

ENVIRONMENTAL HEALTH QUALITY OF LIFE OF THE AGED WITH DISABILITY IN SELECTED DISTRICTS IN THE UPPER WEST REGION OF GHANA

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Abstract

A substantial proportion of the aged population will have to face frailty and dependency. As a result, environmental health care for the aged with disability has become a public health concern. Therefore, the study examined the environmental Health Quality of Life (QOL) of the aged with disability in selected districts in the Upper West Region of Ghana. The study employed a census survey and questionnaires to collect data from 810 aged with disability. Independent-samples t-test and one-way Analysis of Variance (ANOVA) statistical tools were used. The analysis revealed a significant difference [$F(807) = 22.318$ value, $p = 0.000$] in environmental health QOL across age of the respondents, such that those aged 60-69 years had the highest mean score and those 80 years and older with lowest mean score. Further, mean scores were higher for those with physical disability than those with visual disability with a significant difference [$t(808) = 4.085$, $p = 0.000$] in environmental health QOL between type of disability. The study revealed the important role played by the background characteristics of the aged with disability in influencing their environmental health QOL. The study recommends that family members and governmental agencies continue to assist in the provision of environmental needs of the aged with disability.

Keywords: Ageing and disability, aged and environmental health, quality of life, Ghana, Upper West

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Introduction

One of the factors which have brought about the growing ageing population in Ghana is increasing life expectancy (Ghana Statistical Service [GSS], 2012). Life expectancy at birth is reported to have increased from an estimated 45.5 years in 1960 to 52.7 years in 1984 and further to 60.2 and 63.4 years for males and females, respectively, in 2010 (GSS, 2013a; Kwankye, 2013). People can now live longer because of improved nutrition, sanitation, medical advances, health care, education and economic well-being (United Nations Population Fund & HelpAge International, 2012). As people grow old, disability and frailty create special needs for them, but a responsively built environment can possibly reduce the impact of their ailing conditions (Gobbens & van Assen, 2018). Age-friendly environments play important roles in impacting the environmental health and quality of life (QOL) among the aged (Tiraphat, Peltzer, Thamma-Aphiphol & Suthisukon, 2017).

Globally, it has been observed that ageing exposes individuals to a higher risk of disability (Kwankye, 2013; World Health Organization [WHO], 2011). This is because the aged experience an accumulation of health challenges throughout their lives, which result in disability (WHO, 2014). Disability is described as a limitation of an individual in performing specific tasks at expected levels considered normal (Mann, 2004; WHO, 2002a). In Ghana, for instance, the aged are affected by many types of disabilities, including visual, physical, speech, emotional and hearing (GSS, 2013a; GSS, 2013b). These disabilities often lead to loss of independence among the aged and, hence, diminishes their QOL (WHO, 2014). QOL is conceived as an overall sense of well-being, including physical, mental and environmental health (Schalock *et al.*, 2002; Tripathi, 2012). However, it is argued that the environmental health QOL of the aged with a disability is more likely to decline due to the absence of a disabled-friendly environment (Ahmmad & Islam, 2014). Going outdoors is often challenging for the aged with disability due to environmental barriers (Sugiyama & Thompson, 2006).

Disabled-friendly environmental conditions are deficient in most public places in Ghana. For instance, there are very few geriatric wards and professionals to serve the aged with disability professionally in many hospitals (HelpAge International, 2008; Kwankye, 2013; Ministry of Employment and Social Welfare, 2010). Besides, Danso, Ayarkwa and Dansoh (2011) researched the state of accessibility for the disabled in selected monumental public buildings in Accra and found that in all the buildings, facilities such as car parks, main entrances,

ramps, staircases and corridors are not readily accessible to Persons with Disability (PWD). Again, it has been revealed that there are major inadequacies in access to improved water sources and sanitation in Ghana, with sanitation being the bigger problem in rural areas where most older people live (WHO, 2014). Additionally, the aged are particularly vulnerable to food insecurity due to their reduced income and physical capabilities (Steiner-Asiedu, Pelenah, Bediako-Amoa, & Danquah, 2010). Research aimed at understanding the QOL of the aged with disability in Ghana is woefully limited. Particularly, scanty research has been conducted on environmental health QOL of the aged with disability in Ghana.

Therefore, this study examines the environmental health QOL of the aged with disability in selected districts in the Upper West Region of Ghana (Wa Municipality, Nadowli-Kaleo, Jirapa and Wa East Districts). The study is one of the few studies to have used the WHOQOL-BREF questionnaire in examining the environmental health QOL of the aged with disability in Ghana. The outcome of this inquiry should inform policy formulation on the environmental health needs of the aged with a disability which has been undermined.

Literature Review

Health and social service systems are purported to provide services without any sort of discrimination relating to the age of individuals (WHO, 2002b). Therefore, environmental health care for the aged with a disability is considered a joint responsibility of both formal and informal institutions to leverage individuals to age with dignity and respect (United Nations, 1991; Walker, 2002). For instance, the National Health Insurance Scheme (NHIS) of Ghana, in which the vulnerable, including people with disability and the aged who are 70 years and older, are freely subscribed, serves as a basic health insurance system which enhances the QOL of the aged with disability (Boon, 2007; WHO, 2014).

