

Anxiety, Life Space Mobility and Quality of Life Among Frail Older Adults in Enugu, South East Nigeria

Ilo Ijeoma Judith

University of Nigeria Enugu, Enugu state

Edeh Ikenna David

University of Nigeria Enugu, Enugu state

Osiri Emmanuel Jonah

University of Nigeria Enugu, Enugu state

Uchenwoke Chigozie Ikenna

uchenwokechigozie9@gmail.com

University of Nigeria Enugu, Enugu state

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Abstract

Background

Frailty in older adults is associated with psychological distress, including anxiety, which may stem from restricted life-space mobility and negatively impact quality of life (QoL). In low-resource settings like Nigeria, where geriatric mental health and mobility support are understudied, understanding of these relationships is critical for targeted interventions.

Objectives

To determine the prevalence of anxiety, life space mobility profile and quality of life; their relationship with each other and selected demographic variables among frail older adults in Enugu, southeast Nigeria

Methods

This was a cross-sectional study comprising 119 (58.0% female; 70.6% married; 52.9% self-employed) consenting frail older adults who were purposively recruited from two communities in Enugu south L.GA in Enugu state. Frail scale, Generalized Anxiety Disorder 7- item (GAD-7), Life Space Questionnaire and the World Health Organization Quality of Life (WHOQOL) Questionnaire were used to measure frailty, anxiety, life-space mobility and quality of life respectively; socio-demographic information was obtained through oral interview. Obtained data was analyzed using frequency, percentage, Chi-square, Spearman rank order correlation coefficient, Kruskal Wallis test and Mann Whitney U test. Level of significance was set at $p < 0.05$.

Results

Anxiety was negatively correlated with life-space mobility ($\rho = -0.286$, $p = 0.002$). QoL differed significantly by gender (women scored higher, $U = 1258.0$, $p = 0.012$), marital status (married individuals had better QoL, $X^2 = 12.58$, $p = 0.006$), and employment (employed participants reported higher QoL, $X^2 = 12.10$, $p = 0.002$).

Conclusion

While moderate anxiety and life-space restrictions were relatively low in this sample, anxiety was significantly linked to reduced mobility. Marital and employment status were key predictors of QoL, suggesting that social and economic support may buffer frailty-related declines. Targeted interventions for widowed, unemployed, and male older adults could mitigate QoL disparities in this population.

Introduction

The recognition of frailty in the older population as a factor influencing their care and treatment outcomes is on the increase (Gleason et al., 2017). Clinicians have used frailty—which is characterized as a state of increased susceptibility to stress, involving deficiencies across multiple physiological systems with diminishing reserves and increased vulnerability to poor health outcomes—to describe the physiological reserve of older patients (Clegg & Hassan-Smith, 2018). Multiple physiological systems are affected by frailty, which leads to aberrant energy metabolism, immunological dysfunction, endocrine dysregulation, neuromuscular dysfunction, and degeneration of the central nervous system. It may cause concern in the elderly population because it is linked to unfavorable health outcomes such as anxiety, falls, hospitalizations, impairment, and mortality (Clegg et al., 2013).

Anxiety is the term used to describe feelings of unease or tension that can be crippling and interfere with day-to-day functioning (Kryza-Lacombe et al., 2024). It can also lead to mood swings. One of the most prevalent symptoms among the elderly is anxiety (Clegg & Hassan-Smith, 2018). Compared to depression and cognitive impairments, sub-syndromal anxiety is more common (Subramanyam et al., 2018). With an estimated point prevalence of 17% for any anxiety illness (Subramanyam et al., 2018), anxiety is a common mental health issue in old age (Welzel et al., 2019; Canuto et al., 2018). According to Subramanyam et al. (2018), the most common anxiety disorders among the oldest-old population are specific phobias (10%), generalized anxiety disorder (4%), and social phobia (4%).

Later-life anxiety has a great deal of negative effects, such as decreased quality of life, difficulty with everyday tasks, a higher chance of dementia (Kryza-Lacombe et al., 2024), and higher health care expenses (Vasiliadis et al., 2013). According to Zhao et al. (2020), anxiety is highly linked to earlier onset of frailty and worse health outcomes. Given its significant prevalence among older persons, anxiety has been described as the "silent geriatric giant" (Nowshin & Kabir, 2014).

