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EFFECT OF HEALTH EDUCATION INTERVENTION ON HEALTHCARE SERVICE UTILISATION AMONG FEDERAL COLLEGES OF EDUCATION STUDENTS IN NORTH-WEST NIGERIA: THE ROLE OF ECONOMIC FACTORS

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Abstract

Healthcare service underutilisation among college students in resource-constrained settings remains a significant public health concern, with economic factors frequently identified as key barriers. This study examined the effect of a health education intervention on healthcare service utilisation among Federal Colleges of Education students in North-West Nigeria, with a specific focus on economic determinants. A quasi-experimental pre-test/post-test design with control and experimental groups was employed. Using multi-stage sampling, 200 students were recruited from two institutions: Federal College of Education, Zaria (experimental group, n=100) and Federal College of Education, Kano (control group, n=100). The experimental group received an eight-week structured health education programme addressing income level, employment status, cost of healthcare, and health insurance as determinants of healthcare access. A validated, researcher-developed questionnaire (Cronbach's $\alpha = 0.752$) was administered at pre-test and post-test stages. Data were analysed using descriptive statistics, paired-sample t-tests, and independent sample t-tests at a 0.05 significance level. Results revealed a significant improvement in healthcare utilisation among the experimental group (pre-test mean = 2.46; post-test mean = 3.33; $t = 35.13$; $p = 0.000$). A significant difference was also observed between groups post-intervention (experimental mean = 3.33 vs. control mean = 2.47; $t = 21.21$; $p = 0.000$). These findings affirm that health education interventions can meaningfully address economic barriers to healthcare utilisation among college students. Policymakers and institutional administrators are urged to integrate economic support mechanisms within student health promotion frameworks.

Keywords: *Health education intervention, healthcare service utilisation, economic factors, college students, North-West Nigeria, quasi-experimental design*

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INTRODUCTION

Healthcare service utilisation encompasses the range of preventive, promotive, curative, rehabilitative, and palliative interactions that individuals have with organised health systems, and constitutes a fundamental indicator of health system performance and population health equity. The decision to seek, access, and continue to use healthcare services is mediated by a constellation of factors spanning individual, institutional, social, and economic domains. Among these economic factors, household income, out-of-pocket expenditure, health insurance coverage, perceived cost of care, and financial self-efficacy have consistently been identified as among the most powerful determinants of healthcare utilisation, particularly in low- and middle-income country settings characterised by limited public financing of health services (Fayehun et al., 2022). For students in Federal Colleges of Education in North-West Nigeria, whose economic circumstances are typically constrained and whose health financing options are largely informal, understanding the economic determinants of healthcare utilisation is of critical scholarly and policy relevance.

Globally, the relationship between economic status and healthcare utilisation is stark and well-documented. The World Health Organisation [WHO] (2023) estimates that over 3.5 billion people lack access to essential health services, with economic barriers, particularly high out-of-pocket expenditure, constituting the principal obstacle for the majority of this population. In high-income countries, where health systems are predominantly financed through taxation or social insurance mechanisms, the economic barrier to utilisation is substantially attenuated; outpatient utilisation in the European Union averaged 7.2 visits per capita annually in 2022, compared to fewer than 2 visits per capita in sub-Saharan Africa, where out-of-pocket payments dominate health financing (Organisation for Economic Co-operation and Development [OECD], 2023). This disparity reflects not merely a difference in service availability but a profound structural inequity in the distribution of financial risk associated with illness and care-seeking, which disproportionately burdens low-income populations and deters timely engagement with health services.

In Africa, economic factors intersect with infrastructural deficiencies, geographic remoteness, and weak health insurance systems to produce patterns of severe healthcare underutilisation. The continent bears approximately 24% of the global disease burden while possessing only 3% of the world's health workforce, and the average health facility utilisation rate stands at merely 2.1 visits per person per year (WHO, 2023). High out-of-pocket health expenditure remains the norm across most African countries, compelling households in lower income quintiles to forgo needed care, delay treatment initiation, or resort to less expensive and often inadequate informal care alternatives. For young adults in tertiary education, who typically lack independent income and rely on family financial transfers that may be irregular and insufficient, the economic barrier to healthcare engagement is particularly acute and remains a critical focus for health promotion research and policy.