Besides, physical environmental factors that are age-friendly can make the difference between independence and dependence of older people in their daily activities (United Nations, 1991; WHO, 2002b). For example, the presence of sidewalks, parks and lifts in storey buildings will make the aged with disability independent in terms of their mobility (Tesch-Roemer, 2012). Also, accessible and affordable public transportation services will enhance older peoples' mobility in their bid to access health care, shopping and participation in family and community activities (WHO, 2002b). Particularly, the Persons with Disability (PWD) Act of Ghana, Act 715

of 2006, advances and protects the rights and interests of PWDs in their mode of transportation (Asante & Sasu, 2015; Ghana Centre for Democratic Development, 2006). This Act indicates that commercial buses are supposed to reserve at least two seats for PWDs which will only be used when the bus is full without the reserved seats having been occupied by PWDs (Ghana Federation of the Disabled [GFD], 2006). Also, the PWD Act mandates motorists to stop for a PWD to cross the road either at the pedestrian crossing or at an appropriately designated point for crossing if the PWD intends to cross (GFD, 2006; Ministry of Employment and Social Welfare, 2010).

The environmental health of individuals is grounded in theory. For instance, the modernisation theory of ageing argues that the total transformation of societies from a relatively rural way of life toward a predominantly urban way of life contributes significantly to the diminishing status of older people in society (Choi, 1996; Cowgill & Holmes, 1972). This underscores the reason why modernisation makes extended family systems less attractive but rather promotes nuclear family living arrangements, which is detrimental to the aged, especially those with disability (Kamo & Zhou, 1994; Weeks, 1999).

Also, the political economy theory of ageing teaches that the interaction of economic and political environmental factors determines the unequal allocation of resources, thereby shaping the experience of ageing that results in older persons' loss of power, autonomy and influence (Putney, Alley & Bengtson, 2005). This theory sees the primary determinant of poor health outcomes among the aged with a disability as a socially and politically mediated exclusion from material resources (Szreter & Woolcock, 2004). It has been stressed that political power differentials translate into structural influences that determine resource allocation and public policy for older people, thereby affecting how ageing is interpreted and experienced by individuals (Murphy, O'Shea, Cooney & Casey, 2007).

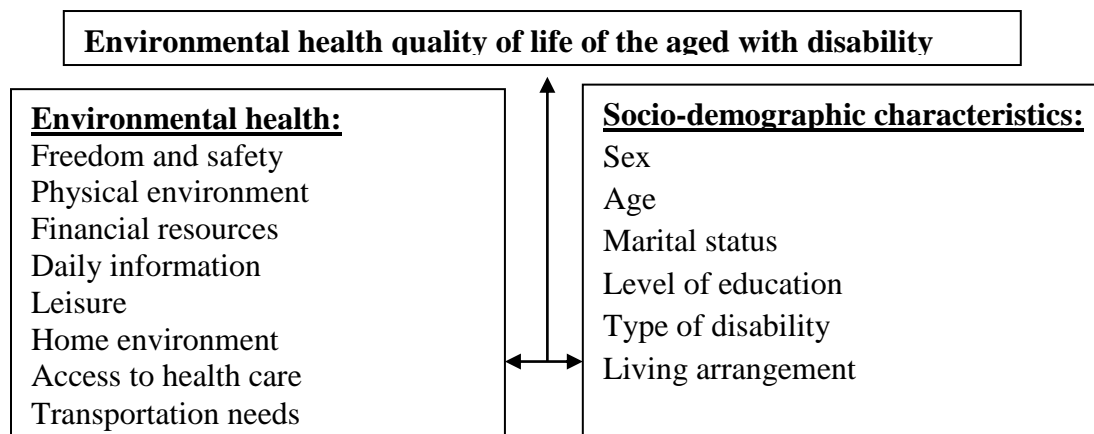
Further, the social model of disability is of the view that the social environment determines the extent to which impairment results in incapacity from mainstream social processes rather than merely the impairment itself (Schriner & Scotch, 2001). For instance, poor architectural planning creates physical obstacles for people who use wheelchairs, those who cannot climb stairs and other people who cannot open doors. All these, in effect, exclude them from participating in major aspects of life in their societies (Wendell, 1996). It is disturbing to

note that disabled people are disadvantaged by society’s failure to accommodate everyone’s abilities (Rowlingson & Berthoud, 1996; Waddell & Aylward, 2010).

In this discourse, environmental health QOL is the perception individuals have about their environment, including physical environment, financial resources, home environment, access to health care and transportation needs (WHO, 1996, 2001). In this regard, the study does not provide the basis for measuring the symptoms or conditions of diseases of the aged with a disability but rather the effects of environmental factors on their environmental health QOL (Amao, 2014; World Health Organization Quality of Life [WHOQOL] Group, 1997). Environmental factors are among the main components of the International Classification of Functioning, Disability and Health (ICF) model, which determines the functioning and disability of individuals (WHO, 1996, 2001). The other components of the ICF model are body functions and structures, activity, participation and personal factors. Particularly, environmental factors consist of the physical, social and attitudinal environment in which individuals live (WHO 2001). Environmental factors, particularly better access to services, contribute to higher QOL for persons with disabilities (Grabowska, Antczak, Zwierzchowski & Panek, 2021).

Drawing from the literature, the interaction between the determinants of environmental health QOL framework (Figure 1) is used to guide this paper. This framework is adapted from the ICF model and the WHO determinants of QOL (WHO, 1996, 2001). From Figure 1, the environmental health QOL of the aged with a disability is determined by the interaction of environmental health and socio-demographic characteristics domains (WHO, 1996). Each of these two domains has other subcomponents which interact in an intra- and inter-symbiotic manner to determine the environmental health QOL of the aged with disability (WHO, 1996).

