

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

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ABSTRACT: The World Health Organization (WHO) reports the global impact of chronic conditions as profound, associated with neuropsychiatric comorbidities, and thus affecting Quality of Life (QoL). This study assessed neuropsychiatric morbidity and the association with QoL among older adults with chronic conditions at the University of Maiduguri Teaching Hospital, Nigeria. A comparative cross-sectional analytic design was utilised to recruit 327 older adults aged 60 years and above for six months, then proportionally distributed into four groups. The Community Screening Instrument for Dementia (CSID), Geriatric Depression Scale (GDS-30) and WHO Quality-of-Life for the Old (WHOQOL-OLD) were administered. Data was analysed using the SPSS version 27.0. Neuropsychiatric morbidity was associated with lower QoL in all four groups. In HTN, QoL was significantly lower in one domain, AUT ($t=3.95$, $p<0.001$). For DM only, in two, AUT ($t=4.35$, $p<0.001$) and DAD ($t=6.65$, $p<0.001$). For Arthritis only, in three, SAB ($t=6.92$, $p<0.001$), AUT ($t=11.46$, $p<0.001$), and PPF ($t=4.02$, $p<0.001$). In HTN+DM, in two, SAB ($t=5.37$, $p<0.001$) and AUT ($t=2.51$, $p=0.02$). This study reported a low QoL in the presence of neuropsychiatric morbidity. The implication of this is the need to be proactive in screening older adults with these physical health conditions for neuropsychiatric morbidity. Their early detection will facilitate timely intervention, which in turn improves the QoL of older adults with chronic medical conditions.

Keywords: Geriatric, Morbidity, Neuropsychiatric, Quality-of-life



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INTRODUCTION

The population of the World population over 60 years will rise more than double from 900 million to 2 billion (“United Nations Department of Economic and Social Affairs Population Division,” 2019). Within the same duration, it is predicted that the number of older people living in higher-income countries (HIC) will rise by just 56%, compared to increases of 138%, 185%, and 239%

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Ogunlila,

(more than a three-fold increase) in upper-middle-income countries (UMIC), lower-middle-income countries (LMIC), and low-income countries (LIC), respectively (Prince et al., 2015). It has been predicted that by the year 2050, nearly eight in ten of the older adult population of the World will be residing in the LMICs (Baiyewu et al., 2021). Similarly, in Nigeria, this proportion continues to steadily increase, and it has been projected that by 2030, the Nigerian older adult population will be 16 million out of a total population of 258 million, while by 2050, it will have increased to 47 million of an estimated total population of 402 million.

Comorbidity is defined in this study as the presence of one or more additional diseases or disorders occurring concomitantly with a primary disease or disorder. Whereas multimorbidity refers to the presence of two or more chronic medical conditions in one individual. Comorbidity used here refers to Hypertension with Diabetes while Neuropsychiatric Morbidity refers to Cognitive impairment and/or Depression. Cognitive impairment is one of the most familiar geriatric neurological symptoms and involves a decline in memory, impairment in judgement, deterioration in other domains of cognition, and abnormal behaviour (Hussenoeder et al., 2020). Depression is characterized by depressive mood (e.g., sad, irritable, empty) or loss of pleasure accompanied by other cognitive, behavioural, or neuro-vegetative symptoms that significantly affect the individual's ability to function, according to the WHO's international and statistical classification of diseases and related health problems – 11th version (WHO, 2022).

The neuropsychiatric morbidities from these medical conditions can be associated with quality of life. This association is similar to other chronic conditions ranging from 38.5% - 93.1% in diabetes mellitus (Chapman & Horne, 2013; Krass et al., 2015) and hypertension. Cognitive impairment resulting from Hypertension can affect the quality of life (Gathright et al., 2016). Similarly, quality of life can be reduced by depression arising from diabetes (Akosile et al., 2017) and so also is functional disability from arthritis (A. Ibrahim et al., 2013). There are different explanations for the relationships between chronic medical conditions and psychiatric illness, which are complex, bidirectional, and heterogeneous. First, both chronic medical conditions and neuropsychiatric morbidity can have a common basis, such as genetics. Also, chronic conditions may lead to psychiatric illness through the clinical manifestations of the condition, its consequences, and even the treatment (Victor Obiajulu Olisah, Baiyewu, & Sheikh, 2011). The reverse may also occur where neuropsychiatric morbidities become contextual factors in some chronic medical conditions. Furthermore, these neuropsychiatric morbidities can subsequently affect QoL. It may be affected by the interventions to the illness and from stigmatization, while the Quality of life may be influenced by the perception of life. The development of neuropsychiatric morbidities is often associated with poor clinical outcomes and Quality of life. This can happen through activity limitation and functional restriction, among others. Considering the burden of these neuropsychiatric morbidities, there arises the necessity of carrying out this research among older adults to derive data proficient enough to influence a higher index of suspicion in clinical practice. The conclusions from this study are expected to benefit specialists in managing older adults with chronic medical illnesses. This study can also enhance early detection and treatment of neuropsychiatric morbidities and ultimately improve Quality of life.

