(F13.3)	How satisfied are you with your personal relationships?	1	2	3	4	5
21(F15.3)	How satisfied are you with your sex life?	1	2	3	4	5
22(F14.4)	How satisfied are you with the support you get from your friends?	1	2	3	4	5
23(F17.3)	How satisfied are you with the conditions of your living place?	1	2	3	4	5
24(F19.3)	How satisfied are you with your access to health services?	1	2	3	4	5
25(F23.3)	How satisfied are you with your transport?	1	2	3	4	5

The following question refers to **how often** you have felt or experienced certain things in the last two weeks.

		Never	Seldom	Quite often	Very often	Always
26 (F8.1)	How often do you have negative feelings such as blue mood, despair, anxiety, depression?	1	2	3	4	5

Did someone help you to fill out this form?.....

How long did it take to fill this form out?.....

Do you have any comments about the assessment?

.....

.....

THANK YOU FOR YOUR HELP