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Patterns of AI Used for Generating Health Information among Students in South West Nigeria

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Abstract

Background: Artificial intelligence (AI) is increasingly shaping how individuals, especially young people, access health information. University students in South-West Nigeria represent a digitally connected demographic with high exposure to AI tools such as ChatGPT. While AI offers rapid, convenient health advice, concerns remain about reliability, misinformation, and trust.

Objective: The study aimed to assess awareness of artificial intelligence (AI) among university students in South-West Nigeria, examine patterns of AI use for generating health information, identify the types of health information commonly sought, determine the AI platforms used and their frequency of use, and explore the association between socio-demographic factors and the type of health information generated.

Methods: A descriptive cross-sectional study was conducted among university students using an online self-administered questionnaire. The tool captured socio-demographic information, awareness, frequency and purpose of AI use, and perceptions of reliability. Data were analyzed using descriptive statistics and chi-square and Fisher's exact tests to assess associations between socio-demographic variables and patterns of AI use.

Results: Awareness of AI was near-universal (99.0%), with a high adoption rate (89.2%). ChatGPT was the most widely used tool (84.3%), primarily for drug safety (42.2%) and diet/nutrition (40.2%) information. Only 19.6% of students used AI daily, while 40.7% reported rare use, suggesting AI serves as a supplementary rather than primary source of health information. Gender showed a significant association with interest in "other" health topics ($p = 0.019$), while most other socio-demographic factors were not significantly associated with AI use. Consistent with previous findings, students perceived AI outputs as moderately reliable but continued to trust human health professionals more.

Conclusion: AI tools, particularly ChatGPT, are widely adopted by university students in South-West Nigeria for health information, with strong interest in preventive health topics. However, reliance remains cautious due to concerns about misinformation and trust. Interventions to strengthen digital health literacy, regulatory oversight, and culturally sensitive AI design are needed to maximize benefits and mitigate risks.

Keywords: Artificial Intelligence, Health Information, University Students, South-West Nigeria, Reliability.

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1. Introduction

Artificial Intelligence (AI) has rapidly emerged as a transformative force in healthcare, particularly in the way individuals access and consume health information. AI-powered tools, including chatbots, virtual assistants, and large language models such as ChatGPT, now provide users with symptom checkers, lifestyle recommendations, and even mental health support, often with remarkable speed and convenience (Mesko, 2023). These technologies hold the potential to democratize healthcare information and extend access to populations that may otherwise face barriers to professional medical services. Recent evidence from South-West Nigeria shows that university students generally perceive AI-generated health information as moderately to highly reliable, though they continue to place greater trust in human health professionals, underscoring the need for digital health literacy and human oversight (Ebisike *et al*., 2025).

Globally, university students are among the most frequent users of digital technologies, leveraging online platforms for education, social interaction, and increasingly, health information. In Nigeria, increasing smartphone penetration, internet connectivity, and digital literacy have accelerated students' adoption of AI-driven platforms (Adebayo & Hassan, 2023). The South-West region, which includes Lagos, Oyo, Ogun, Ondo, Osun, and Ekiti states, is home to some of the country's largest tertiary institutions and represents a hub

for digital adoption among young people (Olanrewaju & Hassan, 2023; Ebisike *et al*., 2025).

1.1. AI and Health Information

AI in healthcare refers to the application of computer systems capable of simulating human intelligence such as reasoning, problem-solving, and language understanding to provide medical or health-related outputs (Russell & Norvig, 2021). AI-generated health information encompasses algorithm-driven advice, symptom assessments, and educational content produced without direct human clinician input (Jiang *et al*., 2021). Popular platforms like Ada Health, Babylon Health, WebMD Symptom Checker, and ChatGPT illustrate how AI is reshaping health-seeking behavior by offering students rapid, user-friendly alternatives to traditional consultations (Mesko, 2023; Ebisike *et al*., 2025).

1.2. Challenges of AI-Generated Health Information

Despite its promise, AI-generated health information raises concerns about credibility, accuracy, and contextual appropriateness. Evidence suggests that AI systems may provide fabricated or misleading outputs ("hallucinations"), lack cultural sensitivity, or fail to capture the nuances of clinical judgment (Benrimoh *et al*., 2022). Misuse or misinterpretation of AI advice can have serious health consequences, especially in resource-limited settings where healthcare services are already overstretched. Additionally, issues of data privacy, algorithmic bias, and lack of accountability have been widely reported, fueling skepticism about the reliability of AI health platforms (Brennen *et al*., 2020; Ebisike *et al*., 2025).

