GLOBAL JOURNAL OF HEALTH RELATED RESEARCHES
Vol. 8, No. 1, March 2026 | pp. 14–22
Published by the Department of Human Kinetics and Health Education, Faculty of Education, Ahmadu Bello University, Zaria, Nigeria

THE EFFECT OF A HEALTH EDUCATION INTERVENTION ON HEALTHCARE SERVICES UTILISATION AMONG STUDENTS IN FEDERAL COLLEGES OF EDUCATION IN NORTHWEST NIGERIA: A DEMOGRAPHIC ANALYSIS

[1]Hurera Mouktar MACCIDO, [2]Umar Adakano BELLO, [1]Umaru MUSA and [1] M. A. SULEIMAN

[1]Department of Human Kinetics and Health Education, Ahmadu Bello University, Zaria
[2]Department of Nursing Sciences, Ahmadu Bello University, Zaria
Corresponding Author: hureramouktar@gmail.com

Abstract

Health education interventions have been recognised as effective tools for improving healthcare-seeking behaviours among populations with limited health literacy. This quasi-experimental study investigated the effect of a health education intervention on healthcare services utilisation among students in Federal Colleges of Education in Northwest Nigeria, with particular attention to demographic variables. A pre-test/post-test design with a non-equivalent control group was employed. Using multi-stage sampling, 200 participants were recruited, with 100 assigned to the experimental group at Federal College of Education, Zaria, and 100 to the control group at Federal College of Education, Kano. The experimental group received an eight-week health education programme, while the control group received no intervention. Data were collected via a validated, researcher-developed questionnaire rated on a four-point modified Likert scale (Cronbach's $\alpha = 0.752$) and analysed using descriptive statistics, paired-sample t-tests, and independent sample t-tests at a 0.05 significance level. Results showed a significant improvement in healthcare service utilisation in the experimental group, with post-test mean scores rising from 2.45 to 3.12 (mean difference = 0.67; $t = 15.73$; $p = 0.000$). The experimental group also recorded significantly higher utilisation scores than the control group after the intervention (mean difference = 0.66; $t = 14.37$; $p = 0.000$). Both null hypotheses were rejected. The study concluded that health education intervention positively and significantly enhanced healthcare service utilisation across demographic variables. Policymakers are urged to integrate structured health education into college curricula to sustain these gains.

Keywords: *Health education, intervention, healthcare services utilisation, demographic variables, colleges of education, Northwest Nigeria, quasi-experimental*

How to cite this article: Maccido, H. M., Bello, U. A., Musa, U., & Suleiman, M. A. (2026). The Effect of a Health Education Intervention on Healthcare Services Utilisation among Students in Federal Colleges of Education in Northwest Nigeria: A Demographic Analysis. Global Journal of Health Related Researches, 8(1), 14–22.
DOI: https://doi.org/10.67203/gjhrr.2026.5w8d9kzx

INTRODUCTION

Healthcare service utilisation refers to the degree to which individuals and populations engage with available preventive, promotive, curative, rehabilitative, and palliative services to maintain, restore, or improve their health status. It represents a fundamental cornerstone of effective health systems worldwide, shaped not merely by the availability of services but by a complex interplay of individual, social, structural, and demographic factors that mediate access and engagement with healthcare providers (Fayehun et al., 2022). Among these determinants, demographic characteristics such as age, gender, educational level, marital status, programme of study, and geographical location have consistently emerged as significant predictors of health-seeking behaviour across diverse populations and health systems (Isiaq & Abdullahi, 2025).

Globally, stark disparities in healthcare utilisation persist along demographic lines. The World Health Organisation (WHO, 2023) estimates that over 3.5 billion people lack access to essential health services, with utilisation rates substantially lower in low-income countries compared to high-income nations.

