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**PREVALENCE OF DEPRESSION AND DEMENTIA AMONG INSTITUTIONALIZED
ELDERLY IN KENYA: CASE STUDY OF NAIROBI COUNTY.**

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DECLARATION

I hereby declare that this research dissertation titled “**PREVALENCE OF DEPRESSION AND DEMENTIA AMONG INSTITUTIONALIZED ELDERLY IN KENYA: CASE STUDY OF NAIROBI COUNTY**” has not been presented anywhere else and all the information contained in this document was obtained in accordance with academic rules and ethical conduct. I have fully cited and referenced all materials and information that is not original to this work.

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DEDICATION

I dedicate this research to my husband Ephantus, my son Marcus, and my parents for being the greatest pillar of support anyone could ever ask for. This is for you my loves.

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ABSTRACT

Background: The population aged 65 and above is growing faster than any other age group, especially in developing countries. With the significant life transitions that accompany ageing, going with what can be termed as a breakdown to the traditional social protection systems like the extended family in present times; institutionalization of the elderly is becoming quite common of late. The elderly's adjustment to institutionalization is not always easy and can be accompanied by a number of psychological issues. *Objectives:* This study aimed at determining the prevalence of depression and dementia among institutionalized elderly. Other objectives include: identify reasons/risk factors associated with institutionalization of the elderly; to determine the association between depression and dementia; and to examine the relationship between risk factors, depression and dementia among institutionalized elderly. The study focused on four main institutions within Nairobi County namely: Nyumba ya Wazee - Ruaraka, Mji wa Huruma - Runda, Kariobangi Cheshire Home, and Mother Teresa - Huruma. *Theory:* This study was guided by the psychosocial theory of development by Erik Erikson (1963), 'ego integrity versus despair' stage (65+ years). *Significance:* The study was able to generate a list of possible predictors for institutionalization that may facilitate the pre-admission assessment process of the elderly for better care within the institutions. The findings made informed on areas of improvement relating to institutional care for the elderly and have policy implications as well. *Methodology:* This research utilized the cross-sectional design best suited for prevalence studies. The sample of 194 participants was selected through simple random sampling which is relatively easy and allows for the generalization of findings. This study used assessment scales to measure the point prevalence of depression and dementia, and a socio-demographic questionnaire to explore the other objectives. The assessment tools used include: 6-Item Cognitive Impairment test (6-CIT), Geriatric Depression Scale (GDS) and the Cornell Scale for Depression in Dementia (CSDD). *Analysis and Presentation:* The data collected was keyed into the SPSS software for descriptive and inferential analyses including: T-tests, correlation analysis and Chi-square test and later presented using tables, pie charts and bar graphs. *Results:* 11% and 37% met the criteria for depression and dementia respectively. More women than men were shown to have depression and more females than males aged 80 years and above had dementia. The main reasons/risk factors for institutionalization identified by this study were: being single, having an impairment, chronic illness, poor self-rated health, being dependent for basic daily functioning and having little social support. This study observed a positive relationship between depression and dementia ($r=.253$, $df=186$, $p=.000$). The study also found statistically significant relationships between having children and dementia ($r = -.179$, $N=191$, $p = .013$); supportive family and friends and dementia ($r = -.181$, $N=191$, $p = .012$); and being dependent for daily basic functioning to both depression ($r = .191$, $N=191$, $p = .008$) and dementia ($r = .221$, $N=191$, $p = .002$). *Conclusions and Recommendations:* Institutionalized elderly had a higher prevalence for depression and dementia. Factors like being single, widowed or divorced increase the risk for depression and dementia among older adults. The observed relationship between level of education and dementia, suggests that education provides important cognitive reserves that could delay the onset of dementia. This study recommends further research within different contexts in Africa to: generate more reliable estimates for the prevalence of depression and dementia among the elderly, examine the blend of factors that account for the observed gender disparities and improve understanding of the different physical, social and environmental risk factors related to depression and dementia.

LIST OF ACRONYMS AND ABBREVIATIONS

WHO - World Health Organization

DSM-V - Diagnostic and Statistical Manual of Mental Disorders, 5th Edition

NCD - Neurocognitive Disorder

6-CIT - 6-Item Cognitive Impairment Test

GDS - Geriatric Depression Scale

CSDD - Cornell Scale for Depression in Dementia

MMSE - Mini Mental State Exam

CSID - Community Screening Instrument for Dementia

S.P.S.S - Statistical Packages for Social Sciences

ANOVA - Analysis of Variance

OPERATIONAL DEFINITION OF TERMS

Elderly: Persons aged 65 years and above.

Institutionalization: Being admitted or kept in a residential institution, more often, long-term care facilities for the elderly.

Depression: A mood disorder best described by persistent feelings of sadness, hopelessness and a loss of interest in previously enjoyed activities.

Dementia: A mental condition, often progressive and chronic in nature, resulting in the deterioration of cognitive functions.

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Aging comprises a natural, gradual, irreversible process of decline of bodily systems, involving not just physical, but social and psychological changes as well (Stuart-Hamilton, 2012). This results in a steady deterioration in physical and mental ability, greater susceptibility to illness, and ultimately death. However, these changes are not straight forward, neither are they consistent and are only vaguely associated to a person's chronological age. While some older persons aged 65 and above enjoy good health and functioning, some may be weak and require substantial assistance from others. Moreover, some significant life transitions accompany ageing. These include: retirement, death of friends and partners, living with a chronic illness, and relocation to more appropriate housing.

Worldwide, the population aged 65 and above is growing faster than any other age group according to the ageing report presented by United Nations (UN, 2020). The same was reiterated by the World Health Organization (WHO) projecting most of the increase in developing countries. Data from World Population Prospects: 2019 Revision shows that one out of six persons in the world (16%) will be aged above 65 by 2050, a significant increase compared to the one in eleven (9%) in 2019. The 2009 Kenya population and housing census recognized this rapid trend and projected an upsurge of older persons, 60 years and above, from 1.9 million at the time to 2.6 million by 2020.

1.1.1. Institutionalization of the Elderly

The Kenyan national policy on older persons and aging, notes rapid urbanization and changing attitudes as accompanying the demographic shift towards older population (Republic of Kenya, 2014). More specifically, there are significant changes in the family structure resulting from the rising movement of younger people from rural to urban areas in pursuit of work. These rapid socio-economic changes have resulted in breakdown of the traditional social protection systems like the extended family that afforded older persons in the society huge social support. This is also accompanied by the rural to urban migration which presents a segment of older persons within the urban set-up facing unusual challenges. The pressure of taking care of aging parents coupled with

work pressure has pushed more young people into abdicating their traditionally assigned role, opting instead to send their parents into homes. Moreover, due to the rising prevalence of chronic diseases among the elderly, there is a greater demand for care which leads to admission in long-term care facilities.

A study by Lini, Portella & Doring (2016) highlights a variety of motives for institutionalization as reported by family when planning to place their elderly person in a nursing home. These were: few number of present relatives to care for the person; insufficient physical, economical and psychological conditions to provide proper home care; widowhood; relationship problems with relatives; the desire for the elderly to not bother their relatives; and multiple diseases and dementia. The elderly's adjustment to institutionalization is not always easy. A study by Luppá, Luck, Weyerer, König, Brähler & Riedel-Heller (2010) cites that the challenges elderly people endure during the process of institutionalization are linked to a number of negative outcomes including: limited quality of life, care is of questionable quality, and increased mortality. Hassan, El-Halim, Ahmed & Mostafa (2017) concur with the observations. In addition, loss of autonomy, privacy, co-existence with family and friends, identity, generational exclusion, and feelings of abandonment are factors experienced by institutionalized elderly. Another study by Soares (2014) adds that, activities in most of these institutions are performed within the same environment and the routine is standard for all. As such, individual differences are overlooked, and the restricted way of life may contribute to greater risk of psychological problems.

1.1.2. Depression and Dementia among the Elderly

Recent studies have shown increased interest in the elderly population, with special focus on diseases shown to be prevalent among this age group. It is vital to remember that the process of aging leads to changes in disease patterns and in the occurrence of disabilities. Older persons are also likely to be coping with other life transitions that can increase their risk for mental illness. According to a study by Leal, Apóstolo, Mendes & Marques (2014), deterioration of physical, cognitive and sensory functions result in general decline in functional abilities. As such, a higher occurrence of mental conditions is noticeable at advanced age, the most common of which are depression and dementia as stressed by Soares (2014).

According to the DSM-V, dementia is subsumed under the new term 'major neurocognitive disorder'. The manual also recognizes initial, less severe stages of cognitive decline, which can

also be a focus of care, as ‘mild neurocognitive disorder’ (APA, 2013). For a diagnosis of dementia/Major NCD to be made, signs of significant cognitive deterioration from an earlier level of functioning in one or more of these cognitive domains must be evident. These executive functions are: acuity-motor function, language and social reasoning, attention, as well as learning and memory. In many cases, especially for older people, there are multiple causative factors for dementia and the diagnosis should recognize this and assign a subtype, like Major neurocognitive disorder due to Alzheimer’s disease. Dementia is largely under-diagnosed, and often diagnosis occurs at a later stage in the disease process (George-Carey, Adeloje, Chan, Paul, Kolčić, Campbell & Rudan, 2012). This is particularly the case in developing counties with low GDP, as families and caregivers may not recognize their relative’s behavioral changes, majority of whom believe dementia to be a normal part of ageing.

Depression, otherwise known as major depressive disorder, involve feelings of sadness for prolonged periods of time, despair, and disinterest in previously valued activities (APA, 2013). The sufferer could have a diminished ability to focus/concentrate, exhibit physical symptoms like losing or gaining weight, lack of sleep or excessive sleeping, fatigue, psychomotor agitation, and experience recurrent suicidal ideations. For a diagnosis of depression to be made, a person must exhibit five or more of these symptoms for at least 2 weeks.

Statistics show that dementia affects about 5% of persons aged 65 years, and approximately 20% of those aged 80 years and above (Soares, 2014). For people aged 65-70, about 3 in every 100 have dementia. This risk goes up as people age, almost doubling every five years. This could mean that those aged 90 and above, around 33 in every 100 have dementia. Though older people are at a higher risk for dementia, younger individuals can still get it with around 1 in 20 persons under the age of 65 developing the condition. On the other hand, the prevalence rate of depression ranges between 5%-35%, varying based on the severity level. The occurrence of depression symptoms in community residents aged 65 and above ranges from 10.3 percent to 13.5 percent. Increased risk of sickness and death, increased use of health services, poorer adherence to treatment programs, self-care neglect, and a higher risk of suicide are all linked to depression (Hategan, Bourgeois, Hirsch & Giroux, 2018). Episodes of depression, associated with other morbidities that come after or before institutionalization and often made worse by the institutionalization process, can hasten the onset of cognitive decline and/or dementia.

A study by George-Carey, et al. (2012) showed that dementia affects roughly 2.4% of adults aged 50 years and up in Africa. This prevalence was found to be higher among females aged 80 years and above at 19.7%. The study found minimal disparity between regions. The most frequent cause of dementia was shown to be Alzheimer's disease at 57.1%, trailed by vascular dementia at 26.9%. The study also observes that becoming older, being a woman, and having a cardiovascular disease were the biggest risk factors for dementia. A study by Mirkena, Reta, Haile, Nassir & Sisay (2018) seeking to establish the incidence rate of depression and related factors among older adults in Ethiopia found a 41.8% prevalence rate, majority of whom were female. Another study by Musyimi, Mutiso, Musau, Matoke & Ndeti (2017) identified being older (65 and above), female, single, unemployed and illiterate as significant determinants of depression.

In this perspective, this research acknowledges the growing burden of non-communicable diseases especially among the elderly in developing countries like Kenya, and the limited literature on the incidence rate of depression and dementia in Africa. As such, this study aimed at exploring: the prevalence of depression and dementia; reasons/risk factors related to institutionalization of the elderly; and examine any link between the two disorders with reference to institutionalized elderly.

1.2. Problem Statement

Numerous studies have been conducted in the recent past focusing on the elderly population, 65 years and above, considering it's one of the fastest growing age group globally. However, there is limited research targeting institutionalized elderly more so in Kenya with this being a growing phenomenon owing to the rapid socio-economic changes. The few studies done in Africa and Kenya on the elderly focus on: prevalence of dementia in Africa (George-Carey, et al., 2012); occurrence of depression and related factors among the elderly (Mirkena, et al., 2018); functionality of elderly persons, by comparing institution-dwelling and non-institutionalized elderly (Mugo, Onywera, Waudo & Otieno, 2018). Other areas studied include: the psychological wellbeing of the elderly as a result of institutionalization (Kago, Kavulya & Mutua, 2017); and the utility of certain screening tools in diagnosing dementia among rural ageing East African populations (Chen, Mizuno, Elston, Kariuki, Hall, Unverzagt & Friedland, 2010). Different studies indicate increased incidence rate of mental conditions, particularly depression and dementia with advancing age (Lini, et al., 2016; Leal, et al., 2014). There being an obvious research gap with respect to institutionalized elderly, this present study intended to focus on them. It is against this

context that this investigation sought to establish the prevalence of depression and dementia among institutionalized elderly, to find out the reasons/risk factors associated with elderly institutionalization, and if any relationship exists between depression and dementia. These being aspects that have not been researched comprehensively in Kenya, this study's findings could help illuminate on possible interventions and areas of improvement when it comes to the care of the elderly.

1.3. Purpose of Study

The purpose of this investigation was to determine the prevalence and the association of depression and dementia among institutionalized elderly in Kenya.

1.4. Research Questions

Main research question: What is the prevalence of depression and dementia among institutionalized elderly?

Specific Research Questions:

- i. What is the prevalence of depression among institutionalized elderly?
- ii. What is the incidence rate of dementia among institution-dwelling elderly?
- iii. What are the reasons/risk factors associated with institutionalization of the elderly?
- iv. Is there an association between depression and dementia among institutionalized elderly?
- v. Is there a relationship between the risk factors associated with institutionalization, depression and dementia among the institutionalized elderly?

1.5. Objectives

Main objective: To determine the prevalence of depression and dementia among institutionalized elderly.

Specific objectives:

- i. To determine the prevalence of depression among institutionalized elderly.
- ii. To determine the incidence rate of dementia among institution-dwelling elderly.
- iii. To identify the reasons/risk factors associated with institutional placement of the elderly.

- iv. To determine the association between depression and dementia among institutionalized elderly.
- v. To determine the relationship between the risk factors related to institutionalization, depression and dementia among the institutionalized elderly.

1.6. Justification of the Study

Unless accurate and sufficient knowledge of the burden of depression and dementia among institutionalized elderly people is gained, these conditions will continue to be largely ignored. This will make securing the resources needed to facilitate and advance elderly care in institutions more challenging. As such, this study sought to establish a reliable estimate of the prevalence of depression and dementia among institution-dwelling elderly, therefore adding to the existing literature and increasing understanding of depression and dementia in Kenya. More importantly, this study suggested areas for further research which will help advance present literature on the topic.

1.7. Study Significance

The information generated from this study will prove useful in the early diagnosis of depression and dementia resulting in early and effective intervention which produces better outcomes. By identifying the risk factors leading to institutionalization of the elderly, the study was able to generate a list of possible predictors/indicators of institutionalization that may facilitate the pre-admission assessment process of the elderly for better care within the institutions. This may inform on areas of improvement relating to the institution's physical space, management system, and recruitment and training gaps that if addressed will contribute to improved care for the elderly within the institutions.

This study's findings will empower and provide much needed awareness to families and professionals within elderly institutions on the issues affecting the elderly and how to care for them. It is worth noting that the two are the main sources of support that the institutionalized elderly have, hence the psychological and emotional preparation that will enable them to care appropriately for this population. The observations made may also have policy implications. By helping to increase the knowledge and information available on depression and dementia among

institutionalized elderly, the findings may influence both institutional and government policies regarding the care of the elderly.

1.8. Scope and Limitations

1.8.1. Scope

This study was meant to establish the prevalence of depression and dementia among institutionalized elderly. The participants of the study consisted of elderly persons residing in institutions for the elderly within Nairobi County. The study settled on four main institutions namely: Nyumba ya Wazee (Little Sisters of the Poor) - Ruaraka, Mji wa Huruma (Nairobi city council) - Runda, Kariobangi Cheshire Home, and Mother Teresa Home - Huruma. It took approximately one year to complete the study which not only assessed the prevalence of depression and dementia, but also explored the reasons/risk factors associated with institutionalization of the elderly.

1.8.2. Limitations

Some of the questions asked to the participants were sensitive or touched on private matters that the participants may have felt uncomfortable answering. Some respondents may have given responses that appeared socially acceptable, in order to avoid being judged by others if their comments differed from what was expected. This phenomenon is referred to as social desirability bias, which includes both expectations and response biases.

To offset the effects of these limitations, the researcher tried to assure the participants of anonymity and confidentiality of their information which helped reduce their anxiety about providing information.

1.9. Assumptions

It was this study's assumption that the population sampled is characteristic of the target population under study which is institutionalized elderly in Nairobi County. By using random sampling methods where everyone had an equal chance of being chosen, the researcher was able to obtain a representative sample population, as such any findings can be generalized to the larger population. The research also assumed that the study participants answered the questionnaires and assessment tools provided to them honestly (the tools will be administered and filled in by the researcher). To

ensure this, the researcher assured the participants of anonymity and confidentiality of their data. Moreover, participation was voluntary as such participants reserved the freedom to pull-back from the study at any point without fear of consequences.

CHAPTER TWO

LITERATURE REVIEW

2.1. Introduction

This chapter contains the theoretical framework, review of previous studies and the conceptual framework. The chapter reviewed previous scholarly work done on depression and dementia among institutionalized elderly globally, in Africa and in Kenya. There is limited current literature on this topic in Kenya.

2.2. Theoretical Framework

Theories provide the researcher with frameworks within which to make predictive hypothesis during the course of a research study. This investigation was steered by the psychosocial theory of development by Erik Erikson (1963), 'ego integrity versus despair' stage (65+ years).

2.2.1. Psychosocial Theory of Development

According to Erikson's psychosocial theory, persons navigate through eight distinct phases of development as they grow up. Each phase/stage presents a crisis that marks a critical turning point in the person's development (Erikson, 1963). If the crisis is successfully resolved, the individual gains a psychological virtue that benefits their general well-being. Integrity versus despair is the last stage of Erikson's theory which starts at about 65 years of age till death. In this stage, individuals examine their accomplishments and search for the meaning of their lives. Satisfaction results in integrity whilst discontent leads to despair. Erikson and his colleagues later proposed that older adults experience further struggles, such as bodily and mental deterioration, detachment, accepting the help of others, and contemplating the inevitability of death (Erikson, Erikson & Kivnick, 1986).