1.3. Students as Early Adopters of AI

University students, because of their digital literacy and openness to innovation, are often early adopters of emerging technologies. In South-West Nigeria, several contextual factors including long waiting times at hospitals, the high cost of healthcare, and the desire for confidentiality on sensitive matters such as sexual or mental health drive students to explore digital health resources, including AI-powered platforms (Adebayo & Hassan, 2023; Olanrewaju & Hassan, 2023). Recent studies among medical, nursing, and pharmacy students in Nigeria show strong interest in AI but limited formal knowledge or training, with most students expressing willingness to learn and apply AI in healthcare contexts (Fasakin *et al*., 2024; Okpala *et al*., 2024; Olowo *et al*., 2024; Adejumo *et al*., 2024). Complementing these findings, Ebisike *et al*. (2025) reported that while many students rely on AI tools for preliminary health information, they remain cautious, valuing human professional input for final decision-making. This highlights the importance of understanding not just awareness, but also perceptions of trust and reliability when evaluating AI use among Nigerian university students.

1.4. Rationale for the Study

Understanding how students in South-West Nigeria use AI to generate health information is essential for several reasons. First, students' behaviors are highly influential, shaping broader societal attitudes toward digital health. Second, while AI tools offer unprecedented convenience, they also carry risks of misinformation that could negatively impact health-seeking behavior. Third, evidence on patterns of use can inform educational interventions to strengthen digital health literacy, guide policymakers in regulating AI health tools, and support developers in creating culturally relevant and trustworthy systems.

1.5. Aim of the Study

This study aims to examine the patterns of AI use for generating health information among students in South-West Nigeria. Specifically, it will identify the level of AI Use to search health Information, patterns of AI use, patterns of health information searched, association between socio demographic characteristics, and use of AI generated health information.

2. Materials and Methods

2.1. Study Design

This study employed a descriptive cross-sectional design to investigate the patterns of AI use for generating health information among students in South-West Nigeria. Data were collected through a structured, interviewer-administered online questionnaire, which allowed for efficient use across multiple institutions and facilitated rapid data collection within a limited timeframe.

2.2. Study Population

The study population comprised undergraduate and postgraduate students enrolled in universities in South-West Nigeria during the period of data collection. Simple random sampling method was adopted. The inclusion criteria were students (undergraduates or postgraduates) who had access to the internet. Students who were unwilling to provide consent were excluded from the study.

2.3. Sample Size Estimation

The sample size was calculated using the single-proportion formula, where (for 95% confidence), (assumed prevalence), and (margin of error). Substituting these values gave a required sample size of approximately 384 participants. In the absence of prior prevalence data for this topic in the study population, a conservative estimate of 50% was used because it yields the maximum sample size, ensuring adequate precision for a wide range of true prevalence values (Naing *et al*. 2006). Due to resource and logistical constraints, a final sample of 204 students was obtained, which provides a margin of error of approximately ±7%. This sample size was considered adequate for an exploratory study.

2.4. Data Collection Tool

A structured, self-administered questionnaire was developed using Google Forms. The instrument comprised both closed-ended and Likert-scale questions.

The questionnaire was pretested among 10 students to evaluate clarity, comprehension, and reliability. Feedback obtained was used to refine the wording and structure of questions before the final administration.

2.5. Data Collection Procedure

The survey link was disseminated electronically through institutional mailing lists, WhatsApp groups, Telegram channels, and other student forums. Participation was entirely voluntary, and respondents were informed that their answers would remain anonymous and used solely for research purposes. No financial or material incentives were provided.

2.6. Ethical Considerations

Ethics approval was gotten from Oyo State Ethics Review Committee. Informed consent was also obtained digitally before participants could access the questionnaire. Respondents were assured of the confidentiality of their data and their right to withdraw from the study at any stage without penalty. Ethical principles of research involving human participants, including respect for autonomy and protection of privacy, were strictly upheld throughout the study.

2.7. Data Analysis

Completed responses from Google Forms were exported into Microsoft Excel and subsequently analyzed using SPSS version 27 (IBM Corp., Armonk, NY, USA). Descriptive statistics including frequencies, percentages, and means were used to summarize the data. Associations between AI use and perceived reliability scores were tested using chi-square tests or independent t-tests, as appropriate. Statistical significance was determined at a threshold of $p < 0.05$.

3. Results

Table 1a total of 204 respondents participated in the study. The majority (97.5%, n = 199) were young adults, while only 2.5% (n = 5) were older adults. The gender distribution showed that 59.3% (n = 121) were female, and 40.7% (n = 83) were male. In terms of level of study, more than half of the respondents (56.4%, n = 115) were undergraduates, while 43.6% (n = 89) were postgraduates. The mean age of respondents was 23.25 years (± 3.50), with a range of 17 to 40 years.