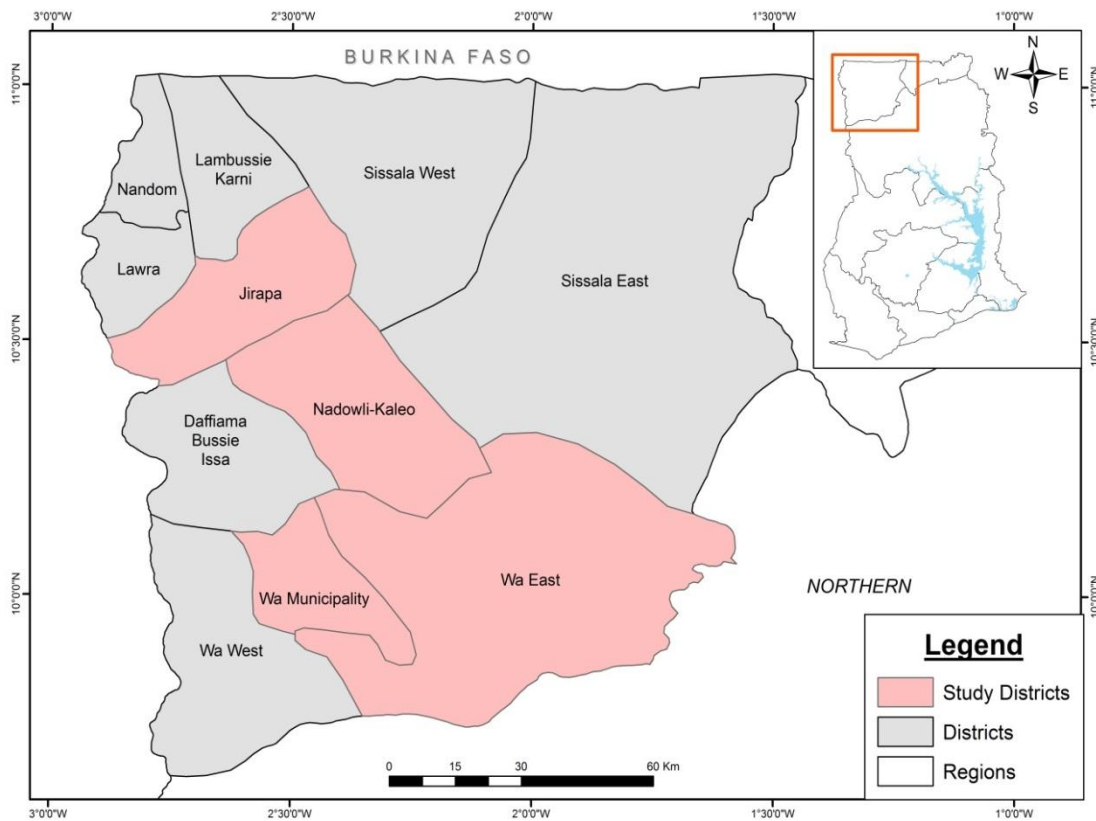
Figure 1: Interaction between the Determinants of Environmental Health QOL Framework Source: WHO (1996); WHO (2001).



Study area

This study was carried out in the Upper West Region of Ghana. The region shares borders to the north with Burkina Faso, to the east with the Upper East Region, to the south with the Northern Region and with Côte d'Ivoire to the west (GSS, 2013c). The region is in the Guinea Savannah belt and covers a geographical area of 18,476 square kilometres (GSS, 2013c). The entire region has a single rainy season from April to September, with an average annual rainfall of about 115cm (GSS, 2013c). After the rainy season, a prolonged dry season sets in, characterised by harmattan with its cold and hazy weather from early November to March (GSS, 2013c). Figure 2 shows the map of the Upper West Region showing the study districts.

Figure 2: Map of the Upper West Region showing study Districts



Source: Cartography and Remote Sensing Unit of the Department of Geography and Regional Planning, University of Cape Coast (September, 2016).

The Upper West Region was chosen because it has 3.7% of its population with some form of disability which is more than the national average of 3.0 per cent (GSS, 2012). Again, the region

had the highest incidence of poverty (70.7%) amongst the then ten administrative regions of Ghana compared with five in every ten in the Northern Region (50.4%) and four in every ten persons (44.4%) in the Upper East Region (GSS, 2014; Osei, 2011). Mont (2007) argues that disability and poverty are interconnected. Poverty can cause disability among individuals with its associated malnutrition, poor health services and unsafe living conditions (Mont, 2007; WHO, 2011). In the same way, the presence of a disability makes people poor because of the barriers disabled people face in taking part in many socio-economic activities that affect their lives (Kwankye, 2013; Mont, 2007).

Consequently, the Wa Municipality, Nadowli-Kaleo, Jirapa and Wa East districts of the Upper West Region were specifically chosen for the study (Figure 2). The basis for this choice was that these districts had available data on people living with a disability. Besides, the choice of these districts was to have many respondents and enough data set so as to maximise the quality of the results.

Research Methods

The study used a census survey design to assess the environmental health QOL of the aged with disability in selected districts in the Upper West Region of Ghana (see Figure 2). The census survey design allowed for the collection of data from many respondents within a short period of time (Creswell, 2012). Moreover, this design permitted the respondents to be interviewed only once (Creswell, 2003).

The study population comprised the aged with a visual and physical disability. In this study, visual disability is a limitation in the performance of an individual's sight due to loss of function of the eye (s) as a result of impairment or malformation (GSS, 2012; WHO, 2011). On the other hand, physical disability is a limitation in the performance of an individual's motor skills due to loss of function of either/or the neck, hand, arm, waist, leg and knee as a result of impairment, malformation or accident (Castañer, Torrents, Anguera, Dinušová & Jonsson, 2009; GSS, 2012). The motor skills of an individual are actions that involve movements of his or her arms, legs, feet or entire body (Castañer et al., 2009).

