



Health Literacy of Nursing Undergraduate Students and Utilisation of Health Information Sources in Enugu State University of Science and Technology, Agbani, Enugu

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Abstract

The study investigated health literacy of nursing undergraduate students and utilisation of health information sources in Enugu state university of science and technology, Agbani. Three objectives, three research questions and one hypothesis guided the study. The study used descriptive research survey. The population of the study was nursing undergraduate students in Enugu State University of Science and Technology. Convenient sampling was used to select nursing undergraduates. A 'snowball' approach was then used to start with smaller number of the participants and then ask them to refer to other potential participants who meet the study criteria. Online questionnaire was used for data collection. Sixty-Seven (67) responses were recorded and found valid for analysis. The study was analysed using Mean score. The study revealed that undergraduate nursing students possessed health literacy required to utilize health information sources. The sources through which nursing undergraduates acquire literacy training included personal training, YouTube and internship. The sources of health information utilized by undergraduate nursing students are healthcare Professionals, Health related Textbooks, Public health websites, Course mates, Online Databases like Pubmed, MedlinePlus, WebMD, Blogs, social media, Family, Scientific publications, Institutional library resources and Health Management Information Systems (HMIS). The study concludes that health literacy of nursing undergraduate students enhances the utilization of health information. The study recommended that institutions should emphasize the importance of using credible sources like PubMed, MedlinePlus, and scientific publications and enhance access to these resources. This can be achieved by increasing digital resource subscriptions, improving user-friendly access to electronic databases, and providing regular training on how to navigate institutional health information systems effectively.

Keywords: Health literacy, electronic databases, health information sources, nursing undergraduates, Enugu State University



Introduction

Health literacy is a fundamental skill that enables individuals to access, understand, and effectively use health-related information to make informed decisions about their well-being. It is a crucial global concern that significantly influences individual health outcomes and overall health equity. Schillinger (2021) noted that individuals with higher levels of health literacy generally experience improved health outcomes, lower disease prevalence, and reduced healthcare costs, whereas inadequate literacy is often linked to poorer health indicators. This widespread issue extends beyond the general population and has significant implications for healthcare professionals. Nursing students, in particular, must develop strong health literacy competencies to effectively access, interpret, and apply health information not only for personal understanding but also to enhance their professional expertise.

For nursing undergraduate students, health literacy is not only essential for their personal health management but also for their professional development, as they are expected to interpret and apply health information in clinical settings (Sørensen et al., 2021). The foundation of nursing education is to equip students with essential skills for delivering high-quality patient care across various healthcare settings. Health literacy plays a fundamental role in fostering critical thinking and ensuring that nursing students can provide optimal care (Chang et al., 2023). Undergraduate studies represent a pivotal learning phase where students cultivate essential health literacy skills. This stage often marks their transition from adolescence to adulthood, providing professional training that distinguishes them from non-medical individuals during which they learn to make independent healthcare decisions, select reliable sources of information, and communicate effectively about health matters. The ability to navigate complex medical terminologies, analyze healthcare guidelines, and evaluate the credibility of information sources is crucial for their training and future roles as healthcare providers (Kington et al., 2021). Given the evolving nature of healthcare and the increasing reliance on evidence-based practice, nursing students must develop a high level of health literacy to enhance their competence in patient care.

Nursing undergraduate students require a comprehensive level of health literacy including access health information, evaluate the reliability of health information, understand how to protect privacy and security when using digital health tools or websites, locate health information when needed, use the health information effectively, understand the information about health



management, use health-related apps or digital platforms to monitor or manage health related issues, understand scientific studies and reports about health, understand the procedures and paperwork required to receive healthcare services. Possessing these skills ensures that nursing students can confidently navigate the healthcare environment and contribute meaningfully to patient care and public health education.