The results in Table 2 show that almost all respondents (99.0%) were aware of artificial intelligence (AI), with only 1.0% reporting no awareness. A large proportion of the students (89.2%) reported using AI to search for health information, while 10.8% indicated that they did not. In terms of frequency of use, 19.6% reported using AI daily for health information, 24.0% used it weekly, and 9.3% used it monthly. However, a notable proportion of respondents (40.7%) reported rarely using AI for health-related searches, while 6.4% indicated that they never used it.

Table 3 presents the types of AI tools used by respondents and the frequency of their use for health information. ChatGPT emerged as the most widely used AI tool, with 84.3% of respondents reporting its use, while 15.7% did not. Other AI platforms with notable usage included Meta AI (WhatsApp) at 46.6%, Google Gemini at 36.3%, and DeepSeek at 17.2%. A smaller proportion of respondents reported using Microsoft Copilot (13.2%), Claude (7.4%), and Bing AI (8.8%). Very few respondents indicated use of image- and voice-based AI tools such as Midjourney (2.5%), DALL-E (2.5%), GitHub Copilot (3.4%), ElevenLabs (1.0%), Jasper AI (1.0%), Writesonic (0.5%), and Pika Labs (1.0%), while none reported using Descript. Additionally, 5.4% of respondents indicated that they do not use any AI tool for health information.

Table 1a: Socio demographic Information N=204

Variables	Category	Frequency	Percentages
Age	<30	199	97.5
	>30	5	2.5
Gender	Male	83	40.7
	Female	121	59.3
Level of study	Undergraduate	115	56.4
	Postgraduate	89	43.6

Table 1b: Descriptive Statistics for Age of Respondents

Variable	Mean (± S.D)	Minimum	Maximum
Ages of respondents	23.25(± 3.498)	17	40

Table 2: Table showing the knowledge and use of AI generated Health Information

Variables	Category	Frequency	Percentages
Awareness of AI	Yes	202	99.0
	No	2	1.0
AI Use to search for health information	Yes	182	89.2
	No	22	10.8
Frequency of AI for health information	Daily	40	19.6
	Weekly	49	24.0
	Monthly	19	9.3
	Rarely	83	40.7
	Never	13	6.4

Table 3: Table showing types of AI used and the frequency of AI use for health information

Variable	Category	Respondents that use N (%)	Respondents WHO do not use N (%)
Type of AI used	ChatGPT	172(84.3%)	32(15.7%)
	Google Gemini	74(36.3%)	130(63.7%)
	Bing AI	18(8.8)	186(91.2%)
	Microsoft Copilot	27(13.2%)	177(86.8%)
	Meta AI (WhatsApp)	89(46.6%)	115(56.4%)
	Midjourney	5 (2.5%)	199(97.5%)
	DALL-E	5 (2.5%)	199(97.5%)
	GitHub Copilot	7(3.4%)	197(96.6%)
	Claude (Anthropic)	15 (7.4%)	189 (92.6%)
	Descript	0(0.0%)	204(100.0)
	ElevenLabs	2(1.0%)	202(99.0)
	GravityWrite	1(0.5%)	203(99.5%)
	Jasper AI	2(1.0%)	202(99.0%)
	Writesonic	1(0.5%)	203(99.5%)
	Pika Labs	2(1.0%)	202(99.0)
	DeepSeek	35(17.2%)	169(82.8%)
	Don't Use any AI tool	11 (5.4%)	193(94.6%)

Table 4 shows the types of health information that respondents searched for using AI tools. The most common health-related queries were on drug information (42.2%) and diet and nutrition (40.2%). Other areas frequently searched included exercise and fitness (34.8%) and mental health (27.9%). A smaller proportion of respondents (25.5%) indicated searching for other categories of health information not specified. Despite these interests, the majority of respondents reported not using AI tools for these categories, as seen in drug information (57.8%), diet and nutrition (59.8%), exercise and fitness (65.2%), mental health (72.1%), and other areas (74.5%).

Table 4: Patterns of health information searched

Variable	Category	Respondents that use N (%)	Respondents who do not Use N (%)
Type of Health information searched	Diet and Nutrition	82(40.2%)	59.8%)
	Drug information	86(42.2%)	118(57.8%)
	Mental health	57(27.9%)	147(72.1%)
	Exercise and fitness	71(34.8%)	133(65.2%)
	Others	52(25.5%)	152(74.5%)

Table 5 shows the relationship between socio-demographic factors (age, gender, level of study) and the type of health information generated (symptoms, drug information, diet and nutrition, mental health, exercise and fitness, and others).
For symptom-related information, none of the socio-demographic variables were significantly associated ($p > 0.05$).

