

Influence of Family-Centred Health Education on Knowledge and Attitude of the Elderly toward Self-Management and Prevention of Hypertension and Diabetes in Katsina Metropolis

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Abstract

Family-centred health education is a collaborative approach that brings family members directly into the learning process to help manage and prevent chronic illness. In Nigeria, hypertension and diabetes are major health crises for the elderly, leading to high rates of illness and a low quality of life. In place a like Katsina Metropolis, many elderly adults struggle with these conditions due to a lack of adequate knowledge and deep-rooted cultural beliefs. This study investigates how involving the family in health education changes what elderly individuals know and how they feel about managing their health. Using a quasi-experimental design, the research compares a group receiving family-based education against a control group. Data were presented using descriptive statistics and using chi-square test to analyse data on the two hypotheses raised for the study. The result on hypothesis revealed that the p-values of the two hypotheses were less than the significance value ($p= 0.003 < 0.05$) for the first hypothesis, ($p= 0.00 < 0.05$) for the second hypothesis. This shows that there is significant difference between the attitude of elderly individual and self-management of hypertension and diabetes in Katsina Metropolis. Furthermore, the level of respondent's knowledge determined the level of prevention of hypertension and diabetes in the study area. Based on the findings and conclusion of the research, the study recommended that there is a need to improve access to quality information about hypertension and diabetes to enhance behaviour change especially among people with little or no education while free regular testing should also be encouraged in the study area.

Keywords: Family-Centred, Health Education, Elderly Individuals, Self-Management, Hypertension, Diabetes

Introduction

Family-centred health education depends on participatory approach that involves educating both patients and their family members to enhance disease understanding, encourage lifestyle modification, and improve adherence to treatment. This approach recognizes the family as a

primary source of support, influence, and decision-making in health-related matters, particularly among elderly individuals who often depend on relatives for daily care and disease management.

In the context of chronic diseases such as hypertension and diabetes, family-centred education has been shown to improve knowledge acquisition and reinforce preventive health behaviours.

Globally, population ageing has led to a growing burden of non-communicable diseases, with hypertension and diabetes being among the most common ailments affecting older adults. These diseases are associated with serious complications, including cardiovascular disease, kidney failure, stroke, and premature death if poorly managed. In low- and middle-income countries, including Nigeria, the impact is compounded by limited health literacy and inadequate access to continuous health education (Ajisegiri, Nwadiugwu, Sanya, Ajumobi, Amusa & Agba, 2022).

According to the World Health Organization (WHO), the prevalence of hypertension is highest in the African Region at 46% of adults aged 25 years and above, while the lowest was found in the American region (WHO, 2020). Hypertension is the most common non-communicable disease in Nigeria. Hypertension and its complications constitute approximately 25% of emergency medical admissions in urban hospitals in Nigeria. It is the most frequently diagnosed cardiovascular disorder in Nigeria (Ogunniyi, 2021).

In Nigeria, studies have consistently reported high prevalence rates of hypertension and diabetes among adults aged 60 years and above, alongside poor awareness of disease causes and preventive strategies (Okigbo, Eze, & Umeh, 2025). Many elderly individuals lack sufficient knowledge to engage in effective self-management practices such as dietary control, regular physical activity, blood pressure monitoring, and early recognition of complications. This knowledge gap contributes significantly to poor disease management and increased healthcare costs.

Hypertension is one of the risk factors for diabetes; a disease which is a major cause of blindness, kidney failure, heart attacks, stroke and lower limb amputation. By 2030, it is estimated that there would be 39.1 million cases of hypertension among people aged 20 years and above in Nigeria with a prevalence of 30.8%. This is a notable increase from the 20.8 million cases estimated in 2010 (Shatnawi, 2022). Similarly, almost 1.6 million cases of diabetes are estimated to be in Nigeria and the figures are expected to at least double by the end of 2040. These suggest

that there is an alarming rising trend of the two conditions in the country and thus, efforts must be geared towards decreasing this trend at all levels

In Katsina Metropolis, strong family ties and communal living arrangements present an opportunity to use the family as a channel for improving health knowledge among the elderly. However, despite this cultural advantage, structured family-centered health education programmes targeting chronic disease knowledge remain limited. This study therefore seeks to investigate the influence of family-centered health education on the knowledge of elderly individuals toward self-management and prevention of hypertension and diabetes in Katsina Metropolis, with the aim of generating evidence that can inform culturally appropriate health education interventions.