According to Iyer and Sethuraman (2024) the sources through which nursing undergraduates can acquire literacy training includes personal training, YouTube and internship, workshops/conferences/seminar, online courses, mentorship and library literacy program were the sources through which they acquired health literacy. Nursing students can also acquire health literacy through a combination of formal education, clinical training, and self-directed learning Chang et al., (2023). Academic coursework in subjects like anatomy, physiology, pharmacology, and epidemiology provides foundational knowledge. Practical experiences in clinical placements allow them to apply theoretical concepts in real-world healthcare settings, enhancing their ability to interpret medical data and communicate effectively with patients. Additionally, nursing students develop health literacy through independent study, engagement with medical literature, participation in professional workshops, and the use of digital health platforms that provide access to current medical research and evidence-based guidelines.

To build their knowledge and stay informed about medical advancements, nursing undergraduate students rely on diverse sources of health information. These according to Alhejaili et al., (2024) include textbooks, peer-reviewed journal articles, medical databases such as PubMed and CINAHL, hospital protocols, government health agencies, and reputable websites like the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC). Additionally, the sources of health information utilized by undergraduate nursing students are healthcare Professionals, Health related Textbooks, Public health websites, Course mates, Online Databases like Pubmed, MedlinePlus, WebMD, Blogs, Social Media, Family, Scientific publications, Institutional library resources and Health Management Information Systems (HMIS), government health agencies and reputable health organisations, health forums, and professional networks to access reliable health information. The integration of technology in healthcare education has further expanded their access to digital health tools, electronic medical records, and telemedicine resources.



Health literacy directly influences how effectively nursing undergraduate students utilize health information sources (Kühn et al., 2022). Students with strong health literacy skills can critically assess the credibility of medical sources, differentiate between reliable and misleading information, and apply relevant findings to their studies and clinical practice. Conversely, those with limited health literacy may struggle to interpret complex medical data, leading to misinformed decisions and reduced confidence in their professional abilities. Sørensen et al., (2021) expressed optimism that by enhancing their health literacy, nursing students can improve their capacity to engage with high-quality information resources, which ultimately contributes to their academic success, professional competence, and ability to deliver evidence-based patient care. Although nursing students are generally expected to demonstrate strong health literacy, Patil et al., (2021) confirmed that multiple studies have reported low levels of health literacy among undergraduates worldwide. This underscores the need to evaluate the health literacy among nursing students and its relevance to the utilisation of health information sources.

Statement of the Problem

Understanding healthy living is crucial to every human being particularly students, thus, a study on health literacy and utilization of health information is paramount for fostering an informed and empowered society. Students with health literacy skills can be able to actively participate in health care and make informed decision for enhanced health outcomes. Effective utilization of health information is vital for promoting equal healthcare opportunities, reducing disparities, and optimising the efficiency of health care system. Sadly, based on interaction with some undergraduates, utilizing health information sources such as databases could be challenging. This could be attributed to poor health literacy skill. Yet despite the importance of health literacy, it doubtful whether nursing undergraduate students possess the needed skills to utilize health information sources. Although, studies have been carried out to determine the health literacy of nurses and how it influence the use of health information sources, but none of the studies was carried out in Enugu State University of Science and Technology. This is a gap that the study sought to fill. It therefore, becomes imperative to investigate the level of health literacy among nursing undergraduates and how health literacy relate to the utilization of health information sources. This study is hoped to contribute to the resilience and overall preparedness of the health care system to enhance access and utilization of health information.



Objectives of the Study

The main objective of the study is to determine the relationship between health literacy and utilization of health information sources among undergraduates nursing students in Enugu State University of Science and Technology, Agbani, Nigeria. Specifically, the objectives sought to:

1. determine health literacy skills possessed by nursing undergraduate students
2. discover the sources through which nursing students acquired health literacy
3. identify the various sources of health information utilized by nursing undergraduate students

Research Questions

1. What is the level of health literacy possessed by nursing undergraduate students?
2. what are the sources through which nursing students acquired health literacy?
3. what are the various sources of health information utilized by nursing undergraduate students?

Hypothesis

Ho¹ There is no significant relationship between health literacy and utilization of health information sources.

