



How are the Seniors Ageing in Ekiti: Insights from the Burden and Pattern of the Geriatric Giants as Presented in a Geriatric Clinic.

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(Received: 16 March 2025

Revised: 20 April 2025

Accepted: 01 May 2025)

KEYWORDS

Older Adults,
longevity,
longitudinal,
Geriatric.

ABSTRACT:

Background: The global population is ageing but there is a wide disparity in longevity. Ageing, among different populations. Research interest needs to be directed at the process of geriatric giant, ageing to identify factors that may influence longevity among a particular population.

Burden, Methods: This retrospective cross-sectional study was conducted using medical records. Pattern of older adults aged 65 years and above at a geriatric clinic over 5 years (2018 – 2022). Yearly records of diagnosis of the five primarily recognized geriatric giants were extracted and analyzed.

Results: There was an increased yearly burden of the geriatric giants over the study period with female preponderance and very minute contribution by the centenarians. Instability/falls and cognitive impairment were the most prominent. The burden of iatrogenesis declined over the study period.

Discussion/conclusion: Geriatric giants imposed a burden on health services utilization among older adults in the study population. The increasing burden, if it outpaces the increase in longevity may align with the 'failure of success' paradigm. The prominence of instability/falls offers a ray of hope as this can be prevented. Researchers in other LMICs with demographic characteristics similar to Nigeria are encouraged to research this topic, especially longitudinal studies.

INTRODUCTION

The global population of older adults is increasing [1]. However, in Nigeria, half of the population is under 19 years old while people aged 60 years and older represent a small proportion. It has one of the youngest populations in the world and is therefore regarded as a relatively young country [2]. According to the World Bank's 2021/2022 country income group classification, Nigeria belongs to low–middle–income Africa, and most countries in this group globally are characterized by shorter life expectancy compared to high-income countries (HIC) [3]. Despite these Nigerian demographic characteristics, the number of people aged 60 and older

were 74 million in 2020 and are projected to increase to 216 million by 2050 [4]. This is not unexpected, as the present HICs were at similar developmental levels in the past. For example, life expectancy in the USA rose from 39.4 years in 1860 to 78.9 years in 2020 [5]. The current Nigerian demographic reality and the projection have important implications, especially in planning for the healthcare needs of these older citizens. Healthcare planners and practitioners need not wait till the healthcare system begins to struggle under an increased burden of their healthcare demands. The most cost-effective approach will be to institute preventive strategies to reduce the incidence of age-related



morbidity and disability. However, an understanding of their aging process is necessary to create a template for a preventive approach.

Successful ageing has been variously defined using different parameters by researchers, including quality of life, sense of well-being, and being disability-free [6, 7, 8]. Disability commonly results from interaction among multi-morbidities which usually results from physiological and physical decline in one or more functional areas. This functional decline commonly presents as a syndrome rather than a single disease entity and has been referred to as geriatric syndromes.

Isaac Bernard coined the phrase “geriatric syndrome” in 1965, referring to five common syndromes that older adults commonly present with due to functional decline. These are instability, immobility, intellectual impairment, incontinence, and iatrogenesis (the 5 Is) [9, 10]. The occurrence of one or more of these syndromes in an older person leads to disability and reduced quality of life. The Geriatric Evaluation and Management studies have demonstrated that focusing on geriatric syndromes more than individual diseases improves outcomes in older persons [11]. Therefore, presence or absence of geriatric syndromes can be used as markers of successful aging.

Disability is the presence of impairment that limits activity and participation and it is closely related to ageing which is usually accompanied by increased prevalence of morbidity. There are two schools of thought regarding the effects of an aging population. The ‘failure of success’ paradigm was introduced by Gruenberg who posited that increasing life expectancy would lead to additional years of chronic illness, economic collapse, and increasing misery for many seniors. In contrast, the compression of morbidity paradigm introduced as a hypothesis for healthy ageing by Fries in 1980 holds that the age of onset of symptoms of aging and chronic diseases can increase more rapidly than life expectancy thereby reducing total lifetime morbidity. Expressed in terms of disability, delaying the onset of disability more rapidly than the increase in life expectancy, reduces cumulative lifetime disability [12, 13, 14]. Studies among the oldest old population have demonstrated that they usually compress their disability, and it has been proposed that compression of disability is an important marker and determinant of longevity [15].