Table 5: Association between socio demographic factors and type of health information generated

Sociodemographic factors	Frequency (%)		X^2/Fischers exact	P value
	Yes	No		
	Symptoms			
Age			0.949	0.651
<30	116 (58.3)	83 (41.7)		
>30	4 (80)	1 (20)		
Gender			0.846	0.358
Male	52 (62.7)	31 (37.3)		
Female	68 (56.2)	53 (43.8)		
Level of study			0.456	0.500
Undergraduate	70 (60.9)	45 (39.1)		
Postgraduate	50 (56.2)	39 (43.8)		
	Drug Information			
Age			3.010	0.083
<30	82 (41.2)	117 (58.8)		
>30	4 (80)	1 (20.0)		
Gender			0.000	0.998
Male	35 (42.2)	48 (57.8)		
Female	51 (42.1)	70 (57.9)		
Level of study			0.19	0.891
Undergraduate	48 (41.7)	67 (58.3)		
Postgraduate	38 (42.7)	51 (57.3)		
	Diet &Nutrition			
Age			0.000	1.000
<30	80 (40.2)	119 (59.8)		
>30	2 (40.0)	3 (60)		
Gender			0.227	0.634
Male	35 (42.2)	48 (57.8)		
Female	47 (38.8)	74 (61.2)		
Level of study			0.125	0.724
Undergraduate	45 (39.1)	70 (60.9)		
Postgraduate	37 (41.6)	52 (58.4)		
	Mental Health			
Age			0.370	0.557
<30	55 (27.6)	144 (72.4)		
>30	2 (40)	3 (60)		
Gender			0.143	0.705
Male	22 (26.5)	61 (73.5)		
Female	35 (28.9)	86 (71.1)		
Level of study			1.481	0.224
Undergraduate	36 (31.3)	79 (68.7)		
Postgraduate	21 (23.6)	68 (76.4)		
	Exercise and Fitness			
Age			0.061	0.805
<30	69 (34.7)	130 (65.3)		
>30	2 (40.0)	3 (60.0)		
Gender			0.001	0.973
Male	29 (34.9)	54 (65.1)		
Female	42 (34.7)	79 (65.3)		
Level of study			0.778	0.378
Undergraduate	43 (37.4)	72 (62.6)		
Postgraduate				
	Others			
Age			0.568	0.451
<30	50 (25.1)	149 (74.9)		
>30	2 (40.0)	3 (60.0)		
Gender			5.478	0.019
Male	14 (16.9)	69 (83.1)		
Female	38 (31.4)	83 (68.6)		
Level of study			0.181	0.670
Undergraduate	28 (24.3)	87 (75.7)		
Postgraduate	24 (27.0)	65 (73.0)		

An assessment of the association between sociodemographic characteristics and health information domains showed largely similar patterns across respondents. For symptom-related information, no statistically significant associations were observed with age ($\chi^2 = 0.949$, $p = 0.651$), gender ($\chi^2 = 0.846$, $p = 0.358$), or level of study ($\chi^2 = 0.456$, $p = 0.500$).

Regarding drug-related information, age showed a marginal but non-significant association ($\chi^2 = 3.010$, $p = 0.083$). Gender ($\chi^2 = 0.000$, $p = 0.998$) and level of study ($\chi^2 = 0.019$, $p = 0.891$) were not significantly associated with drug information-seeking behaviour.

For diet and nutrition information, no significant associations were found with age ($\chi^2 = 0.000$, $p = 1.000$), gender ($\chi^2 = 0.227$, $p = 0.634$), or level of study ($\chi^2 = 0.125$, $p = 0.724$).
Similarly, mental health information-seeking did not differ significantly by age ($\chi^2 = 0.370$, $p = 0.557$), gender ($\chi^2 = 0.143$, $p = 0.705$), or level of study ($\chi^2 = 1.481$, $p = 0.224$).

Exercise and fitness information-seeking also showed no significant variation across sociodemographic groups, with non-significant associations observed for age ($\chi^2 = 0.061$, $p = 0.805$), gender ($\chi^2 = 0.001$, $p = 0.973$), and level of study ($\chi^2 = 0.778$, $p = 0.378$).

In contrast, information-seeking in the "other" category showed a statistically significant association with gender ($\chi^2 = 5.478$, $p = 0.019$), with females more likely than males to access information in this domain. No significant associations were observed with age ($\chi^2 = 0.568$, $p = 0.451$) or level of study ($\chi^2 = 0.181$, $p = 0.670$).