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Ogualli,

Hypertension, Diabetes, and Arthritis are the most common chronic medical conditions among older adults. These Medical conditions can often lead to Neuropsychiatric morbidities, which can have a significant impact on quality of life. These conditions are commonly seen by Physicians who sometimes miss out on them, thus aiding these undiagnosed or unrecognized morbidities to progress to affect the psychosocial aspects of these older adults, such as poor response to medical treatment and quality of life. So, identifying the specific conditions is essential for effective treatment and management. Therefore, this research is needed to better understand the relationship between medical conditions and psychiatric morbidities and to develop more effective treatment strategies for patients suffering from these conditions. The prevalence range of psychiatric morbidities in older adults is 33 - 73%.(Esan & Esan, 2016; Hazelden, 2023) A number of them have their quality of life reduced. (Chapman & Horne,2013.)

Theoretical frameworks for quality of life in older adults often integrate cognitive functioning, physical functioning, social interactions, mental well-being, and mood. Foremost among the theorists explaining factors that determine the quality of life is the psychological theory, which explains the role of psychological factors in influencing people's perception of their life circumstances and what it implies for their quality of life. Psychological factors, such as the individual's feelings and cognitive abilities, as well as personality and temperaments, influence the quality of life in older adults with chronic illnesses(Alborz, 2017). Theories relating psychiatric morbidity to quality-of-life play a role in other conditions and age groups as well through different mechanisms, such as that of Onah and Achor (Onah II & J.U., 2014) in Enugu, which related factors such as psychological distress and depression. Also, Maslow's motivation and personality theory of QoL described the influence of individual characteristics such as physical health, psychological health and cognitive functioning in explaining the quality of life. (Alborz, 2017)

Studies have reported that individuals with depression tend to live a depressed life, an argument that results from the understanding of their perception of their lives and the world; a review of literature by Silverstein et al. concluded that the influence of depressive disorder or depressive symptoms on quality of life of older persons has been consistent over time irrespective of geographical location or differences in the research the methods used (Sivertsen et al., 2015). Cognitive complaints like memory failure and poor concentration have been consistently described as being associated with lower quality of life. This finding may result from the functional difficulties caused by cognitive problems and the distress arising from such challenges(Stites et al., 2018). This study will assess the association between cognitive functioning, depression, and quality of life of older adults with selected chronic medical conditions, including hypertension, diabetes and arthritis. The World Health Organization describes Quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and concerning their goals, expectations, standards, and concerns"(Conrad et al., 2014). The Quality of life (QoL) of older adults is determined by various factors such as chronic medical conditions like hypertension, Type 2 diabetes, and arthritis. About one in three older adults in the general hospital have psychiatric morbidities, the majority of which are depression(Olugbenga et al., 2017), which is also followed by cognitive decline.

There are different models for describing the link between Hypertension and QoL. This link may be direct or indirect depending on the situation and the condition, be it hypertension, diabetes, or arthritis. Hypertension can contribute to a reduction in activities, especially when complicated, and this can affect the QoL of the individual. According to the World Health Organization, it has a significant impact on QoL, with their Quality of life being described as being low in the presence of hypertension compared to those with other chronic illnesses (Organization, 2022; *University of Maiduguri Teaching Hospital. Health Information Management of Older Adult Outpatients Seen in the General Outpatient Department*, 2021). Hence, higher systolic blood pressure has been noted to be associated with a lower score of health-related QoL, unlike diastolic blood pressure, which is the converse. The Quality of life is rated as the lowest compared to individuals with other chronic illnesses (Megari, 2013). Apart from the activities, another possible explanation for the low QoL in hypertension is the consequence of the management, which may involve dealing with many medications and switching from one combination to another to achieve optimal blood pressure control, a common occurrence which may be a burden to the already disturbed older adult. Diabetes can also affect QoL. Consequently, knowing which characteristics of QoL are linked to depression and diabetes comorbidities is critical for day-to-day clinical therapy. Additionally, specific clinical alterations have been linked to changes in cognition, mood, and overall Quality of life. Disability and caregiving in older adults were studied by Uwakwe in old age in a Nigerian Community and observed 47% having some form of disability (and affected QoL) with many comorbid physical diseases reported, including hypertension, arthritis, and diabetes). Arthritis has also been linked with reduced QoL. Major determinants of subjective quality of life were factors linked more to the patient, such as psychopathological symptoms, especially depression and anxiety, factors associated with their social system and personality-associated factors, such as self-esteem rather than extrinsic factors related to life situations. Because having arthritis was linked to a lower QoL and because participants at all economic levels were affected by both arthritis and depressive symptoms, the quality of life (QoL) of female older adults who indicated low economic status was lower in those who reported having arthritis and scored higher on depressive symptoms. Chimbo discovered that participants with rheumatoid arthritis had significantly lower subjective QoL scores in the environmental health and overall QoL categories in a study on depression in adults with arthritis (Chimbo, 2017). The authors assessed this quality of life using a comprehensive QoL instrument.