Therefore, researching which paradigm predominates in our population; whether we are experiencing a “failure of success” or our seniors tend to compress disability can be valuable for planning and research. First, it may give us an idea of one of the reasons behind our short life expectancy as death is most often preceded by heightened disability, and direct us to an area of research to mitigate this trend not only in Nigeria but other low and medium-income countries (LMICs) with similar demographic characteristic. In addition, it may identify the age at which older adults become more vulnerable to disability and when to institute early intervention. Furthermore, discovering possible extraneous factors that may influence the ability of older adults to compress disability will be a breakthrough towards increasing life expectancy.

METHODS

This retrospective cross-sectional study was conducted using medical records of older adults aged 65 years and above who visited the geriatric clinic of Ekiti State University Teaching Hospital (EKSUTH), Ado Ekiti, over five consecutive years (2018 to 2022) from January 1 2018 to December 31 2022. This study assessed the health services utilization regarding the diagnosis recorded during the year under study through their encounter records.

EKSUTH is affiliated to the Ekiti State University College of Medicine and is a center for training medical students, resident doctors, nurses, and other allied healthcare personnel. Ado Ekiti is the capital city of Ekiti State, southwestern part of Nigeria. It is a major healthcare provider for the people of Ekiti State and receives referrals from the neighboring Osun and Kogi States. The geriatric clinic therefore receives patients from the states mentioned above.

Information sought from the records of each older adult includes date, age, sex, and diagnoses. This study was limited to the five syndromes originally regarded as the geriatric giants. The exclusion of the newer additions, such as frailty, was because the uniformity and types of diagnostic criteria employed by the attending physicians could not be ascertained, being a retrospective study. The proportion (in percentage) of each syndrome in the overall number of consultations recorded during a particular year was regarded as the relative burden of such geriatric syndrome.



STUDY POPULATION

Older adults aged 65 years and above who presented at the geriatric clinic within the study period.

SAMPLING

All patients who fell within the age range were selected for the study.

STUDY INSTRUMENT

A proforma was developed de novo for this study. Information extracted from the medical records included patients' age, sex, and diagnoses. The diagnosis was taken as recorded in the patient's records as the cause of the health services utilization irrespective of other comorbidities. In the cases where there were more than one diagnosis as reasons for the encounter, they were recorded under the relevant category. This study was limited to the five syndromes originally regarded as the geriatric giants. The exclusion of the newer additions like frailty was because the uniformity and types of diagnostic criteria employed by the attending physicians cannot be ascertained, being a retrospective study. Since instability/loss of balance is closely related to fall, both diagnoses were grouped together. Fall has been defined as a sudden, uninformed and unintentional loss of balance, as a result of which a person is on the ground, floor or lower surface, while walking or performing other activities with/without loss of consciousness [10]. A person is said to be cognitively impaired when "he has trouble remembering, learning new things, concentrating or making decisions that affect his everyday life" [16]. Immobility refers to a situation where a person experiences or is at risk of experiencing limitation of physical movement [17]. A person is incontinent whenever he develops involuntary leakage of urine or lack of control over stool excretion [18, 19, 10]. While

iatrogenesis has been broadly defined as "the side effects and risks associated with medical intervention," the World Health Organization (WHO) defined it as any noxious, unintended and undesired effect of a drug, that occurs at doses used in humans for prophylaxis, diagnosis, or therapy [20, 21].

ETHICAL CONSIDERATION

Ethical clearance for the study was obtained from the Research and Ethics Committee of EKSUTH with protocol number EKSUTH/A67/2024/06/015. Confidentiality of patient information was ensured by the removal of possible identifiers from the completed proforma.

