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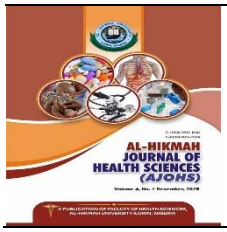

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Original Article

Effect of Health Insurance Education on Knowledge, Attitude, and Utilisation of Healthcare Services Among Students in a University in Northeast Nigeria

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ABSTRACT

Education enhances opportunities for healthier lives, while poor health can make learning difficult and deter educational attainment. The Tertiary Institutions Social Health Insurance Programme (TISHIP) was designed to ensure that students in tertiary institutions have access to quality healthcare services. However, despite its potential benefits, service utilisation under the scheme is low across many institutions, with many students often relying on self-medication and other forms of care. This study investigated the effect of Health Insurance Education on the knowledge, attitude, and utilisation of TISHIP services among undergraduate students at the University of Maiduguri.

A quasi-experimental pre-test/post-test control-group design was used, involving 70 students randomly assigned into experimental and control groups. The experimental group received structured education on health insurance, while the control group received general health education unrelated to insurance, both over a period of 6 weeks. Data were collected using a validated, pretested questionnaire and analysed using descriptive and inferential statistics.

The findings showed that Health Insurance Education produced significant improvements in knowledge ($t = 5.812$, $df = 68$, $p < 0.001$), attitude ($t = 2.140$, $df = 68$, $p = 0.040$), and utilisation of TISHIP services ($t = 3.230$, $df = 68$, $p = 0.030$) compared to the control group.

The study concluded that structured Health Insurance Education substantially improved students' knowledge, attitudes, and utilisation of TISHIP services. It recommends the integration of sustained health insurance education into student orientation programmes and academic curriculum. Policymakers, tertiary institutions, and all stakeholders must also strengthen collaboration, improve access to quality healthcare, and develop targeted awareness campaigns to enhance service utilisation, thereby reducing the practice of unsafe care options among students, and promoting academic performance and public health goals.

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Introduction

Access to quality health services is essential in meeting the basic needs of people, empowering them to pursue higher aspirations and achieve more rewarding and fulfilling lives. Education and health are closely linked; healthy students learn better, while health challenges can make learning difficult and limit academic progress.

Health insurance is an essential mechanism to equitable healthcare access globally. In Nigeria, the National Health Insurance Authority (NHIA) has implemented various forms of programmes to expand coverage, including the Tertiary Institutions Social Health Insurance Programme (TISHIP), which is designed to provide healthcare services to students in universities, mono/polytechnics, colleges of education, and other post-secondary institutions (NHIA, 2023; Anne, *et al*., 2019). TISHIP is a type of Contributory Social Health Insurance Scheme (CSHIS), financed by pooling contributions from students, made through a defined annual premium, which is added to tuition and paid during registration for each academic session (NHIA, 2023).

The benefit package encompasses preventive services, outpatient consultations, admissions, essential drugs, diagnostic investigations, emergency care, and referrals for specialist care.

However, despite its benefits, there is limited awareness and utilisation of health services under TISHIP across many institutions, with many students often relying on self-medication, patent medicine shops, private clinics, and traditional healers, disregarding their institutional health insurance programme (Gerald *et al*., 2024; Uguru *et al*., 2022; Anetoh *et al*., 2017). This may be due to poor awareness and inadequate knowledge of how the scheme works, misconceptions, and negative service experiences such as long waiting times, unavailability of medications, and unfavourable staff attitudes at institutions' medical centres.

Health literacy, which is "the ability to obtain, process, and understand basic health information," is a critical determinant of healthcare behaviour (Chen *et al*., 2018; Nagarjuna *et al*., 2023). Without adequate understanding of how TISHIP works, students may not appreciate its value or know how to utilise it. Health education interventions have been identified as an effective strategy for improving knowledge and modifying health behaviours (Dodd *et al.*, 2022; Sohli *et al.*, 2020)

By applying the Theory of Reasoned Action (TRA), which links knowledge and attitudes to behavioural intention, this study posited that health insurance education would improve students' knowledge of TISHIP, influence positive attitudes, and increase utilisation of services.

