

UNDERSTANDING HEALTHY AGEING THROUGH LIFESTYLE BEHAVIOURS: EVIDENCE FROM OLDER ADULTS IN EDO STATE, NIGERIA

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ABSTRACT

Population ageing is increasing rapidly across the world, particularly in developing countries where health systems are often inadequately prepared for the growing needs of older adults. In sub-Saharan Africa, and particularly in Nigeria, older persons experience increasing vulnerability to chronic diseases, disability and poor quality of life due to inadequate healthcare access, poverty and unhealthy lifestyle practices. This study examined the association between lifestyle patterns and healthy ageing among elderly people in Edo State, Nigeria. A community-based cross-sectional survey design was adopted among 500 older adults aged 65 years and above, selected through simple random sampling from four wards in Auchi, Edo State. Data were collected using structured questionnaires covering socio-demographic characteristics, sleep duration, smoking status, dietary pattern, alcohol consumption and physical activity. Healthy ageing was measured based on self-reported functional ability and physical well-being. Data were analyzed using descriptive statistics and multivariate logistic regression at 5% level of significance. Findings revealed that 76.0% of respondents reported good physical functioning and healthy ageing outcomes. About 44.0% slept more than 8 hours daily, 65.8% consumed balanced carbohydrate/protein diets, while 79.6% were non-smokers. However, 62.4% consumed alcohol in varying degrees. Multivariate logistic regression showed that regular sleep duration (OR = 1.486; $p < 0.05$), healthy diet pattern (OR = 1.533; $p < 0.05$), and engagement in basic physical activity (OR = 2.897; $p < 0.05$) significantly increased the likelihood of healthy ageing among older adults. Smoking habit (OR = 0.443; $p > 0.05$) and alcohol consumption (OR = 0.352; $p > 0.05$) reduced the likelihood of healthy ageing although not statistically significant. The study concluded that positive lifestyle behaviours significantly contribute to healthy ageing among elderly persons in Edo State, Nigeria. The study recommends the development of public health policies promoting physical activity, healthy nutrition, adequate sleep and behavioural health education for older adults.

Keywords: Healthy ageing, lifestyle patterns, elderly persons, physical activity, Edo State, Nigeria.

Introduction

Globally, it is widely acknowledged that the world's ageing population has become a major challenge [1]. The number of people above age 65 is increasing faster than any other group [2]. However, living longer does not guarantee excellent health [3].

In sub-Saharan Africa, ageing is growing rapidly amid weak health systems, poverty, and infectious disease burdens. Unlike developed nations, many older adults in this region lack access to geriatric care, social security and pension scheme [4]. Lifestyle behaviours such as physical activity, diet and sleep are often undermined by economic constraints and rural-urban migration of younger family members [5].

In Nigeria, the older adult population faces unique challenges rooted in rapid urbanization, shifting family structure, limited social security and evolving cultural expectations [6]. Evidence suggests that positive lifestyle behaviours are strongly associated with improved well-being among Nigerian older adults [7]. However, most Nigerian studies focused on disease prevalence rather than proactive healthy ageing behaviours [8].

In Edo State, where this study was conducted, the ageing population is concentrated in both urban (Benin City, Auchi) and rural communities. Auchi, an urban centre in Etsako-West Local Government area, provides a representative setting due to its cultural diversity, access to healthcare and mix of traditional and modern lifestyles. Despite this, no previous study has specifically quantified the contribution of lifestyle indexes to healthy ageing among older adults in Edo State. By examining the everyday choices of older adults in this community, the research provides culturally relevant data on how specific lifestyle indexes like local diets and activity levels contribute to healthy ageing.