RESULTS

The overall yearly burden of the geriatric giants in the geriatric clinic of Ekiti state University shows an increase between 2018 and 2022 (Table 1). There is a notable dip in the number of encounters in the years 2020 and 2021 (Table 1). However, the percentage of the total burden formed by geriatric giants shows a more consistent increase across the years. Instability/falls was the leading diagnosis recorded during the first four years but was overtaken by cognitive impairment in 2022 with the burden of cognitive impairment demonstrating an increasing trend over the 5-year study period (Figure 1). While immobility also demonstrated a marginal increasing trend, of note is the decreasing burden of iatrogenesis over the study period (Figure 1). The burden of incontinence decreased over the first three years but recorded a reversal during the last year under study. (Figure 1). Throughout the study period, females accounted for a higher proportion of the burden. (Figure 2). Centenarians accounted for a very small proportion of the burden as only ten clinical encounters were recorded in the age range throughout the study period. (Table 2)

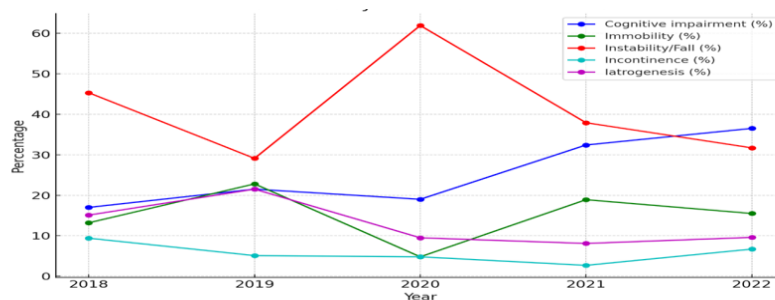


Figure 1: yearly distribution of geriatric giants over five years.

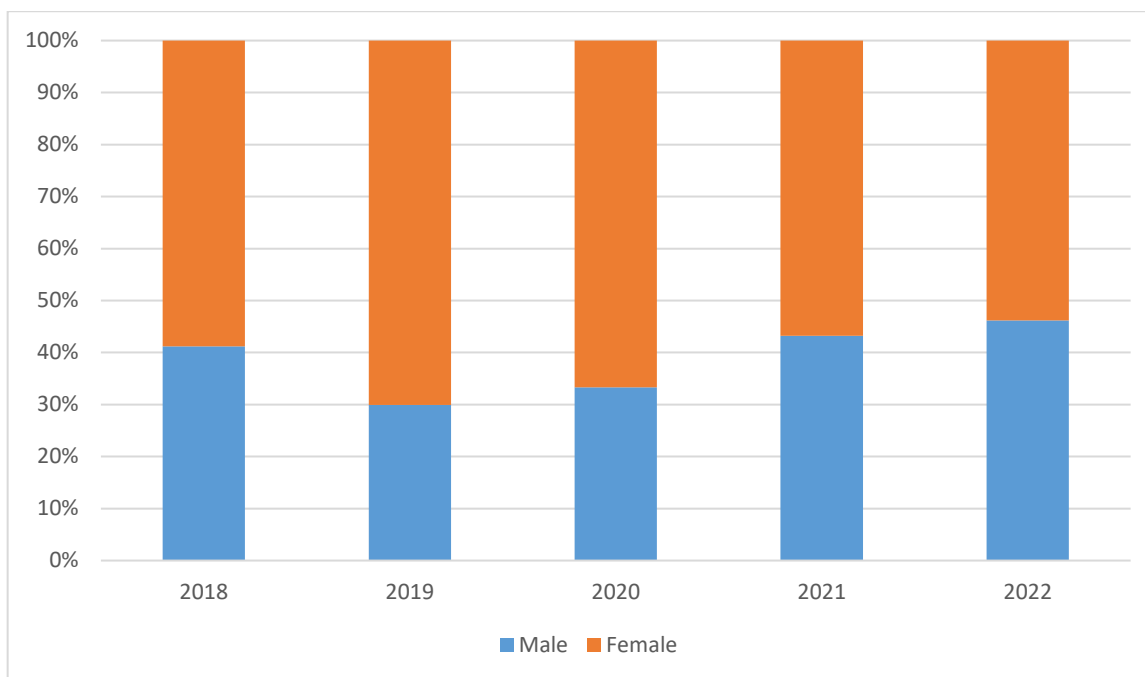


Figure 2: Bar Chart showing sex distribution of subjects.