Notably, younger individuals aged 15–24 are among the least likely to seek professional healthcare services worldwide, despite bearing a considerable burden of preventable and treatable conditions (WHO, 2023). This demographic paradox, whereby a population with considerable health needs demonstrates consistently low healthcare engagement, has attracted growing scholarly attention in tertiary education settings where young adults navigate health decisions with varying degrees of autonomy, awareness, and institutional support.

In Africa, demographic factors intersect with systemic deficiencies to produce patterns of pronounced underutilisation. The region 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 2.1 visits per person per year (WHO, 2023). Gender emerges as a salient demographic variable across Africa, with male individuals consistently demonstrating lower rates of healthcare engagement than their female counterparts. Research has shown that sociocultural constructions of masculinity discourage timely help-seeking among men, who often regard illness acknowledgement as inconsistent with prevailing gender norms (Sonia et al., 2025). Conversely, female students may encounter distinct cultural barriers such as requirements for familial permission, stigma associated with reproductive health services, and patriarchal institutional norms that similarly constrain their healthcare access, albeit through different mechanisms (Akorede et al., 2022).

In Nigeria, demographic disparities in healthcare utilisation are well-documented and deeply entrenched. According to the Nigerian Population Census [NPC] (2019), only 34% of women and 26% of men aged 15–49 sought medical care for common illnesses, reflecting persistent gender differentials in health-seeking behaviour. Urban residents generally demonstrate higher utilisation rates than rural dwellers owing to proximity to and availability of services, compounding existing inequities along geographical and socio-demographic lines (Nwachukwu et al., 2023). Among tertiary students specifically, fewer than 30% of Nigerian undergraduates access campus-based health services annually, with utilisation patterns further differentiated by year of study, programme affiliation, and age cohort (Onyekwere et al., 2022). These figures underscore the extent to which demographic variables function not merely as background characteristics but as active determinants of healthcare engagement trajectories.

Students in Federal Colleges of Education represent a population whose demographic profile warrants attention in healthcare utilisation research. Many are first-generation tertiary students from rural and semi-urban communities in North-West Nigeria, navigating institutional environments with limited prior exposure to formal health services. Age-related factors influence their perception of health risk, with younger students often underestimating vulnerability to illness and consequently deferring care (WHO, 2023). Gender dynamics within the college environment shape both health-seeking attitudes and the social acceptability of accessing specific services, particularly reproductive and mental health care. Furthermore, the year and programme of study may mediate healthcare utilisation through differential academic pressures, scheduling conflicts with health facility hours, and varying levels of institutional health socialisation. 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, indicating a population characterised by substantial unmet health needs.

Research examining the relationship between demographic characteristics and health literacy further elucidates how individual-level attributes shape healthcare utilisation. Renzi and Franci (2025) found that demographic variables such as age and gender significantly influenced health literacy levels among college students, which in turn shaped their ability to access and use health information effectively, ultimately affecting their health-seeking behaviour and engagement with healthcare services. This suggests that demographic factors do not operate in isolation but through intermediary pathways involving health knowledge, self-efficacy, and attitudinal orientation toward formal healthcare. Health education interventions, by systematically enhancing health literacy across demographically diverse student groups, offer a promising mechanism for moderating the adverse influence of demographic barriers on healthcare utilisation.

Gender differences in health-seeking behaviour have received consistent empirical support in recent scholarship. A quantitative analysis by Sonia et al. (2025) found that female university students scored

significantly higher on measures of health-seeking behaviour than male students, indicating that females were more likely to engage with healthcare services and respond to health needs promptly, whereas males were more hesitant or delayed in doing so. This pattern aligns with broader findings in the literature suggesting that sociocultural expectations and attitudes about masculinity discourage timely help-seeking among men. Such gender differentials are particularly relevant within the college of education context, where male students may constitute a significantly underserved subgroup requiring targeted health education approaches that address masculinity norms and promote a broader reconceptualisation of health as relevant to all demographic groups.