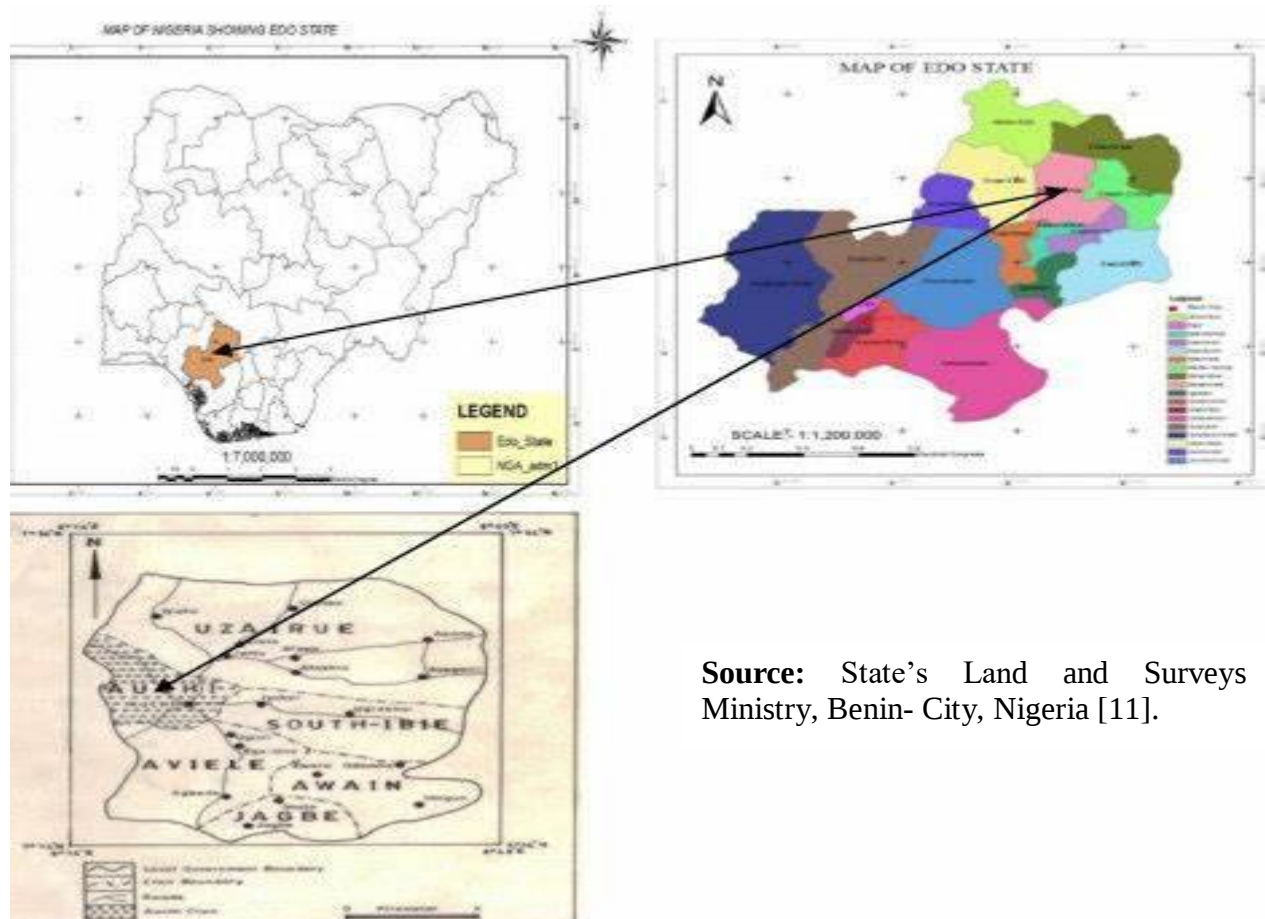
Despite the global increase in ageing research, there is a significant gap in the Nigerian context that this study addresses. Most previous studies in Nigeria have focused on the prevalence of specific disease and healthcare access. There is far less emphasis on the modifiable behaviours (lifestyle factors) that support healthy ageing before disease becomes the primary focus [5][9]. There is currently limited empirical understanding of how specific patterns—such as sleep duration, diet type and physical activity—statistically contribute to the ageing experience within Nigeria's unique socio-cultural environment [10]. Therefore, there are not known studies that have simultaneously examined the combined effect of five lifestyle factors (sleep duration, diet type, physical activity, smoking and alcohol consumption) on healthy ageing using multivariate logistic regression in a community-based sample from Edo State. In addition, no study has

reported adjusted odd ratios for these lifestyle factors while controlling for age, gender and socio-economic status. Without data-driven evidence on these lifestyle factors, it is difficult for the government to implement effective “preventive health programs”. This study fills that gap by providing empirical, statistically robust evidence to guide intervention.