Family-centred health education is increasingly recognized as an effective approach for improving health knowledge by involving both individuals and their family members in the learning process. In the context of hypertension and diabetes management among elderly populations, this approach is particularly important because older adults often rely on family members for health information, decision-making, and daily support. However, despite the growing burden of hypertension and diabetes among elderly individuals in Katsina Metropolis, the level of disease-related knowledge necessary for effective self-management and prevention remains inadequate (Obi, Oguoma, Nwafor, & Alawode, 2021).

Within many households, family members serve as primary caregivers and key sources of health information for elderly individuals. Despite this central role, health education interventions are often delivered at the individual level, without adequately engaging family members who influence understanding and daily health practices. The lack of family-centred health education limits opportunities for shared learning, reinforcement of accurate information, and sustained knowledge improvement within the household.

Despite this high prevalence, the average awareness rate of hypertension in Nigeria is low at 17.4%. Recent cross-sectional studies conducted in Nigeria among residents of rural communities and secondary school students revealed a higher awareness rate of hypertension and diabetes, at least 75% among respondents (Amadi, 2021). However, these studies did not adequately explore the factors that contribute to knowledge as well as routine screening for the two conditions. In order to address the rising incidence and prevalence of hypertension and diabetes in Nigeria, it is important to assess the current understanding and perceptions about both

conditions among the public. Few studies in Nigeria have explored the level of knowledge of hypertension and diabetes among Nigerians especially at the community level.

This study was conducted as a baseline assessment for the influence of family-centred health education on the knowledge of elderly individuals toward the self-management and prevention of hypertension and diabetes in Katsina Metropolis.

Objectives

This study is aimed to investigate the Influence of Family-Centred Health Education on the Knowledge and Attitude of Elderly Individuals toward Self-Management and Prevention of Hypertension and Diabetes in Katsina Metropolis with the following objectives:

1. Investigate the attitude of elderly individuals towards self-management of hypertension and diabetes in Katsina Metropolis.
2. Examine the level of knowledge on the management of hypertension and diabetes among elderly individuals in Katsina Metropolis.

Hypotheses

The following hypotheses were formulated to guide the study and were tested at a 0.05 level of significance:

H₁: There is no significant difference between the attitude of elderly individuals and self-management on the hypertension and diabetes in Katsina Metropolis.

H₂: There is no significant difference between level of knowledge of elderly individuals and self-management on the prevention of hypertension and diabetes among elderly individuals in Katsina Metropolis.

Review of Literature

Hypertension and diabetes mellitus are among the most common chronic non-communicable diseases affecting elderly populations worldwide. Age-related physiological changes such as reduced vascular elasticity, altered glucose metabolism, and the presence of multiple co-morbidities increase susceptibility to these conditions in later life. Among older adults, these diseases often coexist and significantly elevate the risk of cardiovascular complications, kidney disease, stroke, and premature mortality if poorly managed.

In Nigeria, the burden of hypertension and diabetes among the elderly has increased steadily over the past two decades. Studies conducted in different regions of the country report high prevalent rates among individuals aged 60 years and above, with many cases remaining undiagnosed or poorly controlled (Obi *et al.*, 2021). This situation is largely attributed to limited access to routine screening, low health literacy, and inadequate understanding of disease risk factors and prevention strategies.

Knowledge plays a central role in the prevention and control of both hypertension and diabetes. Elderly individuals with limited understanding of disease causes, symptoms, and complications are less likely to engage in preventive behaviours such as regular blood pressure monitoring, healthy dietary practices, and timely healthcare utilization. Nwobi, Eze, Okafor, & Onyekachi, (2024) observed that inadequate knowledge of hypertension and diabetes among older adults was associated with delayed diagnosis and poor disease outcomes. These findings underscore the importance of targeted health education interventions to improve disease-related knowledge among elderly populations.

Self-management refers to an individual's ability to manage symptoms, treatment regimens, lifestyle modifications, and the psychosocial demands associated with chronic illness. For elderly individuals living with hypertension and diabetes, effective self-management includes understanding medication use, maintaining appropriate dietary habits, engaging in physical activity, monitoring health indicators, and recognizing early warning signs of complications.

Despite its importance, self-management among the elderly is often suboptimal. Factors such as declining cognitive function, poor vision, complex medication schedules, and limited disease knowledge reduce the capacity of older adults to manage chronic conditions independently. Idoko, Omogbemi, Agbaje, Sambo, & Okpe (2024) reported that many Nigerian patients with non-communicable diseases demonstrated low overall self-efficacy in managing their conditions, largely due to gaps in knowledge and understanding of disease processes.