This theory can be used as a basis to examine the tasks older adults undertake, their major challenge being to reflect back on their lives for meaning. Studies that have used Erikson's theoretical framework have consistently revealed that, older persons who expressed greater levels of meaning and satisfaction correspondingly had a greater sense of self-value, connectedness, and respect (Lange & Grossman, 2010). These were found to be absent among participants who felt unsatisfied. Negative perceptions on the meaning of life, resulting in feelings of despair, was also found to be linked to more negative outcomes both physically and psychologically. This study was

guided by Erikson's theory in examining the participants' perceived meaning of life according to: roles, internal values, relationships and goals, and the influence external factors have on these goals.

2.3. Review of Past Studies

2.3.1. Prevalence of Depression among Institutionalized Elderly

A study by Frade, Barbosa, Cardoso and Nunes (2015) states that psychiatric disorders are quite common among the elderly and account for the worsening of pre-existing medical conditions, self-neglect, and increased dependence. The goal of the investigation was to explore the link between institutionalization and depression among the elderly. This was achieved by comparing the prevalence rate of depression between institutionalized and non-institutionalized elderly. The study utilized a cross-sectional design targeting a group of elderly persons aged 65 and above in Central Portugal. The sample size was made up of 75 elderly persons aged between 65-91 years, among whom 44 were institutionalized and 31 non-institutionalized. The study used the Geriatric Depression Scale (GDS) to assess for depression. The occurrence of depressive symptoms was found to be higher among elderly persons who were institutionalized, with the likelihood of having these symptoms being 74.1% lower in elderly persons residing at home (non-institutionalized). The rate was also higher in single and widowed elderly than in those who were married. From these findings, the study recommended the importance of finding therapeutic strategies to lessen the impact of institutionalization.

The above study was based on a sample of convenience which severely limited its analysis, conclusion and generalization to the wider population. This present study will make use of random sampling procedures in order to allow for the generalization of the findings. Moreover, though GDS is the most commonly used instrument by clinicians and researchers in diagnosing depression among the elderly, the study by Frade, et al. (2015) noted a major restriction in its use seeing as it cannot be applied in cases of cognitive impairment. This study intended to address this limitation by using the Cornell Scale for Depression in Dementia (CSDD), in addition to GDS for persons shown to have moderate to severe levels of dementia.

Santiago and Mattos (2014), on a study that sought to evaluate the occurrence of depression and the factors linked to the condition among institutionalized elderly, found 48.7% incidence rate of depressive symptoms in this group. A cross-sectional study design was used, involving 462

persons aged 60 years and above in four institutions in Brazil. The researchers used the 15-item GDS to screen for depressive symptoms. Due to the high prevalence of depressive symptoms observed, the study stressed on the significance of health conditions and functioning for institutionalized elderly persons developing depression. The researchers cited poor self-rated health (bad or very bad), having co-occurring illnesses, hospitalizations, and having no friends in the institution as the main variables associated with depressive symptoms. A major gap observed in this study is that it did not seek to establish pre-admission factors neither did it acknowledge the possible influence of these factors in the prevalence of depressive symptoms. Moreover, the context of this study (Brazil) differs from that of the present study (Kenya). The present study bridged this gap by exploring reasons for institutionalization and the role these pre-admission factors may play in the occurrence of depression and dementia. In addition, a comparative study such as this would seek to find out if the results observed in Brazil correspond or differ from those generated from the Kenyan population.

Research done by Runcan (2012), with the purpose of discovering the effects of institutional placement and loneliness on the occurrence of depression in elders, confirmed that institutionalization does indeed lead to depression with a prevalence rate of 62% for severe depression. By use of an opinion questionnaire (participants comprised of 50 institutionalized elderly in Timisoara, Romania), the researchers noted that majority felt sad, unsatisfied, guilty, experiencing feelings of failure, changes in their self-image/identity, had concerns about their health, as well as sleeping and feeding problems. These feelings resulted in restricted social contact, loss of interest in various activities, and a preoccupation with thoughts of death. The main limitation observed in this inquiry was the small sample scope used, which restricted generalization of results. The present study intended to use a much larger sample size, randomly selected from 4 major institutions of care for the elderly which would allow for result generalization.

Another study by Mirkena, Reta, Haile, Nassir & Sisay (2018) found an increased prevalence for depression among older adults, 41.8% prevalence rate, majority of whom were female. The study used a community-based cross-sectional study design and targeted adults aged 60 years and above, living in Ambo Town (Ethiopia). GDS-15 was used to screen for depression among 800 study participants. This being a community-based study, the researchers targeted older adults in their households. The present study aimed at investigating the incidence rate of depression among older

adults, but those living within institutions of care for the elderly. This contributes to existing literature on the topic in Africa, which is limited, more so in a different context (institutionalized elderly).

2.3.2. Prevalence of Dementia among Institutionalized Elderly

The study by Lini, Portella and Doring (2016) used Mini mental State Exam (MMSE) and Pfeffer functional activities questionnaire (PFAQ) to assess for cognitive impairment among elderly persons, both in facilities for long-term care of the elderly and those within their households. Results showed that there were signs indicative of dementia in 81.2% of the institutionalized elderly, as compared to 12.8% of those residing at home. The institutionalized elderly persons also had higher prevalence rates for Alzheimer's disease at 26.3%, Parkinson's disease at 9.5%, other unspecified dementias at 13.7%, and stroke motor sequelae at 13.7%, in contrast to their counterparts in the general population. The present study used the 6-Item Cognitive Impairment test (6-CIT), a cognition screening tool for dementia, to investigate the prevalence of dementia among the institutionalized elderly. This complements the existing literature on dementia and its prevalence.

George-Carey, Adeloje, Chan, Paul, Kolčić, Campbell & Rudan (2012) did a systematic analysis of several relevant studies across Africa, with the aim of estimating the occurrence of dementia in Africa. The results estimate a 2.4% prevalence rate of dementia in adults older than 50 years. This translated to about 2.76 million people living with the disease by the year 2010, majority of whom lived in sub-Saharan Africa. Women aged 80 and up had the greatest prevalence rate, at 19.7%. Alzheimer's disease was the most frequent cause of dementia, accounting for 57.1 percent of cases, while vascular dementia accounted for 26.9% of cases. The study authors recognize that data on dementia prevalence was quite scant, thus recommending that further studies be done to offer a more accurate picture of the prevalence of dementia and the resulting disease burden. The investigation solely focused on the prevalence of dementia in the general population; no study from Kenya was reviewed. The present study will inform the information gap highlighted, investigating the incidence rate of dementia among institution-dwelling elderly in Kenya.

Noting the scarcity of information on the occurrence of dementias in Sub-Saharan Africa, Mubangizi, Maling, Obua and Tsai (2020) carried a population-based cross-sectional investigation in rural Uganda. The study's goal was to determine the incidence rate of Alzheimer's disease and

associated dementias, as well as their correlations. The researchers administered a brief community screening instrument for dementia (CSID) to a sample of 400 adults above the age of 60. The results showed that 20% of the participants met the criteria for dementia. The authors however identified a number of limitations in their study, one of which was limited resources. This meant that they were unable to clinically diagnose for dementia by use of structured clinical interviews; instead, they relied on the brief CSID which quite possibly slightly inflated the dementia prevalence. The present study intended to fill this gap by use of questionnaires and a cognition screening tool for dementia (all administered and filled in by the researcher).

2.3.3. Reasons/Risk Factors Associated with Institutional placement of the Elderly

The study by Luppá, Luck, Weyerer, König, Brähler & Riedel-Heller (2010) revealed that underlying functional and/or cognitive deficits, absence of adequate support, and the need for assistance in everyday tasks were the most important predictors for placement of the elderly in institutions of care. The study was a systematic review grounded on population-based samples within developed countries. The study conducted a multivariate analysis on known predictors and identified: poor self-rated health, increased age, cognitive and functional impairment, dementia, previous nursing care placement, and high number of medications as the main predictors shown to have the strongest evidence for institutionalization. The study however noted that the methodological quality of the studies reviewed needed improvement. It recommended that more theoretical-based models of assessing the risk of institutionalization would be helpful in establishing more clarity in complex associations in using institutions for the elderly. The present study addressed this by taking a strong theoretical position, psychosocial theory of development 'ego integrity versus despair' stage, that guided the researcher in assessing associated factors relating to institutionalization and the link between the factors.

Lini, Portella and Doring (2016), using a case-control, population-based study involving 387 elderly people sought to understand the factors linked to the placement of the elderly under institutional care. The study found that: lack of children, being single (whether by widowhood, separation, divorce, or the decision to remain single), being cognitively impaired and dependent for basic daily activities were the main factors predisposing elderly persons to institutionalization. The researchers noted that when the elderly encountered challenges in their everyday lives or had dependencies, they had trouble getting the needed proper care at home. This was mostly due to a

shift in the family profile (children moving away or being absent and the absence of a spouse), who are conventionally portrayed as the primary caregivers at home, and whose absence thus raises the probability of institutional placement. The goal of this study was to learn more about the factors that lead to elderly institutionalization in Kenya so as to generate a list of pre-admission factors and solutions to help the elderly persons cope better at home or in institutions of care.

A longitudinal study was conducted by Hajek, Brettschneider, Lange, Posselt, Wiese, Steinmann and AgeCoDe Study Group (2015), with the main objective being to find time-dependent determinants of institutionalization in old age. The study targeted the general German population aged 75 years and above (n=3,031) recruited from 6 study centers across the country. Follow-up and observations were made every 1.5 years for 6 waves/cycles. Findings indicate that the likelihood of institutional placement increased considerably with the occurrence of spousal death, dementia, depression, substantial hearing and mobility impairments. The study researchers were keen to note the limitations presented by their study design, citing that the findings may have slightly been affected by the high participant attrition rate caused by time-dependent variables. Also, participants in the latter cycles were older and more severely impaired cognitively and functionally which may have steered to a downward bias. The present study used a cross-sectional study design to control for the attrition bias.

2.3.4. Association between Depression and Dementia

Yu, Jung, Go, Park & Ha (2020), in their nationwide retrospective cohort study aimed at identifying the relationship between depression and dementia over time, found a significant link between the two. The South Korean study consisted of 1824 patients in the case group, while the control group had 374,852 patients. The study concluded that depression was an associated factor for dementia (odds ratio=2.20, 95% confidence level=1.53–3.14), with increased odd of dementia among female patients with depression (OR=2.65, 95% CI=1.78– 3.93). The study researchers however acknowledge that the use of South Korea's National Health Insurance Service: National Sample Cohort database instead of actual medical records may have limited the diagnostic accuracy. As such, the researchers recommend the use of a different study design to support the findings and to further determine if the prevention/treatment of depression affects the risk of dementia. The present study did not dwell on the latter but hoped to explore the former recommendation by use of a cross-sectional study design.

Holmquist, Nordström and Nordström (2020) concur that depression indeed is linked to increased odds of dementia. Like Yu, et al (2020), the researchers did a nationwide cohort study with the purpose of investigating the link between depression and subsequent dementia diagnosis, with a follow-up of up to 35 years and controlling for familial factors. The study made use of two cohorts of individuals aged 50 years and above using the Swedish National Patient Register. One cohort was comprised of individuals diagnosed with depression matched in the ratio of 1:1 with controls without depression (n=119,386); and the other was a sibling cohort (n=50,644) made up of same-sex sibling pairs who had dissimilar depression status. Results showed that depression was linked to increased chances of dementia, with a 5.5% prevalence rate for dementia among those who screened positive for depression and 2.6% in those without depression diagnosis. Vascular dementia showed a stronger association as compared to that of dementia due to Alzheimer's disease. It was found that in the first year following a depression diagnosis, the risk of dementia increased considerably in both cohorts. After some years the risk decreases but the association remained decades after the diagnosis of depression (over 20 years), despite adjusting for familial factors. The main limitation identified by the researchers was the use of observational data, which meant that the discovered relationships were not evidence of causal effects. The present study hoped to understand this association among institutionalized elderly, using diagnostic tools to screen/assess for both.

The study by Santiago and Mattos (2014) found that depressive symptoms were more prevalent among individuals with cognitive impairment, particularly dementia. Depressive symptoms were also related to functional dependency, a factor that may sometimes result from having cognitive issues. The authors however recommend the use of additional tools from those used in the study to confirm the diagnosis of depression and dementia. They also noted that the study may have introduced some form of information bias since much of the data collected was self-reported. The present study used the 6-Item Cognitive Impairment test to assess for dementia, the Geriatric Depression Scale and Cornell Scale for Depression in Dementia. To offset the information bias limitation, the researcher in this study assured the participants of anonymity and confidentiality of their information which likely translated to more open and honest responses.

2.3.5. Relationship between the Risk Factors, Depression and Dementia among the Institutionalized Elderly

A study by Jingjing & Wenfang (2022) aimed at identifying influential factors of depression in institutionalized elderly confirmed the impact of low income, loneliness, being physically challenged, having co-occurring illnesses, unemployment, low social standing and inadequate social support in causing a surge in depressive symptoms among the institutionalized elderly. The study design involved a descriptive review of previous quantitative studies, drawing conclusions from 11 final articles. The main shortcoming noted by the authors of the study was the limited samples used to draw conclusions. This study hoped to address this limitation by collecting primary data from a large sample of participants, thus ensuring that findings can be generalized.

Hassan, El-Halim, Ahmed & Mostafa (2017) conducted a study aimed at assessing psychological difficulties as experienced by institution-dwelling and non-institutionalized elderly. A convenient sample of 90 elderly persons (45 institutionalized, 45 non-institutionalized) from Giza City, Egypt was used. Results revealed that compared to their non-institutionalized counterparts, institutionalized seniors showed higher rates of depression, loneliness, and anxiety. This was due to: loss of autonomy; feelings of abandonment and isolation; inability to continue previous occupation; lack of privacy and meaningful activities to participate in. These are likely to have had negative consequences, such as a delimited life quality marked by increased cognitive/functional impairment and increased mortality. The study recommends that further study be done in different geographical areas to compare and generalize findings. Present study focused on institutionalized elderly in Nairobi, Kenya.

A research article by Soares (2014) discussing the care of institutionalized elderly with the aim of developing principles for action, pointed out that in majority of facilities for long-term care of the elderly, activities are restricted. They are often performed within the same settings and the routine is standard for all. This disregards individual differences, which results in the elderly person feeling like they've lost their identity and freedom. To a significant portion of elderly persons within these institutions, the environment is experienced as silent, empty, indifferent and representative of the final moments of life, which increases the occurrence and/or severity of depression, Alzheimer's disease, sleep difficulties, among other psychological problems experienced by institutionalized elderly. From these considerations, the author developed some

essential principles to be adhered to in the implementation of scheduled activities with the elderly in institutions of care. The study however relied on secondary data in making conclusions; on the other hand, the present study aimed at assessing and identifying the effects and risk factors related to institutionalization firsthand which generated more reliable primary data.

2.4. Summary of the Literature Review

Studies on the incidence of depression among institutionalized elderly indicate a higher rate among those living in homes for the elderly in comparison to their non-institutionalized counterparts (Frade, et al., 2015). The study by Santiago and Mattos (2014) places the prevalence rate for this group (institutionalized elderly) at 48.7%, findings reiterated by Runcan (2012) who confirmed that institutionalization does indeed lead to depression with a prevalence rate of 62% for severe depression. Another study by Mirkena, et al. (2018) targeting older adults in the general population above the age of 60 years in Ethiopia, found an increased incidence rate of depression (41.8%).

As for the prevalence of dementia, the researcher carefully reviewed 3 studies. Findings from a study by Lini, et al. (2016), showed an 81.2% prevalence rate of dementia for the institutionalized elderly, in comparison to 12.8% for those living at home. The study by George-Carey, et al. (2012), estimates a 2.4% prevalence rate of dementia in Africa among persons aged 50 years and above. The study authors however noted that there was scant literature on the occurrence of dementia in Africa. Mubangizi, et al. (2020), in a population-based study in Uganda found that 20% of the sample population (60 years and above) screened positive for dementia.

The present study also sought to explore reasons/risk factors linked to elderly institutionalization and the role these pre-admission factors may play in the occurrence of depression and dementia. The study by Luppa, et al. (2010), identified: poor self-rated health, increased age, cognitive & functional impairments, and previous nursing care placement as the main predictors for institutionalization. Lini, et al. (2016), adds that in addition to being cognitively and functionally impaired, lack of children and being single were significant predisposing factors for elderly institutionalization. These findings were also supported by Hajek, et al. (2015).

Majority of the studies reviewed on the link between depression and dementia, showed a link between the two. Yu, et al. (2020) found that depression was a related factor for dementia, with increased odds of dementia among female patients with depression. Holmquist, et al. (2020), agree with these findings, indicating a 5.5% prevalence rate for dementia among those who met the

criteria for depression diagnosis in contrast to 2.6% in those without depression. The study by Santiago and Mattos (2014), also found that depression symptoms were more prevalent among individuals with cognitive impairment, particularly dementia.

Literature on the association between the risk factors, depression and dementia among institution-dwelling elderly illuminated valuable information on institutional and subjective risk factor affecting the institutionalized elderly. One such study is that by Jingjing & Wenfang (2022) that recognized the effects of loneliness, physical impairment, co-occurring illnesses, low social standing and inadequate social support in causing an increase in depressive symptoms among the institutionalized elderly. Hassan, et al. (2017), concurred with these findings, adding that this increased prevalence of depression was due to: loss of autonomy, feelings of abandonment and isolation, lack of privacy, inability to continue previous occupation and/or participate in meaningful activities. Soares (2014) in his research article pointed out that in majority of institutions for the elderly, activities are restricted, and individual differences ignored in favor of routine. This results in a significant portion of the elderly persons living within these institutions feeling lost as far as their identity and freedom is concerned. All studies agree that these factors contribute to the psychological problems noticed among institutionalized elderly including depression and dementia (worsening cognitive impairment).

In conclusion, the researcher noted several limitations and recommendations made in the reviewed literature and identified ways of addressing these gaps appropriately. These included the utilization of: various screening tools to assess for and diagnose both depression and dementia; a cross-sectional study design which has a lower attrition rate compared to longitudinal designs; random sampling procedures to allow for generalization of findings; addressing ethical concerns to control for information biases, among other measures.

2.5. Conceptual Framework

The model (Figure 1) used for this study focused on the variables involved in determining the prevalence of depression and dementia among institutionalized elderly.