Literature Review

Health literacy, defined as the ability to obtain, process, and understand basic health information to make informed health decisions, plays a crucial role in determining individuals' health outcomes. According to Nutbeam and Lloyd (2021), health literacy encompasses functional, interactive, and critical literacy levels, which influence how individuals interpret and use health information. While adequate health literacy enables individuals to access and effectively utilize health information sources (Kaya & Genc, 2025), low health literacy has been associated with poor health behaviors, increased hospitalizations, and a higher risk of chronic diseases due to misinformation and inadequate comprehension of health recommendations (Meppelink et al, 2016). However, the accuracy and quality of health information can vary, thus, it is important to be able to evaluate the credibility of the source and the accuracy of the information for effective utilization.



Furthermore, the utilization of health information sources is influenced by various factors, including health literacy, socioeconomic status, education level, and accessibility of reliable health resources (Schillinger et al., 2021). However, digital health literacy an extension of traditional health literacy has become increasingly vital in an era where online health information is abundant but not always credible (Yang et al., 2022). This informs the need for acquisition of health literacy. Nursing undergraduates acquire can health literacy training through multiple sources, including personal training, YouTube, and internships (Iyer & Sethuraman, 2024). Personal training involves self-directed learning, where students take the initiative to develop their understanding of medical concepts, terminologies, and procedures through textbooks, online courses, or hands-on practice. YouTube has become an essential platform for nursing students, offering educational videos, demonstrations of medical procedures, and expert discussions on various health topics (Kaya & Genc, 2025). Additionally, internships provide a structured learning environment where students gain practical experience under the supervision of healthcare professionals, allowing them to apply theoretical knowledge in real-world settings. These diverse training sources collectively help nursing students build foundational literacy skills that are crucial for their professional development.

The health information sources utilized by undergraduate nursing students are diverse, ranging from professional to digital and social sources (O'Connor et al., 2022). For example, healthcare professionals, including doctors, nurses, and clinical instructors, could serve as primary sources of reliable health information. Textbooks, public health websites, and institutional library resources provide evidence-based knowledge, ensuring students access scientifically accurate and peer-reviewed information (Kington et al., 2021). Further, online databases such as PubMed, MedlinePlus, and WebMD offer comprehensive medical literature, while blogs and social media platforms expose students to discussions on emerging health trends. Additionally, course mates and family members contribute informal yet valuable insights, while Health Management Information Systems (HMIS) provide structured data on patient records and healthcare policies (Kington et al., 2021). The combination of these sources ensures that nursing students are well-equipped with current and accurate health information. Improving health literacy is essential for enhancing the effective utilization of health information sources.

Methodology



This research took quantitative approach to provide an in-depth survey of the research questions. The study used descriptive research survey design to gather information, describe and interpret the phenomena as well as provide a detailed understanding of the central phenomenon with the help of statistical analysis (Siedlecki, 2020) of closed-ended questions. It helps to provide better understanding of health literacy and utilisation of health information. The population of the study was nursing students in Enugu State University of Science and Technology. Convenient sampling was used to select nursing undergraduates. This is because online questionnaires are usually distributed to target population via email, or social media and participation is voluntary (Andries & Lengkoan, 2023). A 'snowball' approach was then used to start with smaller number of the participants and then ask them to refer to other potential participants who meet the study criteria. This method was used because the target population was difficult to reach (Berndt, 2020). An online questionnaire was administered to a sample of undergraduates of which 67 responses were recorded and used for analysis. This strategy allowed for the collection of detailed information (Andries & Lengkoan, 2023, Fife-Schaw, 2020). The questionnaire was a 4-point Likert-scale with closed questions to gather quantitative data. The independent variable health literacy comprised health literacy items from the Behavioral Risk Factor Surveillance System Questionnaire developed by the US Centers for Disease Control and Prevention (Lee et al. 2021) which was modified and used as the primary measure of health literacy in this study. Ethical considerations addressed by valuing and managing participants and their data respectfully. The data was analysed using descriptive statistics (Mean score). The analysis was conducted using MS Excel. The decision rule to agree or disagree was based on the criterion mean of 2.5 which implies that any item with 2.5 and above was agreed and disagreed if otherwise