Improving knowledge has been shown to enhance self-management capacity among elderly individuals. Studies have consistently demonstrated that health education interventions increase awareness of disease management strategies and improve compliance with recommended practices (Oyekale *et al.*, 2025). When elderly individuals understand the rationale behind lifestyle

changes and medication adherence, they are more likely to participate actively in their own care, leading to better long-term health outcomes.

In many African societies, including Nigeria, the family serves as the primary source of care and support for elderly individuals. Family members often assist with daily activities, provide financial support, and influence health-related decision-making. This social structure places families in a strategic position to shape health knowledge and behaviours among older adults.

Research has shown that family involvement positively influences chronic disease management by reinforcing health information, encouraging adherence to treatment, and facilitating access to healthcare services. Alaydrus and Asiyah (2023) emphasized that family support is a critical determinant of adherence to diabetic therapy, particularly among older adults who depend on relatives for care. Similarly, Alaydrus and Asiyah (2023) found a significant relationship between family support and improved health status in patients with diabetes.

In the Nigerian perspective, elderly individuals often rely on family members for interpretation of medical advice, medication reminders, and lifestyle guidance. This reliance highlights the importance of educating not only the elderly but also their caregivers. When family members possess adequate knowledge of hypertension and diabetes, they are better equipped to support preventive practices and reinforce accurate health information at home.

Family-centred health education is an approach that integrates family members into the health education process, promoting shared learning and collective responsibility for disease prevention and management. Rather than focusing solely on the individual patient, this approach recognizes the influence of family dynamics on health knowledge and behaviour.

Methodology

This section describes the methods adopted in investigating the influence of family-centred health education on the knowledge of elderly individuals toward self-management and prevention of hypertension and diabetes in Katsina Metropolis.

A quasi-experimental research design using a pre-test and post-test approach with intervention and control groups was adopted. This design was considered appropriate because it allows for the assessment of changes in knowledge levels following the implementation of family-centred health education without full randomization. The intervention group received structured

family-centred health education, while the control group was exposed to routine health information only.

The study was conducted in Katsina Metropolis, Katsina State, Nigeria. The metropolis comprises several wards with predominantly Hausa–Fulani populations and is characterized by strong family ties and communal living arrangements. These socio-cultural characteristics make Katsina Metropolis a suitable setting for examining family-centred approaches to health education among the elderly.

The study population consisted of elderly individuals aged between 60 to 70 years residing in Katsina Metropolis. Family members who were directly involved in the daily care or support of the elderly participants were included only for the purpose of delivering the family-centred health education intervention. Data collection, however, focused exclusively on the elderly participants. While the elderly participants are the primary subjects, daily caregivers (family members) are involved in the intervention, likely to improve home care, support, and health outcomes such as mobility, mental health, or chronic disease management. The tool was pretested prior to administration, and minor adjustment made. 36 copies of questionnaire administered were returned and valid for analysis giving a response rate of 98%.

Data was presented using descriptive statistics and analyzed using chi-square test which was used to assess the relationship between the socio-demographic factor and the various risk factors and hypertension. P value is set at value < 0.05 .

Data Analysis and Results

Descriptive Analysis

Demographic characteristics are provided in [Table 1](#). The mean age of patients in the intervention group was 50.5 ± 9.9 years, while in the control group, it was 46.6 ± 10.6 years. According to the independent *t*-test, there was no significant difference between the intervention and control groups ($P = 0.45$).

Table 1: Demographic Characterization of Respondents

Variables	Intervention	Control	P-Value
Gender			0.48
Male	18 (50)	21 (58.3)	
Female	18 (50)	15 (41.7)	
Total	36 (100)	36 (100)	
Education			0.75
Illiterate	8 (22.2)	2 (5.6)	
Primary	14 (38.9)	10 (27.8)	
Diploma	9 (25)	15 (41.7)	
University	5 (13.9)	9 (25)	
Total	36 (100)	36 (100)	
Employment Status.			0.48
No job	17 (47.2)	10 (27.8)	
Student	1 (2.8)	3 (8.3)	
Employed	5 (13.9)	6 (16.7)	
Retired	8 (22.2)	10 (27.8)	
Unemployed	5 (13.9)	7 (19.4)	
Total	36 (100)	36 (100)	

In the intervention group, variance with repeated measures revealed a significant difference in the mean score of disease perception at three measurement stages (before the intervention, immediately after, and 3 months after the intervention) ($P < 0.001$). In contrast, the control group showed no significant change compared to before the intervention ($P = 0.36$), and after three months, it still did not show a significant change ($P = 0.94$). The interaction effect of time and group indicated a significant difference in score changes between the two groups during the study (Table 2).