Older adults with cognitive impairment and depression can experience a reduction in their quality of life. Thus, the QoL of older adults with chronic medical conditions can be affected by the presence of cognitive impairment and depression. This can be due to several factors. In cognitive impairment, cognitive complaints like memory failure and poor concentration have been consistently described as being associated with lower quality of life. This finding may result from the functional difficulties caused by cognitive problems and the distress arising from such challenges. Also, Cognitive impairment can contribute to a reduction in activities, especially when complicated, which can affect the individual's QoL. It can also affect the QoL through reduced mental processes, effects on mood, and clinical alterations. (Zurita-Cruz et al., 2018) Furthermore, a review of the literature showed that significant determinants of subjective quality of life were factors linked more to the patient, such as the symptoms of depression, factors associated with their social system, and personality rather than extrinsic factors in life situations. In terms of

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oqualili,

depression, some factors related to depression, such as self-harm, are more prevalent in decreased urbanization, poverty, and poor social support, which can account for the poor quality of life and general functioning, (Barnard-Kelly et al., 2019; Necho et al., 2019)

Furthermore, in the presence of neuropsychiatric co-morbidity, there is an association between increased multimorbidity and declining Quality of life both globally and across all dimensions. Further review shows that the factors that determine the QoL are largely multifactorial. The aftermath effects of chronic medical and neuropsychiatric morbidities cannot be overemphasized. The morbidities may lead to a disturbance in quality of life in different ways. These morbidities affect the QoL in different ways. Depression reduced motivation, and psychomotor disturbance can reduce the QoL. Among the 14.2% with depression found by Olisah et al., 18.7% had a poor overall QoL score (Olisah et al., 2011). For example, an altered cognitive function can affect some domains of quality of life. Also, a diagnosis of these comorbidities can lead to worries and anxiety, which can worsen the clinical outcome and affect the quality of life. Improving outcomes in severe mental illness by improving family support and helping the mentally ill manage medication side effects improve their quality of life (Danzer et al., 2016). Cognitive impairment and depression occurred among older adults with hypertension, diabetes mellitus and arthritis in a varying prevalence with tangible but unclear relationships were observed to be associated with specific socio-demographic and clinical correlates across several studies from America to West Africa. Their presence has a negative relationship with quality of life. Despite the existing literature globally, very few studies in the North-eastern part of Nigeria exist to demonstrate the link between chronic medical conditions, neuropsychiatric morbidities, and quality of life. However, some have been carried out in other parts of the country (Stentzel et al., 2018), (A. W. Ibrahim et al., 2015; James & Omoaregba, 2011). Besides, only a few considered the implications of psychiatric morbidities, especially regarding their association with the quality of life, constituting a gap this study seeks to address. Therefore, comparing these neuropsychiatric morbidities among chronic medical conditions is necessary to address the burden. Also, in recent times, when the goal of treatment is to go beyond the prolongation of life to improve the QoL, the need for this study is manifest. This study will help bridge the knowledge gap regarding the association of medical illnesses with psychiatric morbidities and how they are associated with quality of life. This will enhance the timely detection of these morbidities and influence well-being.

This study is expected to address some problems to be studied such as indicated in the table below:

S/N	PROBLEMS
1	Findings of Neuropsychiatric morbidity in older adults
2	Evidence of Quality of life deficit with morbidities
3	Methodological gap in use of QoL instruments
4	Theoretical framework to generate new insights
5	Paucity of necessary research findings in the area

This study aims to compare Cognitive impairment and Depression among older adults with Hypertension, Type 2 Diabetes Mellitus, and Arthritis; and examine their relationship with QoL.

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oqualili,

The objective is to compare QoL in older patients with hypertension, diabetes, hypertension with diabetes and arthritis with neuropsychiatric co-morbidity (cognitive impairment or/and depression) and QoL in those without neuropsychiatric comorbidity.