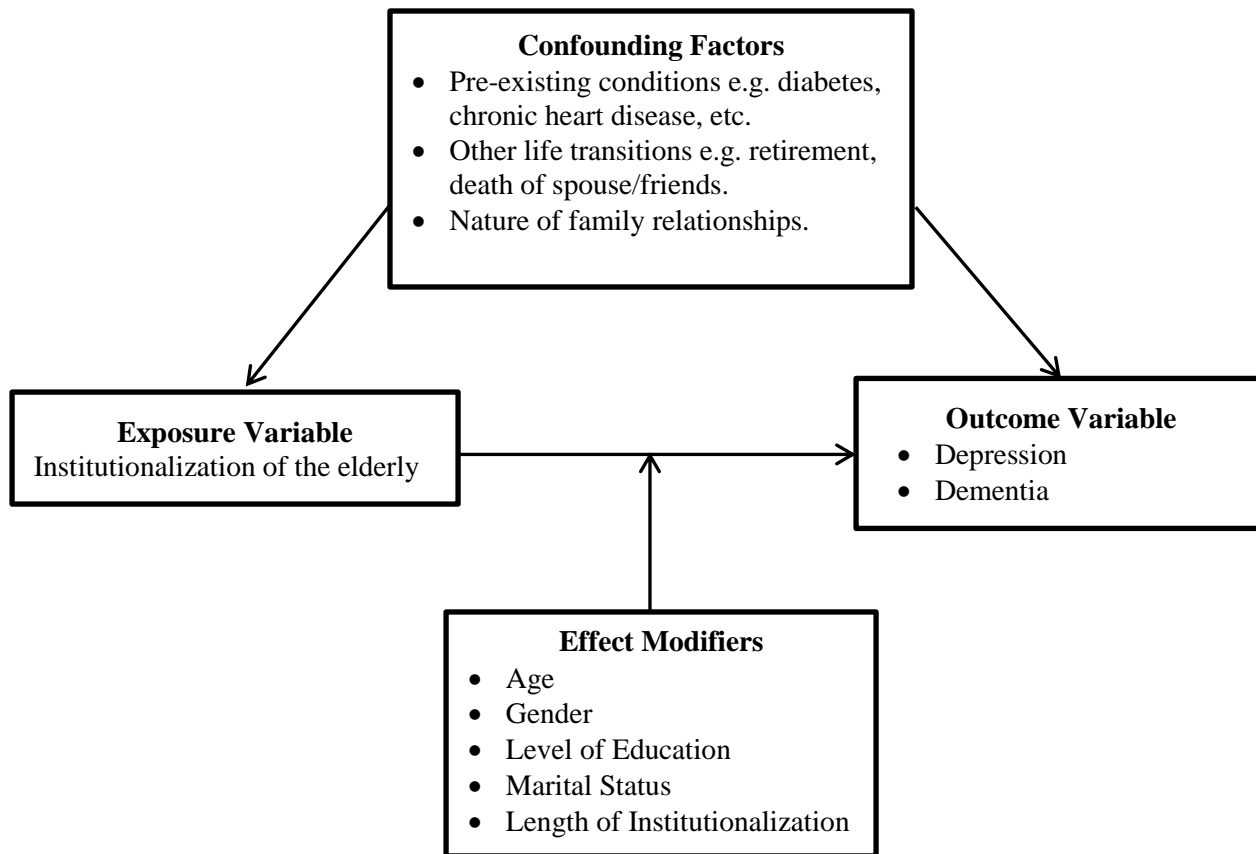


Figure 1: Conceptual Framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

This chapter covered the research design, location and population; the sample size and the sampling procedure; the research instruments the study utilized; validity and reliability of the research instrument; data collection procedures; data management, data analysis; as well as the ethical considerations.

3.2. Research Design

This research utilized the cross-sectional design which is best suited in assessing the prevalence of a disease in a population. This design made it possible for the researcher to observe and collect information on the exposure status -institutionalization in this case- and its outcomes in a single moment in time often through surveys. Since this design gives an illustration of the subjects under study at a particular moment in time and have the ability to make use of data from a large number of subjects, it's relatively inexpensive, less time consuming, and reasonably simple to conduct.

3.3. Study Variables

Independent variables: Institutionalized elderly.

Dependent variables: Prevalence of depression and dementia.

Effect modifiers: Age, gender, level of education.

Prevalence of depression and dementia is a dependent variable since this study sought to measure it based on institutionalization of the elderly in residential institutions for the elderly. Other factors modified or confounded this prevalence like: age; gender; level of education; socio-economic status; pre-existing medical conditions like diabetes, chronic heart disease; other life transitions like retirement, death of spouse and friends; relationship with relatives.

3.4. Research Location

The chosen location of research was Nairobi County with an estimated population of 4.4 million people according to the 2019 Census. Approximately 1.7% of these people are aged 65 years and above, which estimates to about 74,800 people. This location was chosen because of how

convenient it was in terms of travel distance and accessibility of a population suitable for the study (institutionalized elderly).

3.5. Target Population

The study's target population is all institutionalized elderly within Nairobi Country.

3.5.1. Study Sites

The study settled on four main institutions namely: Little Sisters of the Poor (Nyumba ya Wazee) - Ruaraka, Cheshire Home - Kariobangi, Mji wa Huruma (Nairobi City council) - Runda, and Mother Teresa Home - Huruma. Nyumba ya Wazee has a total population of 161 elderly persons, Mji wa Huruma has 135 members, Kariobangi Cheshire Home has 197 members, while Mother Teresa home has 144 members. This brings the total target population to 637 institutionalized elderly persons.

Table 1: Study Site Details

Institution	Location	Pop.	Services Provided
Nyumba ya Wazee	Ruaraka	161	Nursing care including physiotherapy, personal care (bathing and grooming), housekeeping, emergency care, spiritual services.
Mji wa Huruma	Runda	135	Medication management, personal care (bathing and grooming), social and recreational activities.
Cheshire Home	Kariobangi	197	Medication management, periodic medical reviews, spiritual services, personal care (bathing and grooming), social and recreational activities. Offers daycare services for the elderly too.
Mother Teresa Home	Huruma	144	Medication management, personal care (bathing and grooming), housekeeping, spiritual services, social and recreational activities (2 separate facilities for men and women).

3.6. Sample Size Determination

The sample size was drawn from the target population (all four institutions) comprising of about 637 elderly persons. This number was calculated from the formula of computing sample size offered by Bill Godden (2004).

$$SS = \frac{Z^2 \times (P) \times (1 - P)}{C^2}$$

SS = Sample Size.

Z = Z-Value (e.g. 1.96 for a 95% confidence level).

P = Percentage of population from entire population in decimal.

C = Confidence Interval in decimal (e.g. 0.05)

$$SS = \frac{1.96^2 \times (0.852) \times (1 - 0.852)}{0.05^2} = 193.8$$

3.7. Sampling Procedure

3.7.1. Sampling Plan

Simple random sampling was utilized in this study, with every potential participant in the target population having an equal opportunity of being chosen as a sample member. This sampling method was chosen because it is a relatively easy, quite effective, and practical method that can help in coming up with a representative, normally distributed sample from which conclusions can be drawn and findings generalized to the larger population. To accomplish this, the researcher required to obtain a complete list/database of all members within the institutions. Using Excel, the researcher randomly generated a number for each element (residents within the institutions) then used a raffle system to randomly select participants until the needed sample size was attained. The sample size of 194 respondents was then correspondingly divided based on the ratio of the population in the 4 institutions selected. The researcher also made sure to consider the ratio of gender in each institution in the process of sampling.

3.7.2. Sampling Frame

The study was carried out among institutionalized elderly within Nairobi County from 4 residential institutions for the elderly. In order to get the number of participants needed in each institution,

the calculated sample size was divided based on the ratio/proportions of the population within the institutions until it met the intended number.

Institutional sample sizes were calculated using the formula:

$$\frac{n}{T} \times SS = N$$

N = New sample size within an institution.

n = Number of persons within the institution.

T = Total number of members in all 4 institutions.

SS = Sample Size.

$$\text{Nyumba ya Wazee: } \frac{161}{637} \times 194 = 49$$

$$\text{Mji wa Huruma: } \frac{135}{637} \times 194 = 41$$

$$\text{Cheshire Home: } \frac{197}{637} \times 194 = 60$$

$$\text{Mother Teresa Home: } \frac{144}{637} \times 194 = 44$$

Therefore, Nyumba ya Wazee had 49 participants, Mji wa Huruma – 41 participants, Kariobangi Cheshire Home – 60 participants, and Mother Teresa Home – 44 participants, bringing the total to 194.

3.7.3. Inclusion and Exclusion Criteria

Inclusion: Participants aged 65 years and above; those who had spent a minimum of 3 months within the institution (ample time for the resident to acclimatize to the new setting); and those who consented to the study. The next of kin consented on behalf of participants with severe forms of cognitive impairment. Where a next of kin is absent, the institution's administrator (who has legal rights over the institution and its residents) provided consent.

Exclusion: The study excluded subjects with late-stage terminal illness; those below the age of 65; those who declined to consent to the study; those who had been in the institution for less than 3 months; and those attending day-care (non-residents).

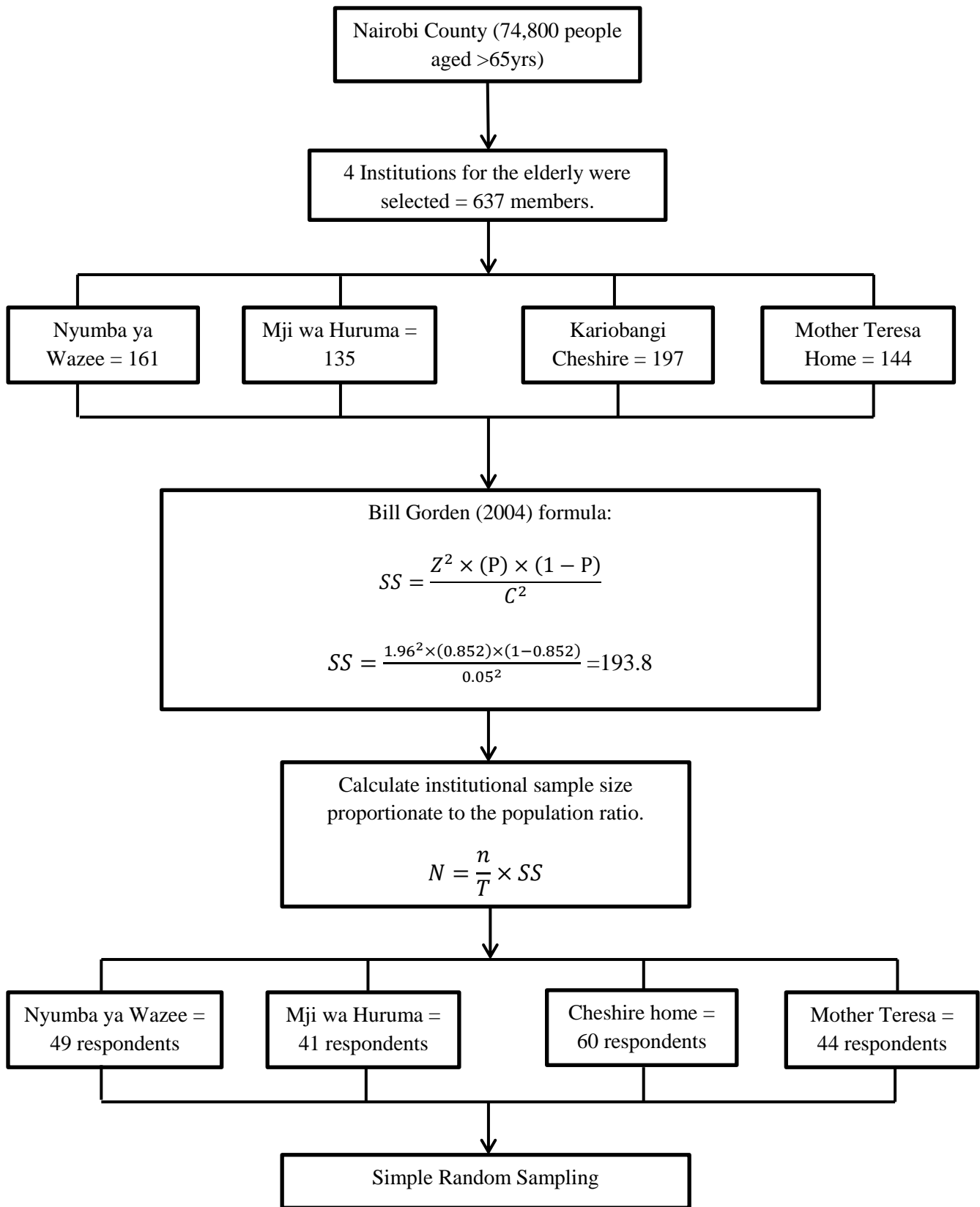


Figure 2: Sampling Procedure

3.8. Research Instruments

This study used assessment scales to measure the point prevalence of depression and dementia, and a socio-demographic questionnaire to explore the other objectives. The diagnostic criteria for dementia rely on the presence of cognitive impairment (APA, 2016), and all other aspects of the clinical presentation in dementia (behavioral issues, impairment in function) ultimately stem from impaired cognition. Depression and dementia have been shown to be quite common among the elderly; and rating depression, a primarily subjective experience, may pose a challenge especially for persons with cognitive impairment. With this in mind, it was imperative that the researcher consider the use of context/subject-appropriate assessment tools. In addition to the assessment scales chosen being valid and reliable, it was important that they be practical for use and acceptable. For practicality, the researcher considered their precision, brevity, and ease of use such that participants are not overstrained by long interviews. For acceptability, the researcher considered tools that do not upset, embarrass, or exhaust the participant or assessor.

As such, the study used 6-Item Cognitive Impairment test (6-CIT), a cognition screening tool for dementia developed by Brooke and Bullock (1999). It is a 6-item scale that assesses: orientation, recall, registration, and concentration. Scores of 8 and above out of 28 have been shown to screen for dementia effectively within a primary care context. The test has been proven to have high sensitivity without compromising specificity even in cases of mild dementia. It's easily translatable, culturally and linguistically as is done in this research. It was noted that since some participants may lack formal education, some adjustments (including having items they can relate to) were made to accommodate them without compromising the tools validity.

To assess depression the study used the Geriatric Depression Scale (GDS), 15-item version by Sheikh and Yesavage (1986). GDS-15 is often self-rated, although the researcher can administer. It has been reliably used to assess depression in older people in institutional care. Its major shortcoming, however, is that it has been validated for use on persons with mild dementia, but not for those with moderate to severe dementia (who may experience some difficulty comprehending questions thus low completion rate). To address this limitation, the study used the Cornell Scale for Depression in Dementia (Alexopoulos, Abrams, Young & Shamoian, 1988) to screen patients shown to have moderate to severe levels of dementia. It is a 19-item scale validated for use in persons with or without dementia. In this, questions are asked of the patient to caregiver, which

mean that the respondent does not need to be able to answer questions themselves for the tool to be used. The tool is regarded the gold standard in assessing for depressive symptoms in persons with major NCD.

The questionnaire assessed socio-demographic factors including: gender, age, level of education, among others. It had questions that explored: possible reasons or risk factors associated with institutionalization of the elderly. Questionnaires were chosen because they are easy to fill; respondents were able to answer questions with ease within a brief period of time. They also tend to be cost effective and the data collected from them is easily quantifiable.

3.9. Validity and Reliability

3.9.1. Validity

The tools chosen for the study were checked for validity, that is, if they truly measure what they purport to measure. Aspects of validity that were considered include: face validity (experts like the supervisors, patients and caregivers would agree that the questions therein are relevant and useful); construct validity (the tools chosen assess for dementia, depression, and the other study objectives); and concurrent validity (when used alongside a very well validated scale, the tool performs well). Also important to consider was the sensitivity (ability of a tool to accurately identify those with the condition being tested) and specificity (ability of a tool to accurately identify those without the condition being tested) of the tools.

6-Item Cognitive Impairment test (6-CIT) has great construct validity as it was found to correlate well with MMSE, $r(2)=-0.911$ ($p<0.01$) according to the original study by Brooke and Bullock (1999). The 6-CIT gives a sensitivity of 78.57% and specificity of 100%, which is proof of good construct validity as well.

Geriatric Depression Scale (GDS-15) showed a strong correlation with assessment tools related to depression ($\rho = 0.880$) and a weak correlation with general assessment tools ($-0.320 < \rho < -0.217$). There is high overlap between depression scales and GDS suggesting that they are measuring similar constructs, but the lack of perfect correlation indicates that GDS is tailored to detect and assess unique features of depression in late life. Analysis done considering the DSM-5 criteria showed that GDS-15 has excellent ability to differentiate depressed persons to non-depressed persons, with a sensitivity and specificity of 92% and 91% respectively (Sheikh and Yesavage,

1986). The Cornell Scale for Depression in Dementia has been shown to have high construct and concurrent validity. According to Alexopoulos, et al (1988), total scores obtained from the tool highly correlate with depressive subtypes of various degrees categorized according to research diagnostic criteria ($r = 0.83$).

3.9.2. Reliability

For the tools to be ideal for this study, they had to show good internal and external reliability, typically, split-half reliability (all parts of the instrument equally contribute to what is being measured), test-retest reliability (the same instrument used on another occasion on the same subjects comes up with similar results), and inter-rater reliability (degree of agreement in the ratings of two or more raters using the instrument).

6-CIT has acceptable internal consistency ($\alpha = 0.58$) and relatively good stability over time ($r = 0.62$) as shown by Abdel-Aziz & Lerner (2015).

GDS-15 has excellent internal consistency with the original study by Sheikh and Yesavage (1986) reporting alpha coefficients of 0.903, great test-retest reliability ($\alpha = 0.941$ [95% CI: 0.886–0.970]), and split-half reliability ($\alpha = 0.94$). The Cornell Scale for Depression in Dementia has high internal consistency ($\alpha = 0.84$), good inter-rater reliability ($r = 0.67$) and sensitivity.

3.10. Pre-test Study

The pre-test study was carried out using 10 elderly persons who meet the eligibility criteria in SJ Remedial Homes for the Elderly, Lower Kabete. The researcher chose the place because the location was convenient in terms of accessibility. The facility also housed a population similar in characteristics as the target population. The pretest study was used to determine the appropriateness of the study instruments and to evaluate the recruitment and data collection processes, resources (time), and data management procedures. Adjustments were made to questions/items found to compromise the validity and reliability of the tools. This also included making modifications or adaptations to the tools that fit the Kenyan context. Back-to-back translation was made to validate the assessment tools in Swahili Language.

3.11. Recruitment and Data Collection Procedures

Upon approval of the proposal by the University of Nairobi/Kenyatta National Hospital Ethics and Research committee, the researcher applied for a research permit from NACOSTI. The researcher

then requested for approval/introduction letters through the Department of psychiatry to present to the 4 institutions for the elderly, requesting permission to collect data. The researcher visited the institutions beforehand to present the introduction letters to the administration. Once approved, the institutions' management staff were briefed on the study and told what to expect. Through the management team, the target population was notified of the researcher's intentions to collect data for the study in advance.

On the data collection day, the researcher briefed the target population on what the study is about, the purpose and objectives of the investigation, and why it's important. The study participants were also briefed of their rights and expectations clarified. The researcher then randomly selected participants from the target population, in accordance with the institution's population and gender ratio until the intended sample size was achieved. Taking part in the study was completely optional, and no respondent was forced to participate against their will.