There is paucity of empirical evidence on health insurance education within Nigerian tertiary institutions, particularly in the North-East. This study addresses this gap, by investigating whether structured health insurance education improves students' knowledge, attitudes, and utilisation of TISHIP at the University of Maiduguri. The findings will have practical implications for policy formulation, health promotion strategies, development of strategies to strengthen the TISHIP, and contribute to the broader objective of achieving Universal Health Coverage (UHC) in Nigeria.

Methodology

Study setting and Study population

The study was carried out in the University of Maiduguri (UNIMAID), located in Maiduguri. It is a federal university located in the capital of Borno state, Northeast region of Nigeria. UNIMAID was established in 1975 as one of the second-generation Universities. Over the years, it has grown to a population of over 51, 000 students from within and outside Nigeria, and has one college of medical sciences, a school of postgraduate studies and 12 faculties, offering over 100 academic programmes in diploma, undergraduate, postgraduate, and other professional areas (UNIMAID, n.d.). The university has a medical centre that provides healthcare services to students and staff, with referrals made to University of Maiduguri Teaching Hospital (UMTH) for further medical services when the need arises.

Study Design

A quasi-experimental pre-test/post-test control group design was employed. This design is suited for assessing the effect of an intervention on outcome variables by comparing pre- and post-intervention scores within and between groups (Alessandri *et al.*, 2017; Maciejewski, 2018), and it has been used in studies on health literacy and health insurance (Singh *et al.,* 2024, Li *et al*., 2023)

Study Population, Sample Size and Sampling

The study population comprised undergraduate students at the University of Maiduguri. From this broader population, the Faculty of Agriculture and 200-level students in the faculty were purposively selected. This group was chosen because the students shared similar characteristics that reduced heterogeneity, had spent enough time in the university to acclimatise to the environment but had not fully passed through orientation programmes that could bias the study, making them an appropriate and relatively unbiased group for assessing the impact of Health Insurance Education on knowledge, attitude, and utilisation of TISHIP.

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The total number of undergraduate students in the faculty was 700, and the sample size was 10% (70 students) of this population, which is consistent with the suggestion of a minimum of 30 subjects for each group, made by Gay and Delhi (1992) for quasi-experimental studies. Also, the use of 10% was adopted in this study based on methodological and practical considerations, due to the homogeneous nature of the population and the need for a manageable sample for the six-week intensive intervention. This size ensured consistent participation, effective delivery of the intervention, and minimal attrition, while still maintaining methodological rigour through random assignment and a validated instrument.

A systematic random sampling method was used to select 70 participants from the departmental register. Every 10th student was chosen, and replacements were made only when a selected student was unavailable. The 70 students were then randomly assigned into experimental and control groups using the fishbowl technique, producing 35 participants in each group.

The experimental group received structured Health Insurance Education (HIE), while the control group received general health education unrelated to health insurance.

Eligibility Criteria

Eligible participants were 200-level students of the Faculty of Agriculture, University of Maiduguri, who were registered for the 2024/2025 academic session, willing to participate and indicated they would be available on campus for the duration of the six-week intervention. Students who declined consent or indicated they would not be available for the full intervention period were excluded. Eligibility was assessed through a brief screening process at recruitment, and informed consent was obtained before the administration of the pre-test questionnaire.

Research Instrument

The instrument for data collection was a validated and pretested researcher-developed questionnaire, with four sections. Section A: Demographic data, Section B: Knowledge of TISHIP, Section C: Attitude towards TISHIP and Section D: Utilisation of TISHIP.

Sections B - D used a 4-point Likert scale. 4 = Strongly Agree, 3 = Agree, 2 = Disagree, 1 = Strongly Disagree. To measure knowledge, attitude and utilisation at different intervals, the responses of the participants were summed up from each column and divided by the total number of participants. Content validity of the questionnaire was established through expert review by 2 specialists who assessed the clarity, relevance, and adequacy of the items. The questionnaire was pretested to ensure comprehensibility and suitability for the study population. Reliability testing using Cronbach's alpha produced a reliability coefficient of $r = 0.84$, indicating good internal consistency of the instrument.