Anxiety was linked to frailty, according to research done on elderly surgical patients (Wang et al., 2021). Research has indicated that anxiety's effect on frailty may be reversible and preventable, indicating that anxiety may be a restorative risk factor for frailty (Borges et al., 2022) and according to Clarke and Currie (2009), older persons who suffer from anxiety are more likely to report and encounter health issues like falls, pain, and chronic illnesses. These issues can further exacerbate frailty and impair the mobility of older adults.

Mobility can be widely described as the capacity to travel between locations using a mode of transportation or mobility aids (Nwachukwu et al., 2023; Webber et al., 2010). It is crucial to distinguish between mobility performances—also known as real-life mobility—and mobility capacity—also known as what an individual can accomplish as determined by tests conducted in lab environments. According to recent data, mobility capacity is not a reliable indicator of actual mobility (Van Lummel., 2015). How physically active one is remains an important component of mobility in real life. Life-space mobility captures additional significant facets of an individual's movement in real life (Giannoliet al., 2016). The physical and social environments that people traverse in real life are referred to as life space mobility. It

can also be categorized as in- or out-of-home mobility, depending on the environment in which an individual moves on a daily basis (e.g., home, neighborhood, city or further out). Consequently, life-space mobility, as defined by Webber et al. (2010), includes any movement that is aided by mobility aids and modes of transportation as well as an individual's autonomous mobility, which calls for mobility-related physical activity (such as walking).

Life-space mobility is critical for social participation, especially in old age (Rantakokko et al., 2016). Research has also indicated that life-space mobility is strongly associated with an individual's quality of life (Metz, 2000), physical functioning (Yeom et al., 2008), mental function (James et al., 2011), and health status. According to Portegifs et al. (2016), limited life-space mobility is therefore considered a warning sign for physical disability and possibly an increased mortality risk. The entire life space of an individual is dynamic and subject to change due to both acute (such as following a stroke or surgery) and chronic (such as dementia or osteoarthritis) medical disorders (Miyashita, Takaka & Arimoto, 2021). Lower quality of life is linked to smaller life-space, yet it is unclear how these changes affect quality of life among frail older adults (Rantanen et al., 2021).

Despite the important understanding of negative psychosocial sequale of frailty among older adults, there is scarcity of studies on life space mobility among frail older adults in low/middle income countries especially Nigeria. This present study was aimed at determining the prevalence of anxiety, life space mobility profile and quality of life; their relationship with each other and selected demographic variables among older adults in Enugu, southeast Nigeria. It is hoped that this study will provide information/data to guide health theory, policy and practice as it concerns the studied variables in the care of older adults.

Methodology

This was a cross-sectional study involving 119 older adults (aged 60 years and above) who were selected based on clustered sampling technique from two communities in Uwani, Enugu south local government area of Enugu state Nigeria. Uwani serves as the headquarters of Enugu South local government area, which serves as the lower tier of government in the state. It falls within the Eastern senatorial districts of Enugu having an area of 67 km² and a wide population of 198,723 at the 2006 census, and is put to be 267,300 according to 2016 population projection. Thus, was selected because it adequately represents the population of this study, being the largest town in Enugu south LGA that is more likely to have a greater proportion of older adults.

Frailty diagnosis was ascertained using the frail scale. Inclusion criteria were frail older adults (aged 60 years and above); while participants were excluded if they had history of any psychiatric or mobility disorders before the age of 60. Participants gave verbal or written (depending on the level of literacy) informed consent after the whole procedure had been thoroughly explained to them and their confidentiality assured. The study sample size was calculated using the sample size calculation for cross-sectional study with the absolute error between 4% and 5%, and taking proportion of older adults as 5%, thus sample size of between 73 and 114 frail older adults was projected.

Generalized Anxiety Disorder 7- item (GAD-7) was used to measure anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006). The Generalized Anxiety Disorder (GAD) can be measured or evaluated using the seven-item GAD-7. In every item, the subject is asked to rate how severe their symptoms have been throughout the last two weeks. The choices for responses are "not at all," "several days," "more than half the days," and "nearly every day." The general public, primary care patients, and adolescents with GAD have all been found to benefit from the validation of the GAD-7 (Mossman et al., 2017 reported that GAD-7 scores may be used to assess anxiety symptoms and to differentiate mild and moderate GAD in adolescents).