The participants were given consent forms to sign, indicating that they understand the terms of their participation. Only those who meet the inclusion criteria were allowed to partake. All the tools chosen for the study are relatively easy to administer. The tools were researcher administered. The 6-CIT took approximately 5 minutes to administer; GDS took about 5-10 minutes; the Cornell Scale for Depression in Dementia took 5-10 minutes as well; while the socio-demographic questionnaire took about 10 minutes to administer. In total, the whole process took 20 to 30 minutes on average per person. Participants were allowed breaks during the process. The Cornell Scale for Depression in Dementia was only administered to participants who showed moderate to high levels of dementia. The caregivers were requested to be present when administering this assessment. After the process, the researcher collected all filled out questionnaires and assessment tools; the respondents were then thanked for their participation. The data collection process took approximately 4 weeks.

3.12. Data Management

After the data collection process, the tools were checked for completeness and assigned identifying codes for confidentiality. The researcher then coded the tool for data entry onto SPSS software pending analysis. The data was stored in both soft and hard copies. Soft copies were protected using special passwords known to the researcher alone, while the hard copies were locked securely in a cabinet only the researcher could access.

3.13. Data Analysis and Presentation

After collecting data from the questionnaires and assessment tools, the information was then coded and keyed into the SPSS software version 23 for analysis. The first task when beginning to analyze the data collected was to run descriptive analyses. This involved creating frequency distribution tables, charts, graphs, and cross-tabulations. Summary statistics like means and standard deviations are also important descriptive measures used in this study in understanding the trends and patterns of the data collected.

This study also made use of inferential statistical procedures that allowed the researcher to examine relationships between variables and to draw inferences to the population on the basis of sample data. Such procedures include: T-tests, correlation analysis and Chi-square test. The study used bi-variant regression analysis to determine the strength of the correlation between two variables like dementia and depression.

The study used the Pearson correlation coefficient (ρ) to measure the association between prevalence of depression and dementia. The researcher ran both bivariate Pearson correlation coefficient and partial Pearson correlation coefficient (to measure the relationship between the prevalence of the two while controlling for the effects of other confounding and effect modifying variables like pre-existing conditions, age, level of education, among others). This study used the confidence level of 95%, which means that the margin of error the researcher was willing to accept was 5%. This 5% (0.05) margin became the significance level upon which most tests' significance was based upon.

After running all the analysis, the data was then be presented using tables, pie charts and bar graphs. This is because these methods of data presentation are straightforward and easy to understand at face value. Below are examples of dummy tables for demonstration.

Table 2: Distribution of Respondents by Gender

Gender	Frequency	Percentage
Male	73	45%
Female	91	55%
Total	164	100%

Table 3: Distribution of Respondents by Age

Age	Frequency	Percentage
65-69	9	14%
70-74	13	20%
75-79	19	30%
80-84	15	24%
85-89	6	9%
Above 90	2	3%
Total	64	100%

3.14. Ethical Considerations

The basic ethical principles that were considered in this research were: informed consent, right to withdrawal from the research, confidentiality, and beneficence.

Informed Consent

This study ensured that all the participants were made aware of all the objectives of the investigation, including aspects of the study that might influence their willingness to participate. The researcher also sought to ensure that all the respondents felt comfortable to participate and volunteered on their own free will to partake in the investigation.

Withdrawal from the Study

Participants in this study were informed from the beginning that they had the option to withdraw at any time. It was not compulsory to take part in the study, and withdrawal did not carry any consequences.

Confidentiality

Information obtained during the data collection process remained confidential. The respondents remained anonymous and were not compelled to submit any personal information. The study made use of codes in the place of real names, which meant that the information collected was not personally identifiable. The name of the institutions involved was also coded to assure further anonymity. Moreover, the information gathered was stored safely in a secure cabinet which only

the researcher had access to. The information uploaded on the computer was password protected, and only shared with persons consented by the participant.

Beneficence

Though this is a low risk study, participants possibly experienced some emotional risks during the data collection process, having to recall distressing details about their past or talking about the difficulties they are currently facing like illnesses or impairments. The researcher recommended treatment for those participants shown to meet the criteria for depression and dementia.

3.15. Recruitment and Consenting Procedures Flow Chart

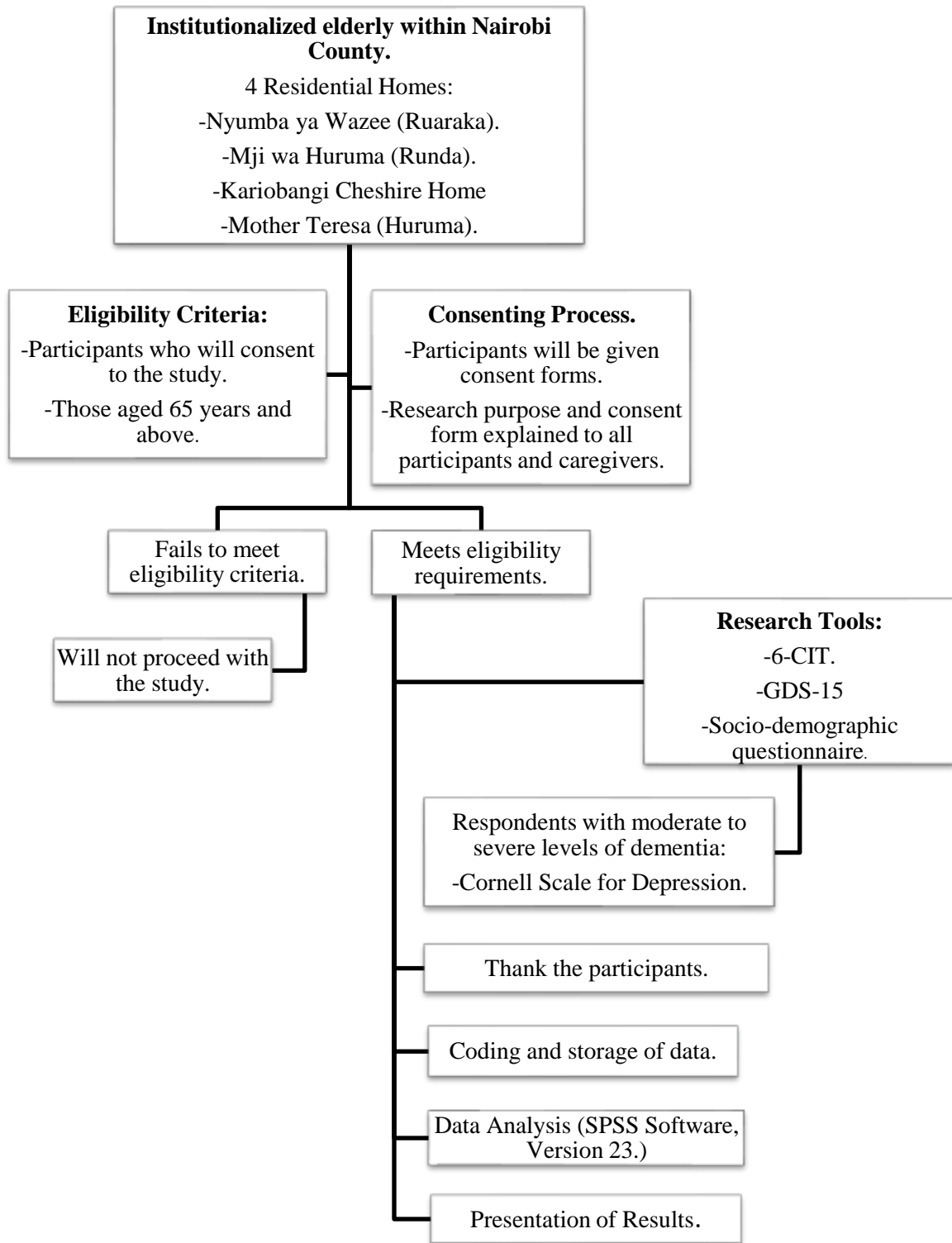


Figure 3: Recruitment and Consenting Procedure

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1. Introduction

The purpose of this study was to determine the prevalence and the association of depression and dementia among institutionalized elderly in Kenya. This chapter starts by presenting and analyzing the socio-demographic data. The results of the investigation will then be presented and analyzed guided by the following objectives:

- i. To determine the prevalence of depression among institutionalized elderly.
- ii. To determine the incidence rate of dementia among institution-dwelling elderly.
- iii. To identify the reasons/risk factors associated with institutional placement of the elderly.
- iv. To determine the association between depression and dementia among institutionalized elderly.
- v. To determine the relationship between the risk factors related to institutionalization, depression and dementia among the institutionalized elderly.

The study settled on four main institutions namely: Nyumba ya Wazee in Ruaraka, Mji wa Huruma in Runda, Kariobangi Cheshire Home, and Mother Teresa Home in Huruma. The sample size of approximately 194 was proportionately divided according to the ratio of the population in the 4 institutions selected. Out of the 194 respondents identified for participation in this study, 3 respondents opted out of the process after starting. The table below summarizes the distribution of the respondents by institution.

Table 4: Distribution of Respondents by Institution

Home	Frequency	Percent
Cheshire	59	30.9%
Mother Teresa	42	22.0%
Nyumba ya Wazee	49	25.7%
Mji wa Huruma	41	21.5%
Total	191	100%

4.2. Socio-demographic Characteristics of Respondents

191 respondents participated in this study by filling out the socio-demographic questionnaires and assessment tools (6-item cognitive impairment test, geriatric depression scale and Cornell Scale for Depression in Dementia). Data was gathered on the following socio-demographic variables: gender, age, level of education, marital status, length of stay within the institution and children (parental status).

A descriptive analysis of all the socio-demographic variables revealed that there were more men accounting for 71% (n=136) compared to women. Majority of the respondents were between the ages of 65-69 accounting for 26.7% (n=51), fewest being those above the age of 90 (8.4%, n=16). One of the inclusion criteria determined by this study was that participants must be aged 65 years and above to be admitted into the study. The respondents were also requested to indicate their level of education. 37.2% (n=71) of the respondents had no formal education, while 36.6% (n=70) reached up to primary school level. A-level had the least number of elderly persons with only 9% (n=17) getting up to that level. Marital status being an important effect modifier identified by this study, it was noted that majority of the respondent were either divorced or separated accounting for 31% (n=59), closely followed by those who were widowed (27%, n=51).

In addition, for respondents to qualify to participate in the study, they needed to have spent a minimum of 3 months within the institution which was considered reasonably ample time for the resident to acclimatize to the new surroundings. The respondents also needed to reside within the institution (those attending daycare were not admitted in the study). Many of the study respondents had stayed more than 3 years (115 respondents accounting for 60%) while only 6 had spent between 3-6 months within their respective institutions (3%). In terms of parental status, 61% (n=117) of the respondents had children, while 39% (n=74) did not have any children. Presented below is a frequency distribution table of these variables.

Table 5: Sociodemographic Profile of Respondents

Socio-demographic Characteristic	Category	Frequency	Percent
Gender	Male	136	71.2%
	Female	55	28.8%
	Total	191	100%
Age	65-69	51	26.7%
	70-74	48	25.1%

	75-79	21	11.0%
	80-84	38	19.9%
	85-89	17	8.9%
	Above 90	16	8.4%
	Total	191	100%
Level of Education	No Formal Education	71	37.2%
	Primary	70	36.6%
	O Level	33	17.3%
	A Level	17	8.9%
	Total	191	100%
Marital Status	Married	37	19.4%
	Divorced/Separated	59	30.9%
	Widowed	51	26.7%
	Single	44	23.0%
	Total	191	100%
Length of Stay	3-6 Months	6	3.1%
	6-12 Months	18	9.4%
	1-3 Years	52	27.2%
	Above 3 Years	115	60.2%
	Total	191	100%
Have Children	No	74	38.7%
	Yes	117	61.3%
	Total	191	100%

The distribution of gender within the four institutions is as shown below.

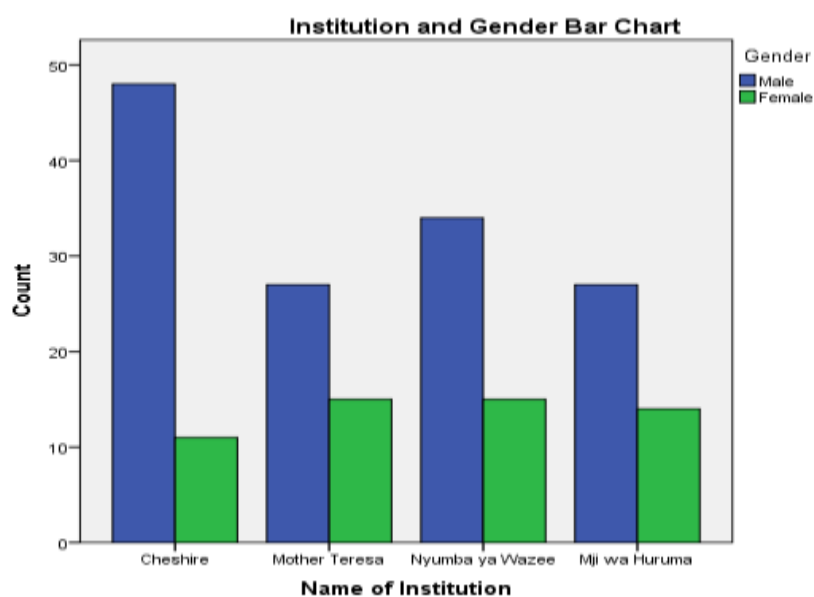


Figure 4: Distribution of gender within the institutions

4.3. Findings of the Study

The study findings are presented and discussed below as guided by the study objectives.

4.3.1. Prevalence of Depression among Institutionalized Elderly

To assess for depression the study used the Geriatric Depression Scale (GDS), 15-item version and the Cornell Scale for Depression in Dementia (CSDD). Based on the scores, a respondent would either be shown to have no depression, probably has depression, or definitely has depression. A descriptive analysis was done to identify the number of respondents who met the criteria for depression. The study findings indicate that 11% (n=22) definitely had depression, 37% probably had depression (n=70) while 52% (n=99) of the respondents didn't have depression based on their scores. The incidence rate of depression is as indicated in the figure below (Figure 5).

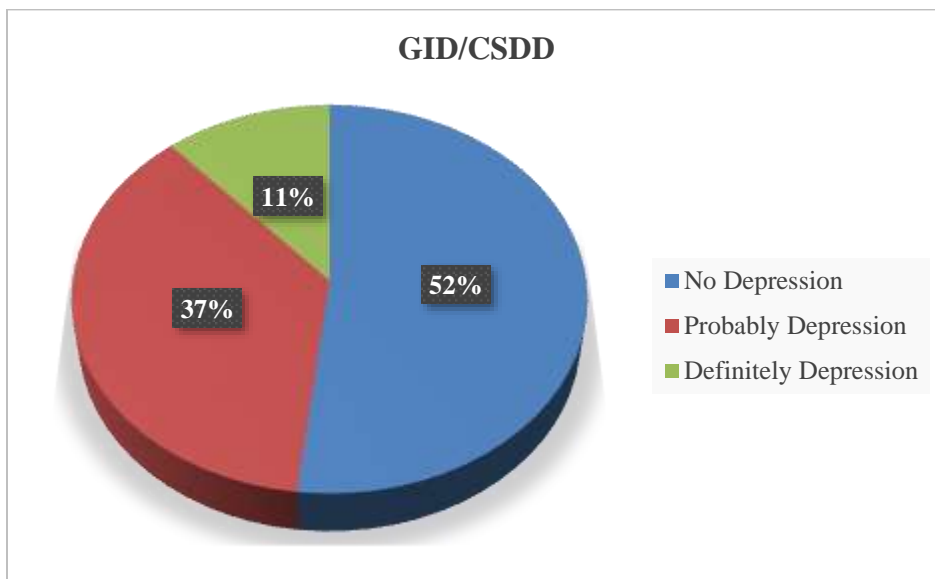


Figure 5: Prevalence of Depression

More women (n=13) than men (n=9) screened positive for depression. The age range with the highest number of respondents who met the criteria for major depressive disorder was 70-74 years with 11 cases. Respondents who were divorced or separated had the highest prevalence for major depressive disorder with 11 cases, followed by those who were single and widowed with 6 and 5 cases respectively. This is shown in the frequency table below.

Table 6: Socio-demographic Analysis of Depression Cases

Socio-demographic Characteristic		GDS/Cornell			Total
		No Depression	Probably Depression	Definitely Depression	
Gender	Male	79	48	9	136
	Female	20	22	13	55
	Total	99	70	22	191
Age	65-69	30	21	0	51
	70-74	31	6	11	48
	75-79	9	12	0	21
	80-84	10	23	5	38
	85-89	11	3	3	17
	Above 90	8	5	3	16
	Total	99	70	22	191
Marital Status	Married	7	30	0	37
	Divorced/Separated	29	19	11	59
	Widowed	34	12	5	51
	Single	29	9	6	44
	Total	99	70	22	191

The bar graph below shows the distribution of depression scores based on gender.

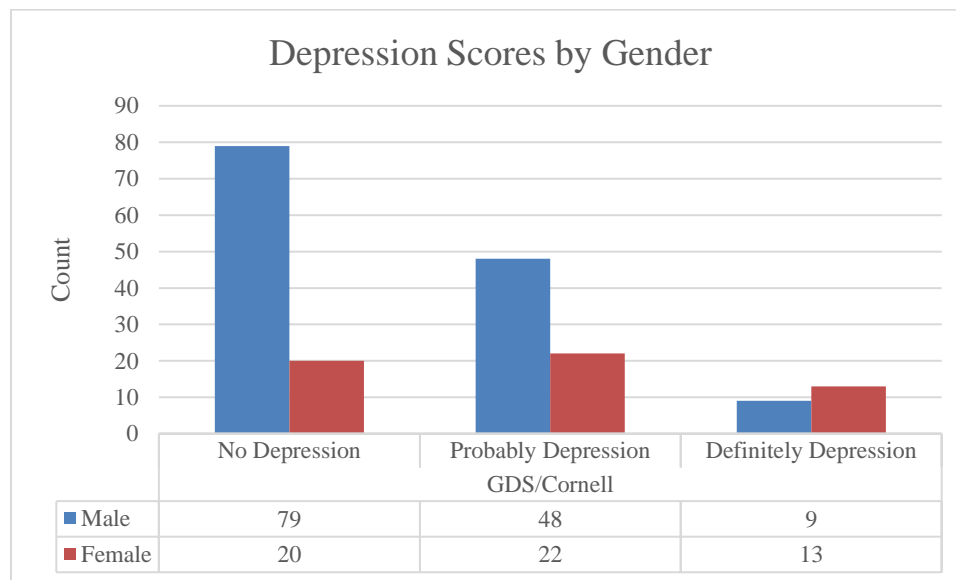


Figure 6: Depression Scores by Gender

The distribution of depression scores based on marital status is as shown in the figure below.

