



**Original Article**

# Increasing Burden of Aging Population on Health Services Utilization: A Myth or Reality in a Country with Predominantly Young Population

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## ABSTRACT

**Background/Purpose:** The global population is aging and this is expected to continue. There are many implications of this global demographic change especially in the area of health services utilization and its implications for policy formulation in a country without social security safety net for older adults.

**Objective:** This cross sectional retrospective study was designed to use encounter records as an indicator of health services utilization and determine the burden of aging on the utilization of health care services over non-consecutive two year period.

**Methods:** This study conducted among older patients (aged 65 years and above) who accessed health care services over non-consecutive two year period (2008 and 2018) at the general outpatients' clinic of a University Teaching Hospital, South-West Nigeria. Information extracted from the encounter records (age, sex and diagnosis) for each year was analyzed and comparisons were made.

**Results:** There were 26,400 clinical encounter in 2008 out of which 3,739 (14.6%) were for older people while in 2018, it was 2,862 (18.5%) out of 15,470 encounters giving an increase of 30.8%. In 2008, the average encounter per older patient was 1.2 while it was 1.7 in 2008. Except in the age 65–74 years, subsequently there were consistently higher proportions of older persons seen in 2018 compared to 2008 ( $P < 0.05$ ). More chronic diseases were diagnosed in 2018 ( $P < 0.05$ ).

**Conclusion:** Utilization of health care services by the older persons is increasing. Increasing chronic non-communicable diseases co-existing with infectious diseases points to the need to not neglect infectious diseases.

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Burden, aging population,  
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## 1. INTRODUCTION

The fastest growing segment of the global population

over the last few decades has been the older adults. According to the 2018 report of the Population Division of the United Nations Department of

Economic and Social Affairs, the world population will continue to age and by mid-century, it is projected that 16% of the world population will be aged 65 years and older.<sup>1</sup> A similar report in 2019 projected that by 2050, one in six people in the world will be over age 65 up from one in eleven in 2019.<sup>2</sup>

This demographic change has important implications for a country's economic and social trajectory, resources allocation and policy agenda.<sup>1</sup> United Nations Population Division projected doubling of the population of people over the age of 65 this year from what it was in 2015 and this rate of growth will continue over the next two decades.<sup>3</sup> In Nigeria, those aged 65 years and above make up 3.1% or 5.9 million of the total population of 191 million in 2012, which represented an increase of 600,000 over a five year period of 2007-2012.<sup>4</sup> However, the average life expectancy remains low at 55 years in 2019.<sup>5</sup> This demographic reality and its attendant challenges will be a major challenge for Nigeria to meet the health care needs of the older adults.<sup>6</sup> Nigeria faces a tough challenge due to the absence of a clear policy on the welfare or social security for the growing older population. Health care financing in Nigeria is largely out of pocket with most older adults unable to afford due either to retirement from paid employment or inability to continue rigorous work for those on the farms and other informal sectors.<sup>7-9</sup> The high level of unemployment and rural-urban migration make it difficult for children to take adequate care of the dependent older ones.<sup>6</sup> According to Tonyi et al, four primary factors that affect the psychosocial health status of elderly in Nigeria are changes in family dynamics, increased demands for health care services, increased economic stress and decreased functional independence.<sup>6</sup> The highly valued traditional family support systems seen in Africa are also breaking down.<sup>10,11</sup>

Paradoxically, the older adults who are faced with the dual challenges of inattention from the government and dwindling family care are living with the misfortune of comorbidities and impairments that require frequent hospital visits and high health care expenditure.<sup>10</sup> This inevitable burden is expected to increase as the population of older adults' increases. Literature abounds on disease prevalence and morbidity pattern among older adults in Nigeria but these do not clearly demonstrate whether these translate to increased health care burden.<sup>13-17</sup> We considered clinical encounter records as a better reflection of the burden of these morbidities on health services utilization.

This study was designed to use the patients' encounter records to determine the extent of health services utilization among older adults over non-consecutive two years (2008 and 2018). The records for the two years under study were analyzed and

juxtaposed. Noticeable changes were identified, discussed, and recommendations were made based on the findings.

## 2. METHODS

This was a retrospective cross-sectional study conducted using medical records of older adults aged 65 years and above who visited the outpatient clinic of Ekiti State University Teaching Hospital (EKSUTH), Ado Ekiti, over two non-consecutive years (2008 and 2018) from January 1 to December 31 each year. This was used to assess health services utilization during the year under study through their encounter records and a comparison was made between the two non-consecutive years.

Information sought from the records of each of the elderly includes age, sex, and diagnoses.