METHOD

The study was done at the specialty clinic of the University of Maiduguri Teaching Hospital (UMTH). This study design is a comparative cross-sectional analytical approach. In the literature, the most common psychiatric morbidity in patients with chronic medical conditions is depression. Hence, considering that it is one of the psychological disorders to be assessed in this study, it was decided to use the prevalence of depression to calculate the sample size. The prevalence used was adopted from a study by Oyeyemi et al (Oyeyemi et al., 2021). However, to increase the estimate's precision, an adjustment was made by increasing the calculated sample size, since the sample size increment would show a more representative sample of the sample population. Hence, an assumption of a 90% response rate was made, while an estimated non-response rate of 10% was corrected using this formula. Thus, a sample size of three hundred and twenty-seven (327) was used for the study. On the clinic day, the researcher, and the Research Assistants, who were trained in using the instruments, visited the General Outpatient Clinic. All the medical records of those 60 years and above were selected. Those who met the inclusion criteria were approached. After explaining the study to them, those who gave informed consent were recruited into the study in a consecutive sampling method to recruit 327 participants.

The Sociodemographic Questionnaire (SDQ) was used to obtain basic biodata. This is a self-designed semi-structured questionnaire that enquires about sociodemographic variables. The Clinical Proforma collected clinical data such as the duration of the condition, co-occurring conditions, the Class of medications being used, and other related questions. Information on Neuropsychiatric morbidity was assessed by the Community Screening Instrument for Dementia (CSID) and Geriatric depression scale (GDS-30). The CSID was developed by the WHO for use in cross-cultural research in low-education settings. An informant assessment of the patient's capacity to handle everyday tasks is included, along with a global cognitive test. It has a 77% sensitivity, 63% specificity, 55% positive predictive value (PPV), and 61% negative predictive value (NPV) (Yakasai et al., 2014). It has been used by Ojagbemi et al., who also rated that a total score of <24 is suggestive of cognitive impairment(Ojagbemi et al., 2017). The Geriatric Depression Scale (GDS-30) is a self-report scale developed specifically for older adult populations. It is a self-administered tool with yes/no response patterns used to screen for depression in older people. It has been approved for use in primary healthcare settings as well as in the community to screen for depression in older individuals. A sensitivity of 84% and specificity of 95% were noted in a prior study by Sokoya on geriatric depression in Nigerian primary care patients in Ibadan, Nigeria. The response that receives the greatest possible score of 30 points determines the score. Scores on the scale can range from 0- 30, graded as 0-9 (Normal), 10-19 (Mild) and 20-30 (Severe).

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oguilili,

The QoL was assessed with the WHOQOL-OLD, an instrument that specifically assesses subjective Quality of life domains relevant for individuals older than 60 years, unlike the WHO-QOL BREF, which is more for the general population. It is accessible in over 20 languages and is predicated on the World Health Organization's concept of quality of life. The WHO created WHOQOL-OLD, a condensed form of WHOQOL-100, to gauge people's perceptions of their life circumstances concerning the sociocultural setting in which they reside (Said et al., 2019). It assesses the subjective QOL in six facets (domains), with four items in each facet, making a total of twenty-four items in all as against that of WHOQOL-100 with 100 items, making it more suitable for older adults. The domains include sensory abilities (SAB), autonomy (AUT), social participation (SOP), fears related to death and dying (DAD), intimacy (INT), and past, present, and future activities (PPF). A scale of 1 for total disagreement and 5 for total agreement is used to answer the items. Inverse items were recorded during analysis, and each facet's mean score was then determined. After multiplying this facet average by four, a raw score between 4 and 20 is obtained. This score is subsequently converted into a number between 0 and 100. Mean Scores and standard deviation of all four domains are then calculated. Higher scores represent better QOL. A German evaluation of the psychometric properties in 2014 found Cronbach's alpha to be above 0.85 for four domains and above 0.75 for two of the six facets. Using findings from the field of a survey carried out in twenty-two (22) countries, the WHOQOL-OLD demonstrated strong dependability and demonstrated good performance on preliminary validity tests. According to its domains, the WHOQOL-OLD is an excellent cross-culturally valid evaluation overall. It has been validated and used in Nigeria in a multisite study. The instruments were translated into Hausa Language using the World Health Organization's iterative back-translation method to prevent alteration for those who do not understand English. This translation was done by indigenous speakers who understood the Hausa Language very well and were proficient in English. An expert trained the researcher on how to administer and interpret the questionnaires. The training was done in English and later in the Hausa language. The training was done using a simultaneous scoring method with actual or simulated patients.