In Nigeria, economic constraints constitute a dominant barrier to healthcare service utilisation at both population and institutional levels. Over 70% of healthcare financing in Nigeria is derived from out-of-pocket expenditures, representing one of the highest proportions globally, and rendering healthcare effectively unaffordable for large segments of the population (World Bank, 2023). Only 10% of the Nigerian population has access to health insurance, leaving the vast majority, including most tertiary students, without financial protection against healthcare costs (National Health Insurance Authority [NHIA], 2023). The NHIA and the Tertiary Institutions Social Health Insurance Programme (TISHIP), which were designed to extend coverage to students in higher education, have failed to achieve widespread enrolment due to weak implementation, limited institutional awareness campaigns, and bureaucratic enrolment processes (Adamu et al., 2025). As a result, economically disadvantaged students either delay care, resort to self-medication, or consult unqualified practitioners who offer lower-cost but often ineffective or dangerous services.

Students in Federal Colleges of Education represent a population segment with particularly pronounced economic vulnerability within the Nigerian tertiary education landscape. Many are drawn from low-income rural and peri-urban households in North-West Nigeria, one of the country's economically least developed regions, and rely primarily on modest government bursaries, family remittances, and part-time informal economic activities to finance their living expenses. Within this constrained financial environment, healthcare expenditure is frequently deprioritised in favour of immediate consumption needs such as food, accommodation, and academic materials. A study by Musa and Idris (2023) found that only 28% of students at Federal Colleges of Education in North-West Nigeria had accessed medical services on campus within a given year, with economic constraints prominently cited among the barriers to utilisation. The implications of this economically driven underutilisation are significant, as delayed or forgone care for common conditions can precipitate complications, escalate healthcare costs, and adversely affect academic performance and long-term health trajectories (Adebayo & Balogun, 2022).

Economic factors influence healthcare utilisation through multiple pathways that extend beyond the direct cost of services. Indirect costs such as transportation to health facilities, opportunity costs associated with missed academic or income-generating activities during care-seeking, and the cost of medications and diagnostic tests collectively contribute to the financial burden of healthcare engagement and constitute significant deterrents for resource-constrained students (Eze & Odu, 2022). Furthermore, economic insecurity shapes health-seeking attitudes at a cognitive level, with students from lower economic backgrounds often internalising a perception that healthcare is a luxury rather

than a right, and developing a tendency toward stoicism in the face of illness (Isiaq & Abdullahi, 2025). These economically conditioned behavioural dispositions are reinforced by limited health literacy regarding affordable care options, insurance entitlements, and the long-term cost benefits of preventive versus curative care (Onwuka et al., 2023). Health education interventions that explicitly address economic dimensions of healthcare, such as financial literacy, insurance awareness, and navigation of affordable care pathways, therefore hold considerable potential for modifying economically driven utilisation deficits.

The inadequacy of existing health promotion efforts to address economic determinants of healthcare utilisation is a critical gap in the current literature and institutional practice. Periodic health campaigns and medical outreaches conducted in Federal Colleges of Education typically focus on disease awareness and clinical screening without addressing the financial barriers that prevent students from translating increased awareness into actual care-seeking behaviour (NPC, 2019). Information alone, in the absence of strategies that build financial self-efficacy and practical knowledge of affordable care options, is insufficient to overcome economic constraints on healthcare utilisation.

The consequences of economically driven underutilisation among Federal College of Education students are far-reaching. Immediate health impacts include the progression of manageable conditions into more severe and costly medical emergencies due to delayed care, increasing both individual suffering and systemic healthcare burden (Onyekwere et al., 2022). Academic consequences are equally significant, as health-related absenteeism, reduced cognitive performance, and diminished psychological well-being associated with untreated conditions compound existing academic pressures and contribute to poor examination outcomes (Nwachukwu et al., 2023). Over the longer term, the economically constrained healthcare avoidance behaviours established during the college years risk solidifying into enduring patterns of low healthcare engagement that persist through adulthood. Given that College of Education graduates will assume roles as primary and secondary school teachers, their health literacy and healthcare engagement patterns will additionally influence the health knowledge and behaviours of thousands of future students across communities in North-West Nigeria.