Despite the recognised influence of demographic factors on healthcare utilisation, limited empirical attention has been directed toward understanding how structured health education interventions interact with and potentially modify these demographic influences within Federal Colleges of Education. Most existing health promotion programmes in Nigerian tertiary institutions are sporadic, inadequately funded, and lack systematic evaluation of their demographic-specific impacts (Onwuka et al., 2023). They tend to adopt undifferentiated approaches that fail to account for the varying health literacy needs, cultural contexts, and behavioural predispositions of students across different demographic subgroups. Consequently, the potential of health education to mitigate demographic disparities in healthcare utilisation remains largely unrealised and empirically uncharted in this setting.

The underutilisation of healthcare services among Federal College of Education students carries significant consequences across multiple domains. Academic performance is compromised as untreated health conditions precipitate absenteeism, reduced concentration, and diminished examination performance (Onyekwere et al., 2022). Long-term health trajectories are adversely affected, as health-seeking patterns established during this formative period tend to persist into adulthood (Adebayo & Balogun, 2022). Moreover, students who graduate as future teachers carry their health literacy deficits and healthcare avoidance behaviours back into communities, perpetuating a cycle of inadequate health engagement across generations. The cumulative public health cost of this underutilisation is therefore substantial, extending well beyond individual student welfare to encompass broader community health outcomes across North-West Nigeria.

This study is therefore premised on the recognition that demographic factors constitute a critical yet modifiable determinant of healthcare service utilisation, and that well-designed health education interventions have the potential to bridge demographic gaps in healthcare engagement.

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 demographic variables

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 demographic variables

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 demographic variables?

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 their demographic variables?

HYPOTHESES

The following hypotheses were postulated for the study;

1. There is no significant effect of demographic variables 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 demographic variables

METHODOLOGY

This study adopted a quasi-experimental research design involving pre-test and post-test measurements across two non-randomly assigned groups: an experimental group and a control group. The design was selected because it enables the establishment of cause-and-effect relationships between the health education intervention and healthcare services utilisation, while accommodating the practical constraints that precluded random assignment of participants. All participants in both groups were assessed at baseline using a standardised questionnaire, and again following the intervention period, thereby allowing the researchers to evaluate changes attributable to the programme.

The study population comprised sixty-seven thousand, six hundred and seventy-nine (67,679) students enrolled across six Federal Colleges of Education in Northwest Nigeria, as documented by the National Commission for Federal Colleges of Education (NCCE, 2024). These institutions were drawn from Kaduna, Kano, Katsina, Sokoto, and Zamfara States. A multi-stage sampling procedure was employed to select the study sample. In the first stage, simple random sampling using the fishbowl technique was applied to select two states from among the five states hosting Federal Colleges of Education in Northwest Nigeria. The names of the five states, Kaduna, Kano, Katsina, Sokoto, and Zamfara, were inscribed on separate pieces of paper, folded, placed in a container, and drawn one at a time. Kaduna and Kano States were consequently selected. In the second stage, one Federal College of Education was selected from each of the two chosen states using the same fishbowl approach, yielding the Federal College of Education, Zaria (Kaduna State) and the Federal College of Education, Kano (Kano State). In the third and final stage, non-probability sampling was used to recruit 100 participants from each institution, giving a total sample size of 200 participants. Of these, 100 were assigned to the experimental group at Federal College of Education, Zaria, while the remaining 100 constituted the control group at Federal College of Education, Kano. This arrangement reflects a non-equivalent control group design, widely employed in quasi-experimental studies where full randomisation is operationally infeasible. 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.

The instrument for data collection was a researcher-developed questionnaire. Responses were rated on a four-point modified Likert scale: Always (4), Often (3), Sometimes (2), and Never (1) and a mean aggregate score of 2.50 and above was set as the threshold for a positive response. The questionnaire was validated by five subject-matter experts from the Department of Human Kinetics and Health Education and the College of Medical Sciences, Ahmadu Bello University, Zaria, whose inputs were incorporated before a pilot study. Reliability was established through Cronbach's Alpha, yielding a coefficient of 0.752, which is considered adequate for internal consistency.