A pilot study was carried out among older adults at the General outpatient clinics of the hospital, using thirty-three (33) older adults (10% of the estimated sample size of 327). This population did not form part of the main study later. It assisted in determining the ease of application of instruments and the inter-rater reliability between the two research assistants administering the questionnaires. An inter-rater reliability score of 0.81 was determined using kappa statistics, which fell within the acceptable range. It was also helpful in estimating the average time required to complete the interview (which was found to be approximately 40-50 minutes) and to know how comfortable the patient would be, bearing in mind the peculiarity of this age group. The survey done earlier showed further that about 65% of older adult patients who visited the specialty clinics in a six-month duration (UMTH, 2021) had Hypertension, Diabetes, arthritis, or Hypertension with Diabetes, among whom those who met the inclusion criteria were recruited. Each day the clinic held; the usual protocol was followed to recruit each eligible participant until every concerned group was saturated to the maximum already statistically set. The interview took place between 9:00 am to 1:00 pm consultation time, giving room for each of the two research assistants to administer to up to 2-3 patients (about five interviewed by both research assistants) daily, bearing in mind that a complete interview took place for 40-50 minutes. The study spanned about six (6)

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oguilili,

months, from January – June 2023, giving the room to interview up to the minimum sample size. After collecting data, it was subjected to checking for integrity and consistency before being coded. Data collected were then double entered into the Statistical Product and Service Solutions (SPSS) version 27 (“IBM Statistical Package for Social Sciences,” 2023) using a well-defined codebook. Data were cleaned for errors by running a simple descriptive analysis, and unusual cases were cross-checked with the information documented in the questionnaire and corrected as applicable. The Statistical analysis measured the independent variables and the dependent variables (cognitive impairment, depression and Quality of life). Although most measures have individual Likert-type scales as ordinal questions, the aggregate scores were taken as continuous data. Cognitive impairment, depression, Quality of Life, and other data were first tested for normality using the Kolmogorov-Smirnov test and then for equality of variance using the Levene test of variance. The mean and standard deviation were computed for the continuous variable (Quality of Life). An Independent t-test was used to compare the mean scores of the QoL for the two groups of participants with neuropsychiatric morbidity and those without neuropsychiatric morbidity. Two-tailed tests were conducted in all analyses, and a p-value < 0.05 was considered significant.

This study was conducted after obtaining ethics committee clearance from the Research and Ethics Committee (REC) of the University of Maiduguri Teaching Hospital and Federal Neuropsychiatric Hospital, Maiduguri. The purpose, procedure, benefits and other information on the research were carefully explained to the participants and their caregivers. Informed consent was obtained from the participants or their caregivers. The participants were asked to sign, while those who could not sign thumbprinted. The study was done on only those patients who agreed to the informed consent provided to them. The research procedure was explained to the participant through the information sheet, while international ethical norms and standards were strictly adhered to. To ensure confidentiality, codes were used for data entry and analysis. This information gathered during the research was stored in an encrypted computer, and accessible only to the researcher. In the research process, any participant whose level of cognition and/or depression required attention was asked if such would like to be referred to other specialists if their doctors accepted.

RESULT AND DISCUSSION

Figure 1 shows the prevalence of cognitive impairment among study participants. A total of 48 of the 327 participants had cognitive impairment. Thus, the prevalence of cognitive impairment was 14.7%, CSID score ≤ 23.9 . However, most of the participants (85.3%) had normal cognition.

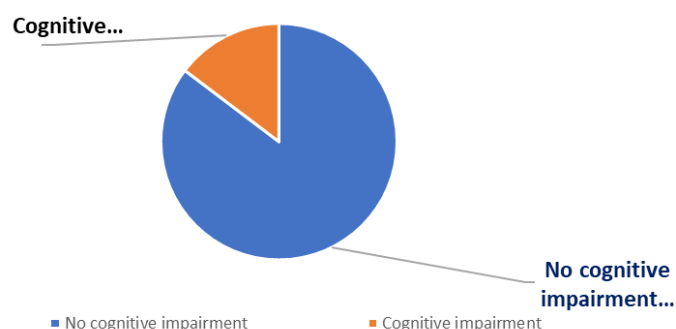


Figure 1: Prevalence of cognitive impairment among participants

Figure 2 shows the prevalence of depression among participants. A total of 189 had depression (147 with mild and 42 with severe depression). The prevalence of depression among participants was 57.8%. Further, mild depression was 45%, while severe depression was seen in 12.8% of participants.