EKSUTH is affiliated to the Ekiti State University College of Medicine and is a center for training of medical students, resident doctors, nurses and other allied healthcare personnel. Ado Ekiti is the capital city of Ekiti State in the South-western part of Nigeria. Apart from being a major health care provider for the people of Ekiti State, it receives referral from the neighboring Osun and Kogi States. The outpatient clinic of the Department of Family Medicine is the entry point for most patients from where those who required the services of other specialists are referred appropriately.

### 2.1. Study Population

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

### 2.2. Sampling

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

### 2.3. Study Instrument

A proforma was developed for the purpose of this study. Information extracted from the medical records included patients age, sex, and diagnoses. Classification of diagnosis was done according to the 10th version of the International Classification of Disease (ICD-10). Data analysis was done using Statistical Package for Social Sciences (SPSS) version 20.0. The 2008 and 2018 records were juxtaposed to identify changes in pattern and proportion. Test of significance was done using Chi-Square.

### 2.4. Ethical Consideration

Ethical clearance for the study was obtained from the Research and Ethics Committee of EKSUTH.

Confidentiality of patient information was ensured by the removal of possible identifiers from the completed profoma.

### 3. RESULTS

There were 26,400 clinical encounter in 2008 out of which 3,739 (14.6%) involved older adults. Also in 2018, 15,470 encounters took place out of which older adults accounted for 2,862 (18.5%) giving an increase of 26.7% over 2008. The total number of registered older patients in 2008 was 3,739 and 4,444 encounters were recorded translating to 1.2 encounters per subject. Similarly in 2018, 2,862 encounters were recorded for 1,722 older adults which translated to 1.7 encounters per patient.

There were equal proportions of both male and female among subjects in 2008 but female accounted for 62.5% in 2018.

Those within 65–74 years age range form the largest proportion of the older subjects that presented during the two reference years (66.1% and 57.4% in 2008 and 2018 respectively). However, more older persons presented in 2018 for every age range after the age of 74 years ( $P < 0.05$ ) shown in Table 1.

Figure 1 shows the distribution of diagnosed disease group according to ICD classification, infection and parasitic diseases accounted for the largest proportion of diagnoses in 2008 (34.8%) whereas it was diseases of the circulatory system in 2018 (29.1%).

From Table 2, the commonest diagnosed disease entity in 2008 was malaria (41.8%) but

hypertension became most prominent in 2018 (27.2%). Overall, more chronic diseases were diagnosed in 2018 ( $P < 0.05$ ).

### 4. DISCUSSION

This study has demonstrated an increasing burden of aging population on health care utilization within a period of ten years. An outpatient visit to the hospital is not just a visit; it has implications for utilization of health care services beyond the limited encounter period. The burden of health services utilization is born by the patients in terms of cost and the government through health facility utilization. Bahia et al defined direct outpatient cost as a sum of all direct and indirect medical cost.<sup>18</sup> While direct cost includes cost of drugs, investigations, health professional consultation, and transportation, indirect cost includes loss of productivity by the patient and their caregivers, absenteeism from work and early retirement. In a study by Teni and his co-workers, they found non-medical and indirect cost as the main drivers of the total health care cost such as transportation and lost time.<sup>19</sup>

According to United Nations<sup>20</sup>, life expectancy for Nigeria in 2018 increased by 8.8% when compared to 2008. Whereas the proportional share of the older adults in clinical encounter over same period increased by 30.8%. Also, after the age of 75 years, significantly higher proportion of older adults utilized health care services in 2018 compared to 2008 ( $P < 0.05$ ).

The finding in this study of a preponderance of the relatively young older adults utilizing health services may not be surprising going by the relatively young population of Nigeria and low life expectancy. Nigeria is regarded as a relatively young country with a mean age of 18.4 years and with the lowest life expectancy in West Africa.<sup>21,22</sup> It has also been said that health care spending among older adults is not so much a function of time since birth as it is a function of time to death from the age of 65 years, the proportion of persons near death increases with age.<sup>11,23,24</sup> However, this work has demonstrated significantly increasing proportion of older adults assessing healthcare for every age range after the age of 74 years ( $P < 0.00$ ). This may be a pointer to increasing healthcare utilization by the older adults.