Table 2: Disease in Intervention and Control Group

Group and Study Stage	Intervention	Control	P-Value
Before intervention	31.8 ± 2.9	31.7 ± 2.5	0.64
Immediately after	37.1 ± 2.8	32.1 ± 2.4	< 0.001
Three months after intervention	38.2 ± 2.6	32.1 ± 2.2	< 0.001
P-value of intergroup			< 0.001
Stage I and II	< 0.001	0.36	
Stage I and III	< 0.001	0.42	
Stage II and III	< 0.001	0.94	

Analysis of Data on Hypotheses

Hypothesis One: There is no significant difference between the attitude of elderly individual and self-management on the hypertension and diabetes in Katsina Metropolis.

N	Pearson Chi-Square	Df	Sig (Alpha)	Asymp. Sig. (2-sided)	Remark
36	19.970	2	0.05	0.003	Significant

The result showed that the p-value = 0.003 which is less than the significant value ($p < 0.05$) that is, the result is significant which resulted the rejection of the null hypothesis one. It is concluded that there is significant difference between the attitude of elderly individual and self-management of hypertension and diabetes in Katsina Metropolis. That is, old age can determine the self-management of hypertension and diabetes in the study area.

Hypothesis Two: There is no significant difference between level of knowledge of elderly individuals and self-management on the prevention of hypertension and diabetes among elderly individuals in Katsina Metropolis.

N	Pearson Chi-Square	Df	Sig (Alpha)	Asymp. Sig. (2-sided)	Remark
36	40.955	2	0.05	0.000	Significant

The result showed that the p-value = 0.000 which is less than the significant value ($p < 0.05$) that is, the result is significant which resulted the rejection of the null hypothesis tw0. It is

concluded that there is significant difference between level of knowledge on the prevention of hypertension and diabetes among elderly individuals in Katsina Metropolis. That is, level of knowledge has influence on prevention of hypertension and diabetes in the study area.

Discussion of Findings

In this research, the influence of family-centred health education on the knowledge and attitude of elderly individuals toward self-management and prevention of hypertension and diabetes In Katsina Metropolis. According to the study results, the average score of disease understanding in the control group increased significantly after the intervention compared to before ($P < 0.001$). However, at the three-month follow-up, there was a significant decrease ($P = 0.009$), indicating the need for ongoing training during treatment.

These findings are consistent with the study by Rahimi and Karami Moghadam (2025) titled "the effect of the family-centered empowerment model on the perception of disease in heart failure patients." This study, which included 70 patients with heart failure, demonstrated that the model improved disease understanding and reduced symptom incidence. Rahimi (2025) concluded that, as a system, the family influences all its members, and maintaining this balance is crucial for effective management. Therefore, the results of this study are consistent with many other studies on family-centred programme implementation, which have reported positive effects such as improved understanding in heart patients, increased self-efficacy and perceived threat reduction in diabetic and hypertensive patients in the study area.

The result revealed that the p-values of the two hypotheses were less than the significance value ($p = 0.003 < 0.05$) for the first hypothesis, ($p = 0.00 < 0.05$) for the second hypothesis. This showed that there is significant difference between the attitude of elderly individuals and self-management of hypertension and diabetes in Katsina Metropolis. Furthermore, the level of respondents' knowledge determined the level of prevention of hypertension and diabetes in the study area.

Conclusion

Despite the high level of awareness of hypertension and diabetes observed in this study, knowledge about the two conditions remains inadequate. The inadequate knowledge of the two conditions has encouraged the observed prevalence of modifiable risk factors for these conditions

such as smoking, alcohol consumption and lack of physical activity among our respondents. Therefore, this study concludes that family-centred health education significantly improves the knowledge, attitudes, and self-management behaviours of elderly individuals regarding hypertension and diabetes. The study further concludes that by involving family members, interventions create a supportive environment that enhances the patient's ability to maintain healthy lifestyles and adhere to treatment plans. In a nutshell, integrating family members into the health education and care plan of the elderly is a valuable and cost-effective strategy for the effective management and prevention of complications associated with hypertension and diabetes in the elderly population.

Recommendations

Based on the findings, the study made the following recommendations:

- i) There is a need to improve access to quality information about hypertension and diabetes among the elderly individuals to enhance behaviour change especially among people with little or no education while regular testing should also be encouraged in the study area.
- ii) Government and donor funded programmes should consider subsidising the test costs to encourage testing among low- income earners
- iii) Families should be trained by government and non-governmental organisations in supportive communication techniques to motivate patients without using criticism or controlling behaviours, which can negatively affect outcomes.
- iv) Patients should be referred to physical therapy or elder services to assess the home environment and prevent injury from falls.

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