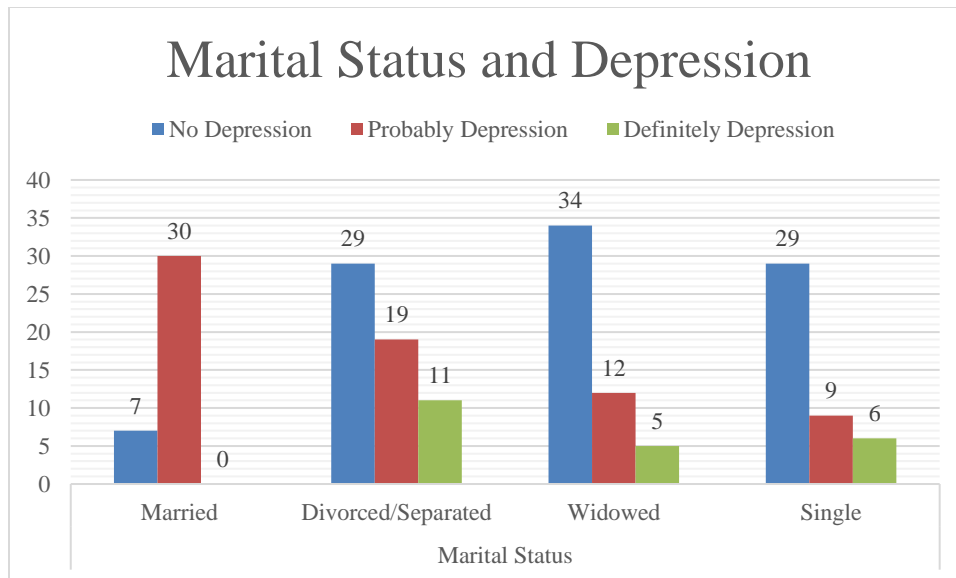


Figure 7: Marital Status and Depression

A Pearson correlation analysis was carried out to find out whether there is an association between the respondent's age, level of education, length of institutionalization and depression. The results show a statistically significant positive relationship between age and depression ($r = .151$, $N = 191$, $p = .037$) which means that higher age is associated with higher rates of depression. The relationship between level of education and length of stay to depression was not statistically significant as the p-value was greater than $\alpha = .05$. This is shown in the table below.

Table 7: Relationship between Socio-demographic Variables and Depression

		GDS/Cornell Correlations
Age	Pearson Correlation	.151*
	Sig. (2-tailed)	.037
	N	191
Level of Education	Pearson Correlation	-.126
	Sig. (2-tailed)	.084
	N	191
Length of Stay	Pearson Correlation	.061

Sig. (2-tailed)	.406
N	191

**Correlation is significant at the 0.05 level (2-tailed)

4.3.2. Prevalence of Dementia among institutionalized Elderly

This study used the 6-Item cognitive impairment test (6-CIT) to screen for dementia. Based on the scores, a respondent would either fall under normal (scores of 0-7), mild cognitive impairment (scores of 8-9) or significant cognitive impairment (scores of 10-38). A descriptive analysis was done to identify the number of respondents who met the criteria for dementia (significant cognitive impairment). 37% (n=71) of the respondents had significant cognitive impairment, 22% (n=42) had mild-cognitive impairment while the majority 41% (n=78) had no signs of cognitive impairment. Below is a pie chart representation of the data (Figure 8).

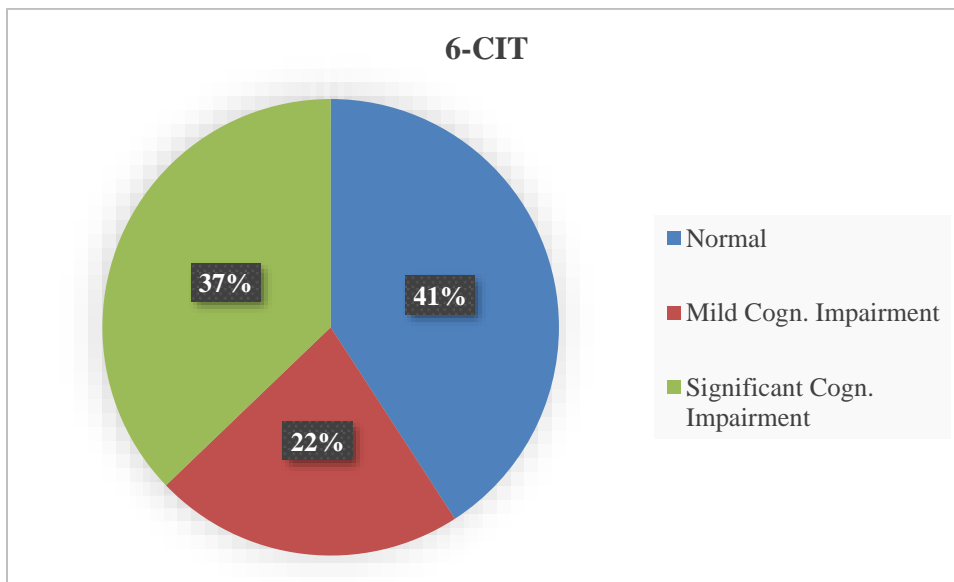


Figure 8: Prevalence of Dementia

More males (36) than females (35) had significant cognitive impairment. The age range with the highest number of respondents with significant cognitive impairment was 80-84 years with 17 cases, followed closely by 70-74 years with 16 cases. In addition, respondents who were divorced/separated had the highest number of cases with significant cognitive impairment at 25 cases, followed by those who were widowed (n=21). The least cases for significant cognitive impairment occurred among the married respondents with 12 cases. This is shown in the frequency distribution table below.

Table 8: Socio-demographic Analysis of Dementia Cases

Socio-demographic Characteristic		Normal	6-CIT		Total
			Mild Cogn. Impairment	Significant Cogn. Impairment	
Gender	Male	69	31	36	136
	Female	9	11	35	55
	Total	78	42	71	191
Age	65-69	28	9	14	51
	70-74	15	17	16	48
	75-79	9	2	10	21
	80-84	14	7	17	38
	85-89	6	4	7	17
	Above 90	6	3	7	16
	Total	78	42	71	191
Marital Status	Married	16	9	12	37
	Divorced/Separated	27	7	25	59
	Widowed	23	7	21	51
	Single	12	19	13	44
	Total	78	42	71	191

Below is a bar graph representation of the distribution of dementia cases based on age.

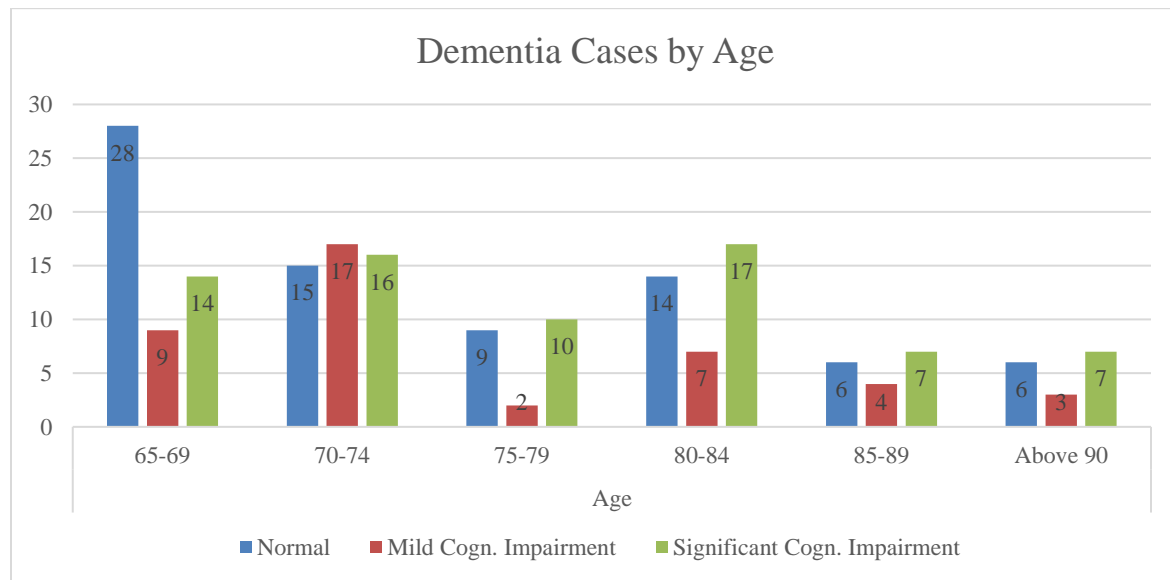


Figure 9: Dementia Scores by Age

The study went further to investigate the severity of dementia (comparing dementia scores) among respondents shown to have significant cognitive impairment based on age. A simple linear

regression analysis was done to predict dementia (significant cognitive impairment) scores based on age. A significant regression equation was found ($F(1, 69) = 7.810, p=.007$), within an R^2 of .102. The R value of .319 indicates low degree of correlation between age and dementia scores. P value of $<.05$ generally shows that the regression model statistically projected the product variable. As such, the regression equation is: *Cognitive impairment scores = 14.205 + 1.066 (Age)*

The data is presented as shown in the tables below.

Table 9: Regression Analysis of Dementia Scores vs. Age

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.319 ^a	.102	.089	5.102

a. Predictors: (Constant), Age

b. Dependent Variable: Cognitive Impairment Scores

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	203.332	1	203.332	7.810	.007 ^b
	Residual	1796.386	69	26.035		
	Total	1999.718	70			

a. Dependent Variable: Cognitive Impairment Scores

b. Predictors: (Constant), Age

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	14.205	1.332		10.661	.000
	Age	1.066	.381	.319	2.795	.007

a. Dependent Variable: Cognitive Impairment Scores

Below is a linear regression line chart of means for significant cognitive impairment scores (scores >10) based on age (Figure 10).

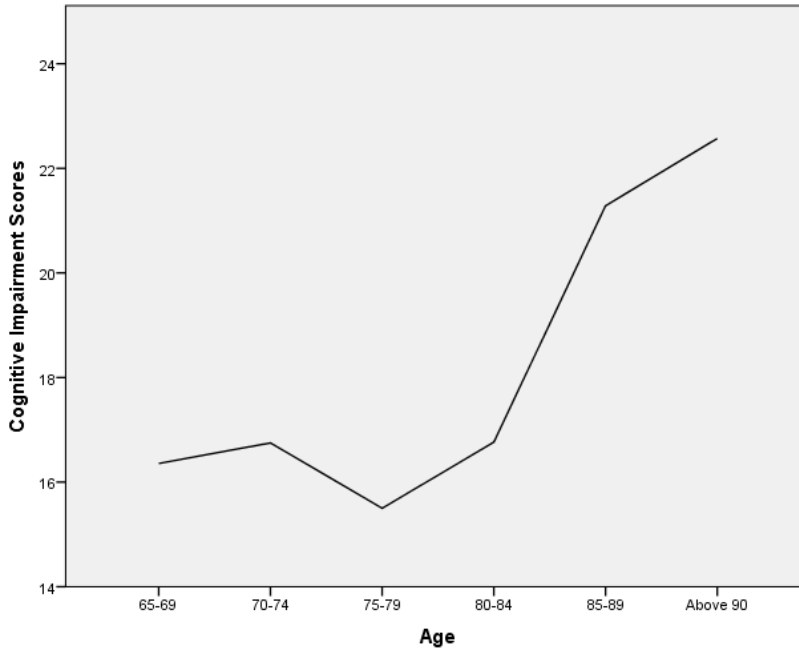


Figure 10: Significant Cognitive Impairment Scores by Age

This investigation sought to better understand the distribution of dementia (specifically respondents who had significant cognitive impairment) based on age and gender. Though more males than females had dementia, more females (n=20) than males (n=11) aged 80 years and above had significant cognitive impairment. Below is a bar graph representation of the data (Figure 11).

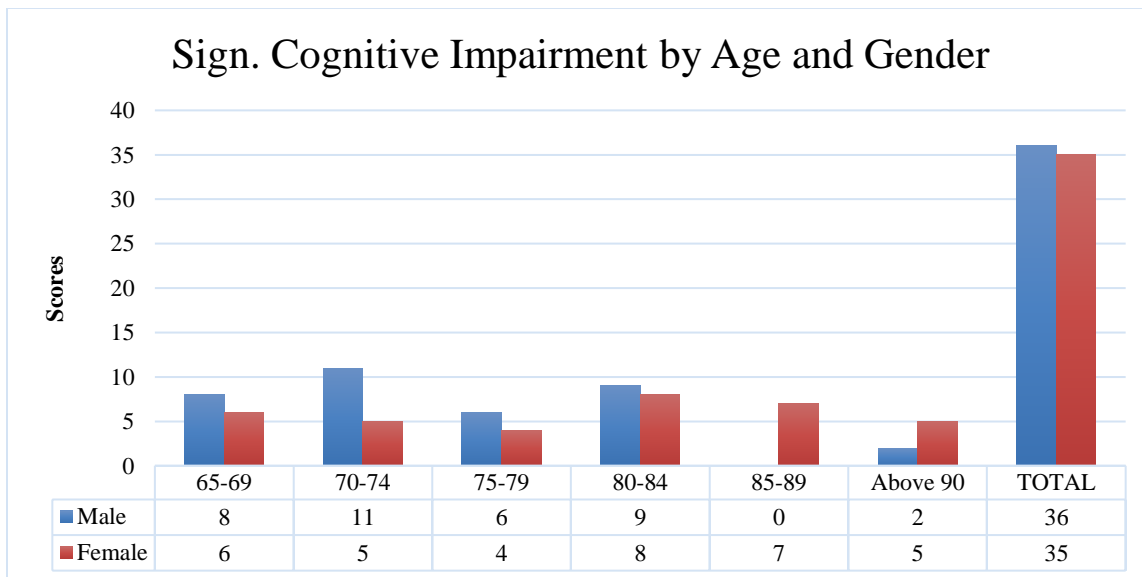


Figure 11: Significant Cognitive Impairment by Age and Gender

A Pearson correlation analysis was conducted to assess whether there is an association between the respondent's age, level of education, length of institutionalization and dementia. The results revealed a statistically significant negative relationship between level of education and dementia ($r = -.314$, $N = 191$, $p = .000$) meaning that respondents with lower levels of education had higher risk for dementia. The relationship between age and length of stay to dementia was not statistically significant as the p-value was greater than α . The data is presented in the table below.

Table 10: Relationship between Socio-demographic Variables and Dementia

		6-CIT Correlations
Age	Pearson Correlation	.125
	Sig. (2-tailed)	.086
	N	191
Level of Education	Pearson Correlation	-.314**
	Sig. (2-tailed)	.000
	N	191
Length of Stay	Pearson Correlation	-.127
	Sig. (2-tailed)	.080
	N	191

**Correlation is significant at the 0.01 and 0.05 level (2-tailed)

4.3.3. Reasons/Risk Factors Associated with Institutionalization

This objective aimed at assessing possible reasons or risk factors related to institutionalization. These reasons also serve as important predictors/indicators linked to increased likelihood for institutional placement. The study found that a significant percentage of respondents had a form of impairment (65%). Also 60% of respondents were suffering from a chronic illness; majority (46%) self-rated their health as poor; 51% were dependent for daily functioning to some extent; and 58% lacked any kind of social support from either family or friends. The following is a summary of all identified risk factors and their occurrence among the respondents (Table 11).

Table 11: Risk Factors

Risk Factor		Frequency	Percentage
Impairment	Yes	124	65%
	No	67	35%
Previous Home Placement	Yes	25	13%

Chronic Illness	No	166	87%
	Yes	115	60%
General Health Rating	No	76	40%
	Very Poor	16	8%
	Poor	89	46%
	Regular	43	23%
Dependent for Functioning	Good	43	23%
	Yes	98	51%
	No	93	49%
Supportive Family	Not Supportive	111	58%
	Somewhat Supportive	45	24%
	Very Supportive	35	18%

To further this objective, this study sought to understand the specific type of impairment respondents had. 46% had physical impairment, 43% had visual impairment and 11% had hearing impairment. It was noted that some respondents had more than one impairment. The data is as demonstrated in the bar graph below (Figure 12).

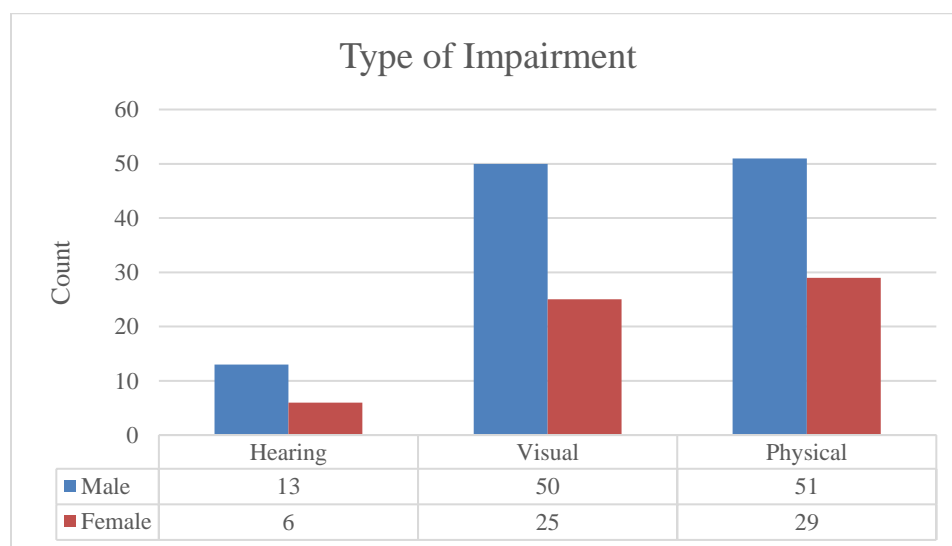


Figure 12: Type of Impairment

This study found it important to explore the type of chronic illnesses the respondents had. 36% (n=52) of the respondents had hypertension, 27% (n=38) had arthritis and 15% (n=21) had diabetes. 22% (n=31) of the respondents cited other chronic illnesses like heart disease, chronic kidney disease, asthma, long standing mental illness, among others. This is demonstrated in the figure below (Figure 13)

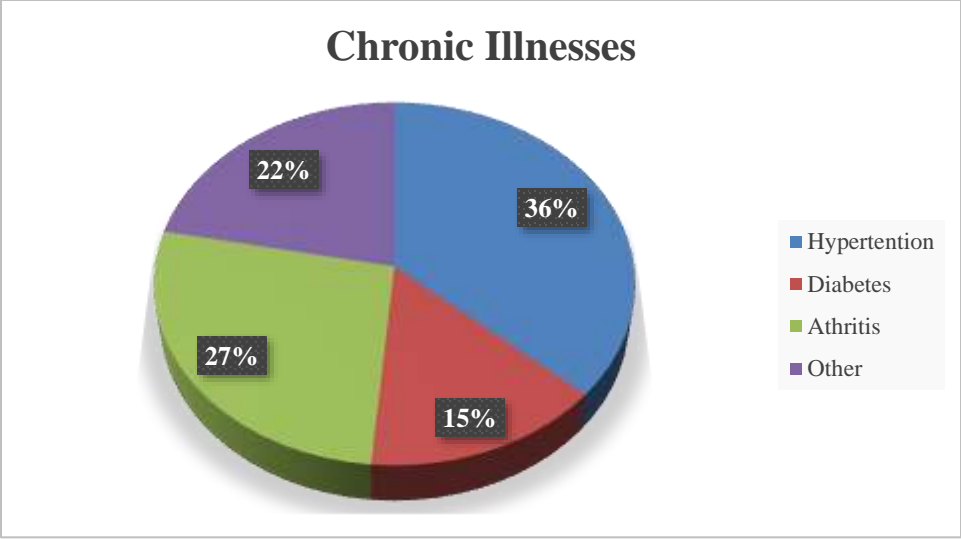


Figure 13: Type of Chronic Illness

The researcher also wanted to understand the extent of care those who were dependent for basic daily functioning (grooming, cleaning, movement) needed. 23% (n=44) of the dependent respondents needed assistance with half the tasks while 15% (n=29) were dependent for all tasks. The pie chart below presents the data (Figure 14).