Materials and Methods

This study employed a community-based cross-sectional survey design. The design is appropriate for examining associations between lifestyles factors and healthy ageing outcomes. It allows for data collection from a large sample at a single point in time. The study was conducted in Auchi community, Edo State, Nigeria. Auchi is an urban centre and the administrative headquarters of the Etsako-West Local Government Council. It is situated approximately on Latitude $70^{\circ} 4N'$ and Longitude $60^{\circ} 4E'$ of the Equator. The community has a mix of traditional and modern lifestyles, making it representative of many Nigerian urban centres.

Map of Auchi Community in Edo State, Nigeria



Source: State's Land and Surveys Ministry, Benin- City, Nigeria [11].

The study population comprised all older adults aged 65 years and above residing in the four wards of Auchi community. This age group was selected as it represents the elderly population most vulnerable to age-related health challenges. The sample size was determined using Cochran's formula for large populations [12].

$$n_o = \frac{z^2 pq}{e^2} : \text{Therefore, } n_o = \frac{(1.96)^2 (0.5)(0.5)}{0.05} = 385 \text{ elderly persons.}$$

Where;

n_o – Is the Cochran sample size, e^2 – is the desired level of precision, p – the estimated proportion of an attribute that is present in the population. q is $1 - p$. z – the value for z is found in statistical tables which contain the area under the Normal curve (it is the abscissa of the normal curve that cuts off an area α at the tails. $1 - \alpha = 95\%$ confidence level). Adjusting for non-response and improving representativeness, the sample size was increased to 500 respondents.

A list of 2,300 houses in the four wards of Auchi was compiled. Simple random design using the lottery method was employed. Individual older adults were selected from the numbered houses. The large sample size and random selection ensured high external validity for the older adult population in the region.

Data were collected using structured questionnaires. The questionnaire covered Socio-demographic characteristics, sleep duration, smoking status, dietary pattern, alcohol consumption and physical activity. Dependent variable-Healthy ageing was measured based on self-reported functional ability and physical well-being. Healthy ageing outcomes measured as the presence of physical health and functional ability. It was operationalized by participants' reported ability to perform basic physical activities and their self-rated health status [13]. Independent variables (lifestyle factors) were sleep duration categorized in to "less than 8 hours", and "more than 8 hours" per day. Smoking habit grouped into "currently smoking" and "not currently smoking". Regular diet was categorized by type, "Carbohydrate", "protein", carbohydrate/protein combination" and "vegetarian". Alcohol consumption categorized by frequency "Often", "Sometimes", "Never" and "Stopped drinking" and Basic physical activity categorized as "yes" (able to perform) or "No". Control variables: socio-economic and demographic factors-age group, gender and psychosocial factors-controlling for mental and well-being influences.

The data were analyzed using two levels of analysis. Univariate analysis (Table1).employed the frequency and percentages distributions of demographic and lifestyle factors and Pie charts were used to describe the identified lifestyle factors of the older persons. Multivariate analysis - binary logistic regression (Table 2) to determine the independent effect of each lifestyle factors on

healthy ageing controlling for socio-economic, demographic and psychosocial factors. The unit of analysis is the older adult (aged 65⁺ years). All the analyses were conducted at a 5% level of significance using SPSS version 31.

Ethical approval was obtained from relevant institutional review boards. Informed consent was obtained from all participants. Confidentiality was maintained throughout the study. Participation was voluntary.