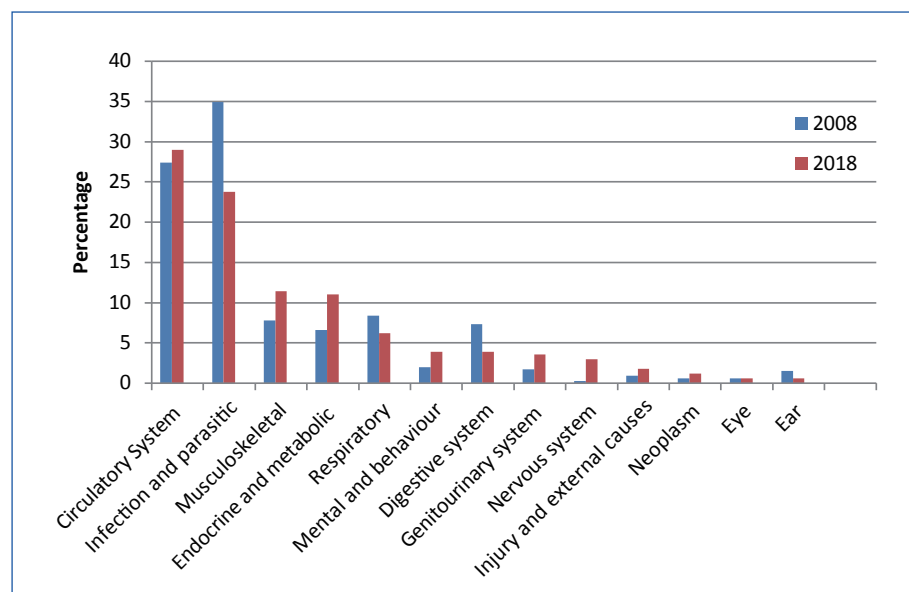
The average annual encounter per subject was 1.2 and 1.7 in 2008 and 2018 respectively. Although there was a little increase over ten years, this still appears low considering the expected high prevalence of chronic diseases and multimorbidity among the older adults. This may be due to the fact that some of them are referred to specialist clinics when necessary and the lack of electronic medical records makes difficult tracking of this information. In addition, a two-way referral system is not usually observed at the study

**Table 1.** Age distribution of subjects

AGE (year)	2008 Number (%)	2018 Number (%)
65–74	2471 (66.1)	1643 (57.4)
75–84	986 (26.4)	979 (34.2)
85–94	267 (7.1)	205 (7.2)
≥95	15 (0.4)	35 (1.2)
Chi-Square: 67.45 Df: 3 $P < 0.05$		

**Table 2.** Distribution of subjects according to diseases entity

Diagnosis	2008 Number (%)	2018 Number (%)
Malaria	1357 (30.5)	556 (22.0)
Hypertension	1116 (25.1)	689 (27.2)
Arthritis	284 (6.6)	149 (5.9)
Diabetes	290 (6.5)	278 (11.0)
Low back pain	41 (1.0)	129 (5.1)
Chi-Square: 199.34 Df: 4 $P < 0.05$		

**Figure 1.** Distribution of diagnoses according to ICDC 10

center and such patients are lost to follow up.

Infection and parasitic diseases accounted for the highest proportion of diagnoses in 2008 (34.9%) while it was the diseases of the circulatory system in 2018 (29.1%). This suggests that the disease pattern among the older adults in our cohort is still at a transitional stage whereby both chronic and acute diseases co-exist. The commonest managed disease in 2008 was malaria while it was hypertension in 2018. Even though Nigeria is located in a malaria holo-endemic transmission region; hypertension is taking a more prominent position among older adults. The finding that chronic diseases were significantly more diagnosed in 2018 ( $P < 0.05$ ) is a pointer to the increasing prevalence of chronic diseases. This has implications for policy formulation regarding the health care for the older adults.

This bears similarity with findings by Abdullaheem et al in their study on morbidity pattern among older adults in rural Nigeria where hypertension accounted for 84.2% of their diagnosis.<sup>25</sup> However, it is at variance with that of Abdulrahman et al in their tertiary hospital based study where joint pain and back ache were the most common and hypertension took a third position behind.<sup>26</sup> Arthritis and diabetes had almost equal diagnosis frequency in 2008 (6.6% and 6.5% respectively), diabetes was more diagnosed in 2018 (5.0 and 11.0 respectively). The increasing occurrence of diabetes among the older adults was also reported in a recent Nigerian study with a prevalence of 13.2%.<sup>14</sup> This trend may be attributable to many more people developing the disease and being diagnosed during their middle age. Changes in lifestyle such as lack of exercise or sedentary lifestyle are recognized risk factors especially among younger adults. Old age also is a risk factor for the development of diabetes.<sup>27</sup> These two scenarios may explain why diabetes

mellitus is becoming a more prominent disease among older adults.

## 5. CONCLUSION

An increasing burden of ageing on health services utilization was found in this study. To adequately cater for the growing healthcare need, it is desirable for stakeholders in the Nigerian healthcare sector to formulate and implement relevant policies for the care of the older adults in the country.

## Limitations

Being a retrospective study, there may be issues of missing information and inability to verify some information such as the patients' diagnoses. Also, this was a single-center study and as such, its findings may not be representative of health services utilization in other care settings and other regions of the country. The study however has addressed a very relevant topic which is necessary for healthcare planning and policy implementation in Nigeria.

## CONFLICT OF INTEREST

None.

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