Findings

Table 1: Summary of Mean on Health Literacy of Undergraduate Nursing Students

S/N	I am able to:	X	Decision
1	understand the information about health management	2.74	Agree
2	Locate health information when needed.	3.13	Agree
3	use the health information effectively.	3.12	Agree
4	evaluate the reliability of health information.	3.23	Agree
5	understand scientific studies and reports about health.	2.72	Agree



6	Understand the procedures and paperwork required to receive healthcare services.	2.64	Agree
7	decode health information provided by healthcare professionals.	3.24	Agree
8	computers and digital devices to access health information.	3.35	Agree
9	understand how to protect privacy and security when using digital health tools or websites.	3.21	Agree
10	Use health-related apps or digital platforms to monitor or manage health related issues.	2.73	Agree
Weighted Mean		2.90	Agree

Results in Table 1 show that the respondents agreed with all the items. The weighted mean of 2.90 indicates that undergraduate nursing students possessed health literacy necessary to utilize health information sources. In descending order of magnitude, the respondents agreed that they could decode health information provided by healthcare professionals, computers and digital devices to access health information, evaluate the reliability of health information, understand how to protect privacy and security when using digital health tools or websites, locate health information when needed, use the health information effectively, , understand the information about health management, use health-related apps or digital platforms to monitor or manage health related issues, understand scientific studies and reports about health, understand the procedures and paperwork required to receive healthcare services.

Table 2: Summary of Mean on Sources through which health literacy are acquired by undergraduate nursing students

S/N	Items	Mean	Decision
1	YouTube	3.52	Agree
2	Workshops/conferences/Seminar	2.10	disagree
3	Personal training	3.55	Agree



4	Online courses	2.23	disagree
5	Mentorship	1.95	Disagree
	Internship	2.56	Agree
6	Library literacy program	2.21	Disagree
	Weighted Mean	2.65	Agree

The result from table 3 indicates that the sources through which nursing undergraduates acquire literacy training includes personal training, YouTube and internship. On the other hand, they disagreed that workshops/conferences/seminar, online courses, mentorship and library literacy program were the sources through which they acquired health literacy. However, Chang et al. (2023) emphasized that developing health professionals' literacy requires training healthcare workers at both on-the-job which could include internship and workshop.

Table 3: Summary of Sources of health information utilized by nursing undergraduates

S/N	Items	X	Decision
1	Scientific publications	2.51	Disagree
2	Institutional library resources	2.92	Agree
3	Government health agencies	2.45	Disagree
4	Reputable health organisations	2.43	Disagree
5	Health related Textbooks	3.54	Agree
6	Online Databases like Pubmed, MedlinePlus, WebMD	3.22	Agree
7	Health Management Information Systems (HMIS)	2.56	
8	Healthcare Professionals	3.55	Agree
9	Course mates	3.41	Agree
10	Family	2.61	Agree
11	Public health websites	3.45	Agree
12	Social Media	2.81.	Agree
13	Blogs	3.12	Agree
	Weighted Mean	2.98	Agree



The result from table 2 shows that the sources of health information utilized by undergraduate nursing students are healthcare Professionals, Health related Textbooks, Public health websites, Course mates, Online Databases like Pubmed, MedlinePlus, WebMD, Blogs, social media, Family, Scientific publications, Institutional library resources and Health Management Information Systems (HMIS). The respondents disagreed that they utilized government health agencies and reputable health organisations. This aligns with Buawangpong et al. (2022) noted that health information sources such as databases, textbooks, Pubmed are important sources of health information that can be utilized.

Hypothesis: There is no significance relationship between health literacy and access to health information sources:

Variable		Health information literacy	Utilisation of health information
Health information literacy	Pearson Correlation	1	.6138*
	Sig. (2-tailed)		.000
	N	67	67
Utilisation of health information	Pearson Correlation	.6138*	1
	Sig. (2-tailed)	.000	
	N	67	67
*Correlation is significant at the 0.05 level (2-tailed).			