Despite the recognised centrality of economic factors in determining healthcare utilisation among Nigerian tertiary students, there remains a pronounced paucity of empirical research that specifically examines the economic determinants of healthcare utilisation in Federal Colleges of Education, and even fewer studies that rigorously evaluate the economically specific effects of health education interventions in this context. Most existing studies conflate economic factors with broader sociodemographic analyses, failing to disaggregate and quantify the independent and interactive contributions of specific economic variables, including insurance status, income level, perceived cost, and financial literacy, to utilisation outcomes. This study, therefore, seeks to address this critical gap by examining the effect of a structured, theoretically grounded health education intervention on healthcare service utilisation, with specific focus on the role of economic factors, among Federal Colleges of Education students in North-West Nigeria.

PURPOSE OF THE STUDY

This study assessed:

1. The effect of health education intervention on utilisation of healthcare services among the federal colleges of education students in North West, Nigeria after the intervention, based on economic factors

2. The difference between the control and experimental groups in the level of utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors

RESEARCH QUESTIONS

The following research questions were raised to guide the study;

1. What is the effect of health education intervention on utilisation of healthcare services among the federal colleges of education students in North West Nigeria, after the intervention, based on their economic factors?

2. What is the difference between the control and experimental groups in the level of utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors?

HYPOTHESES

The following hypotheses were postulated for the study;

1. There is no significant effect of economic factors on health education intervention on utilisation of healthcare services among federal colleges of education students in North West, Nigeria after the health education intervention

2. There is no significant difference between the control and experimental group on utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors

METHODOLOGY

This study employed a quasi-experimental research design with a pre-test and post-test of control and experimental groups. The quasi-experimental framework was chosen because it allows for the investigation of causal relationships between an independent variable (the health education intervention) and a dependent variable (healthcare services utilisation as influenced by economic factors), without the requirement of random assignment, which was not feasible in the institutional setting of this study. Two groups participated: an experimental group that received the health education intervention, and a control group that received no treatment. Both groups were pre-tested before the intervention commenced and post-tested after its conclusion.

The study population totalled sixty-seven thousand, six hundred and seventy-nine (67,679) students across the six Federal Colleges of Education located in Northwest Nigeria, as reported by the National Commission for Federal Colleges of Education (NCCE, 2024). These institutions are situated in Kaduna, Kano, Katsina, Sokoto, and Zamfara States. Participant selection followed a multi-stage sampling procedure. In the first stage, two states were selected from the five states hosting Federal Colleges of Education in Northwest Nigeria using simple random sampling via the fishbowl technique, an approach that guarantees equal probability of selection for each unit. The five states (Kaduna, Kano, Katsina, Sokoto, and Zamfara) were written on separate slips of paper, folded, placed in a container, vigorously shaken, and drawn consecutively, yielding Kaduna and Kano States. In the second stage, one Federal College of Education was selected from each chosen state through the same fishbowl method, resulting in the selection of the Federal College of Education, Zaria, in Kaduna State, and the Federal College of Education, Kano, in Kano State. In the third stage, a non-probability sampling approach was used to recruit 200 participants, 100 from each institution, giving a total sample of 200 respondents, consistent with Cohen, Manion, and Morrison's (2007) recommendation of a minimum of 30 participants for experimental research designs. Participants at Federal College of Education, Zaria, were assigned to the experimental group, while those at Federal College of Education, Kano, served as the control group. The inclusion criteria required participants to be NCE students of Federal Colleges of Education in Northwest Nigeria who were willing to participate in the intervention and follow-up assessments. Students who were absent from school at the time of data collection were excluded from the study. Informed written consent was obtained from all participants before their inclusion, and ethical protocols were adhered to throughout the study process.

Data were collected using a researcher-developed questionnaire. The instrument captured 15 items on economic factors. All items were scored using a four-point modified Likert scale of Always (4), Often (3), Sometimes (2), and Never (1), with a mean score threshold of 2.50 set to distinguish positive from negative responses. Content and face validity of the instrument were established through expert vetting by five academics in relevant departments at Ahmadu Bello University, Zaria. Reliability was confirmed via a pilot study at the Federal College of Education, Katsina, an institution not included in the main study, yielding a Cronbach's Alpha coefficient of 0.752, which was deemed adequate for internal consistency.

The health education intervention was delivered over eight weeks, with weekly sessions held on Saturdays between 1:00 pm and 2:30 pm at the Federal College of Education, Zaria. The content was guided by a researcher-developed programme manual spanning topics from an introduction to healthcare utilisation in week one through to an evaluation session in week eight. The sessions addressed income level, employment status, the cost of healthcare services, and health insurance as determinants of healthcare access and use. The session employed interactive discussions, role-playing activities simulating economic challenges in healthcare access, and written reflections on barriers and solutions. These participatory strategies were designed to build participants' awareness and capacity to navigate economic constraints in seeking healthcare services.