Presentation of Findings

Table 1: Responses of the Study Participants on Demographic and Lifestyle Factors

Univariate Variable	Frequency (%)
Age Group	
65 – 69 years	183 (36.5)
70 – 74 years	100 (20.1)
75 – 79 years	97 (19.4)
80 ⁺ years	119 (24.0)
Total	500 (100.0)
Mean SD	2.31 ± 1.20
Gender	
Male	328 (65.7)
Female	172 (34.3)
Total	500 (100.0)
Sleep Duration	
Less than 8 hours per day	166 (33.2)
8 hours per day	114 (22.8)
More than 8 hours per day	220 (44.0)
Total	500 (100.0)
Smoking Habit Status	
Currently smoking	102 (20.4)
Not currently smoking	398 (79.6)
Total	500 (100.0)
Regular Diet	

Carbohydrate	78 (15.6)
Protein	18 (3.6)
Carbohydrate/Protein	329 (65.8)
Vegetarian	75 (15.0)
Total	500 (100.0)
Alcohol Consumption Status	
Often	120 (24.0)
Sometimes	192 (38.4)
Never	159 (31.8)
Drinking but Stopped	29 (5.8)
Total	500 (100.0)
Basic Physical Activity	
Yes	380 (76.0)
No	120 (24.0)
Total	500 (100.0)

The table 1 presented the summary of older adult responses on demographic and lifestyles factors. The table summarizes the data distribution and groups comparisons among the 500 older adults studied in Edo State, Nigeria. Older adults' mean age and standard deviation were 2.31 and ± 1.20 years. Highest among them were the age 65-69 years age group with 36.5%. Over half 65.7% were men participants. With ability to perform basic physical activity, majority of the older adults (76.0%) reported being healthy and 24.0% were not. Those that had carbohydrate and protein combined as regular diets were higher with 65.8% and 3.6% were having protein only as regular diet. It is interesting to know that 15.0% were vegetarian. 20.4% were currently smoking at old age and 33.2% were having less than 8 hours of sleep per day. Currently, 62.4% of 500 older adults surveyed were into alcohol consumption and only 5.8% of them were earlier in their youth days drank alcohol but stopped at old age.

The pie charts illustrate the distribution of lifestyle factors among 500 elderly individuals categorized into duration of sleep, smoking habit, regular diet, alcohol consumption. As shown in the figure 1- Older adults response to duration of sleep. Less than half of the older adult individuals 44.0% slept more than 8 hours per day indicating good healthy status. 33.2% of respondents are classified as having less than 8 hours of sleep suggesting they experience some health challenges. Figure 2- Older adults response to smoking habit. It shows that majority of the elderly individuals 79.6% were not currently smoking indicating they maintain well-balanced lifestyle.

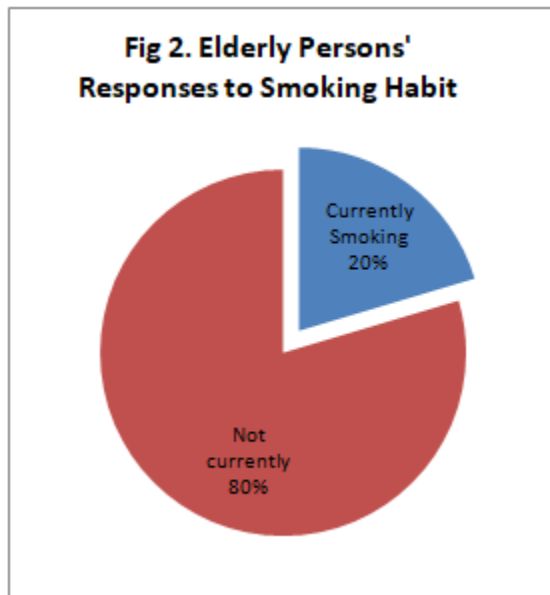
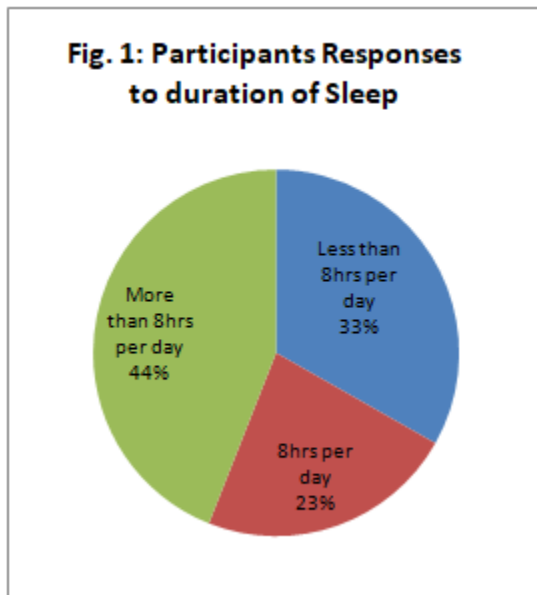