The result of the PPMC shows that the correlation between health information literacy and utilization of health information obtained a correlation coefficient of $r = 0.655$ and statistically significant at $0.000 < 0.05$. This indicates a moderate and positive correlation between the two variables. The positive relationship shows that variations in health information literacy, affects variations in health information. Thus, health literacy of nursing undergraduate students enhances the utilization of health information.

Conclusion

Health literacy is a fundamental skill that enables individuals, especially nursing students, to effectively access, comprehend, and utilize health-related information for academic, professional, and personal decision-making. Given the increasing reliance on digital and traditional health



information sources, it is essential to assess the level of health literacy among nursing undergraduate students and how it influences their utilization of health information sources. This study was conducted to evaluate the health literacy of nursing undergraduate students and the various health information sources they utilize in their academic and professional pursuits. Findings from the study revealed that nursing undergraduate students possess the required health literacy to effectively utilize health information sources. The primary avenues through which they acquire literacy training include personal training, YouTube, and internship experiences. Additionally, the study identified a wide range of health information sources commonly used by nursing students, such as healthcare professionals, health-related textbooks, public health websites, course mates, online databases (e.g., PubMed, MedlinePlus, WebMD), blogs, social media, family, scientific publications, institutional library resources, and Health Management Information Systems (HMIS). The study concludes that adequate health literacy significantly enhances the ability of nursing undergraduate students to utilize various health information sources effectively.

Recommendations

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

1. Since undergraduate nursing students possess the required health literacy to effectively utilize health information sources, institutions should build on this strength by introducing advanced health literacy training. By enhancing their analytical and evaluative skills, nursing students will be better equipped to navigate complex health information, make informed clinical decisions, and contribute effectively to patient care and public health initiatives.
2. YouTube, and internships, institutions should formalize and expand literacy training programs. This can be achieved by incorporating structured health literacy courses into the nursing curriculum, organizing workshops, and fostering mentorship programs with healthcare professionals to ensure comprehensive literacy development
3. given the wide range of health information sources used by nursing students, institutions should expand sources of health information sources
4. universities should ensure that students have seamless access to credible resources by providing access to digital database subscriptions, improving institutional library services,



and incorporating health information literacy modules into coursework to equip students with skills for lifelong learning and evidence-based practice.

References

- Alhejaili, A., Wharrad, H., & Windle, R. (2024). Developing a tool for assessing the process of seeking health information: Online think-aloud method. In *Healthcare*, 12(10), 1039
- Andries, F., & Lengkoan, F. (2023). The importance of students' perception of online learning during pandemic. *International Journal of Applied Business and International Management (IJABIM)*, 8(2), 142-152.
- Buawangpong, N., Sirikul, W., Anukhro, C., Seesen, M., La-Up, A., & Siviroj, P. (2022). Health information sources influencing health literacy in different social contexts across age groups in northern Thailand citizens. *International Journal of Environmental Research and Public Health*, 19(10), 6051.
- Chang, M. C., Yu, J. H., Hsieh, J. G., Wei, M. H., & Wang, Y. W. (2023). Effectiveness of the refined health literacy course on improving the health literacy competencies of undergraduate nursing students: quantitative and qualitative perspectives. *Medical Education Online*, 28(1). <https://doi.org/10.1080/10872981.2023.2173042>.
- Fife-Schaw, C. (2020). Questionnaire design. *Research methods in psychology*, 343-374.
- IGI Global (2024). What is health information <https://www.igi-global.com/dictionary/information-communication-strategies-focused-young/12855>
- Iyer, R. R., & Sethuraman, R. (2024). Role of ehealth literacy, learning styles, and patterns of web-based e-content access for seeking health information among dental university students in Vadodara, India. *Journal of Education and Health Promotion*, 13(1), 56.
- Kaya, A., & Genc, F. (2025). Digital transformation of nursing students' learning methods: A descriptive study on YouTube usage. *Medicine Science*, 14(1).
- Kington, R. S., Arnesen, S., Chou, W. Y. S., Curry, S. J., Lazer, D., & Villarruel, A. M. (2021). Identifying credible sources of health information in social media: principles and attributes. *NAM perspectives*, 2021, 10-31478.
- Kühn, L., Bachert, P., Hildebrand, C., Kunkel, J., Reitermayer, J., Wäsche, H., & Woll, A. (2022). Health literacy among university students: a systematic review of cross-sectional studies. *Frontiers in public health*, 9, 680999.
- Lee, H.Y., Jin, S.W, Henning-Smith, C., & Lee J. (2021). Role of health literacy in health-related information-seeking behavior online: Cross-sectional Study. *Journal of Medical Internet Research*, 23(1):e14088
- Liu, C., Wang, D., Liu, C., Jiang, J., Wang, X., Chen, H., ... & Zhang, X. (2020). What is the meaning of health literacy? A systematic review and qualitative synthesis. *Family medicine and community health*, 8(2).
- Mao, Y., Xie, T., & Zhang, N. (2021). Chinese students' health literacy level and its associated factors: a meta-analysis. *International Journal of Environmental Research and Public Health*, 18(1), 204.