Among the aged with a disability, the study targeted those who were 60 years and older. With respect to this study, aged with disability are those with a visual and physical disability. In Ghana, among the population with disability by type, the most common disability is visual or

sight impairment (29.0%), followed by physical challenges with 18.4 per cent (GSS, 2013b). The aged with disability population in the Wa Municipality was 350, Nadowli- Kaleo District was 216, Jirapa District was 200, and that of the Wa East District was 184, and their total number was 950, which constituted the target population (Jirapa District Assembly, 2015; Nadowli- Kaleo District Assembly, 2015; Wa East District Assembly, 2015; Wa Municipal Assembly, 2015). The 950 aged with disability population was obtained from lists of PWDs from the Department of Social Welfare and Community Development in each of the study districts. A census survey was conducted on the 950 aged with disability. This was based on the central limit theorem that a large sample size is more likely to generate a normal distribution in a data set than a smaller sample size (Barnett, 1989; Islam, 2018).

Data Collection Instrument

The study used an interviewer-administered questionnaire to collect the data. This questionnaire was adapted from the WHOQOL-BREF questionnaire (WHO, 1996, 2004). The WHOQOL-BREF questionnaire contains three sections. The first section captures socio-demographic characteristics, but for the purpose of this study, they were adapted from the questionnaire of the 2010 Population and Housing Census of Ghana (GSS, 2010). The socio-demographic characteristics consist of gender, age, ethnic group, religious affiliation, marital status, level of education, employment status (Private / Self-employment), type of disability, own biological children, surviving children and living arrangement (GSS, 2010). The adaptation of the socio-demographic characteristics of this questionnaire was to make it suitable in the Ghanaian context. Besides, this adaptation did not alter the consistency and reliability of the instrument in measuring the environmental health QOL of individuals. The second section of the questionnaire covers the overall QOL and general health (WHO, 1996). Further, the third section has physical health, psychological health, social relations and environmental health QOL domains containing 24 facets (WHO, 1996). However, with respect to this study, the environmental QOL domain was adapted and used. It directly indicates the determinants of the environmental QOL of individuals. This domain has eight facets, including freedom and safety, physical environment, financial resources, daily information, leisure, home environment, access to health care and transportation needs (Gholami et al., 2016; WHO, 1996). The responses to each of the questions of the facets in this domain were constructed on a 5-point Likert scale (WHO, 1996). For

example: 1 = “Not at all”; 2 = “A little”; 3 = “A moderate amount”; 4 = “Very much” and 5 = “Extremely”. Before the commencement of the actual data collection, the instruments were pre-tested in the Lawra District, which has similar socio-demographic characteristics as the study areas.

Data Collection Procedures

All community entry protocols were done before the data collection. The research team first introduced themselves to officials of the various municipal and district assemblies and assembly members. Assembly members in the study communities led the research team to the chiefs for permission before the commencement of data collection. During the data collection, the research team used the home addresses provided on the lists of PWDs to identify the target respondents in each of the study communities. Within a household, the research team first contacted and introduced themselves to the household heads of the aged with disability. Second, the household heads then assisted the research team in seeking the consent of the respondents before the questionnaires were administered. To promote understanding and accurate responses, the questions in the instrument (which were worded in the English Language) were translated by the research team into Wali, Dagaare or Sissali, which were the major languages spoken by the respondents. The respondents then provided their responses for the research team to record on the questionnaires. Translation of the questionnaires was deemed necessary because most of the respondents could not read and write in the English Language due to illiteracy or the effects of their disability. Besides, any respondent who decided not to participate in the study did so without coercion of any kind. Due to the death of some of the respondents, incomplete responses and other ethical reasons, 810 of the questionnaires were processed.

Ethical Issues

The University of Cape Coast Institutional Review Board (with Ethical Clearance ID No: UCCIRB/CHLS/2016/12) gave approval for the research to be conducted. Also, approval was given by the WHO on the adaptation of the WHOQOL-BREF questionnaire (WHO, 1996). Again, the appropriate authorities of the various municipal and district assemblies, including chiefs and queen mothers, were consulted for permission for the study. In line with the principles of confidentiality and anonymity (Berg, 2001), respondents’ names were not written on the

questionnaires and respondents were assured that their names would not be used in the discussion of the findings.

Data Processing and Analysis

Questionnaires were edited and numbered serially. The International Business Machines (IBM) Corporation Statistical Product and Service Solutions (SPSS) version 20 (International Business Machines Corporation, 2011) was used for data entry and analysis. Independent variables considered were sex, age, marital status, level of education, type of disability and living arrangement. Sex was male and female. Age was captured in absolute years but was re-coded into three age groups: 60 – 69 years, 70 – 79 years, and 80 years and older. Marital status was grouped as never married, married, separated/ divorced, widowed and other (Specify). Type of disability was visual disability and physical disability. Level of education was captured as none, primary, JHS/Middle school, SHS/Vocational/Technical, Post-Secondary/Tertiary and other (Specify). However, the level of education was collapsed into two broad groups: illiterate and literate. Further, the living arrangement was categorised as alone, nuclear family, extended family and other (Specify) but was collapsed into nuclear and extended families. However, the dependent variable was environmental health QOL. The scores in the environmental health QOL domain were transformed to a scale ranging from 0 to 100 to enable comparisons between different domains consisting of unequal numbers of items (Cao et al., 2016; WHO, 1996). In the 5-point Likert scale data, the scores of 1, 2, 3, 4 and 5 were transformed into 20, 40, 60, 80 and 100, respectively (WHO, 1996). Scores in this domain were computed by finding the average of all the responses of the facets under it. A lower score indicated a lower QOL and a higher score indicated a higher QOL (Khan, Mondal, Hoque, Islam & Shahiduzzaman, 2014; WHO, 1996).