Figure 3- Older adults response to regular diet. Also, over half (65.8%) of the participants had regular diet indicating a moderate healthy ageing status meanwhile, figure 4 summaries older adults response to alcohol consumption. 62.4% of the older adults were currently into alcohol consumption and only 5.8% had stopped consuming alcohol.

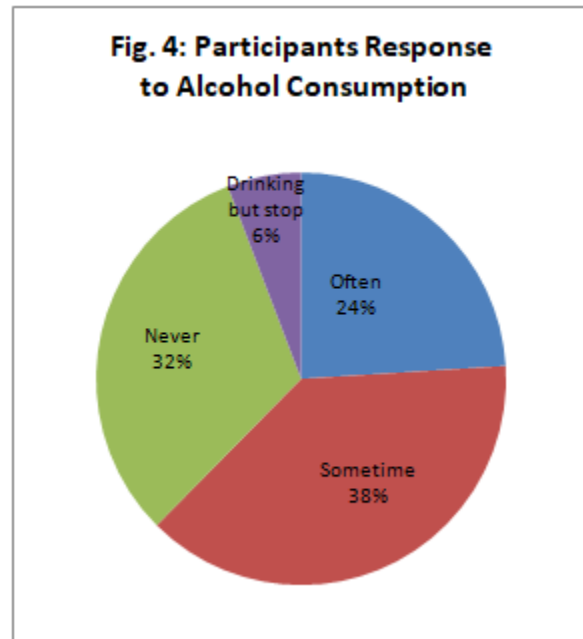
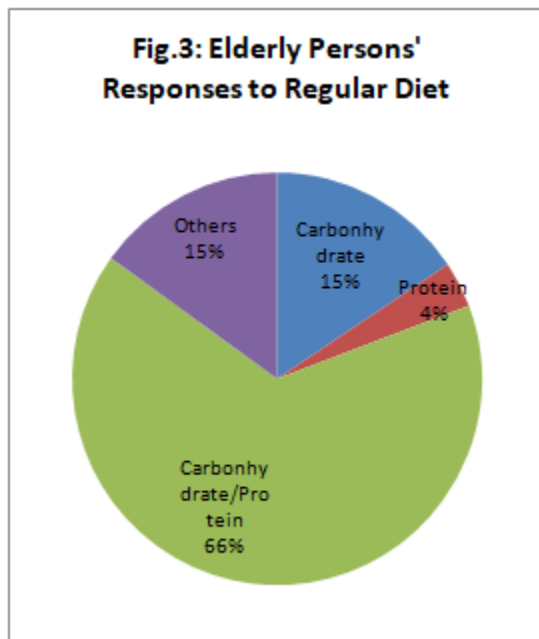


Table 2. Logistic Regression Predicting Healthy Ageing.

Variables	Categories	Odd Ratio	P-value	Interpretation
Sleep Duration	8 hours	1.486	0.000	Significant positive predictor
Smoking Habit	Currently smoking	0.443	0.061	Reduced healthy ageing likelihood
Regular Diet	Balanced carbohydrate/protein	1.533	0.030	Significant positive predictor
Alcohol Consumption	Frequent consumption	0.352	0.057	Reduced healthy ageing likelihood
Physical Activity	Active	2.897	0.036	Strong positive predictor

Note: OR > 1 indicates positive association with healthy ageing, OR<1 indicates negative association (P< 0.05) considered statistically significant. Controls included age group and gender (not shown in table but included in the model).