Procedure for Data Collection

The procedure for data collection was carried out in three phases. The pre-treatment phase commenced with obtaining permission to conduct the study. The researcher then briefed participants on the study objectives, obtained their consent, recorded attendance, and administered the pre-test questionnaires to both groups.

During the treatment phase, both groups received six weeks of structured education, delivered twice weekly (Friday and Saturday evenings) when the students were less busy, for one hour each. This was to ensure sufficient exposure, comprehension, reinforcement of key concepts, and clarification of misconceptions about the topics taught.

The experimental group had structured Health Insurance Education on NHIA schemes, TISHIP, funding, operations, and the benefit package. The control group also received six weeks of general health education covering topics such as balanced diet, malaria, personal hygiene, coping with harmattan, and stress management. All the sessions were interactive, and included questions and answers. In the post-treatment phase, post-test questionnaires were administered simultaneously to both groups after the six-week intervention. All the questionnaires were coded to correctly match each participant's pre- and post-test responses.

Data Analysis

Data were cleaned, coded, and analysed using descriptive and inferential statistics. Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 20. Frequencies, percentages, means, and standard deviations were used to summarize the demographic characteristics and variables. Independent t-test was used to determine differences between the experimental and control groups. Statistical significance was set at $p < 0.05$.

Ethical Considerations

The requisite ethical clearance/approval was obtained from the Faculty of Agriculture, University of Maiduguri. Participants were informed about the study's purpose and procedures, and informed consent was obtained. Participation was fully voluntary, and confidentiality and anonymity were assured. All data were securely handled and used solely for research purposes.

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Results

Table 1: Demographic Information of the Participants

Socio-demographics		Experimental		Control	
		Frequency	Percentage	Frequency	Percentage
Gender	Male	22	62.9	12	34.3
	Female	13	37.1	23	65.7
Age	16 - 20 years	9	25.7	7	20.0
	21 - 25 years	24	68.6	26	74.3
	25 years and above	2	5.7	2	5.7
Resident	On campus	15	42.9	16	45.7
	Off campus	20	57.1	19	54.3
Have you registered with the UNIMAID Medical Centre	Yes	12	34.2	14	40.0
	No	23	65.7	21	60.0

The demographic results showed that in the experimental group, most respondents were male 22 (62.9%), and the majority 24 (68.6%) were between 21-25 years. More students lived off campus 20 (57.1%) than on campus, and most had not registered with the UNIMAID Medical Centre, 23 (65.7%). In the control group, most respondents were female, 23 (65.7%), and similarly, most were between 21-25 years, 26 (74.3%). A little more than half lived off campus 19 (54.3%), and three- fifths, 21 (60.0%) were not registered with the UNIMAID Medical Centre.

Table 2: Summary of Mean and Standard Deviation on Effect of Health Insurance Education on Knowledge and Attitude Utilisation of Tertiary TISHIP among UNIMAID Students

Variable		Experimental		Control	
		$\bar{x}$	SD	$\bar{x}$	SD
Knowledge	Pre test	40.69	11.69	34.66	10.81
	Post Test	53.60	15.48	34.77	11.21
Attitude	Pre test	27.97	5.95	25.97	6.38
	Post Test	28.40	6.26	26.06	6.35
Utilisation	Pre test	23.97	5.14	22.63	4.38
	Post Test	26.57	5.49	22.89	4.39

Table 2 presents the means and standard deviations for knowledge, attitude, and utilisation of TISHIP among students in the experimental and control groups pre and post-intervention. For knowledge, the experimental group showed a considerable increase in mean scores from the pre-test (M = 40.69, SD = 11.69) to the post-test (M = 53.60, SD = 15.48), whereas the control group recorded only a negligible change (Pre-test: M = 34.66, SD = 10.81; Post-test: M = 34.77, SD = 11.21).

Similar patterns were observed for attitude. The experimental group's scores increased slightly from the pre-test (M = 27.97, SD = 5.95) to the post-test (M = 28.40, SD = 6.26), while the control group showed only a marginal increase (Pre-test: M = 25.97, SD = 6.38; Post-test: M = 26.06, SD = 6.35). For utilisation, the experimental group again demonstrated an improvement between the pre-test (M = 23.97, SD = 5.14) and post-test (M = 26.57, SD = 5.49). The control group showed only a slight increase (Pre-test: M = 22.63, SD = 4.38; Post-test: M = 22.89, SD = 4.39).