Moreover, means, independent-samples t-test, and one-way Analysis of Variance (ANOVA) statistical tools were used to analyse and present the findings. These tools were based on the conditions of a normal distribution and equal variance assumed (Pallant, 2005). The independent-sample t-test was used to compare two categorical variables in relation to the mean score of continuous variables (Cohen, 1988; Pallant, 2005). It provided the basis for independent variables such as gender, level of education, and type of disability to be compared to the mean scores of the environmental health QOL. Again, ANOVA was used because it compares three or more independent variables in relation to the mean scores of continuous variables (Cohen, 1988;

Pallant, 2005). Besides, independent variables, including age and marital status, were compared based on the mean scores of the environmental health QOL. In these analyses, the effect size was considered. The effect size is the strength of the difference between groups (Cohen, 1988; Pallant, 2005). Further, in the interpretation of the effect size, Cohen’s (1988) classification was used, where 0.2 is considered a small effect, 0.5 medium and 0.8 large. In conclusion, data for this study were extracted from a much wider research project conducted in the Upper West Region of Ghana (Nantomah, 2019).

Results

Socio-demographic Characteristics of the Aged with Disability by Sex

Table 1 shows the percentage distribution of the socio-demographic characteristics of the aged with disability by sex. The results depicted that most of the aged with disability were aged 60 – 69 years (73.8%), with more females (74.3%) than males (73.2%). The majority of the respondents were married (50.9%). However, 55.2 per cent of females, as compared to 25.3 per cent of the males, were widowed. Over two-thirds of the respondents were illiterate (68.6%). More of the females (69.6%) than the males (67.4%) were illiterate. Most of the aged with disability were unemployed (66.7%). More than half of the respondents had a visual disability (52.0%). Many of the respondents lived in extended families (57.0%).

Table 1: Socio-demographic Characteristics of the Aged with Disability by Sex

Socio-demographic characteristics	Males (n = 359)	Females (n = 451)	Total (n = 810)
Age			
60 – 69	73.2	74.3	73.8
70 – 79	24.0	22.8	23.4
80+	2.8	2.9	2.8
Marital status			
Married	65.5	39.2	50.9
Separated/Divorced	9.2	5.6	7.1
Widowed	25.3	55.2	42.0
Level of education			
Illiterate	67.4	69.6	68.6
Literate	32.6	30.4	31.4

Employment status			
Self employed	3.6	4.7	4.2
Unemployed	69.1	64.7	66.7
Other	27.3	30.6	29.1
Type of disability			
Visual disability	54.0	50.3	52.0
Physical disability	46.0	49.7	48.0
Living arrangement			
Nuclear family	42.3	43.5	43.0
Extended family	57.7	56.5	57.0

Environmental Health Quality of Life of the Aged with Disability

The socio-demographic characteristics by environmental health QOL of the aged with disability are presented in Table 2. The mean score in environmental health QOL was highest among those who were aged 60-69 years (38.4) and lowest among those who were aged 80 years and older (32.2). A one-way ANOVA was performed to compare the effect of three different age groupings on environmental health QOL.

Table 2: Socio-demographic characteristics by environmental health QOL

Socio-demographic characteristics	N	Facets of environmental health QOL								Overall environmental health QOL Mean score
		Freedom and safety	Physical environment	Financial resources	Daily information	Leisure	Home environment	Access to health care	Transportation needs	
		Mean score	Mean score	Mean score	Mean score	Mean score	Mean score	Mean score	Mean score	
Sex										
Male	359	38.0	35.9	37.7	37.2	37.5	37.5	38.2	38.3	37.5
Female	451	37.7	37.0	38.0	38.2	38.5	38.1	37.8	38.1	37.9
t-value		0.255	1.043	0.366	1.061	1.021	0.593	0.369	0.154	1.055
P-value		0.797	0.300	0.713	0.292	0.307	0.555	0.713	0.878	0.294
Age										
60 – 69	598	38.3	36.9	39.0	38.2	38.7	38.2	38.9	39.2	38.4
70 – 79	189	36.8	35.7	35.0	37.1	36.8	37.5	35.5	36.5	36.4
80+	23	33.9	32.1	33.9	32.1	33.9	30.4	33.9	27.8	32.2
F-value		1.688	1.671	6.372	2.300	2.265	3.503	5.944	10.121	22.318
P-value		0.185	0.189	0.002**	0.101	0.104	0.031*	0.003**	0.000**	0.000**
Marital status										
Married	412	39.3	38.2	39.9	39.8	39.3	39.6	38.7	40.1	39.4
Separated/ Divorced	58	35.8	34.1	36.2	33.7	36.9	36.2	39.3	36.5	36.0
Widowed	340	36.5	34.9	35.7	36.0	36.8	36.0	36.8	36.2	36.1
F-value		3.978	6.064	8.352	9.216	2.957	6.457	2.218	8.456	36.680
P-value		0.019**	0.002**	0.000**	0.000**	0.053*	0.002**	0.110	0.000**	0.000**
Type of disability										
Visual disability	421	36.7	36.0	37.5	36.8	36.7	37.9	36.9	37.4	37.0
Physical disability	389	39.1	37.1	38.3	38.8	39.5	37.8	39.1	39.0	38.6
t-value		2.281	1.068	0.808	1.968	2.830	0.070	2.382	1.680	4.085
P-value		0.023*	0.286	0.419	0.049*	0.005**	0.944	0.017**	0.094	0.000**

t = Student's t-test and F=ANOVA

* Significant at 5 % level (P<0.05); ** Significant at 1 % level (P<0.01)

The analysis revealed that a significant difference [$F(807) = 22.318$ value, $p = 0.000$] was observed in environmental health QOL across the age of the respondents, such that those aged 60-69 years had a mean score ($M = 38.4$; $SD = 5.00$), 70-79 years ($M = 36.4$; $SD = 6.55$) and 80 years and older ($M = 32.2$; $SD = 7.15$). Besides, the effect size was small ($\eta^2 = 0.05$) between the age groupings.