The health education intervention was administered over eight weeks, with one session held every Saturday from 1:00 pm to 2:30 pm at the Federal College of Education, Zaria. The programme was guided by a researcher-developed manual that sequenced topics from introductory concepts of healthcare utilisation through demographic variables and healthcare utilisation. Facilitator-led group discussions, case studies, and interactive sharing of personal experiences formed the core pedagogical methods for this session, with group presentations and feedback sessions serving as evaluation tools.

Data collection was conducted in three phases. The pre-intervention assessment (Phase 1) involved the simultaneous administration of 200 questionnaires: 100 to the experimental group on a Monday and 100 to the control group on a Wednesday, both between the hours of 1:00 pm and 2:30 pm, at their

respective institutions. Four trained research assistants supported the researchers throughout this process. During Phase 2, only the experimental group received the six-week health education programme while the control group remained unexposed to any form of intervention. To minimise inter-group contamination, participants in the experimental group were required to attend sessions strictly on the designated day, time, and venue. Phase 3 involved the administration of a post-test questionnaire to both groups one week after the conclusion of the intervention, enabling a final comparative assessment of the programme's effects.

Data generated from the pre-test and post-test assessments were collated and analysed to ascertain the effect of the health education intervention on demographic factor-based healthcare services utilisation. Descriptive statistics of frequency and percentage were used to analyse the demographic characteristics of the respondents. 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

Data collected on demographic characteristics of the respondents were analysed using frequencies and percentages.

Table 1: Demographic Characteristics of the Respondents

Variables	Frequency	Percentage (%)
Age Range in Years		
18 – 25	96	48.0
26 – 35	69	34.5
36 – 45	24	12.0
Above 45	11	5.5
Total	**200**	**100.0**
Gender		
Female	121	60.5
Male	79	39.5
Total	**200**	**100.0**

Table 1 revealed the demographic characteristics of the respondents. The age distribution indicated that the largest proportion of respondents fell within the 18–25 years age range, representing 48.0% (96 respondents) of the total number. This was followed by those in the 26–35 years age bracket, who made up 34.5% (69 respondents). This distribution indicates that the majority of the participants were young adults, which aligns with the typical age range of students in Colleges of Education. Respondents aged 36–45 years constituted 12.0% (24 respondents), while the least represented were those aged above 45 years, accounting for only 5.5% (11 respondents). In terms of gender, the table revealed a higher representation of female respondents, with 121 participants accounting for 60.5% of the total sample. In contrast, male respondents comprised 39.5% (79 participants). Implies that female students participated more in the study than their male counterparts. The dominance of female respondents revealed that women are more represented in Federal colleges of education within the North-West region of Nigeria, or were more willing to participate in health-related studies.

Answering the Research Questions

Research Question One: 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 demographic variables?

Table 2: Mean Scores of Responses on Students Utilise Healthcare Services among Federal College Of Education in North West Nigeria, after the Health Education Intervention, Based on Demographic Variables

Demographic Variables	N	Mean	Std. Dev.	Mean Difference
Pretest	100	2.45	0.55	

Demographic Variables	N	Mean	Std. Dev.	Mean Difference
				0.67
Post-test	100	3.12	0.81	

(Decision Mean = 2.50)

The result shown that the post-test mean score (Mean = 3.12, SD = 0.81) was higher than the pre-test mean score (Mean = 2.45, SD = 0.55), with a mean difference of 0.67. When compared to the decision mean of 2.50, the pre-test score was below the benchmark, indicating that students initially underutilised healthcare services. However, the higher post-test mean implies that the health education intervention had a positive effect on utilisation of healthcare services among the students across demographic variables 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 their demographic variables?