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Table 3: Summary of Independent t-test on Effect of Health Insurance Education on Knowledge and Attitude Utilisation of Tertiary TISHIP among UNIMAID Students

Variable		Mean	SD	df	t	p-value	Effect size
Knowledge	Control	34.77	11.21	68	5.812	<0.001*	0.572
	Experimental	53.60	15.48				
Attitude	Control	26.06	6.35	68	2.140	0.040*	0.368
	Experimental	28.40	6.26				
Utilisation	Control	22.89	4.39	68	3.230	0.030*	0.349
	Experimental	26.57	5.45				

*Statistically significant p-value

Table 3 presents the independent t-test results showing that health insurance education had a significant effect on students' knowledge, attitude, and utilisation of TISHIP at UNIMAID.

For knowledge, the experimental group recorded a higher mean score (M = 53.60, SD = 15.49) than the control group (M = 34.77, SD = 11.21), with the difference being statistically significant (t=5.812, df:68, p < 0.001) and associated with a large effect size (Cohen's d = 0.572, 57.2%).

The p value (< 0.001) is less than 0.05 level of significance and the t calculated 5.812 is greater than t critical value of 2.028.

For attitude, the experimental group also scored higher (M = 28.40, SD = 6.26) compared to the control group (M = 26.06, SD = 6.35), with the difference being statistically significant (t =2.140, df:68, p = 0.040) and associated with a moderate effect size (Cohen's d = 0.368, 36.8%).

Regarding utilisation, the experimental group again demonstrated a higher mean score (M = 26.57, SD = 5.49) than the control group (M = 22.89, SD = 4.39), with the difference being statistically significant (t =3.230, df:68, p = 0.030) and associated with a moderate effect size (Cohen's d = 0.349, 34.9%).

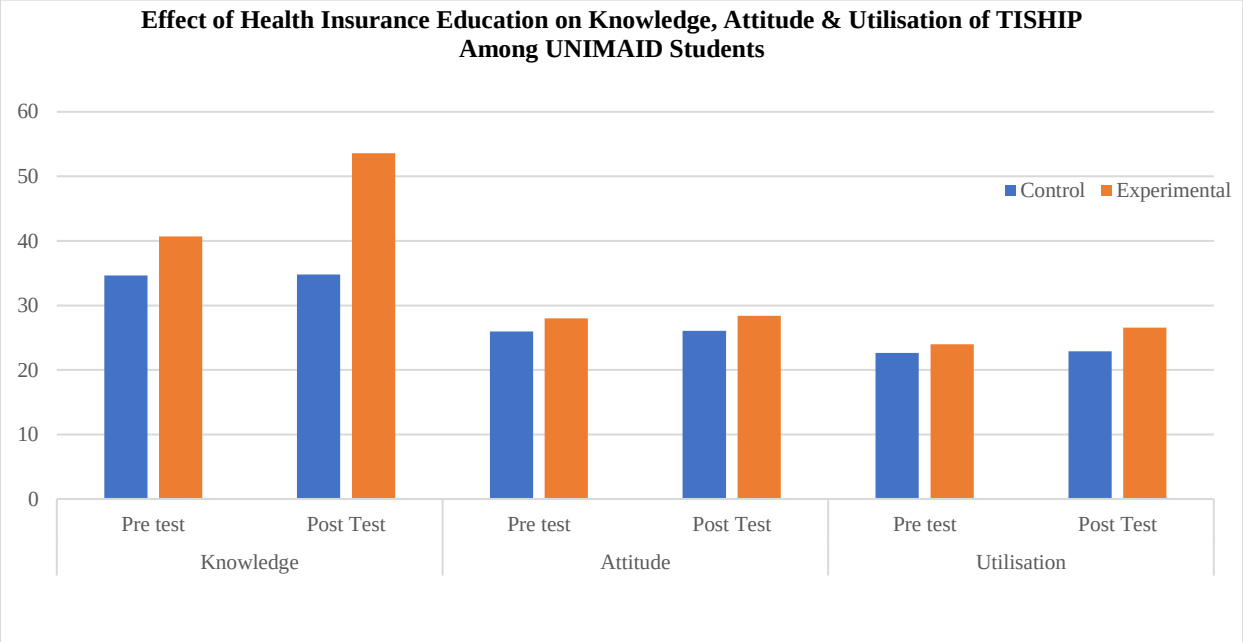

Figure 1: Effect of Health Insurance Education on Knowledge, Attitude and Utilisation of Tertiary TISHIP among UNIMAID Students