Table 2 highlights that those who were married (39.4) had the highest mean score in environmental health QOL, and the lowest was among those who were separated/divorced (36.0). To further understand the impact of marital status on environmental health QOL of the aged with a disability, a one-way ANOVA was carried out. The analysis showed that a significant difference [$F(807) = 36.680$ value, $p = 0.000$] was observed in environmental health QOL across the marital status of the respondents, such that those married had a mean score ($M = 39.4$; $SD = 4.14$), separated/divorced ($M = 36.0$; $SD = 5.13$) and widowed ($M = 36.1$; $SD = 6.61$). Even though a significant difference was observed between their marital status (Table 4), the effect size was medium ($\eta^2 = 0.08$).

In relation to the type of disability, the mean score in environmental health QOL was higher for those with a physical disability (38.6) than those with a visual disability (37.0). An independent-samples t-test further established a significant difference [$t(808) = 4.085$, $p = 0.000$] in environmental health QOL between types of disability, such that those with a physical disability had a mean score ($M = 38.6$; $SD = 5.48$) and those with a visual disability ($M = 37.0$; $SD = 5.62$). The magnitude of the differences in the means between those with physical disability and visual disability was small ($\eta^2 = 0.02$).

Discussion of Results

This study examined the environmental health QOL of the aged with disability in selected districts in the Upper West Region of Ghana (Wa Municipality, Nadowli-Kaleo, Jirapa and Wa East Districts). The findings of this study revealed that the mean score in environmental health QOL was highest among those who were aged 60-69 years and lowest among those who were aged 80 years and older. It could be deduced from these results that as the age of the respondents increased, their environmental health QOL declined. As emphasised in previous studies, age is a major determinant of environmental health QOL of the aged (Fernández-

Ballesteros, 2001). The results further give credence to the existing literature that people within the oldest age group are most vulnerable to barriers imposed by environmental factors, and in effect, they have the lowest environmental health QOL (Sugiyama & Thompson, 2006). That is why there is a high prevalence of care needs among older people in Ghana, particularly assistance in their daily activities (Awuviry-Newton et al., 2022).

In the analysis, it was observed that those who were married had the highest mean score in environmental health QOL, and the lowest was among those who were separated/divorced. Similarly, Khan et al. (2014) found that the aged who were married had a higher mean score in environmental health QOL than those without partners. It is possible in this study that those who were married had the highest environmental health QOL because their spouses provided them with safety, financial resources, transportation needs and good health care. The opportunity of the aged to get help from other people in everyday functioning has a positive impact on their environmental QOL (Ćwirlej-Sozańska, Wiśniowska-Szurlej, Wilmowska-Pietruszyńska & Sozański, 2020).

The results showed that mean scores in environmental health QOL were higher for those with physical disability than those with visual disability. These findings mean that the aged with a physical disability had higher environmental health QOL than those with a visual disability. Perhaps, the reason why the aged with a physical disability had a higher environmental health QOL could be that because they had no problem with their sight, they were able to assess their environmental health QOL better than those with visual disability. These findings corroborate the existing literature that the type of disability of individuals is a key determinant of their environmental health QOL (WHO, 1996, 2001).

Conclusions and Implications

The study concludes that the aged with a disability who were aged 60-69 years had the highest environmental health QOL, and it was lowest among those who were aged 80 years and older. It was found that those who were married had the highest environmental health QOL and the lowest was among those who were separated/divorced. The study observed that those with physical disability had higher environmental health QOL than those with visual disability. The findings of this study highlight how the background characteristics of the aged with disability

influenced their environmental health QOL as envisaged in the conceptual framework (Figure 1).

The study suggests that the Department of Social Welfare and Community Development of the metropolitan, municipal and district assemblies in Ghana, including families, benevolent individuals and organisations, should provide support such as financial resources, daily information, recreational activities, health care, transportation and safety needs to the aged with a disability, particularly those aged 80 years and older, the separated/divorced, and those with visual disability. One key contribution of this study is that it is among the first to have used the WHOQOL-BREF questionnaire in examining the environmental health QOL of the aged with disability in the Ghanaian context. Notwithstanding, it is important to state that this study was limited to some selected districts in the Upper West Region; hence, the findings cannot be generalised for the entire country. Also, the study was restricted to only the aged with disability. The study proposes that future academic inquiries on environmental health QOL should be a comparative study between the aged with disability and those without disability.

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References

- Ahmmad, M. R. & Islam, M. N. (2014). Impact of disability on quality of life of urban disabled people in Bangladesh. *International Journal of u-and e-Service, Science and Technology*, 7(4), 227-238.
- Amao, F. L. (2014). Quality of life of poor residential neighborhoods in Oshogbo, Nigeria. *International Scholarly and Scientific Research and Innovation*, 8(4), 892-895.
- Asante, L. A. & Sasu, A. (2015). The persons with disability act, 2006 (Act 715) of the Republic of Ghana: The law, omissions and recommendations. *Journal of Law, Policy and Globalization*, 36, 62-68.