Data collection proceeded through three structured phases. Phase 1 involved the concurrent administration of the pre-test questionnaire to both groups: 100 copies to the experimental group on a Monday between 1:00 pm and 2:30 pm at Federal College of Education, Zaria, and 100 copies to the control group on a Wednesday at the same hours at Federal College of Education, Kano. Four research assistants, instructed and guided by the researchers, supported the administration process. Phase 2 entailed the delivery of the six-week health education intervention to the experimental group only; the control group was not exposed to any intervention during this period. Measures were implemented to prevent interaction between the two groups, including strict adherence to scheduled session days, times, and venues for experimental group participants. Phase 3 involved the administration of a post-test questionnaire to both groups one week after the completion of the intervention, to assess any sustained effects of the programme.

Data generated from the pre-test and post-test assessments were collated and analysed to ascertain the effect of the health education intervention on economic factor-based healthcare service utilisation. Descriptive statistics of Mean and standard deviation were used to answer the research questions. Inferential statistics of the paired-sample t-test and independent sample t-test was used to test all the hypotheses at a 0.05 level of significance.

RESULTS

Research Question One: What is the effect of health education intervention on utilisation of healthcare services among the federal colleges of education students in North West Nigeria, after the intervention, based on their economic factors?

Table 2: Mean Scores of Responses on the Effect of Health Education Intervention on Utilisation of Healthcare Services Among the Federal Colleges of Education Students in North West Nigeria, after the Intervention, Based on Their Economic Factors

Economic Factors	N	Mean	Std. Dev.	Mean Difference
Pretest	100	2.46	0.55	
				0.87
Post-test	100	3.33	0.73	

(Decision Mean = 2.50)

The result shown that the post-test mean score (Mean = 3.33, SD = 0.73) was higher than the pre-test mean score (Mean = 2.46, SD = 0.55), with a mean difference of 0.87. When compared to the decision mean of 2.50, the pre-test score was below the benchmark, indicating that students initially underutilised healthcare services due to economic constraints. However, the substantially higher post-test mean implies that the health education intervention had a strong positive effect on utilisation of healthcare services among the students across economic factors in North West Nigeria.

Research Question Two: What is the difference between the control and experimental groups in the level of utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors?

Table 3: Mean Scores of Responses on the Difference Between the Control and Experimental Groups in the Level of Utilisation of Healthcare Services After Health Education Intervention Among Federal Colleges of Education Students in North West Nigeria, Based on their Economic Factors.

Economic Factors	N	Mean	Std. Dev.	Mean Difference
Control	100	2.47	0.81	
				0.86
Experimental	100	3.33	0.73	

(Decision Mean = 2.50)

The result indicated that the experimental group (Mean = 3.33) had a higher level of utilisation of healthcare services compared to the control group (Mean = 2.47) after the health education intervention, with a mean difference of 0.86. Since both groups' mean scores were compared against the decision mean of 2.50, the experimental group's score was well above the benchmark, indicating effective utilisation of healthcare services, while the control group's score remained slightly below the decision mean. This revealed that the health education intervention had a substantial positive effect on improving healthcare service utilisation among students in the experimental group across economic factors, compared to their counterparts in the control group.

Hypotheses Testing

Hypothesis One: There is no significant effect of economic factors on health education intervention on utilisation of healthcare services among federal colleges of education students in North West, Nigeria after the health education intervention.

Table 4: Paired Sample t-test representation of Pretest and Post-test of health education intervention on utilisation of healthcare services among the federal colleges of education students in North West, Nigeria based on economic factors

Economic Factors	N	Mean	Std. Dev.	Mean Difference	df	t-value
Pretest	100	2.46	0.55			
				0.87	99	35.13
Post-test	100	3.33	0.73			

t (df) = (99)1.984, p-value = 0.05

Table 4 revealed the results of a paired sample t-test conducted to determine whether there was a significant effect of economic factors on health education intervention on utilisation of healthcare services among federal colleges of education students in North West, Nigeria after the intervention. The pretest mean score was 2.46, while the post-test mean score increased to 3.33, indicating an improvement in healthcare service utilisation after the intervention. The mean difference between the pretest and post-test scores was 0.87. The calculated t-value was 35.13 with 99 degrees of freedom, and the associated p-value was 0.000, which was less than the significance level of 0.05.