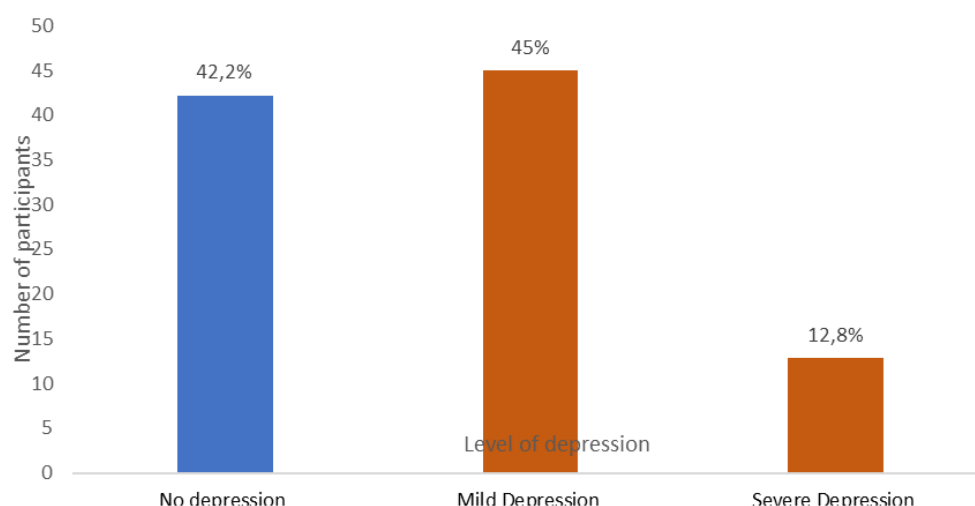


Figure 2: Prevalence of depression among participants

Table 1 shows the quality of life by domain across the studied group of participants. Among hypertensive patients, QOL was highest for autonomy (51.4 ± 27.5), followed by the present, past and future activities, PPF (51.1 ± 22.3), then sensory abilities (50.7 ± 27.3), then Death and Dying (47.9 ± 24.8). The mean quality of life score for the intimacy domain was 47.9 ± 24.8 , while the mean QOL for social participation was 42.4 ± 21.5 . Among participants with diabetes, QOL was highest for PPF (53.5 ± 18.2), followed by autonomy (51.3 ± 26.8), then social participation (52.0 ± 26.1), and intimacy (51.2 ± 20.7). The mean quality of life score for Death and Dying was 45.5 ± 28.8 , while the mean QOL for sensory abilities was 39.3 ± 27.4 . Among participants with arthritis, QOL was highest for social participation (52.0 ± 26.1), followed by intimacy (51.2 ± 20.7), then autonomy (47.5 ± 18.9), and PPF (44.3 ± 23.2). The mean quality of life score for death and dying was 40.5 ± 20.9 , while the mean QOL for sensory abilities was 39.6 ± 19.4 . Among participants with both hypertension and diabetes, QOL was highest for autonomy (47.0 ± 24.7), followed by intimacy (41.8 ± 24.8), then sensory abilities (40.7 ± 20.3), and social participation (40.3 ± 15.4). The mean quality of life score for PPF was 39.2 ± 12.3 , while the mean QOL for sensory abilities was 35.4 ± 19.5 .

Table 1: Mean Quality of life Scores among participants across the six domains.

Group	QOL domain	Mean $\pm$ SD
Hypertension only (n = 140)	Sensory Abilities	50.7 $\pm$ 27.3
	Autonomy	51.4 $\pm$ 27.5
	PPF	51.1 $\pm$ 22.3
	Social participation	42.4 $\pm$ 21.5
	Death and Dying	48.4 $\pm$ 26.0
Diabetes mellitus only (n = 85)	Intimacy	47.9 $\pm$ 24.8
	Sensory Abilities	39.3 $\pm$ 27.4
	Autonomy	51.3 $\pm$ 26.8
	PPF	53.5 $\pm$ 18.2
	Social participation	51.2 $\pm$ 20.8
Arthritis only (n = 43)	Death and Dying	45.5 $\pm$ 28.8
	Intimacy	47.0 $\pm$ 23.6
	Sensory Abilities	39.6 $\pm$ 19.4
	Autonomy	47.5 $\pm$ 18.9
	PPF	44.3 $\pm$ 23.2
Hypertension and diabetes (n = 59)	Social participation	52.0 $\pm$ 26.1
	Death and Dying	40.5 $\pm$ 20.9
	Intimacy	51.2 $\pm$ 20.7
	Sensory Abilities	40.7 $\pm$ 20.3
	Autonomy	47.0 $\pm$ 24.7
	PPF	39.2 $\pm$ 12.3
	Social participation	40.3 $\pm$ 15.4
	Death and Dying	35.4 $\pm$ 19.5

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oguilili,

Intimacy	41.8 ± 24.8
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Table 2 shows the comparison of quality-of-life scores across the six domains. Neuropsychiatric morbidity was also significantly associated (p-value < 0.001) with a reduced quality of life across all four groups. Generally, QoL was lower among those with neuropsychiatric morbidities (43.1±12.5) than those without neuropsychiatric morbidities (53.6±19.8) across all four groups of medical conditions.