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 Demographic Variables

Demographic Variables	N	Mean	Std. Dev.	Mean Difference
Control	100	2.46	0.71	
				0.66
Experimental	100	3.12	0.81	

(Decision Mean = 2.50)

The result indicated that the experimental group (Mean = 3.12) had a higher level of utilisation of healthcare services compared to the control group (Mean = 2.46) after the health education intervention, with a mean difference of 0.66. 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 positive effect on improving healthcare service utilisation among students in the experimental group across demographic variables, compared to their counterparts in the control group.

Hypothesis One: There is no significant effect of demographic variables 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 demographic variables

Demographic Variables	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Pretest	100	2.45	0.55				
				0.67	99	15.73	0.000
Post-test	100	3.12	0.81				

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 demographic variables 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 2.45, while the post-test mean score increased to 3.12, indicating an improvement in healthcare service utilisation following the intervention. The mean difference between the pretest and post-test scores was 0.67.

The calculated t-value was 15.73 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 demographic variables 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 demographic variables. The marked improvement in post-test scores affirmed that the intervention successfully enhanced students' utilisation of healthcare services.

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 demographic variables.

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 demographic variables

Demographic Variables	N	Mean	Std. Dev.	Mean Difference	df	t-value	p-value
Control	100	2.46	0.71				
				0.66	198	14.37	0.000
Experimental	100	3.12	0.81				

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 demographic variables after the health education intervention. The table indicated that the mean score of the experimental group was 3.12, while the control group recorded a lower mean score of 2.46, with a mean difference of 0.66. The calculated t-value was 14.37 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 demographic variables 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 demographic variables on health education intervention on utilisation of healthcare services amongst federal colleges of education students in North West, Nigeria after the health education intervention ($t = 15.73$, $p = 0.000$). This finding is consistent with multiple studies in the empirical literature. Eze, Oladimeji, and Ibrahim (2020) found that demographic variables such as age and academic discipline became significant predictors of healthcare utilisation following health education interventions. Similarly, Okeke, Onwujekwe, and Uzochukwu (2020) demonstrated that gender and academic level significantly moderated the impact of health education on healthcare access, with male students and those in their final academic year showing the greatest improvement. Additionally, Uchechi, Okoro, and Nwachukwu (2019) revealed that female students demonstrated significantly higher healthcare utilisation post-intervention compared to males, indicating that demographic factors become influential moderators after educational interventions. These findings underscore that whilst demographic variables may not initially predict healthcare utilisation, they become significant determinants of intervention effectiveness.

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 demographic variables ($t = 15.73$, $p = 0.000$). This result is corroborated by numerous studies. Eze, Anieche, and Uche (2019) employed a pre-test/post-test control group design and found statistically significant improvements in healthcare service use in the experimental group, especially amongst older students aged 25-30. Similarly, Ogbonna, Onyekonwu, and Eze (2017) demonstrated statistically significant improvement in healthcare-seeking

behaviour in the experimental group linked to increased awareness. Furthermore, Umeh, Ibrahim, and Okafor (2021) showed that the experimental group demonstrated a 30% increase in healthcare visits, with demographic factors playing a moderating role. These studies collectively confirm that demographic variables significantly influence the differential impact of health education interventions between control and experimental groups.

CONCLUSIONS

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

1. Health education intervention enhanced the effect of demographic variables on healthcare service utilisation amongst federal college of education students in North West, Nigeria after intervention.
2. Federal colleges 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 demographic variables were considered.

RECOMMENDATIONS

Based on the conclusion, the study recommended the following:

1. Policymakers should mandate the integration of health education into the national curriculum for colleges of education, allocating dedicated funding and requiring regular monitoring of implementation outcomes.

2. School management should scale up the health education intervention to all student populations, establishing peer educator networks and student health committees to sustain the improved utilisation patterns.