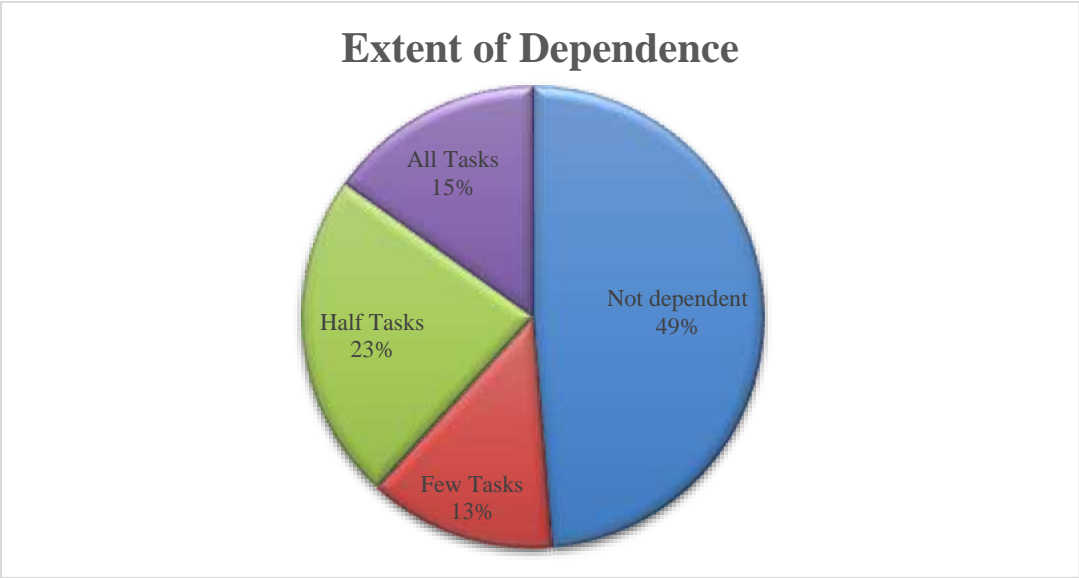


Figure 14: Extent of Dependence

4.3.4. Association between Depression and Dementia among Institutionalized Elderly

This objective sought to explore if there is any association between depression and dementia among institutionalized elderly. The researcher ran the Pearson chi-square test for association to

test for association or independence between depression and dementia. This was guided by the following hypotheses:

H_0 : *There is no association between depression and dementia*

H_1 : *There is an association between depression and dementia*

The results showed that there is a relationship between depression and dementia (p-value of 0.002, which is less than designated alpha level (α .05) thus rejecting the null hypothesis which asserts that the two variables are independent of one another). This is shown in the table below.

Table 12: Chi-square Test for Depression and Dementia

Chi-Square Tests: Dementia*Depression			
	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	17.482 ^a	4	.002
Likelihood Ratio	17.321	4	.002
Linear-by-Linear Association	10.488	1	.001
N of Valid Cases	191		

A Pearson correlation analysis was carried out to examine the nature of the relationship between depression and dementia among institutionalized elderly while controlling for pre-existing chronic conditions like diabetes, life transitions like death of spouse and nature of family relationships (these factors are considered confounders in this study). Zero order correlations revealed a weak positive relationship between depression and dementia ($r=.253$, $df=186$, $p=.000$). A bivariant relationship between the two variables (depression and dementia) without controlling for any factors shows an even weaker relationship ($r=.235$, $df=189$, $p = .001$) which demonstrates that the controlled factors negatively affect the relationship between depression and dementia. This data is presented in the table below (Table 13)

Table 13: Relationship between Depression and Dementia

			Correlations	
Control Variables			6-CIT	GDS/Cornell
-none- ^a	6-CIT	Correlation	1.000	.235
		Significance (2-tailed)	.	.001
		Df	0	189

GDS/Cornell	Correlation	.235	1.000
	Significance (2-tailed)	.001	.
	Df	189	0
Marital Status	Correlation	.044	-.196
	Significance (2-tailed)	.547	.007
	Df	189	189
Chronic Illness	Correlation	-.106	.161
	Significance (2-tailed)	.143	.026
	Df	189	189
Supportive Family	Correlation	-.181	-.045
	Significance (2-tailed)	.012	.532
	Df	189	189
Marital Status & Chronic Illness & Supportive Family	6-CIT Correlation	1.000	.253
	6-CIT Significance (2-tailed)	.	.000
	6-CIT Df	0	186
GDS/Cornell	Correlation	.253	1.000
	Significance (2-tailed)	.000	.
	df	186	0

a. Cells contain zero-order (Pearson) correlations.

This study further examined depression among the respondents (n=71) shown to have significant cognitive impairment. 13% (n=9) met the criteria for depression, 49% (n=35) probably had depression, while the reminder 38% (n=27) did not have depression. This is shown in the table below.

Table 14: Depression and Dementia Cross-Tabulation

		GDS/Cornell			Total
		No Depression	Probably Depression	Definitely Depression	
6-CIT	Normal	52	22	4	78
	Mild Cogn. Impairment	20	13	9	42
	Significant Cogn. Impairment	27	35	9	71
Total		99	70	22	191

This is illustrated in the figure below.

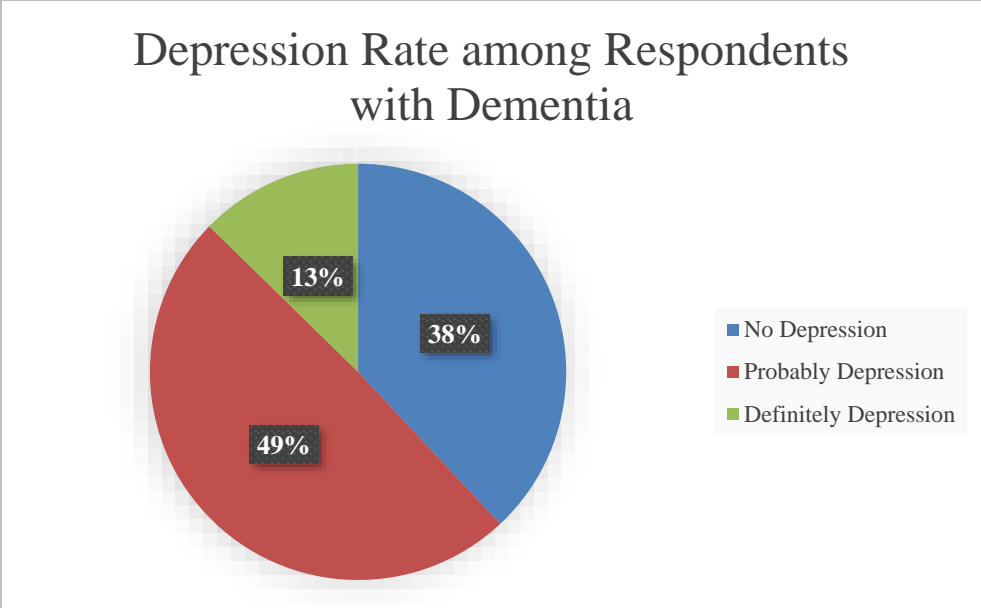


Figure 15: Depression Rate among Respondents with Dementia

4.3.5. Relationship between the Risk Factors Associated with Institutionalization, Depression and Dementia

This objective aims at measuring how the various risk factors related to institutionalization may or may not relate to the prevalence of depression and dementia. A Pearson correlation analysis was conducted to examine whether there is an association between the various risk factors in relation to depression and dementia. The results revealed a statistically significant negative relationship between having children and dementia ($r = -.179, N=191, p = .013$) which means that those without children had a higher rate for dementia and vice-versa. There is a positive relationship between dependence for functioning and dementia ($r = .221, N=191, p = .002$) and dependence for functioning and depression ($r = .191, N=191, p = .008$). This shows that respondents who were dependent for functioning also tended to have greater risk for both depression and dementia. There is an inverse association between having supportive family and friends and dementia ($r = -.181, N=191, p = .012$) which means that respondents with less social support tended to have higher rates of cognitive impairment and vice-versa. The relationships between having impairments, previous home placement, general health rating and self-rated level of happiness to both dementia and depression were not statistically significant as their p-values were greater than $\alpha = .05$. This is demonstrated in the table below (Table 15).

Table 15: Relationship between Risk Factors, Depression and Dementia

		6-CIT	GDS/Cornell
Children	Pearson Correlation	-.179*	.018
	Sig. (2-tailed)	.013	.802
	N	191	191
Impairment	Pearson Correlation	.044	-.016
	Sig. (2-tailed)	.545	.824
	N	191	191
Previous Home Placement	Pearson Correlation	.104	-.134
	Sig. (2-tailed)	.152	.065
	N	191	191
Gen. Health Rating	Pearson Correlation	.001	-.045
	Sig. (2-tailed)	.990	.538
	N	191	191
Dependent for Functioning	Pearson Correlation	.221**	.191**
	Sig. (2-tailed)	.002	.008
	N	191	191
Supportive Family	Pearson Correlation	-.181*	-.045
	Sig. (2-tailed)	.012	.532
	N	191	191
Level of Happiness	Pearson Correlation	-.122	.007
	Sig. (2-tailed)	.092	.923
	N	191	191

* Correlation is significant at the 0.05 level (2-tailed).

CHAPTER FIVE

DISCUSSION

5.1. Introduction

This chapter discusses the findings as guided by the study objectives. It draws reference to literature and findings by other studies.

5.2. Socio-demographic Characteristics

Thought the researcher made every effort to consider the ratio of gender in each institution in the process of sampling and data collection, there were more institutionalized men compared to women in all the institutions visited. Throughout most of the developing countries, providing support for older people is still primarily a family responsibility. The relationships and social networks people create in the course of their life are crucial in accessing socio-emotional support later in life. The study by Mudege and Ezech (2009) shows that men's preoccupation with vocation earlier in life, and their disinclination or inability to do household duties that may be vital determinants to healthy living in advanced age stand out as a main factor affecting the health and well-being of older men. Women on the other hand early in their lives develop and have stronger social networks within their locality, therefore faring better and suffering less isolation later in life as compared to men. This could explain why there are more institutionalized men than women in Kenya.

Majority of the respondents were between the ages of 65-69 accounting for 26.7% (n=51), fewest being those above the age of 90 (8.4%, n=16). This could be explained by the lower life expectancy in developing countries. Life expectancy in Kenya was registered at 66.5 years for women and 60.6 years for men in the 2019 census. Many of the respondents had little to no formal education, probably owing to the socio-economic state of the country during their formative years. It was noted that majority of the respondent were either divorced or separated accounting for 31% (n=59), closely followed by those who were widowed (27%, n=51). In addition, 61% (n=117) of the respondents have children. This state of reduced socio-emotional support probably played a role in institutional placement.

5.3. Prevalence of Depression among Institutionalized Elderly

Findings place the incidence rate of depression among institution-dwelling elderly at 11% which falls within the range identified by Soares (2014) of between 5%-35% varying based on the level of severity. Factoring in the percentage of institutionalized elderly who probably have depression (showed some symptoms for depression), the total prevalence rate identified by this study is 48%. This slightly higher percentage could be an outcome of institutionalization with the study done by Frade, et al. (2015) citing a higher prevalence of depressive symptoms among institutionalized elderly. The study found a 74.1% lower likelihood of having depression symptoms in non-institutionalized elderly in comparison to their institutionalized counterparts. This figure of 48% incidence rate of depressive symptoms matches that provided by Santiago and Mattos (2014) who found a 48.7% prevalence rate of depressive symptoms among institutionalized elderly. These findings were also reiterated by Runcan (2012) who confirmed that institutionalization does indeed lead to depression with a prevalence rate of 62% for severe depression. As such, it would be safe to conclude that institutionalization is linked to higher rates of depression.

This study also found that respondents who were divorced or separated had a higher prevalence for major depressive disorder followed by those who were single. Their married counterparts had the least number of cases who met the criteria for depression. This concurs with the findings by Frade, et al. (2015) which show that the rate of depression was higher in single and widowed elderly than in those who were married. This shows that these factors (being single, widowed or divorced) may increase the risk for depression.

This study found that more women than men met the criteria for depression which corresponds with findings by Mirkena, et al. (2018) that females aged 60 years and above had a higher prevalence for depression than their male counterparts. There was also a statistically significant positive relationship between age and depression which means that higher age is associated with higher rates of depression. This is consistent with conclusions made by Leal, et al. (2014) that a higher occurrence of mental conditions is notable at advanced ages, depression and dementia being the most common. Mirkena, et al., (2018) also found an increased prevalence for depression among older adults of 41.8%, which means that older adults are at a higher risk of developing depression.

5.4. Prevalence of Dementia among Institutionalized Elderly

This study found a 37% prevalence rate of dementia among institutionalized elderly. 22% of the respondents had mild-cognitive impairment. According to Soares (2014), dementia affects about 5% of persons aged 65 years and approximately 20% of those aged 80 years and above in the general population. A population-based study by Mubangizi, et al., (2020) showed that 20% of the participants met the criteria for dementia. The higher percentage of dementia prevalence found in this study could be accounted for by the process of institutionalization. Findings by Lini, Portella and Doring (2016) indeed confirm that the prevalence rate of dementia is higher among institutionalized elderly reporting an incidence rate 81.2% among institutionalized elderly as compared to 12.8% of those residing at home. As such, institutionalization could increase the chance of developing dementia.

Findings of this study revealed that more males than females had significant cognitive impairment with the difference being negligible. However, more females than males aged 80 years and above had dementia. This corresponds with conclusions by George-Carey, et al. (2012) that women aged 80 and up had a greater prevalence rate for dementia than their male equals, however the blend of risk factors accounting for this gender difference are unclear. This study did not find a statistically significant relationship between age and dementia. However, a simple linear regression analysis was done to predict cognitive impairment scores based on age among respondents with dementia (n=71). A significant regression equation was found ($F(1, 69) = 7.810, p=.007$), within an R^2 of .102. The means of scores were plotted on a linear regression line chart which clearly demonstrated that increased age was related to increased dementia severity. This confirmed that increased age is indeed a risk factor for dementia (Soares, 2014). No association was observed between institutionalization time and the scores obtained on both the cognitive and affective scales.

This study also discovered that respondents who were divorced/separated had the highest incidence rate for dementia, followed closely by those who were widowed. In additional, the results reveal a statistically significant negative relationship between level of education and dementia meaning that respondents with lower levels of education had higher scores for dementia and vice-versa. This means that being married (having a partner) and having higher levels of education serve an important protective role in delaying dementia onset (cognitive reserves). Thus,

the lack of marital interaction and cognitive stimulation provided by these factors could quite possibly predispose an individual to dementia through multiple socio-biological pathways.

5.5. Reasons/Risk Factors Associated with Institutionalization

This study found that having an impairment, chronic illness, poor self-rated health, being dependent for functioning and having little social support were the most important predictors for placement of the elderly in institutions of care. A significant percentage of respondents in this study also had chronic illnesses like hypertension and arthritis that require daily management using medication. This is consistent with findings in a study by Luppá, et al., (2010) which identified absence of adequate support, poor self-rated health, previous nursing care placement, high number of medications and the need for assistance in everyday tasks as the main factors shown to have the strongest evidence for institutionalization. This present study though, did not find any strong evidence supporting previous home placement as an important risk factor.

Majority of this study's respondents were either divorced/separated, widowed or single. In addition, many had physical and visual impairment affecting mobility and resulting in greater dependence for basic daily functioning. This concurs with conclusions by Lini, Portella and Doring (2016), who found that the main factors predisposing elderly persons to institutionalization were: being single (whether by widowhood, separation, divorce, or the decision to remain single) and being dependent for basic daily activities. Hajek, et al., (2015) also reiterated the same adding that the likelihood of institutionalization increased considerably with the occurrence of spousal death, substantial hearing and mobility impairments.

5.6. Association between Depression and Dementia among Institutionalized Elderly

This investigation revealed that there is a weak positive relationship between depression and dementia ($r=.253$, $df=186$, $p=.000$). This is consistent with the conclusions by Yu, et al., (2020) who found that depression was an associated factor for dementia. Holmquist, Nordström and Nordström (2020) concur that depression indeed is associated with increased odds of dementia adding that there was a 5.5% prevalence rate for dementia among those who screened positive for depression compared to 2.6% in those without depression diagnosis. Santiago and Mattos (2014) also found a link between depression and dementia concluding that depressive symptoms were more prevalent among individuals with significant cognitive impairment. This study however found a 13% prevalence rate of depression among respondents with significant cognitive

impairment which still falls within the prevalence rate ranges of between 5%-35% in the general population (Soares, 2014).

5.7. Relationship between the Risk Factors Associated with Institutionalization, Depression and Dementia

This study revealed statistically significant relationships between having children and dementia and having supportive family and friends and dementia. This study also found an association between being dependent for daily basic functioning to both depression and dementia. This aligns with findings by Hassan, et al. (2017) that institutionalized seniors showed higher degrees of depression and loneliness which had negative consequences such as a restricted life quality marked by increased cognitive and functional impairment.

The study by Santiago and Mattos (2014) found that depressive symptoms were distinctly related to functional dependency and dementia, adding poor self-rated health, having co-occurring illnesses and lack of friends in the institution as factors linked to depressive symptoms. The study by Jingjing & Wenfang (2022) confirmed the effects of loneliness, physical impairment, inadequate social support, low social standing and co-occurring illnesses in increasing depressive symptoms among institutionalized elderly. In contrast, this study did not observe any statistically significant association between having children, social support, having an impairment and self-rated health to depression. In conclusion, despite the dissimilarities in sociocultural context, variances in the socio-demographic composition of the study population and in methodologies used for analysis, the findings observed in this study are largely supported by other investigations

CHAPTER SIX

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This study was aimed at investigating the prevalence of depression and dementia among institutionalized elderly in Nairobi county. The study used a survey research design to examine the point prevalence of depression and dementia, the risk factors associated with institutionalization, and the association between depression, dementia and the risk factors. The study used a representative sample of 191 respondents, randomly selected from the 4 institutions within Nairobi County in order to allow for the generalization of findings. This chapter provides the summary of all major findings, conclusions, recommendations and suggestions for further studies as guided by the study objectives.