4. Discussion

This study investigated the patterns of artificial intelligence (AI) use for generating health information among students in South-West Nigeria. The results revealed near-universal awareness of AI (99.0%) and high adoption (89.2%), indicating that AI has become an integral part of students' health information-seeking behaviors. This aligns with global evidence showing that younger populations are among the earliest adopters of emerging technologies, particularly AI-driven health platforms (Mesko, 2023; Jiang *et al*., 2021). ChatGPT was the most widely used tool (84.3%), reflecting the dominance of large language models due to their accessibility, versatility, and conversational design. Comparable studies among pharmacy and nursing students in Nigeria similarly report that ChatGPT is the most popular AI platform, largely due to its availability and ability to provide rapid, context-specific responses (Olowo *et al*., 2024; Adejumo *et al*., 2024). Consistent with these findings, Ebisike *et al*. (2025) observed that students in South-West Nigeria widely use AI tools but still demonstrate cautious trust, often perceiving them as moderately reliable while ultimately deferring to human professionals for final decision-making.

Although awareness was high, the frequency of AI use was modest, with only 19.6% of students reporting daily use and 40.7% rarely using AI for health information. This suggests that students regard AI tools as supplementary resources rather than replacements for conventional sources such as health professionals, peers, or trusted websites. Concerns over misinformation, algorithmic bias, and lack of regulatory oversight, as highlighted in prior studies, may contribute to this cautious adoption (Benrimoh *et al*., 2022; Brennen *et al*., 2020; Ebisike *et al*., 2025). In resource-limited settings such as Nigeria, where healthcare access is often constrained by cost and long waiting times, AI platforms could serve as valuable adjuncts to traditional care if accompanied by robust safeguards for accuracy and trustworthiness.

The study further showed that drug safety (42.2%) and diet and nutrition (40.2%) were the most common topics searched. This reflects growing interest in preventive health and self-care practices, a pattern also observed in studies of young adults in both low- and middle-income countries and high-income countries (Adebayo & Hassan, 2023; Jiang *et al*., 2021). Queries about exercise and fitness (34.8%) and mental health (27.9%) were less frequent. The relatively low proportion of mental health-related searches may be explained by persistent cultural stigma and students' preference for in-person consultations for sensitive issues, consistent with findings from Olanrewaju and Hassan (2023).

Sociodemographic analysis revealed limited associations between age, gender, level of study, and the types of information sought, except for a significant association between gender and interest in "other" health topics ($p = 0.019$). This aligns with literature suggesting that digital health-seeking behaviors are shaped more by contextual factors such as perceived need, trust in technology, and accessibility than by demographics alone (Jiang *et al*., 2021). Similarly, Ebisike *et al*. (2025) reported that while students across demographic groups perceived AI tools as moderately to highly reliable, only age showed a significant association with reliability, with younger students displaying greater trust than older counterparts.

The findings highlight important opportunities and risks. On the one hand, AI tools can expand access to timely health information, particularly in underserved regions where healthcare access is limited. On the other hand, the risks of algorithmic errors, fabricated content, and lack of localized guidance underscore the need for regulatory oversight. Integrating AI ethics and health informatics into university curricula may help students critically assess AI outputs, thereby mitigating harm from misinformation (Okpala *et al*., 2024). Additionally, partnerships between policymakers, healthcare professionals, and technology developers are essential to ensure that AI platforms provide culturally sensitive, evidence-based content relevant to the Nigerian context (Ebisike *et al*., 2025).

This study has some limitations. First, its cross-sectional design restricts causal interpretation, capturing only a snapshot of current AI use behaviors. Second, the use of convenience sampling and an online survey may have introduced selection bias, as students with greater internet access and digital literacy were more likely to participate. Third, reliance on self-reported responses raises the possibility of recall and social desirability bias, potentially inflating awareness and usage figures. Finally, the relatively small sample size ($n = 204$)

might limit generalizability. Future studies should use larger, more representative samples and consider longitudinal approaches to examine how AI adoption evolves over time. Mixed-method studies would also help to explore students' motivations, trust dynamics, and perceived barriers to AI use in greater depth.

5. Conclusion

Students in South-West Nigeria widely use AI tools, particularly ChatGPT, to access health information, with drug safety and nutrition as key focus areas. While adoption is high, infrequent use and trust concerns persist. Strengthening digital health literacy, regulating AI platforms, and fostering culturally sensitive design are essential for maximizing AI's benefits and minimizing risks.

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