Gendered Differences in The Prevalence and Associated Factors of Dementia in Ghana: A Cross-Sectional Survey

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Abstract

Background: Dementia as a global phenomenon has received significant attention in research due to the adverse effects it has on the daily functioning of its victims. Despite studies conducted in relation to the prevalence and associated factors of dementia in Ghana, not much attention has been paid to the influence of gender. The study therefore focused on estimating gender differences in the prevalence and associated factors of dementia in the Ashanti Region of Ghana.

Methods: This study adopted a cross-sectional design with surveys to purposively recruit 800 participants who were 45 years or older. The data was obtained using the standardized Rowland Universal Dementia Assessment Scale (RUDAS) together with information on the various associated factors. A series of logistic models comprising of the total sample model, male sample model, and female sample model were estimated to analyse the data. All data analyses were completed in Stata version 14.

Results: The overall prevalence of dementia was 23.38% [95% CI:20.44, 26.31]. More females 24.56% [95% CI:20.81, 28.31] compared to males 21.31% [95% CI:16.57, 26.04] were at risk of dementia. Younger age, attaining formal education, and belonging to richer households were negatively associated with the risk of dementia. In the total sample model, younger age and attaining formal education were negatively associated with dementia risk. In the male-female stratified models, education and household wealth index were negatively associated with dementia risk in the male sample while age and education were negatively related to dementia risk in the female sample.

Conclusion: The study concludes that there are gendered differences in the prevalence and factors associated with the risk of dementia in Ghana. As such, interventions and programmes to identify dementia cases must be gender sensitive. Specifically, when addressing dementia risk in males, interventions should be directed towards those with lower wealth status. Likewise, when developing programmes to mitigate dementia risk in women, particular attention should be given to women in the oldest age category.

Keywords: Health and Morbidity, Gender Dynamics, Population Ageing, Older Adults and Intergenerational Relations

Introduction

There are several studies that have examined the factors associated with dementia risk [1-4]. For instance, Chaaya et al. [3] in a cross-sectional study reported that increasing age, perceived low income and having uncontrolled hypertension were associated with higher risk of dementia. Yet, the authors failed to report whether these associations differ significantly for males and females. Also, while Bich et al. [4] found the risk of dementia to be high among females, they do not show how significant predictors (i.e., low educational level, ageing, physical inactivity, and previous stroke) differs by gender. And so, it is clear that the existing body of literature on the associated factors of dementia does not account for variations in the risk by gender. This is a significant limitation in what is currently known about the factors associated with dementia risk. Hence, this study contributes to knowledge by providing evidence of gendered differences in the prevalence and associated factors of dementia risk.

Men and women may face distinct challenges and risk factors. As such, gaining knowledge about gender-specific differences in dementia can inform the development of targeted screening and diagnostic strategies. This is essential for identifying individuals at risk and facilitating early intervention, potentially slowing down the progression of the disease. Moreover, tailoring diagnostic tools to account for gender-specific factors can improve the accuracy and timeliness of dementia diagnoses. Also, understanding gender-specific variations would inform the allocation of resources to areas where the prevalence of dementia may differ between men and women. Against this background, we investigated gender-specific differences in the prevalence and factors associated with dementia in the Ashanti Region of Ghana.

Methods

This study adopted a cross-sectional research design. Simple random sampling was applied to recruit all of the study participants. To identify eligible participants, we collaborated closely with the administrative staff and healthcare providers at each facility. Upon arrival at the OPD, individuals meeting the age criteria were identified through their registration information or directly by healthcare staff during triage. These individuals were then approached by trained research personnel who explained the purpose and procedures of the study.

We used Rowland Universal Dementia Assessment Scale (RUDAS) to assess dementia. The RUDAS is an easy-to-use instrument with six (6) components that examine memory, body orientation, visuospatial praxis, motor praxis, judgment, and language [5]. The maximum score is 30, with a recommended cut-off score of 23. In other words, “any score of 22 or less should be considered as possible cognitive impairment and referred on for further investigation by the relevant physician”. Higher score indicated superior performance, whereas lower scores indicated poorer cognitive ability or dementia risk. We selected the following as explanatory variables: age, marital status, education, employment, financial situation, living status (household size), health insurance, and household wealth index.

The data collection exercise lasted from April 18 until May 3, 2023. This was done at premises of the eight healthcare facilities. All participants were briefed about the study, the duration and their rights to participate or withdraw. Participants were only included if they had given an oral or written informed consent. All participants were evaluated using the standardized Rowland Universal Dementia Assessment Scale (RUDAS) instrument. Ethical approval was granted by the Ghana Health Service Ethics Review Committee (GHS-ERC) [ID Number: GHS-ERC: 005/02/23] and the School Research Ethics and Integrity Committee (SREIC), University of Huddersfield, United Kingdom (SREIC Reference: SREIC_ExtApp_2023_001).