Discussion of Findings in Comparison with Previous Studies

The study revealed that **basic physical activity** was the strongest predictor of healthy ageing (OR = 2.897, P < 0.05), meaning older adults who remained physically active were nearly three times more likely to report healthy ageing compared to those who were inactive. This findings aligns with [7] in South Africa and Nigeria, who reported that physical activity was associated with better self-reported health (OR = 2.45). Similarly, [4] found that active ageing was strongly predicted by mobility and exercise among older Ghanaians and South Africans.

Regular diet (carbohydrate plus protein) was also significant associated with healthy ageing (OR = 1.533, P < 0.05). This supports [14], who found that elderly Nigerians consuming balanced diets had fewer functional limitations. However, the present study uniquely reports that 15.0% were vegetarian-a finding not previously documented in Nigerian ageing research, suggesting emerging dietary diversity.

Regular sleep (≥ 8 hours) was significantly associated with healthy ageing (OR = 1.486, P < 0.001), consistent with global evidence [1] that sleep duration impacts cognitive and physical function in later life. However, unlike studies from developed nations [3], this study found that 33.2% of older adults slept less than 8 hours, indicating a potential undiagnosed sleep disorder burden in Edo State.

Smoking (OR = 0.443, P = 0.061) and **alcohol consumption** (OR = 0.352, P = 0.057) were not statistically significant, though the odd ratios suggested protective trends (lower odd of healthy ageing among users). This contrasts with Adebayo et al. [9], who found significant negative

effects of smoking on Nigerian elderly health. The non-significance may be due to smaller numbers of current smokers (20.4%) and the possibility that many older adults who smoked or drank heavily may not have survived to age 65 (survivorship bias), as noted by [15].

Contrary to [8], who focused on health care access, the present study confirms that modifiable lifestyle behaviours are more proximal determinants of healthy ageing than health care utilization alone among Edo State elderly.

Conclusion

This study examined the association between lifestyle patterns and healthy ageing among older adults in Edo State, Nigeria. The findings provide robust evidence that positive lifestyle behaviours significantly contribute to healthy ageing. Physical activity emerged as the strongest predictor. Older adults who remained active were nearly three times more likely to report healthy ageing. This finding underscores the critical importance of maintaining physical function in later life.

Balanced diet and adequate sleep also significantly predicted healthy ageing. Those who consumed carbohydrate/protein combinations and slept at least 8 hours daily had significantly higher odds of healthy ageing. Smoking and alcohol consumption showed protective trends. However, these were not statistically significant. The non-significance may reflect survivorship bias or smaller sample sizes of users.

The study confirms that modifiable lifestyle behaviours are more proximal determinants of healthy ageing than healthcare utilization alone. This is a crucial finding for public health policy in Nigeria.

Policy Implications:

The findings of this study have the following policy implications:

- (i) Integrated Geriatric Health Programs-The Edo State Ministry of Health should integrate lifestyle counseling (Sleep, diets, exercise) into routine primary healthcare for adults aged 50⁺.
- (ii) Community-Based Physical Activity Campaigns- With physical activity showing the strongest association (OR = 2.897), local governments should establish low-cost walking groups, carbohydrate-protein combinations; policymakers should subsidize protein-rich foods (eggs, beans, fish) for low-income older adults.

- (iii) Smoking and Alcohol Reduction Campaigns- Although not statistically significant in this study, the observed lower odds (0.443 and 0.352) suggest potential benefits. Targeted health education should promote regular sleep as a pillar of health ageing.
- (iv) Future Longitudinal Research Funding- Government and donor agencies should fund longitudinal studies to track lifestyle impacts on ageing over time, as recommended by the study.

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