Table 1: Yearly distribution of clinical encounters

Year	Total encounters	Geriatric giants (N (%))	≥ 95 Total	1 (1.9)	2 (2.6)	0 (0.0)	0 (0.0)	7 (6.7)
2018	2,780	53(1.89)	53	77	21	37	104	
2019	3,020	77(2.55)	(100)	(100)	(100)	(100)	(100)	
2020	1,007	21(2.06)						
2021	1,241	37(2.98)						
2022	3,214	104(3.24)						

Table 2: Age distribution of the diagnosis of geriatric giants over five years

Age	2018 N (%)	2019 N (%)	2020 N (%)	2021 N (%)	2022 N (%)
65 - 74	20 (37.7)	33 (42.8)	12 (57.2)	12 (34.3)	41 (39.4)
75 - 84	21 (39.6)	29 (37.7)	7 (33.3)	15 (42.8)	48 (46.1)
85 - 94	11 (20.8)	13 (16.9)	2 (9.5)	8 (22.9)	8 (7.8)

DISCUSSION

This work not only demonstrated geriatric giants as a burden on health services utilization even though Nigeria is made up of a predominantly young population, it also represents a preliminary step in identifying research priorities to address the short life expectancy in Nigeria as a prototype for LMICs. The result of this study will stimulate the prioritization of research topics. The burden and pattern of geriatric giants demonstrated in this study appear instructive. The increasing burden over the study period in agreement with earlier findings by Liang et al among older Swedens [22]. This development, if outpace increase in longevity may align with ‘failure of success paradigm. The prominence of instability/falls in this study is not surprising. According to the Centre for Disease Control and Prevention (CDC), falls constitute the major risk factor for injury among older adults aged 65 year and older and 1 in 4 older adults report falling every year [23]. Factors responsible for falls include home and public environments, lack of home caregivers, and non-availability of assistive devices for those



suffering from immobility, which also demonstrated an increasing pattern in this study. While it may be impossible to provide ideal elder-friendly residents for older adults in the short term, a long-term plan should be the provision of purposely built residential quarters for senior citizens. Also, passages with flat walkways rather than steps should be available in all public places. It will be necessary for the government to invest in local manufacturing of assistive devices using local technology. The role of orthogeriatricians will be important and sub-specialization in this field should be encouraged through government-sponsored training.

The increasing burden of cognitive impairment demonstrated in this study could be due to increasing presentation in the hospital as a result of public awareness of the need to seek care rather than belief in ageism, especially for people with dementia. Whatever the reasons, it shows that cognitive impairment is an important reason for health services utilization among the study population. The impacts of dementia on the sufferer, family, caregiver, and healthcare system have been well documented. Lifestyle approaches to delay/prevent dementia should be encouraged among older citizens. Aggressive public education should be put in place to encourage early presentation in the hospital and increase the capacity of the family and caregivers to cope with demented family members. Special insurance policies should be instituted for older adults to lessen the burden of care on the family members who pay out of pocket for their healthcare.

The prominence demonstrated by immobility in this study is in agreement with the recognized burden of immobility among older adults from previous studies [24, 25, 26, 27]. The notable dip in both total encounters and geriatric giants in 2020 and 2021 coincides with the COVID 19 pandemic when people might be forced to keep older adults at home due to the high vulnerability of older adults to infection. The surge to almost 50% of the proportional share of the cases of cases due to falls in 2020 might be because such cases could not be managed by home caregivers. Additionally, morbidities that increase the risk of falls might remain untreated due to not attending the hospital. One syndrome that demonstrated decreasing trend was iatrogenesis. This may be related to regular health education sessions between healthcare providers and patients in the geriatric

clinic the need for rational drug prescription and patient-centred care offered in the clinic.

The contributions of the centenarians were very minute in this study. This may be due to the demographic characteristic of Nigeria, being a country with a young population [2]. However, this assumption should be held with caution as ageism cannot be ruled out whereby caregivers and family members neglect the oldest old to their fate, believing that illnesses are part of aging for those at their end of life. It would be necessary to establish a community palliative care programme to carry out home visits and monitor the state of health of the oldest old. The female preponderance in this study could be due to women's well-established longevity advantage over men but with accompanying poorer health status that may constitute a health burden [28].

CONCLUSION

This study demonstrated an increasing burden of geriatric giants, with instability/fall and cognitive impairment constituting the highest burden. There was a female preponderance, while the centenarians contributed a very minute proportion to the burden. A prospective longitudinal study is recommended on this topic, and researchers in other countries with demographic characteristics similar to Nigeria are encouraged to do so.

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