- Awuviry-Newton, K., Ofori-Dua, K., Deku, C. S., Abekah-Carter, K., Awortwe, V. & Oti, G. O (2022). Prevalence and determinants of care needs among older people in Ghana. *PLoS ONE*, 17(2): e0263965.
- Barnett, N., S. (1989). A central limit theorem for assessing average quality. *International Journal of Quality & Reliability Management*, 6(4), 0265- 671X.
- Berg, B. L. (2001). *Qualitative research methods for the social sciences* (4th ed.). Allyn & Bacon: A Pearson Education Company.
- Boon, E. K. (2007). Knowledge systems and social security in Africa: A case study on Ghana. *Tribes and Tribals*, 1, 63-76.
- Cao, W., Guo, C., Ping, W., Tan, Z., Guo, Y. & Zheng, J. (2016). A community-based study of quality of life and depression among older adults. *International Journal of Environmental Research and Public Health*, 13, 1-10.
- Castañer, M., Torrents, C., Anguera, M. T., Dinušová, M. & Jonsson, G. K. (2009). Identifying and analyzing motor skill responses in body movement and dance. *Behavior Research Methods*, 41(3), 857-867.
- Cartography and Remote Sensing Unit of the Department of Geography and Regional Planning, University of Cape Coast (September, 2016). *Map of the upper west region showing study districts*. University of Cape Coast (Unpublished).
- Choi, S. J. (1996). Aging and social policy in Korea. *Korea Journal of Population and Development*, 25(1), 1-25.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.
- Cowgill, D. O., & Holmes, L. D. (1972). *Aging and modernization*. New York: Appleton-Century-Crofts.
- Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (4th ed.). Boston: Pearson Education Inc.
- Creswell, J. W. (2003). *Research design: Qualitative, quantitative and mixed methods approaches* (2nd ed.). California: Sage Publications Inc.
- Ćwirlej-Sozańska, A. B., Wiśniowska-Szurlej, A., Wilmowska-Pietruszyńska, A. & Sozański, B. (2020). Factors associated with disability and quality of life among the oldest-old

- living in community in Poland – a cross-sectional study. *Annals of Agricultural and Environmental Medicine*, 27(4), 621-629.
- Danso, A. K., Ayarkwa, J. & Dansoh, A. (2011). State of accessibility for the disabled in selected monumental public buildings in Accra. *The Ghana Surveyor*, 4(1), 1-19.
- Fernández-Ballesteros, R. (2001). Environmental conditions, health and satisfaction among the elderly: Some empirical results. *Psicothema*, 13(1), 40-49.
- Ghana Centre for Democratic Development. (2006). Democracy watch in the annals of governance. *Ghana Center for Democratic Development Newsletter*, 7(2), 1-16.
- Ghana Federation of the Disabled. (2006). *Persons with disability Act, 2006 Act 715*. Retrieved July 10, 2017, from [http:// www.gfdgh.org](http://www.gfdgh.org)
- Ghana Statistical Service. (2014). *2010 Population & housing census: District analytical report: Wa municipality*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service. (2013a). *2010 Population & housing census report: The elderly in Ghana*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service. (2013b). *2010 Population & housing census: National analytical report*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service. (2013c). *2010 Population & housing census: Regional analytical report: Upper west region*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service. (2012). *2010 Population & housing census; Summary report of final results*. Accra, Ghana: Ghana Statistical Service.
- Ghana Statistical Service. (2010). *2010 population and housing census: You count. So get counted!* Accra, Ghana: Author.
- Gholami, A., Araghi, M. T., Shamsabadi, F., Bayat, M., Dabirkhani, F., Moradpour, F., Mansori, K., Moradi, Y. & Rajabi, A. (2016). Application of the world health organization quality of life instrument, short form (WHOQOL-BREF) to patients with cataract. *Epidemiology and Health*, 38, 1-7.
- Gobbens, R. J. J., & van Assen, M. A. L. M. (2018). Associations of environmental factors with quality of life in older adults. *Gerontologist*, 58(1), 101–110.

- Grabowska, I., Antczak, R., Zwierzchowski, J. & Panek, T. (2021). Individual quality of life and the environment – towards a concept of livable areas for persons with disabilities in Poland. *BMC Public Health*, 21(740), 1-15.
- Help Age International (2008). *Older people in Africa: A forgotten generation*. Help Age International. Retrieved July 22, 2015 from [http:// www.helpage.org](http://www.helpage.org)
- International Business Machines Corporation. (2011). *The international business machines (IBM) corporation statistical product and service solutions (SPSS) statistics data editor*. Retrieved July 22, 2015 from <http://www.ibm.com/support>
- Islam, R. M. (2018). Sample Size and its role in central limit theorem (CLT). *Computational and Applied Mathematics Journal*, 4(1), 1-7.
- Jirapa District Assembly. (2015). *Submission of PWD update list*. Jirapa District Assembly: Department of Social Welfare and Community Development (Unpublished).
- Kamo, Y., & Zhou, M. (1994). Living arrangements of elderly Chinese and Japanese in the United States. *Journal of Marriage and Family*, 56(3) 544-558.
- Khan, M. N., Mondal, M. N. I., Hoque, N., Islam, M. S. & Shahiduzzaman, M. (2014). A study on quality of life of elderly population in Bangladesh. *American Journal of Health Research*, 2(4), 152-157.
- Kwankye, S. O. (2013). Growing old in Ghana: Health and economic implications. *Postgraduate Medical Journal of Ghana*, 2(2), 88-97.
- Mann, W. C. (2004). The aging population and its needs. *Pervasive Computing, Institute of Electrical and Electronics Engineers*, 3(2), 12-14.
- Ministry of Employment and Social Welfare. (2010). *National ageing policy: Ageing with security and dignity*. Accra, Ghana: Author.
- Mont, D. (2007). *Measuring disability prevalence* (World Bank Social Protection Discussion Paper No. 0706). Retrieved June 18, 2016 from <http://documents.worldbank.org>
- Murphy, K., O’Shea, E., Cooney, A. & Casey, D. (2007). The quality of life of older people with a disability in Ireland. *National Council on Ageing and Older People*, 99.
- Nadowli-Kaleo District Assembly. (2015). *Database on persons with disabilities in Nadowli-Kaleo District*. Nadowli-Kaleo District Assembly: Department of Social Welfare and Community Development (Unpublished).