Overall, these results confirmed that the health insurance education intervention produced significant improvements across all three outcomes, indicating its effectiveness in enhancing students' knowledge, shaping positive attitudes, and increasing utilisation of TISHIP services

Discussion

This study demonstrated that structured health insurance education significantly improved students' knowledge, attitudes, and utilisation of TISHIP. The findings align with global evidence suggesting that health literacy is an

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important factor in health-seeking behaviour (Akakpo *et al*., 2024; Erisen, 2024). According to Yagi et al. (2022), "Health insurance literacy is an important factor that can enable effective utilisation of health care, including primary care and preventive services." Students who previously had limited understanding of TISHIP services became more aware and well-informed about accessing care after exposure to the intervention.

The post-test results showed no change in the knowledge of TISHIP in the control group, while the experimental group improved significantly, demonstrating the effectiveness of health insurance education. This finding aligns with studies showing gaps in health insurance literacy. Lenssen (2010) and Tyler *et al.* (2018) both reported that many students lack understanding of health insurance concepts and struggle to navigate their plans, while Akakpo *et al.* (2024) found that health literacy improved health-seeking behaviour amongst university students in Ghana.

The study showed that health insurance education improved students' attitudes towards TISHIP. Students who understood how the programme works and its benefits were more likely to view it positively, highlighting the role of education in shaping perceptions and encouraging engagement. Zachary (2015) similarly reported that when students understand the value of insurance, their compliance and attitudes towards campus health programmes improve. Together, these findings show that health insurance education strongly contributes to more positive student attitudes towards university health initiatives.

According to TRA, people's intentions to act are influenced by their knowledge, beliefs, and attitudes. In this study, health insurance education improved students' knowledge and attitudes towards TISHIP, which increased their intention to use the programme and was reflected in higher service utilisation in the experimental group.

Mbah and Perrault (2025), and Adegboyega *et al.* (2020) in the United States, found that many international students struggle to understand how their health insurance works, reinforcing the need for tailored health insurance education.

This study also found that health insurance education improved students' use of TISHIP services, showing that better-informed students are more likely to engage with the programme. By clarifying how TISHIP works and explaining its benefits, the education reduced misconceptions and encouraged participation.

It is worth noting that in this study, the effect of health insurance education on students' attitudes was smaller than its effect on knowledge. This is not unexpected, as knowledge is easier to change and can improve immediately after education, whereas attitudes are shaped by prior beliefs and experiences, making them more resistant to change and often requiring more time.

Overall, the improvement in the experimental group indicates that education is crucial for strengthening health insurance literacy, shaping positive attitudes, and promoting informed healthcare decisions. By linking knowledge, attitudes, and behavioural intentions, the study demonstrates that health insurance education can effectively enhance utilisation of university health programmes, in line with the Theory of Reasoned Action.

Conclusion and Recommendations

This study demonstrated that structured Health Insurance Education substantially improved students' knowledge, attitudes, and utilisation of TISHIP at UNIMAID. The findings imply that health insurance literacy is vital to significant participation in TISHIP.

To enhance TISHIP's effectiveness, universities should incorporate health insurance education into students' orientation curriculum and general studies. Stronger collaboration between tertiary institutions, NHIA, HMOs, and the student community is needed to improve communication and develop clear educational materials. Service delivery in campus clinics should also be strengthened through adequate staffing and drug availability. Regular monitoring, quality assurance, student feedback, and broader research across multiple institutions are necessary to support continuous improvement and long-term effectiveness.

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Conflicts of interest

There are no conflicts of interest.

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