In order to determine the GAD-7 score, the response categories "not at all," "several days," "more than half the days," and "nearly every day" are given scores of 0, 1, 2, and 3, respectively. These scores are then added up for all seven questions. The GAD-7 total score for each of the seven items is between 0 and 21. Cutoff points for mild, moderate, and severe anxiety are 5, 10, and 15, respectively. If the score is 10 or higher when used as a screening tool, more assessment is advised. According to Löwe et al. (2008), normative data for the GAD-7 were produced for boys and girls at various age ranges. Excellent internal consistency and acceptable test-retest reliability have been reported for the GAD-7 (Spitzer, Kroenke, Williams, & Löwe, 2006).

Life space mobility questionnaire (LSM) was used to measure Life space mobility (Johnson, Rodriguez & Al Snih, 2020). The LSM assesses mobility in five domains: outside the bedroom, outside the house, inside the neighborhood, outside the neighborhood but within the town, and beyond the town over the previous four weeks. Based on LSM independence and average weekly frequency, a sub-score is assigned to each life-space level. Higher scores indicate more mobility. The composite score goes from 0 to 120. A randomized sample of 306 Medicare recipients aged 65 and above from central Alabama served as the validation sample for the LSM. At a 2-week follow-up, the composite score's test-retest reliability was 0.96 (95% CI = 0.95–0.97). Following validation and translation into many languages, the LSM has become the most popular tool both domestically and abroad (Auger et al., 2009; Curcio et al., 2013; Kammerlind et al., 2014; Shimada et al., 2010; Tseng, Gau & Lou, 2020; Ullrich et al., 2019). Nearly all research conducted in the last ten years have measured older persons' mobility using the LSM instrument (Johnson, Rodriguez & Al Snih, 2020).

Quality of life was assessed using the World Health Organization Quality of Life Questionnaire (WHOQOL-BREF) (WHOQOL Group, 1998). A condensed form of the WHOQOL-100 is the WHOQOL-BREF. The World Health Organization (WHO) created both, and both were released in 1995. It was created over a number of years at fifteen different global centers (WHOQOL Group, 1998). The questions that formed the questionnaire were derived from several statements regarding health, well-being, and quality of life made by health experts as well as individuals with and without illnesses (Skevington et al., 2004). Reliability and validity have been evaluated (Skevington et al., 2004; WHOQOL Group, 1998). Twenty-six items about an individual's views of their health and well-being during the preceding two weeks make up the self-administered WHOQOL-BREF questionnaire. Question answers are given on a Likert scale of 1 to 5, with 1 denoting "disagree" or "not at all" and 5 denoting "completely agree" or "extremely". The four domains included by the WHOQOL-BREF are environment, social interactions, psychological health, and

physical health. The psychometric qualities of the WHOQOL-BREF have also been thoroughly investigated and verified, in addition to the WHOQOL-100, by researchers from all over the world and the WHO group. It has been tried on a variety of disease populations, ethnic groups, and linguistic backgrounds. According to Skevington et al. (2004), the WHOQOL-BREF is "a sound, cross-culturally valid assessment of QOL". Good test-retest reliability, internal consistency, discriminant validity, and content validity have all been demonstrated by the WHOQOL-BREF (Skevington et al., 2004; WHOQOL Group, 1998).

The socio-demographic information of the participants such, marital status, gender, level of employment status was obtained through oral interview. Data obtained was analyzed using SPSS version 23 using descriptive statistics of frequency and percentage to summarize the participants' socio-demographic variables. Spearman Rank Correlation was used to assess the relationship between total scores each of anxiety and life space mobility, anxiety and quality of life, life space mobility and quality of life. Mann whitney U test was used to assess the relationships between each of anxiety, life space mobility and quality of life with the participants' gender. Kruskal wallis H was used to assess the relationship between anxiety, life space mobility and quality of life with participants' marital status and also, to assess the relationship between anxiety, life space mobility and quality of life with participants' employment status. The level of significance was set at $p < 0.05$.

Ethics Approval and Consent to Participate: The study was approved by the Research and Ethics Committee of University of Nigeria Teaching Hospital, Enugu and conducted in accordance with the Declaration of Helsinki.