- Meppelink, C.S., Smit, E.G., Diviani, N., & Weert, J.C.M. (2016). Health literacy and online health information processing: Unraveling the underlying mechanisms. *J Health Commun*, 21(2), 109-120. [doi: 10.1080/10810730.2016.1193920] [Medline: 27668318]
- Miller, T. A. (2016). Health literacy and adherence to medical treatment in chronic and acute illness: A meta-analysis. *Patient Educ Couns*, 99(7), 1079-1086. 10.1016/j.pec.2016.01.020] [Medline: 26899632]
- Mijwil, M., Aljanabi, M., & Ali, A. H. (2023). Chatgpt: Exploring the role of cybersecurity in the protection of medical information. *Mesopotamian journal of cybersecurity*, 2023, 18-21.
- Moukénét, A., de Cola, M. A., Ward, C., Beakgoubé, H., Baker, K., Donovan, L., & Richardson, S. (2021). Health management information system (HMIS) data quality and associated factors in Massaguet district, Chad. *BMC medical informatics and decision making*, 21, 1-10.
- Nutbeam, D., & Lloyd, J. E. (2021). Understanding and responding to health literacy as a social determinant of health. *Annual review of public health*, 42(2021), 159-173.
- O'Connor, S., Odewusi, T., Smith, P. M., & Booth, R. G. (2022). Digital professionalism on social media: The opinions of undergraduate nursing students. *Nurse Education Today*, 111, 105322.
- Okan, O., Paakkari, L., Aagaard-Hansen, J., Weber, M., Barnekow, V., & World Health Organization. (2021). Health literacy in the context of health, well-being and learning outcomes-the case of children and adolescents in schools: concept paper
- Patil, U., Kostareva, U., Hadley, M., Manganello, J. A., Okan, O., Dadaczynski, K., & Sentell, T. (2021). Health literacy, digital health literacy, and COVID-19 pandemic attitudes and behaviors in US college students: implications for interventions. *International Journal of Environmental Research and Public Health*, 18(6), 3301.
- Schillinger, D. (2021). Social determinants, health literacy, and disparities: intersections and controversies. *HLRP: Health Literacy Research and Practice*, 5(3), e234-e243.
- Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, 34(1), 8-12.
- Sørensen, K., Levin-Zamir, D., Duong, T. V., Okan, O., Brasil, V. V., & Nutbeam, D. (2021). Building health literacy system capacity: a framework for health literate systems. *Health promotion international*, 36(1), 13-23.
- Vancini, R. L., Borges Viana, R., dos Santos Andrade, M., Andre Barbosa de Lira, C., Theodoros Nikolaidis, P., Aparecido de Almeida, A., & Knechtel, B. (2022). YouTube as a source of information about physical exercise during COVID-19 outbreak. *International Journal of Sport Studies for Health*, 4(2), e123312.
- Yang, K., Hu, Y., & Qi, H. (2022). Digital health literacy: bibliometric analysis. *Journal of medical Internet research*, 24(7), e35816.