5.2. Summary of Findings

Majority of the sampled respondents were men accounting for 71%. Majority were between the ages of 65-69 accounting for 26.7%, fewest being those above the age of 90 (8.4%). Majority had little to no formal education. 81% of the respondents were single (either by divorce/separation, widowhood, or never married). A larger percentage of the respondents (60%) had stayed more than 3 years within the institution and more than half (61%) of the study participants have children. 11% of the respondents meet the criteria for depression while 37% probably had depression (showed some signs of depression). The prevalence rate of 11% falls within the range identified by Soares (2014) of between 5%-35% varying based on the level of severity. This study also revealed that the incidence rate of depression was higher in divorced/separated and single elderly persons in comparison to their married counterparts. These findings concur with those of Frade, et al. (2015) who cited an increased risk for depression in single and widowed elderly. The study also found that more women than men screened positive for depression. In addition, findings revealed a statistically significant positive relationship between age and depression which is consistent with literature that a higher occurrence of mental conditions like depression and dementia is notable at advanced ages (Leal, et al., 2014).

There was a 37% prevalence rate for dementia among institutionalized elderly. This incidence rate is higher than that identified by Soares (2014) and Mubangizi, et al., (2020) of between 5% - 20%.

The higher percentage of dementia prevalence found in this study could be accounted for by the process of institutionalization as evidenced by literature (Lini, Portella and Doring, 2016). The study revealed that more females than males aged 80 years and above had dementia which corresponds with conclusions by George-Carey, et al. (2012) that women aged 80 and up had a greater prevalence rate for dementia than their male equals. Respondents who were divorced/separated and those who were widowed had the highest incidence rate for dementia compared to their married counterparts. In addition, this study observed a statistically significant negative relationship between level of education and dementia. This means that being married and having higher levels of education serve an important protective role in delaying dementia onset.

The main risk factors and predictors for institutionalization identified by this study were: being single, having an impairment, chronic illness, poor self-rated health, being dependent for basic daily functioning and having little social support. This is consistent with literature that identified absence of adequate support, being single, poor self-rated health, substantial mobility impairments and the need for assistance in everyday tasks as the main factors shown to have the strongest evidence for institutional placement (Hajek, et al., 2015; Luppá, et al., 2010; Lini, Portella & Doring, 2016). This study observed a positive relationship between depression and dementia ($r=.253$, $df=186$, $p=.000$). This is consistent with conclusions that depression was an associated factor for dementia (Santiago and Mattos, 2014; Yu, et al., 2020). The study also found statistically significant relationships between having children, supportive family and friends to dementia; and being dependent for daily basic functioning to both depression and dementia. This conforms with literature that depressive symptoms were distinctly related to functional dependency and dementia adding lack of social support as an associated variable (Santiago & Mattos, 2014; Jingjing & Wenfang, 2022).

5.3. Conclusions of the Study

Based on the findings, the researcher concluded that institutionalized elderly had a higher prevalence for depression and dementia accounting for 11% and 37% respectively. This study also confirms that factors like being single, widowed or divorced increase the risk for depression among older adults. This study also found that being married and having higher levels of education are protective factors against dementia. This study identified being single, having an impairment, chronic illness, poor self-rated health, being dependent for functioning and having little social

support as the main predictors for institutional placement of the elderly. Findings also revealed a statistically significant relationship between depression and dementia. Factors found to be associated with either depression or dementia were: being dependent for basic daily functioning, having children, and supportive family and friends.

5.4. Recommendations

The researcher believes that this study provides a reliable estimate of the prevalence of depression and dementia among institutionalized elderly in Kenya. These estimates should prove useful in informing primary, secondary and tertiary prevention measures for better health outcomes. This means that:

- Government and key stakeholders (ministry of health; ministry of labor, social security and services; NGOs) should intensify campaigns and sensitization programs to communities to enhance elderly care through awareness creation. From this, strategies to improve the chance for early detection of depression and dementia in primary care set-ups should be put in place. Such strategies include: training all health care workers on how to screen for common mental disorders, how to offer psychological first aid and relevant referral, equipping primary health care facilities with the necessary resources.
- The government and other key stakeholders (ministry of health; ministry of labor, social security and services; NGOs) should also support family and community initiatives and endorse a positive culture that acknowledges and upholds the respect and worth of elderly persons. This should also involve efforts to decrease the need for institutional placement by providing protective, holistic care aimed at promoting the essential independence and self-reliance for elderly persons to attain self-care at home, in their usual familiar environments, close to their family.
- There is need for the government (ministry of health; ministry of labor, social security and services) to put in place measures that see to it that elderly persons have access to proper healthcare, particularly mental health services, nutritious food and decent shelter.
- The government (ministry of health; ministry of labor, social security and services) should also see to the realization of progressive social assistance programs for needy elderly persons (ICT programs, free health checks, monthly stipend). This also involves regulating the establishment and the operations of institutions of care for the elderly.

This study also found notable gender differences in the prevalence of depression and dementia among institution-dwelling elderly persons. These results point to the need for gender sensitive mental health services and initiatives to address the mental health needs of institution-dwelling older adults in Kenya.

The risk factors identified by this study associated with institutional placement of the elderly will inform stakeholders on areas to improve on in relation to: institution's physical space, management systems and policies, and recruitment and training gaps that if addressed will contribute to improved care for the elderly within the institutions. This means that:

- Mental health services and other medical services should be readily available for elderly persons within the institutions of care.
- Care within elderly institutions should be coordinated to enhance social inclusion. This will ensure that elderly persons get adequate social support through visitation, play, team building among other activities that provide avenues for meaningful social interactions. This has the potential to avert or lessen depressive symptoms and cushion against dementia in this population (the researcher noted that the Covid-19 outbreak largely contributed to the social restrictions currently being observed in institutions of care for the elderly).
- Elderly care ought to be person-centered. This means that caregivers should take into account individual differences in service provision. They should strive to formulate targeted personalized plans/schedules which will enhance the overall wellbeing of the institutionalized elderly person.
- The ratio of caregiver to elderly persons in institutions of care ought to be balanced to avoid issues of burnout and possible neglect. Institutional management should also look to empower their employees through trainings and other incentives that encourage better service provision.

5.5. Suggestions for Further Research

The principle investigator recommends further study in the following areas:

- This study focused on institutionalized elderly in Nairobi county. The researcher suggests that more studies be done in other counties to find out if the findings can be replicated (are consistent).

- More enquiry is needed on the topic in the entire Africa. Consistency in case definition and methodology is important in coming up with reliable estimates for the prevalence of depression and dementia among the elderly.
- This study findings prove that older adult's mental health may be associated with multiple levels of factors including stressors and resources concurrently which makes it imperative to further examine these relationships methodically. As such, more research needs to be approved and sponsored in order to improve literature on the various physical, social and environmental factors.
- More systematic studies intended to revisit gender differences in depression and dementia need to be done. These studies should examine the blend of factors that account for these observed gender disparities. The role of gender in explaining the interaction between multiple factors of coping and depression and dementia should also be explored.
- This study revealed an irrefutable link between depression and dementia. As such, the researcher recommends that further studies be done to determine if the prevention and/or treatment of depression affects the risk of dementia.

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APPENDIX A: PARTICIPANT INFORMATION AND CONSENT FORM

(ADULT CONSENT FOR ENROLLMENT IN THE STUDY)

Title of Study: Prevalence of Depression and Dementia among institutionalized elderly: Case study of Nairobi County

Principal Investigator\and institutional affiliation: Julia Betty Wambui Mwai, University of Nairobi

Introduction:

I would like to tell you about a study being conducted by the above-named researcher. The purpose of this consent form is to give you the information you will need to help you decide whether or not to be a participant in the study. Feel free to ask any questions about the purpose of the research, what happens if you participate in the study, the possible risks and benefits, your rights as a volunteer, and anything else about the research or this form that is not clear. When I have answered all your questions to your satisfaction, you may decide to be in the study or not. This process is called 'informed consent'. Once you understand and agree to be in the study, I will request you to sign your name on this form. You should understand the general principles which apply to all participants in a medical research: i) Your decision to participate is entirely voluntary ii) You may withdraw from the study at any time without necessarily giving a reason for your withdrawal iii) Refusal to participate in the research will not affect the services you are entitled to in this facility or other facilities. We will give you a copy of this form for your records.

May I continue? [YES] / [NO]

This study has approval by The Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No. _____

WHAT IS THIS STUDY ABOUT?

The researcher named above is interviewing individuals who are institutionalized within facilities for elderly care. The purpose of the interview is to determine the prevalence and the association of depression and dementia among institutionalized elderly in Kenya. Participants in this research study will be asked questions about their current situation. Participants will also have the choice to undergo test such as Geriatric depression scale, Cornell scale for depression in dementia, and Cognitive impairment test.

There will be approximately 194 participants in this study randomly chosen. We are asking for your consent to consider participating in this study.

WHAT WILL HAPPEN IF YOU DECIDE TO BE IN THIS RESEARCH STUDY?

If you agree to participate in this study, the following things will happen:

- You will be interviewed by the researcher in a private area where you feel comfortable answering questions. The interview will last approximately 25 minutes. The interview will cover topics such as how you feel, your memory, your health and family status.
- After the interview has finished based on the findings, the researcher may decide to recommend you for further care.
- We will request the institution to allow us to contact you if necessary, for reasons such as clarification on any personal details or follow-up on post care if any is recommended.

ARE THERE ANY RISKS, HARMS DISCOMFORTS ASSOCIATED WITH THIS STUDY?

This research has the potential to introduce psychological, social, and emotional risks. Effort should always be put in place to minimize the risks. One potential risk of being in the study is loss of privacy. We will keep everything you tell us as confidential as possible. We will use a code number to identify you in a password-protected computer database and will keep all of our paper records in a locked file cabinet. However, no system of protecting your confidentiality can be absolutely secure, so it is still possible that someone could find out you were in this study and could find out information about you.

Also, answering questions in the interview may be uncomfortable for you. If there are any questions you do not want to answer, you can skip them. You have the right to refuse the interview, or any questions asked during the interview.

It may be embarrassing for you to have a functional impairment that requires a caregiver present to assist. We will do everything we can to ensure that you receive proper support without feeling judged. Furthermore, all study staff and interviewers are professionals with special training in these examinations/interviews.

ARE THERE ANY BENEFITS BEING IN THIS STUDY?

You may benefit by receiving free psychological testing and mental health information. We will refer you to a hospital for care and support where necessary. Also, the information you provide will help us better understand the occurrence of depression and dementia, and possible reasons for institutionalization. This information is a contribution to interventions, policies and guidelines on elderly care, and literature on the topic.

WILL BEING IN THIS STUDY COST YOU ANYTHING?

No. Participation in this study is free of charge.

WHAT IF YOU HAVE QUESTIONS IN FUTURE?

If you have further questions or concerns about participating in this study, please call or send a text message to the researcher at the number provided at the bottom of this page.

For more information about your rights as a research participant you may contact the Secretary/Chairperson, Kenyatta National Hospital-University of Nairobi Ethics and Research Committee Telephone No. 2726300 Ext. 44102 email uonknh_erc@uonbi.ac.ke.

The researcher will pay you back for your charges to these numbers if the call is for study-related communication.

WHAT ARE YOUR OTHER CHOICES?

Your decision to participate in research is voluntary. You are free to decline participation in the study and you can withdraw from the study at any time without injustice or loss of any benefits.

CONSENT FORM (STATEMENT OF CONSENT)

Participant's Statement

I have read this consent form or had the information read to me. I have had the chance to ask questions and discuss this research study with the researcher. I have had my questions answered in a language that I understand. The risks and benefits have been explained to me. I understand that my participation in this study is voluntary and that I may choose to withdraw any time. I freely agree to participate in this research study.

I understand that all efforts will be made to keep information regarding my personal identity confidential.

By signing this consent form, I have not given up any of the legal rights that I have as a participant in a research study.

I agree to participate in this research study: [Yes] [No]

I agree to allow the researcher to contact me through the institution for follow-up: [Yes] [No]

Participant's printed name: _____

Participant's signature/Thumb stamp: _____ **Date:** _____

NEXT OF KIN CONSENT (Where Applicable)

I being the next of kin to _____ hereby give consent to allow the researcher to include him/her in the study as a participant. I understand that only consented forms are considered, and participation is voluntary.

NoK's Name: _____ **Relationship to participant:** _____

NoK's Signature: _____ **Date:** _____

RESEARCHER'S STATEMENT

I, the undersigned, have fully explained the relevant details of this research study to the participant named above and believe that the participant has understood and has willingly and freely given his/her consent.

Researcher's Name: _____ **Date:** _____

Signature: _____

For more information contact Julia Mwai at 0715109070 from Monday to Friday during working hours.

Witness Printed Name (*If witness is necessary, A witness is a person mutually acceptable to both the researcher and participant*)

Name: _____ **Contact information:** _____

Signature /Thumb stamp: _____ **Date:** _____

(Translated - Swahili)

FOMU YA TAARIFA NA IDHINI YA MSHIRIKI

(IDHINI YA MTU MZIMA KWA KUJIANDIKISHA KATIKA UTAFITI)

Kichwa cha Utafiti: Kuenea kwa Depression na Dementia miongoni mwa wazee waliowekwa katika taasisi (nyumba za wazee): Uchunguzi wa Kaunti ya Nairobi.

Mpelelezi Mkuu\na uhusiano wa kitaasisi: Julia Betty Wambui Mwai, Chuo Kikuu cha Nairobi

Utangulizi:

Ningependa kukuambia kuhusu utafiti unaofanywa na mtafiti aliyetajwa hapo juu. Madhumuni ya fomu hii ya idhini ni kukupa taarifa utakayohitaji ili kukusaidia kuamua kama kuwa mshiriki au la katika utafiti. Jisikie huru kuuliza maswali yoyote kuhusu madhumuni ya utafiti, nini kitatokea ukishiriki katika utafiti, hatari na manufaa yanayoweza kutokea, haki zako kama mtu wa kujitolea, na jambo lingine lolote kuhusu utafiti au fomu hii ambalo haliko wazi. Wakati nimejibu maswali yako yote kwa kuridhika kwako, unaweza kuamua kuwa katika utafiti au la. Utaratibu huu unaitwa 'kibali cha taarifa'. Ukishaelewa na kukubali kuwa katika utafiti, nitakuomba utie sahihi jina lako kwenye fomu hii. Unapaswa kuelewa kanuni za jumla zinazotumika kwa washiriki wote katika utafiti wa kimatibabu: i) Uamuzi wako wa kushiriki ni wa hiari kabisa ii) Unaweza kujiondoa kwenye utafiti wakati wowote bila ya kueleza sababu ya kujiondoa iii) Kukataa kushiriki katika utafiti huu. utafiti hautaathiri huduma unazostahiki katika kituo hiki au vifaa vingine. Tutakupa nakala ya fomu hii kwa rekodi zako

Naweza kuendelea? [NDIO] / [LA]

Utafiti huu umeidhinishwa na Kenyatta National Hospital-University of Nairobi Ethics and Research Committee protocol No. _____

UTAFITI HUU UNAHUSU NINI?

Mtafiti aliyetajwa hapo juu anahoji watu ambao wamejikita katika vituo vya kulelea wazee. Madhumuni ya mahojiano ni kubainisha kuenea na uhusiano wa mfadhaiko na shida ya akili miongoni mwa wazee waliowekwa kwa nyumba za wazee nchini Kenya. Washiriki katika utafiti huu wataulizwa maswali kuhusu hali yao ya sasa. Washiriki pia watakuwa na chaguo la kupimwa

kama vile kipimo cha Geriatric depressive scale, kipimo cha Cornell scale for depression in dementia, na Cognitive impairment test.

Kutakuwa na takriban washiriki 194 katika utafiti huu waliochaguliwa bila mpangilio. Tunaomba idhini yako ili kushiriki katika utafiti huu.

NINI KITAENDELEA UKIAMUA KUWA KATIKA UTAFITI HUU?

Ukikubali kushiriki katika utafiti huu, mambo yafuatayo yatafanyika:

- Utahojiwa na mtafiti katika mazingira unayohisi vizuri kujibu maswali. Mahojiano yatadumu takriban dakika 25. Mahojiano yatashughulikia mada kama vile unavyohisi, kumbukumbu yako, afya yako na hali ya familia.
- Baada ya mahojiano kukamilika kulingana na matokeo, mtafiti anaweza kuamua kukupendekeza kwa uangalizi zaidi.
- Tutaomba taasisi yako ituruhusu kuwasiliana nawe inapohitajika, kwa sababu kama vile ufafanuzi juu ya maelezo yoyote ya kibinafsi au ufuatiliaji wa huduma ya baadae ikiwa itapendekezwa

JE, KUNA HATARI, MADHARA YOYOTE YANAYOHUSISHWA NA UTAFITI HUU?

Utafiti huu una uwezo wa kuanzisha hatari za kisaikolojia na kihisia. Jitihada zinapaswa kuwekwa kila wakati ili kupunguza hatari. Hatari moja inayoweza kutokea ya kuwa katika utafiti ni kupoteza faragha (privacy). Tutaweka kila kitu unachotuambia kama siri iwezekanavyo. Tutatumia nambari ya msimbo kukutambua katika hifadhidata ya kompyuta iliyolindwa na nenosiri na tutaweka rekodi zetu zote za karatasi kwenye kabati ya faili iliyofungwa. Hata hivyo, hakuna mfumo wa kulinda usiri wako unaoweza kuwa salama kabisa, kwa hivyo bado kuna uwezekano kwamba mtu anaweza kujua ulikuwa kwenye utafiti huu na kupata taarifa kukuhusu.

Pia, kujibu maswali katika mahojiano kunaweza kuwa na wasiwasi kwako. Ikiwa kuna maswali yoyote ambayo hutaki kujibu, unaweza kuyaruka. Una haki ya kukataa mahojiano, au maswali yoyote yaliyoulizwa wakati wa mahojiano.

Inaweza kuwa aibu kwako kuwa na upungufu wa utendaji unaohitaji msaidizi aliyepo kukusaidia. Tutafanya kila tuwezalo ili kuhakikisha kwamba unapokea usaidizi ufaao bila kuhisi kuhukumiwa.

Zaidi ya hayo, wafanyakazi wote wa utafiti na wahojaji ni wataalamu walio na mafunzo maalum katika mitihani/mahojiano haya.

JE, KUNA FAIDA YOYOTE KUWA KATIKA UTAFITI HUU?