Table 2: Association of Quality-of-Life scores by Neuro-psychiatric comorbidities

Group	QOL Domain	Neuropsychiatric comorbidity		T	p-value
		With	Without		
		Mean ± SD	Mean ± SD		
Hypertension only	Sensory Abilities	49.5 ± 29.9	52.1 ± 23.9	0.565	0.537
	Autonomy	43.3 ± 24.1	60.8 ± 28.3	3.946	*0.001
	PPF	50.2 ± 23.4	52.0 ± 21.1	0.467	0.642
	Social participation	41.5 ± 22.4	43.6 ± 20.6	0.564	0.574
	Death and Dying	45.8 ± 26.9	51.5 ± 24.8	1.318	0.190
	Intimacy	48.5 ± 25.7	47.3 ± 23.8	0.283	0.778
Diabetes mellitus only	Sensory Abilities	37.5 ± 13.1	41.4 ± 19.4	0.672	0.504
	Autonomy	40.4 ± 22.2	63.4 ± 26.6	4.353	*<0.001
	PPF	50.4 ± 12.9	57.0 ± 22.3	1.643	0.105
	Social participation	47.5 ± 18.6	55.3 ± 22.6	1.749	0.084
	Death and Dying	61.7 ± 18.0	27.3 ± 7.9	6.646	*<0.001
	Intimacy	45.4 ± 23.0	48.8 ± 24.0	0.649	0.518
Arthritis only	Sensory Abilities	34.7 ± 8.9	58.3 ± 3.1	6.923	*<0.001
	Autonomy	40.8 ± 15.1	72.9 ± 3.1	11.456	*<0.001
	PPF	36.2 ± 13.0	75.0 ± 28.1	4.024	*<0.001
	Social participation	47.1 ± 21.4	70.8 ± 13.4	1.976	0.077
	Death and Dying	40.1 ± 20.1	41.7 ± 25.0	0.201	0.842
	Intimacy	49.8 ± 21.1	56.3 ± 18.7	0.828	0.412
Hypertension and	Sensory Abilities	32.8 ± 12.9	63.8 ± 21.0	5.367	*<0.001

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oqualili,

Diabetes	Autonomy	40.9 ± 15.8	65.0 ± 26.0	2.508	*0.023
	PPF	37.6 ± 8.7	43.8 ± 19.1	1.192	0.251
	Social participation	37.4 ± 10.9	48.8 ± 22.6	1.882	0.078
	Death and Dying	33.4 ± 21.7	41.3 ± 8.8	1.359	0.180
	Intimacy	39.9 ± 19.8	47.5 ± 20.6	0.776	0.448

t: independent t statistic, p-value < 0.05 indicates significance.

From this table, Neuropsychiatric morbidity was associated with lower QoL across different domains in all the four groups. In the hypertension-only group, QoL was lower in five of the six domains but significant in one domain, AUT (t=3.95, p<0.001). For Diabetes only, QoL was lower in five of the six domains but significant in two, AUT (t=4.35, p<0.001) and DAD (t=6.65, p<0.001). For Arthritis only, QoL was lower in all six domains but significant in three domains, SAB (t=6.92, p<0.001), AUT (t=11.46, p<0.001), and PPF (t=4.02, p<0.001). In Hypertension with Diabetes co-morbidity, QoL was lower in all six domains but significant in two, SAB (t=5.37, p<0.001) and AUT (t=2.51, p=0.02). In all, autonomy was the most reduced QoL domain in the presence of neuropsychiatric comorbidity, as it was the only domain that showed significantly lower scores in all the domains and across all the patient groups.

CONCLUSION

This was a comparative cross-sectional analytic study that determined and compared cognitive impairment and depression and their association with Quality of life among older adults living with hypertension, diabetes, or arthritis in UMTH, Maiduguri.