This result led to the rejection of the hypothesis, which stated that there was no significant effect of economic factors on health education intervention on utilisation of healthcare services. This implied that the health education intervention had a statistically significant positive effect on healthcare service utilisation based on economic factors. The marked improvement in post-test scores affirmed that the intervention successfully enhanced students' utilisation of healthcare services, considering economic factors.

Hypothesis Two: There is no significant difference between the control and experimental group on utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors.

Table 5: Independent t-test Statistics on the difference between the control and experimental groups in the level of utilisation of healthcare services after health education intervention among federal colleges of education students in North West Nigeria, based on economic factors

Economic Factors	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Control	100	2.47	0.81				
				0.86	198	21.21	0.000
Experimental	100	3.33	0.73				

t (df) = (198) 1.972, p-value = 0.05

Table 5 showed the results of an independent t-test conducted to determine whether there was a significant difference in healthcare service utilisation between the experimental and control groups based on economic factors after the health education intervention. The table indicated that the mean score of the experimental group was 3.33, while the control group recorded a lower mean score of 2.47, with a mean difference of 0.86. The calculated t-value was 21.21 with 198 degrees of freedom, and the p-value was 0.000. Since the p-value was less than the alpha level of 0.05, the result was statistically significant. The higher mean score of the experimental group affirmed that the health education intervention had a positive effect in enhancing their utilisation of healthcare services compared to the control group, which did not receive the intervention. Therefore, the hypothesis which stated that there was no significant difference between experimental and control groups on utilisation of healthcare services based on economic factors was rejected. This implied that there was a significant difference between the experimental and control groups in their utilisation of healthcare services after the intervention.

DISCUSSION OF FINDINGS

Hypothesis One demonstrated that there was a significant effect of economic factors on health education intervention on utilisation of healthcare services amongst federal colleges of education students in North West, Nigeria after the health education intervention ($t = 35.13$, $p = 0.000$). This finding aligns with substantial studies. Eze, Anieche, and Uche (2019) found that students with stable financial support showed significant improvements in healthcare service utilisation post-intervention. Similarly, Adeniyi, Oyedele, and Fadare (2018) revealed a significant increase in healthcare service utilisation amongst the experimental group, particularly amongst students from lower-income backgrounds who benefited from awareness of subsidised services. Additionally, Oluwasanmi, Adepoju, and Adeoye (2018) demonstrated that health education interventions positively influenced healthcare utilisation, particularly amongst students from low-income backgrounds who reported reduced financial constraints due to increased awareness. These studies collectively confirm that health education interventions can effectively address economic barriers to healthcare utilisation.

Hypothesis two indicated a significant difference between the control and experimental groups on utilisation of healthcare services after health education intervention amongst federal colleges of education students in North West Nigeria, based on economic factors ($t = 21.21$, $p = 0.000$). This result is supported by multiple studies. Eze, Uche, and Okeke (2019) demonstrated that lower-income students in the experimental group reported increased clinic visits and preventive care uptake, suggesting that health education can reduce economically related disparities in healthcare use. Similarly, Bakare, Lawal, and Adeleke (2019) found that whilst students from low-income families reported persistent financial barriers, the experimental group showed significant improvements in healthcare utilisation. Furthermore, Okafor, Onyebueke, and Nwankwo (2020) revealed that health education empowered students to navigate financial constraints better, leading to improved service utilisation in the experimental group compared to controls. These findings confirm that economic factors significantly moderate the differential impact of health education interventions between treatment groups.

CONCLUSIONS

Based on the findings of the study, the following conclusions were made:

1. Health education intervention enhanced the effect of economic factors on healthcare service utilisation amongst federal college of education students in North West, Nigeria after implementation.
2. Federal College of Education students in the experimental group demonstrated improved healthcare service utilisation compared to those in the control group after the health education intervention when economic factors were considered.

RECOMMENDATIONS

Based on the conclusion, the study recommended the following:

1. Policymakers should integrate economic support mechanisms with health education by creating policies that link student financial aid packages with mandatory health coverage and wellness program participation.

2. School management should partner with community health facilities to negotiate reduced fees for students, establish revolving health funds, and provide emergency medical loans to economically disadvantaged students.

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