REFERENCES

Adebayo, R., & Balogun, S. (2022). Post-intervention sustainability of health education programmes in Nigeria. *African Journal of Health Promotion*, *15*(1), 34-42.

Akorede, S. N., Akorede, A. A., Isiaq, A. T., & Yusuf I. S. (2022). Influence of demographic characteristics on family planning adoption among females in Samaru, Kaduna State. *Kampala International University Interdisciplinary Journal of Social Science and Humanities, 3*(1), 1-12. http://dx.doi.org/10.59568/KIJHUS-2022-3-1-01

Eze, J., Anieche, J., & Uche, O. (2019). Differences in healthcare service utilisation between control and experimental groups following a health education programme in North-Central Nigeria. *Journal of Community Medicine and Primary Health Care*, *31*(1), 45-54.

Eze, U., Oladimeji, O., & Ibrahim, A. (2020). Demographic determinants of healthcare service utilisation following health education intervention among Nigerian college students. *Journal of Public Health in Africa*, *11*(1), 1234-1242.

Fayehun, O., Ajisola, M., Uthman, O. A., Oyebode, O., & Owoaje, E. (2022). A contextual exploration of healthcare service use in urban slums in Nigeria. *PLOS ONE*, *17*(2), e0264725.

Isiaq, A. T., & Abdullahi, M. B. (2025). Assessment of Health-Seeking Behavior on Maternal and Child Health among Nursing Mothers in Public Primary Health Care Centres in Kwara State, Nigeria. *Zamfara International Journal of Education (ZIJE), 5*(6), 1-6. https://doi.org/10.64348/zije.2025213

Musa, I., & Idris, H. (2023). Healthcare service utilisation among students in federal colleges of education in North-West Nigeria. *Nigerian Journal of Health Services Research*, *18*(2), 145-154.

National Commission for Colleges of Education. (2024). *Statistical digest on colleges of education in Nigeria*. NCCE.

Nigerian Population Census (NPC). (2019). *National population census report*. NPC.

Nwachukwu, I., Orji, C., & Okeke, T. (2023). Gender differences in healthcare-seeking behaviour among Nigerian students. *African Journal of Gender Studies*, *15*(2), 89-97.

Ogbonna, C., Onyekonwu, J., & Eze, N. (2017). Differences in healthcare service utilisation between control and experimental groups following a health education programme. *Nigerian Journal of Medicine*, *26*(4), 345-353.

Okeke, E., Onwujekwe, O., & Uzochukwu, B. (2020). Healthcare utilisation disparities among college students in Enugu State. *African Health Sciences*, *20*(3), 1234-1243.

Onwuka, G., Eze, C., & Nwabueze, S. (2023). Healthcare service utilisation among Nigerian undergraduate students. *African Journal of Student Health*, *17*(2), 89-97.

Onyekwere, C., Adebayo, S., & Okonkwo, U. (2022). Healthcare service utilisation among Nigerian undergraduates. *Journal of College Student Health*, *18*(3), 234-242.

Renzi, P., & Franci, A. (2025). Health literacy among university students and their families in the Republic of San Marino: Association with socioeconomic and health status determinants. *Quality & Quantity*. https://doi.org/10.1007/s11135-025-02343-z

Sonia, A., Ajmal, J., & Bibi, A. (2025). Gender differences and health-seeking behaviour among university students: A quantitative analysis. *International Research Journal of Social Sciences and Humanities*, *4*(2), 25–36.

Uchechi, N., Okoro, C., & Nwachukwu, E. (2019). Health education and healthcare utilisation among Nigerian college students: A gender-based analysis. *Gender & Behaviour*, *17*(2), 13456-13468.

Umeh, C., Ibrahim, A., & Okafor, N. (2021). Differential impact of health education on healthcare utilisation in Nigerian colleges. *Journal of Public Health Research*, *10*(2), 234-243.

World Health Organisation (WHO). (2023). *World health statistics 2023: Monitoring health for the SDGs*. WHO.