In this study, neuropsychiatric morbidity was also associated with a reduced quality of life across all four groups of chronic medical conditions. QoL was lower in those with neuropsychiatric morbidity than in those without neuropsychiatric Morbidity across all four groups of chronic medical conditions. For the hypertension group, this can be supported by the fact that there is a link between rising depression scale scores and worsening Quality of life in hypertension(Khosravi et al., 2010) both globally and across all dimensions. (Hudak et al., 2008) This is in line with what is found in the study by Asmare et al. in Ethiopia in a cross-sectional study of depression in hypertension(Asmare et al., 2022). The study showed that the arthritis group was the most affected in QoL reduction with neuropsychiatric impairment, with three significant domains. For the group, the reduction was significant in three domains (Sensory Abilities, Autonomy, and PPF). This is supported by a study by Igwe(Igwe-Chidobe et al., 2020) among Nigerian Igbo adults with musculoskeletal diseases which revealed that a loss in mobility owing to arthritis could disrupt older individuals' everyday lives, and impairments in activities of daily living are linked to worse QoL. Similarly, Chimbo documented that participants with arthritis have significantly lower subjective QoL scores in the total QoL and environmental health domains in a study (Chimbo, 2017) on the rate of depression in people with arthritis in which Quality of life was assessed using

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oqualili,

a comprehensive quality of life instrument (WHOQOL-BREF). Having arthritis complicated with depression can be linked to a lower quality of life for reasons such as arthritis impacting participants from all physical, socioeconomic, and other activities. The reduction among the HTN-DM group may be due to comorbidity. This can be backed by the findings by Uwakwe, who studied disability and caregiving in older adults in a Nigerian community and observed 47% having some form of disability (and affected QoL) with many co-morbid physical diseases reported, including hypertension, arthritis, and diabetes. (Akosile et al., 2017). Lastly, the autonomy domain was affected across all four groups. In the Hypertension group, the QoL was reduced in all domains (except for intimacy which was higher though insignificant), but only the reduction in the autonomy domain was significant, as a major right of older adults being denied is autonomy (Sleap, 2021). Hopefully, the new National Mental Health Act of Nigeria 2021, whose part of the gains is to “Promote and protect the rights of persons with mental health conditions and persons with intellectual, psychosocial or cognitive disabilities”, has addressed this human right. (NMHA. 2021.)

Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oguualili,

In many of the domains, the levels of QoL recorded in this study are less than 50 of 100, especially in the hypertension and diabetes co-morbidity group and the arthritis-only group. This is not the situation in other similar studies. (Chaudhury et al., 2018) This difference may also be accounted for by the tool used (WHOQOL-OLD), which is more sensitive to changes in older adults than the commonly used tool (WHOQOL-BREF). Another possible explanation is the series of non-armed actors' events in the city. Since the start of the ongoing Boko Haram insurgency in North-East Nigeria, there has been a dramatic transformation in living conditions within these areas. Individual displacements, which occasionally result in family separation and job losses, have significantly impacted the psychosocial requirements and other living situations. Although the government and other humanitarian organizations continue to ameliorate the effects of the insurgency and post-COVID-19 situations, effects on QoL still exist (Granville, 2020).

The study has some limitations. To start with, the cross-sectional study design was adequate for detecting associations; however, it could not permit the determination of the direction of causality between the outcome and explanatory variables. Thus, to investigate the causal relationships and greater predictive power of the factors under investigation, longitudinal studies are required. Secondly, the study was hospital-based and therefore restricted to recognizing patients from other parts of the general community. Patients were recruited from hospital populations, making it difficult to extrapolate the findings to the geriatric community population. Comparing with a community-based study may be helpful for this. Also, bias could result from the failure of patients to accurately recall long-term events asked, especially in the Community Screening Interview for Dementia. Furthermore, diagnostic instruments for neuropsychiatric disorders were not used. However, the strengths of this study include the considerably adequate sample size, which increased the statistical power. Similarly, the tools used are internationally recognized and with acceptable psychometric properties. Finally, a Study of such magnitude in Maiduguri, North-Eastern Nigeria, involving participants with heterogeneous people with different backgrounds. The present findings in this study possess consequences for ageing-related health care that could enhance clinical practice by raising the threshold of suspicion for depression and cognitive impairment as a foundation for creating standard operating procedures for the age group's care. The QoL of older adults with chronic medical conditions is reduced in the presence of Neuropsychiatric morbidities.

Cognitive impairment and depression are significant challenges in older adults, especially in Sub-Saharan African Nations like Nigeria. With the increasing life expectancy worldwide, the following are hereby recommended. There is a need for more extensive and longitudinal research works to support the relationships discovered in this study and possibly establish causality. Also, there should be proactive routine use of screening tools to assess older adults with chronic medical conditions to raise the index of suspicion for neuropsychiatric morbidity, especially depression and cognitive impairment. There is a need for Geriatric psychiatrists to liaise with Physicians for prompt attention to older adults with chronic medical conditions.

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Neuropsychiatric Morbidity And Quality Of Life Among A Geriatric Population Attending A Nigerian Teaching Hospital

Kareem, Adesina, Ali, Adigun., Davuruk, Oguilili,

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