Results

A total number of 119 older adults (aged 60 years and above) residing in 2 communities in Uwani, Enugu south LGA, Enugu state participated in this study. Majority of the participants 58.0% were female, 84(70.6%) were married, 94(79.0%) attained secondary education, 52.9% were self-employed (Table 1). 95.8%, had Larger life space and 63.9% had minimal anxiety (Table 2). There is a weak but significant correlation between Anxiety and Life space mobility ($\rho = 0.286$, $p = 0.002$) (Table 3)..Females significantly had better quality of life than their male counterparts ($U = 1258.000$, $Z = -2.515$, $p=0.012$); the divorced more significantly had poorer quality of life ($\chi^2 = 12.582$, $p = 0.006$) and the employed more significantly had better quality of life ($\chi^2=12.104$, $p=0.002$) (Table 4).

Discussion

This study explored the prevalence of anxiety, life space mobility level and quality of life, their interconnections and relationships with gender, marital status and employment status among frail older adults.

Findings of this study revealed a high prevalence of anxiety (36.1%) among frail older adults.

This finding is higher than the prevalence of anxiety recorded in previous studies among apparently healthy older adults. Anxiety disorder prevalence in late life is estimated to be between 3.2% (Forsell & Winblad, 1997) to 14.2% (Ritchie et al., 2004). According to the Epidemiological Catchment Area (ECA) survey, 5.5% of older individuals had any DSM-III anxiety disorder at one month's time (Regier et al., 1998). Generalized anxiety disorder (GAD) was included in a previous study that used a national sample of older adults and discovered that 10.2% of people 65 years of age or older had anxiety disorders 12 months of the time (Uhlenhuth et al., 1983). On the other hand, studies that adjusted for covariants showed similar results, indicating that frail older persons are four times more likely to suffer anxiety than non-frail older adults (Ní Mhaoláin et al., 2012). With a predicted effect size of >1 SMD, anxiety levels were significantly greater in frail older persons than in non-frail older adults. A review by Tan et al. (2023) also revealed patterns according to the degree of frailty: prefrail participants are more likely than robust participants to experience anxiety or higher degrees of anxiety symptoms, and frail older individuals were more likely to feel anxiety than prefrail groups. Indicators of frailty, such as exhaustion and reduced mobility, can similarly have a substantial influence on mood (Tan et al., 2023).

The 4.2% profile of lower life space mobility shown in this study is lower than rates of between 35% and 21.4%, 18.4% reported in global studies, which is mostly from high income countries (Cummings et al., 2014; Musich et al., 2018). It is also lower than the findings commonly reported by the US government and a number of individual research studies, in which mobility limitations rates between 22.5%–46.7% among older adults (Hoffman et al., 2007; Iezzoni et al., 2000; Melzer et al., 2003; Courtney-Long et al., 2013; Census Bureau, American Community Survey Reports, 2014; Jefferis et al., 2015). The disparity in outcomes could be attributed to use of different mobility limitation criteria (e.g., self-reported, measured, multiple different survey question combinations, multiple objective measurements).

Findings of this study revealed a higher level of quality of life when compared with the outcomes of previous studies. Generally, the process of aging and frailty causes a decline in the self-efficacy, quality of life (QoL), and ability to sustain healthy exercise levels in older persons (Chen et al., 2014; Xue, 2011; Fried et al., 2001). QoL of community-dwelling older persons refers to the subjective evaluation of their general function. According to Topinková (2008), the state of impairment, reliance on family members and social burden of older persons are all impacted by the changes brought about by age, illness, and frailty. However, research has indicated that quality of life is considered better in those over 50 and 68 years old, and it tends to drastically deteriorate beyond the age of 86 (Sharma et al., 2018). Additionally, independent living, functionality, and physical health are more crucial to an older person's quality of life than they are to a younger one (Sharma et al., 2018). This could be primarily caused by a number of things, like cognitive impairments, which have a detrimental impact on bodily function and, thus, the quality of life.