- Nantomah, B. (2019). *Perceived quality of life of the aged with disability in selected districts in the Upper West Region of Ghana*. Thesis submitted to the Department of Population and Health of the Faculty of Social Sciences, College of Humanities and Legal Studies, University of Cape Coast (Unpublished).
- Osei, R. D. (2011). *Reducing poverty through a social grants programme: The case of Ghana*. Retrieved July 11, 2016 from <http://siteresources.worldbank.org>
- Pallant, J. (2005). *SPSS survival manual: A step by step guide to using SPSS for windows (version 12)*. New South Wales: Allen & Unwin.
- Putney, N. M., Alley, D. E. & Bengtson, V. L. (2005). Social gerontology as public sociology in action. *The American Sociologist*, 36(3/4), 88-104.
- Rowlingson K. & Berthoud, R. (1996). *Disability, benefits and employment*. Department of Social Security Research Report 54. London: TSO. Retrieved June 2, 2015 from <http://research.dwp.gov.uk/asd/asd5/rrep054.pdf>
- Schalock, R. L., Brown, I., Brown, R., Cummins, R. A., Felce, D., Matikka, L. & Parmenter, T. (2002). Conceptualization, measurement, and application of quality of life for persons with intellectual disabilities: Report of an international panel of experts. *American Association on Mental Retardation*, 40(6), 457-470.
- Schriner, K. & Scotch, R. K. (2001). Disability and institutional change: A human variation perspective on overcoming oppression. *Journal of Disability Policy Studies*, 12(2), 100-106.
- Steiner-Asiedu, M., Pelenah, S. J. M., Bediako-Amoa, B. & Danquah, A. O. (2010). The nutrition situation of the elderly in Ghana: A case study. *Asian Journal of Medical Sciences*, 2(3), 95-103.
- Sugiyama, T. & Thompson, C. W. (2006). Environmental support for outdoor activities and older people's quality of life. *Journal of Housing for the Elderly*, 19(3-4), 167-185.
- Szreter, S. & Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 33, 650-667.
- Tesch-Roemer, C. (2012). *Active ageing and quality of life in old age*. Geneva, Switzerland: United Nations.

- Tiraphat, S., Peltzer, K., Thamma-Aphiphol, K. & Suthisukon, K. (2017). The role of age-friendly environments on quality of life among Thai older adults. *International Journal of Environmental Research and Public Health*, 14(3), 1-13.
- Tripathi, R. K. (2012). Quality of life: An important issue in geriatric research. *Journal of Gerontology and Geriatric Research*, 1(5), 1-2.
- United Nations (1991). *United Nations principles for older persons. Adopted by general assembly resolution 46/91 of 16 December*. United Nations. Retrieved October 4, 2015 from <http://www.un.org/en/aboutun>
- United Nations Population Fund & HelpAge International. (2012). *Ageing in the twenty-first century: A celebration and a challenge*. Retrieved December 20, 2015 from <http://www.unfpa.org>
- Wa East District Assembly. (2015). *Wa east district persons with disabilities database*. Wa East District Assembly: Department of Social Welfare and Community Development (Unpublished).
- Wa Municipal Assembly. (2015). *Wa municipal assembly database - PWD*. Wa Municipal Assembly: Department of Social Welfare and Community Development (Unpublished).
- Waddell, G. & Aylward, M. (2010). *Models of sickness and disability: Applied to common health problems*. London: The Royal Society of Medicine Press Ltd.
- Walker, A. (2002). Second world assembly on ageing: A strategy for active ageing. *International Social Security Review*, 55(1), 121-139.
- Weeks, J. R. (1999). *Population; An introduction to concepts and issues* (7th ed.). Belmont CA: Wadsworth Publishing Company.
- Wendell, S. (1996). *The rejected body: Feminist philosophical reflections on disability*. New York: Routledge.
- World Health Organization. (2014). *Ghana country assessment report on ageing and health*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2011). *World report on disability*. Geneva, Switzerland: Author.
- World Health Organization. (2004). *The world health organization quality of life (WHOQOL) – BREF*. Geneva, Switzerland: Author.

- World Health Organization. (2002a). *Towards a common language for functioning, disability and health: International classification of functioning, disability and health*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2002b). *Active ageing: A policy framework*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (2001). *International classification of functioning, disability and health (ICF)*. Geneva, Switzerland: World Health Organization.
- World Health Organization. (1996). *WHOQOL-BREF: Introduction, administration, scoring and generic version of the assessment—Field trial version. Programme on mental health*. Geneva, Switzerland: World Health Organization.
- World Health Organization Quality of Life Group. (1997). *The world health organization quality of life assessment (WHOQOL): Measuring quality of life*. Division of Mental Health and Prevention of Substance Abuse. Geneva, Switzerland: World Health Organization.