Results

Prevalence of dementia

The overall prevalence of dementia risk was 23.38% [95% CI:20.44, 26.31]. More females 24.56% [95% CI:20.81, 28.31] compared to males 21.31% [95% CI:16.57, 26.04] were at risk of dementia (see table 2).

Total sample model

A significant negative relationship was observed between age and dementia such that the younger the age, the less likely the risk of dementia. Specifically, respondents aged 45-54 years [AOR= 0.41, 95% CI:0.19, 0.86, p = 0.019], and 55-64 years [AOR=0.46, 95% CI:0.23, 0.95, p = 0.036] were less likely to risk having dementia than those aged 75 and above. Moreover, higher educational level was negatively associated with dementia risk. As shown in the results, respondents who reported receiving formal education such as primary [AOR=0.55,95% CI:0.33, 0.92, p = 0.023], JHS/JSS [AOR=0.38,95% CI:0.23, 0.62, p = 0.001], SHS/SSS [AOR=0.09,95% CI:0.04, 0.22, p = 0.001], and tertiary [AOR=0.05 ,95% CI: 0.01, 0.24, p = 0.001] were less likely to report dementia risk than those who had no formal education.

Male sample model

Educational level in the male sample model was significantly associated with the risk of dementia, such that male respondents who had any form of formal education are less likely to be at risk of dementia compared to their counterparts who had no formal education. Specifically, male respondents who graduated from SHS/SSS [AOR=0.13, 95% CI:0.03, 0.49, p = 0.003] and tertiary [AOR=0.14, 95% CI:0.02, 0.88, p = 0.036] are less likely to be at risk of dementia compared to those who had no form of formal education. Also, household wealth index was negatively related to dementia risk, such that the higher the household wealth index, the lesser chances of being at risk of dementia. Specifically, male respondents belonging to poorest households were more likely to be at risk of dementia compared to those belonging to rich households [AOR=0.37, 95% CI:0.15, 0.94, p = 0.036] and richest households [AOR=0.09, 95% CI:0.02, 0.49, p = 0.005].

Female sample model

Age in the female sample model was significantly negatively related to dementia risk, such that the younger the age, the less likelihood of being at risk of dementia. Precisely, female respondents aged 45-54 years [AOR=0.26, 95% CI:0.10, 0.66, $p < 0.005$] and those aged 55-64 years [AOR=0.35, 95% CI:0.14, 0.87, $p < 0.023$] are less likely to be at risk of dementia compared to those aged 75 and more. Moreover, increasing education levels were associated with less likelihood of being at risk of dementia. For instance, female respondents who graduated from primary [AOR=0.52, 95% CI:0.29, 0.96, $p < 0.036$], JHS/JSS [AOR=0.39, 95% CI:0.22, 0.70, $p < 0.002$], and SHS/SSS [AOR=0.06, 95% CI:0.01, 0.28, p = 0.001] were less likely to be at risk of dementia compared to those who had no form of formal education.

Conclusion

Based on the findings of the study, we conclude that the prevalence of dementia risk is high, especially among females compared to their male counterparts. Also, there are gendered differences in the associated factors of dementia in Ghana. While there are no differences in terms of the association between educational attainment and dementia risk, there are existing differences for wealth status and age for males and females, respectively. It is, therefore, imperative for Ghana's Ministry of Health, Ministry of Education, and the Ghana Health Service to consider collaborating on allocating resources towards adult education and lifelong learning initiatives to enable individuals of all age groups to participate in intellectually enriching pursuits. Specifically, when addressing dementia risk in males,

interventions should be directed towards those with lower wealth status. Likewise, when developing programmes to mitigate dementia risk in women, particular attention should be given to women in the oldest age category.

Strength and limitations

This study is arguably the first of its kind in Ghana to assess the gendered differences in the prevalence and associated factors of dementia. Thus, contributing to advancing the current knowledge on dementia risk in SSA. Also, using the RUDAS assessment tool provided us with a quick way of screening for dementia risk among the population. Notwithstanding, there are some limitations. The use of the RUDAS assessment tool does not provide us with insights into the specific dementia sub-typologies. Additionally, given that we recruited only persons who visited the healthcare facilities, the findings may not be generalizable to persons with dementia (cognitive impairments) aged 45 years and above who did not visit the healthcare facilities. Also, since the study was cross-sectional in nature, we are unable to infer any sort of causality in the predictors of dementia. Future studies can consider implementing longitudinal studies to be able to establish causal pathways between the factors associated with dementia risk among males and females.

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