Anxiety was significantly associated with life space mobility in this present study. According to previous research, older persons who experience high levels of anxiety have lower functioning (Stein et al., 2014). Feldman and colleagues (2019) found that older adults who experience anxiety are more likely than those without anxiety to experience balance impairments and mobility difficulties. The fear of having

anxiety episodes when operating a vehicle, riding a bicycle, walking, taking public transportation, or driving might significantly limit the mobility of people with anxiety disorders (Fort et al., 2021). As evidenced by other groups, these issues may have significant negative effects on day-to-day functioning, including the inability to visit friends and family, apply for jobs, or attend doctor appointments. Long-term effects may also include social isolation and unemployment (Lucas, 2012; Martens, 2016). Therefore, it is crucial to comprehend how anxiety disorders and (anticipated) anxiety episodes may influence people's mobility options and behavior. This understanding will benefit healthcare institutions, the individuals affected, and the goal of creating an inclusive mobility system.

Outcome of this study showed no significant relationship between anxiety and quality of life among frail older adults. However, a previous study demonstrated a moderate-to-strong correlation between anxiety and quality of life. Dangerfield et al. (2023) demonstrated an indirect relationship between anxiety and each of; current health-related quality of life, perceived change in health-related quality of life and medication-related quality of life. The disparity in outcomes can be attributed to the use of different outcome measures in the assessment of quality of life. Whereas this present study assessed quality of life as health-related quality of life using the WHOQoL Bref questionnaire, Dangerfield et al. (2023) measured quality of life as health-related quality of life using two global questions from the RAND-36 and as medication-related quality of life using the Medication-Related Quality of Life Scale. Furthermore, over time, anxiety significantly influences how people's quality of life develops (Ribeiro et al., 2020).

Furthermore, findings of this study demonstrate a significant relationship between gender and quality of life among frail older adults. This is in line with the outcome of previous studies which have observed a significant association between gender and quality of life among the general older population. According to Lee et al. (2020), prior exploratory research revealed that the factors influencing QoL varied depending on gender. The subjects' quality of life was also correlated with their marital status. Previous research has shown that married individuals, because of their social relationship with their spouse, have better mental health than single, divorced, or bereaved individuals (Bierman, 2009; Bierman, 2006; Pearlin, 1977; Thoits, 1986). Married individuals in the current study exhibited higher QOL scores than did individuals in other marriage status categories on average. However, in a study by Zueras et al. (2020), family relationships (such as married status or living arrangements) were not substantially connected with higher QoL among male older persons. This could be an indication that social interactions are more significant to male older adults than family ones. Because men were seen to be in charge of finances and women to play the role of kin keepers inside the family, men have historically been connected with socioeconomic pursuits. Family ties may be seen as being more significant for women than for males since women are thought to perform a more significant role in the family.

Additionally, findings of this study demonstrate significant association between employment status and quality of life among the participants. Frail older adults who were employed reported better quality of life. It has been suggested that employment of older adults has many advantages beyond increased productivity and financial gain (Sharpe, 2011; Percy et al., 2016). Growth curve models that evaluated the

impact of productive activities on the trajectories of mental health in over 8000 mid-to-older individuals were able to identify protective benefits (Hao, 2008). In particular, full-time work and light volunteerism alone had a protective impact against a reduction in psychological well-being, and their combined participation had an even stronger protective effect (Hao, 2008). According to Maimaris et al. (2010), research on the employment and well-being of older adults has indicated that working past the conventional retirement age may have positive effects on mental health. Diverse results in the literature, however, point to the necessity for a more cautious approach in understanding how older adults' employment statuses relate to their well-being and overall quality of life.

Limitations

The cross-sectional design precludes causal inferences. More so, Frailty was assessed using frail scale, limiting comparability with studies using Fried's phenotype. Finally, the GAD-7 and LSM used were not cross culturally adapted to the Nigerian older adults and such validation might be necessary to confirm cultural appropriateness.

Conclusion

Frail older adults in Enugu showed high anxiety but relatively preserved mobility, with anxiety significantly linked to life-space restrictions. Women, married, and employed individuals reported better QoL, underscoring the need for targeted support for widowed, unemployed, and male older adults. Future research should explore healthcare access's role in moderating these relationships.

Declarations

Consent to Participate: Written and/or verbal informed consent was obtained from all individual participants included in the study.

Consent for publication: Not applicable

Availability of Data and Materials: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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Tables

Table 1 to 4 are available in the Supplementary Files section.

Supplementary Files

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