Unaweza kufaidika kwa kupokea vipimo vya bure vya uchunguzi wa kisaikolojia na maelezo ya afya ya akili. Tutakuelekeza kwa hospitali kwa huduma na usaidizi inapobidi. Pia, maelezo utakayotoa yatatusaidia kuelewa vyema kutokea kwa unyogovu na shida ya akili, na sababu zinazowezekana za kuanzishwa. Habari hii ni mchango wa afua, sera na miongozo juu ya utunzaji wa wazee, na fasihi juu ya mada.

JE, KUWA KATIKA SOMO HILI ITAKUGHARIMU LOLOTE?

Hapana. Kushiriki katika utafiti huu ni bila malipo.

JE IKIWA UNA MASWALI BAADAYE?

Ikiwa una maswali zaidi au wasiwasi kuhusu kushiriki katika utafiti huu, tafadhali piga simu au tuma ujumbe mfupi wa maandishi kwa mtafiti kupitia nambari iliyotolewa chini ya ukurasa huu.

Kwa maelezo zaidi kuhusu haki zako kama mshiriki wa utafiti unaweza kuwasiliana na Katibu/Mwenyekiti, Hospitali Kuu ya Kenyatta-Kamati ya Maadili na Utafiti ya Chuo Kikuu cha Nairobi Nambari 2726300 Ext. 44102 barua pepe uonknh_erc@uonbi.ac.ke

Mtafiti atakurudishia malipo ya mawasiliano kwa nambari hizi ikiwa simu ni ya mawasiliano yanayohusiana na utafiti.

MENGINE NI GANI?

Uamuzi wako wa kushiriki katika utafiti ni wa hiari. Uko huru kukataa kushiriki katika utafiti na unaweza kujiondoa kwenye utafiti wakati wowote bila dhuluma au hasara ya manufaa yoyote.

FOMU YA IDHINI (TAARIFA YA IDHINI)

Kauli ya Mshiriki

Nimesoma fomu hii ya idhini au nimesomewa maelezo. Nimepata nafasi ya kuuliza maswali na kujadili utafiti huu na mtafiti. Nimejibiwa maswali yangu kwa lugha ninayoielewa. Hatari na faida zimeelezewa kwangu. Ninaelewa kuwa ushiriki wangu katika utafiti huu ni wa hiari na kwamba ninaweza kuchagua kujiondoa wakati wowote. Ninakubali kwa uhuru kushiriki katika utafiti huu.

Ninaelewa kuwa juhudi zote zitafanywa ili kuweka taarifa kuhusu utambulisho wangu wa kibinafsi kuwa siri. Kwa kutia saina fomu hii ya idhini, sijaacha haki zozote za kisheria nilizo nazo kama mshiriki katika utafiti.

Ninakubali kushiriki katika utafiti huu: [Ndiyo] [Hapana]

Ninakubali kumruhusu mtafiti awasiliane nami kupitia taasisi kwa ufuatiliaji: [Ndiyo] [Hapana]

Jina lililochapishwa la mshiriki: _____

Sahihi ya mshiriki/muhuri wa kidole gumba: _____ **Tarehe:** _____

IDHINI YA JAMAA WA KARIBU (Ambapo husika)

Mimi nikiwa jamaa wa karibu wa _____ natoa ridhaa ya kumruhusu mtafiti kumhusisha katika utafiti huu kama mshiriki. Naelewa kuwa fomu zilizoidhinishwa pekee ndizo zinazozingatiwa, na ushiriki ni wa hiari.

Jina la jamaa wa karibu: _____

Uhusiano na mshiriki: _____

Sahihi ya jamaa wa karibu: _____ **Tarehe:** _____

KAULI YA MTAFITI

Mimi, niliyetia sahihi chini, nimeeleza kikamilifu maelezo muhimu ya utafiti huu kwa mshiriki aliyetajwa hapo juu na ninaamini kuwa mshiriki ameelewa na ametoa ridhaa yake kwa hiari na kwa uhuru.

Jina la Mtafiti: _____ **Tarehe:** _____

Sahihi: _____

Kwa maelezo zaidi wasiliana na Julia Mwai kwa 0715109070 kuanzia Jumatatu hadi Ijumaa saa za kazi.

Jina Lililochapishwa la Shahidi (Ikiwa shahidi ni muhimu, Shahidi ni mtu anayekubalika kwa pande zote mbili kwa mtafiti na mshiriki)

Jina: _____ **Maelezo ya mawasiliano:** _____

Sahihi /muhuri wa kidole gumba: _____ **Tarehe:** _____

APPENDIX B: SOCIO-DEMOGRAPHIC QUESTIONNAIRE

Section A: Bio Data

1. Gender:

Male [___] Female [___]

2. Age

- 65-69 [___]
- 70-74 [___]
- 75-79 [___]
- 80-84 [___]
- 85-89 [___]
- Above 90 [___]

3. Level of Education:

- Primary Level [___]
- O Level [___]
- A Level [___]
- No formal Education [___]

4. Marital Status:

- Married [___]
- Divorced/separated [___]
- Widowed [___]
- Single [___]

5. Length of stay within the facility:

- 3-6 months [___]
- 6-12 months [___]
- 1-3 years [___]
- More than 3 years [___]

6. Do you have children?

Yes [___] No [___]

Section B: General information relating to the respondent's current state (Please tick where appropriate)

1. Do you have hearing and/or visual impairment?

Yes [___] No [___]

If Yes, which one? [_____]

2. Have you been previously placed in a nursing home?

Yes [___] No [___]

3. Do you have any chronic illness(es)?

Yes [___] No [___]

If Yes, which one(s) [_____]

4. How would you rate your general health?

[1] Very poor

[2] Poor

[3] Regular

[4] Good

[5] Excellent

5. Are you dependent for basic daily functioning (grooming, cleaning, movement)?

Yes [___] No [___]

If yes, to what extent?

[1] Few tasks

[2] Half the tasks

[3] All the tasks

6. To what extent are friends and family supportive?

[1] Not supportive

[2] Somewhat support

[3] Very supportive

7. Please rate your level of happiness with your current life situation

[1] Very unhappy

[2] Unhappy

[3] Neutral

[4] Happy

[5] Very happy

Socio-demographic Questionnaire (Translated – Swahili Version)

Sehemu A: Data ya Wasifu

1. Jinsia:

Mwanaume [___] Mwanamke [___]

2. Umri

• 65-69 [___]

• 80-84 [___]

• 70-74 [___]

• 85-89 [___]

• 75-79 [___]

• Zaidi ya 90 [___]

3. Kiwango cha Elimu:

• Shule ya Msingi [___]

• Kiwango cha O [___]

• Kiwango A [___]

• Sijenda shule [___]

4. Hali ya Ndoa:

• Niko kwenye ndoa [___]

• Nimetaliki/kutengana [___]

• Mjane [___]

• Sijaoa [___]

5. Muda wa kukaa ndani ya kituo:

• Miezi 3-6 [___]

• Miezi 6-12 [___]

• Miaka 1-3 [___]

• Zaidi ya miaka 3 [___]

6. Je, una watoto?

Ndio [___]

La [___]

Sehemu B: Taarifa ya jumla inayohusiana na hali ya sasa ya mhojiwa (Tafadhali weka alama inapofaa)

1. Je, una ulemavu wa kusikia au kuona?

Ndio [___]

La [___]

Kama Ndiyo, ipi? [_____]

2. Je, hapo awali umewekwa katika makao ya wazee?

Ndio [___] La [___]

3. Je, una ugonjwa wowote wa kudumu?

Ndio [___] La [___]

Kama Ndiyo, ni ipi [_____]

4. Je, unaweza kutathmini vipi afya yako kwa ujumla?

[1] Mbovu sana

[2] Mbovu

[3] Kawaida

[4] Nzuri

[5] Bora

5. Je, unategemea utendakazi wa kimsingi wa kila siku (kutunza, kusafisha, kutembea)?

Ndio [___] La [___]

Ikiwa ndio, kwa kiwango gani?

[1] Kazi chache

[2] Nusu ya majukumu

[3] Kazi zote

6. Marafiki na familia wanakuunga mkono kwa kiasi gani?

[1] Hawaniungi mkono

[2] Kwa kiasi fulani

[3] Huniunga mkono sana

7. Tafadhali kadiria kiwango chako cha furaha na hali yako ya sasa ya maisha

[1] Sina furaha kabisa

[2] Sina furaha

[3] Kawaida

[4] Nina furaha

[5] Nina furaha sana

APPENDIX C: 6-ITEM COGNITIVE IMPAIRMENT TEST (6-CIT)

Patient's Details: _____

Date: _____

Home of Residence: _____

(Participant can use any language they are comfortable with to answer)

Question	Score Range	Score
1. What year is it?	0 - 4 Correct - 0 points Incorrect - 4 points	
2. What month is it?	0 - 3 Correct - 0 points Incorrect - 3 points	
3. Give the respondent an address phrase to remember with 5 components: John, Paul, 42, Maasai Rd., Nanyuki		
4. About what time is it (within 1 hour)	0 - 3 Correct - 0 points Incorrect - 3 points	
5. Count backwards from 10-1	0 - 4 Correct - 0 points 1 error - 2 points More than 1 error - 4 points	
6. Say the days of the week in reverse	0 - 4 Correct - 0 points 1 error - 2 points More than 1 error - 4 points	
7. Repeat address phrase John, Paul, 42, Maasai Rd., Nanyuki	0 - 10 Correct - 0 points 1 error - 2 points 2 errors - 4 points 3 errors - 6 points 4 errors - 8 points	

	All wrong - 10 points	
TOTAL SCORE	0 - 28	

Scoring:

- 0 – 7: Normal
- 8 – 9: Mild cognitive impairment
- 10 – 28: Significant cognitive impairment

6-Item Cognitive Impairment Test (Translated – Swahili Version)

Swali	Alama	Alama
1. Huu ni mwaka gani?	Pointi (0 - 4) Sahihi - 0 Sio sahihi - 4	
2. Huu ni mwezi gani?	Pointi (0 - 3) Sahihi - 0 Sio sahihi - 3	
3. Patia mhojiwa anwani iliyo na vipengele 5 vya kukumbuka: John, Paul, 42, Maasai Rd., Nanyuki		
4. Unaona ni kama saa ngapi hivi? (ndani ya saa moja)	Pointi (0 - 3) Sahihi - 0 Sio sahihi - 3	
5. Hesabu nyuma kutoka 10-1	Pointi (0 - 4) Sahihi - 0 Kosa 1 - 2 Makosa zaidi ya 1 - 4	
6. Sema siku za wiki kuanzia ya mwisho ukirudi nyuma	Pointi (0 - 4) Sahihi - 0 Kosa 1 - 2 Makosa zaidi ya 1 - 4	

<p>7. Rudia anwani niliyo kusomea:</p> <p>John, Paul, 42, Maasai Rd., Nanyuki</p>	<p>Pointi (0 - 10)</p> <p>Sahihi - 0</p> <p>Kosa 1 - 2</p> <p>Makosa 2 - 4</p> <p>Makosa 3 - 6</p> <p>Makosa 4 - 8</p> <p>Yote makosa - 10</p>	
<p>ALAMA JUMLA</p>	<p>Pointi (0 - 28)</p>	

APPENDIX D: GERIATRIC DEPRESSION SCALE (GDS-15)

Instructions: Choose the answer that best describes how you have felt over the past week.

Scoring: Answers in bold indicate depression. Score 1 point for each bolded answer.

- A score > 5 points is suggestive of depression.
- A score \geq 10 points is almost always indicative of depression.

1. Are you basically satisfied with your life?	YES	NO
2. Have you dropped many of your activities and interests?	YES	NO
3. Do you feel that your life is empty?	YES	NO
4. Do you often get bored?	YES	NO
5. Are you in good spirits most of the time?	YES	NO
6. Are you afraid that something bad is going to happen to you?	YES	NO
7. Do you feel happy most of the time?	YES	NO
8. Do you often feel helpless?	YES	NO
9. Do you prefer to stay at home, rather than going out and doing new things?	YES	NO
10. Do you feel you have more problems with memory than most?	YES	NO
11. Do you think it is wonderful to be alive now?	YES	NO
12. Do you feel pretty worthless the way you are now?	YES	NO
13. Do you feel full of energy?	YES	NO
14. Do you feel that your situation is hopeless?	YES	NO
15. Do you think that most people are better off than you are?	YES	NO
TOTAL SCORE		

Geriatric Depression Scale (Translated – Swahili Version)

1. Je, umeridhika na maisha yako?	NDIO	LA
2. Je, umewacha shughuli zako au mambo unayopenda kufanya?	NDIO	LA
3. Je, unihisi kana kwamba maisha yako ni bure?	NDIO	LA
4. Je, wewe huhisi kuchoka mara kwa mara?	NDIO	LA
5. Je, wewe huwa mcheshi wakati mwingi?	NDIO	LA
6. Je, wewe huogopa mabaya yatakutendekea?	NDIO	LA
7. Je, wewe huhisi furaha wakati mwingi?	NDIO	LA

8. Je, wewe hujihisi mtu asiye na uwezo wa kujisaidia?	NDIO	LA
9. Je, wewe hupendelea kukaa nyumbani, badala ya kuenda nje ukafanye mambo mapya?	NDIO	LA
10. Je, unahisi una matatizo ya kukumbuka kuliko wengine?	NDIO	LA
11. Je, unafikiri ni vyema wewe kua uhai wakati huu?	NDIO	LA
12. Je, unahisi kama hauna maana ulivyo wakati huu?	NDIO	LA
13. Je, unahisi umejawa na nguvu?	NDIO	LA
14. Je, unahisi hali yako haina tumaini?	NDIO	LA
15. Je, unafikiri watu wengine ni bora zaidi kukuliko?	NDIO	LA
ALAMA JUMLA		

APPENDIX E: CORNELL SCALE FOR DEPRESSION IN DEMENTIA (CSDD)

2 steps:

1. The researcher interviews the resident's caregiver on each of the 19 items of the scale. The caregiver is instructed to base his/her report on observations of the resident's behavior during the week prior to the interview
2. The researcher briefly interviews the resident
 - Total time of administration is approximately 30 minutes
 - For use with moderate to severely impaired elders with dementia

Scoring System: (n/a = unable to evaluate) (0 = absent) (1 = mild or intermittent) (2 = severe)

Note: Ratings should be based on symptoms and signs occurring during the week prior to interview. No score should be given if symptoms result from physical disability or illness.

A. Mood-Related Signs

1. Anxiety (anxious expression, ruminations, worrying)	n/a	0	1	2
2. Sadness (sad expression, sad voice, tearfulness)	n/a	0	1	2
3. Lack of reactivity to pleasant events	n/a	0	1	2
4. Irritability (easily annoyed, short-tempered)	n/a	0	1	2

B. Behavioral Disturbance

5. Agitation (restlessness, handwringing, hairpulling)	n/a	0	1	2
6. Retardation (slow movements, slow speech, slow reactions)	n/a	0	1	2
7. Multiple physical complaints (score 0 if GI symptoms only)	n/a	0	1	2
8. Loss of interest (less involved in usual activities) *Score only if change occurred acutely, i.e., in less than 1 month	n/a	0	1	2

C. Physical Signs

9. Appetite loss (eating less than usual)	n/a	0	1	2
10. Weight loss (score 2 if greater than 2.3kgs in one month)	n/a	0	1	2
11. Lack of energy (fatigues easily, unable to sustain activities) *Score only if change occurred acutely, i.e., in less than 1 month	n/a	0	1	2

D. Cyclic Functions

12. Diurnal variation of mood (symptoms worse in the morning)	n/a	0	1	2
13. Difficulty falling asleep (later than usual for this individual)	n/a	0	1	2
14. Multiple awakenings during sleep	n/a	0	1	2

15. Early-morning awakening (earlier than usual for this individual)	n/a	0	1	2
E. Ideational Disturbance				
16. Suicide (feels life is not worth living, has suicidal wishes or makes suicide attempt)	n/a	0	1	2
17. Poor self-esteem (self-blame, self-deprecation, feelings of failure)	n/a	0	1	2
18. Pessimism (anticipation of the worst)	n/a	0	1	2
19. Mood-congruent delusions (delusions of poverty, illness or loss)	n/a	0	1	2
Scoring:				
A score >10 probably major depressive episode				
A score >18 definite major depressive episode				

Cornell Scale for Depression in Dementia (Translated – Swahili Version)

A. Mood-Related Signs (Dalili za Kihisia)

1. Wasiwasi (sura yenye wasiwasi/hofu, kucheua)	n/a	0	1	2
2. Huzuni (sura yenye huzuni, kuongea kwa huzuni, kulia)	n/a	0	1	2
3. Kukosa hisia kwa matukio ya kupendeza	n/a	0	1	2
4. Hasira (kukasirika kwa haraka)	n/a	0	1	2

B. Behavioral Disturbance (Dalili za Kitabia)

5. Kutotulia/kutopumzika (kukosa utulivu, kuvuta nywele)	n/a	0	1	2
6. Mwenye polepole (polepole katika kuongea, kutembea na kuitikia)	n/a	0	1	2
7. Malalamiko kadhaa ya kimwili (weka alama 0 kama ni malalamiko ya tumbo pekee)	n/a	0	1	2
8. Kukosa mvuto/hamu (kuhusika kidogo kwenye shughuli za kawaida) *Weka alama kama mabadiliko yametokea kwa muda mfupi usiozidi mwezi mmoja	n/a	0	1	2

C. Physical Signs (Dalili za Kimwili)

9. Kupoteza hamu ya kula (kula chakula kidogo kuliko kawaida yako)	n/a	0	1	2
10. Kupoteza uzito (weka alama 2 kama ni uzito zaidi ya kilo 2.3 kwa mwezi mmoja)	n/a	0	1	2

11. Kukosa nguvu (kuhisi uchovu) *Weka alama kama mabadiliko yametokea kwa muda mfupi usiozidi mwezi mmoja	n/a	0	1	2
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D. Cyclic Functions (Dalili za Kazi ya Mwili ya Mzunguko)

12. Tofauti ya kila siku ya kihisia (dalili zikizidi wakati wa asubuhi)	n/a	0	1	2
13. Ugumu wa kupata usingizi (kuchelewa kulala)	n/a	0	1	2
14. Kuamka mara kadhaa kutoka usingizini	n/a	0	1	2
15. Kuamka mapema sana (mapema kuliko kawaida yako)	n/a	0	1	2

E. Ideational Disturbance (Dalili za Kimawazo)

16. Kujitoa uhai (kuhisi maisha hayana thamani, kutamani kufa au kujaribu kujitoa uhai)	n/a	0	1	2
17. Kutojithamini (kujilaumu, kujishusha thamani, hisia za kushindwa)	n/a	0	1	2
18. Kukata tamaa (kutarajia mabaya)	n/a	0	1	2
19. Hisia zinazolingana za udanganyifu/upotofu (udanganyifu wa umaskini, ugonjwa au hasara)	n/a	0	1	2

Scoring:

A score >10 probably major depressive episode

A score >18 definite major depressive episode

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