Information Needs of Nursing and Midwifery Students in Ghana: A Quantitative Study Based on Wilson's Model

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ABSTRACT

Background: Understanding the information needs of nursing and midwifery students is essential for supporting evidence-based education and practice. In Ghana, limited empirical data exist on how these students' access and use information resources, particularly in relation to connectivity and available technologies.

Objective: This study assessed the information needs of nursing and midwifery students in Ghana, the sources they use to access information, and how demographic characteristics and connectivity influence their information-seeking behaviour.

Methods: A quantitative, cross-sectional survey was conducted among 155 nursing and midwifery students recruited from multiple nursing and midwifery training colleges and university nursing and midwifery departments in Ghana. Data were collected using a structured questionnaire developed from Wilson's model of information behaviour. Internal consistency of the multi-item scales was assessed using Cronbach's alpha. Descriptive statistics (frequencies, percentages, means, and standard deviations) summarised the data, and inferential statistics (independent-samples t-tests and one-way analysis of variance) examined associations between demographic variables and information needs and source use, with statistical significance set at $p < .05$.

Results: The majority of participants were female (81.3%) and aged 21–25 years (66.5%). Most were enrolled in Registered General Nursing programmes (87.1%) and held diploma qualifications (87.7%). Access to the internet on campus was high (69.0%), and almost all students used smartphones (99.4%) as their main device for searching for information. Students reported frequent information needs across academic, clinical, and professional domains, with mean scores of approximately 3.9–4.1 on a 5-point scale. Google and other search engines were the most commonly used information source (mean = 4.22), followed by classmates, textbooks, and lecturers, whereas the use of institutional libraries (mean = 2.60) and academic databases (mean = 3.11) was comparatively low. The scales showed good to excellent internal consistency (information needs $\alpha = .93$; information sources $\alpha = .81$). Information needs differed significantly by level of study ($F(3, 151) = 4.59$, $p = .004$), with first-year students reporting lower needs than second- and fourth-year students; no other demographic characteristic was significantly associated with information needs or source use.

Conclusion: Nursing and midwifery students in Ghana have substantial academic and clinical information needs and rely predominantly on internet-based, easily accessible sources accessed via smartphones. The comparatively low use of libraries and academic databases highlights the need for improved information literacy training, promotion of scholarly resources, and enhancement of institutional support to foster evidence-based learning and practice.

Keywords: information needs; information-seeking behaviour; information literacy; nursing and midwifery; Wilson's model

INTRODUCTION

Access to accurate, timely information is central to the academic success and clinical competence of nursing and midwifery students, especially in low- and middle-income contexts. Studies from Africa and other developing settings show that health sciences students have diverse information needs spanning coursework, clinical practice, and personal health, but often lack the skills, infrastructure, and support to meet these needs effectively (Adewole, 2021; Haruna et al., 2017; March et al., 2020). Wilson's model of information behaviour emphasises that information needs arise within specific contexts and are shaped by activating mechanisms, intervening variables (such as resources, skills, and psychosocial factors), and subsequent information-seeking actions (Wilson, 2019).

Evidence from nursing and medical students indicates heavy reliance on lecturers, peers, and textbooks, with relatively low and sometimes unskilled use of electronic resources and databases (Dee & Stanley, 2005; Haruna et al., 2017; Wiche & Ray-Ogbonna, 2021). Barriers include poor information literacy, limited awareness of library resources, inadequate ICT infrastructure, and negative perceptions of library services (Haruna et al., 2017; Howlader & Islam, 2019; March et al., 2020). At the same time, validated surveys show that structured, theory-informed questionnaires can reveal distinct information-seeking profiles and guide tailored information literacy support (Chi et al., 2020; Stokes et al., 2021).

In Ghana, research on academic help-seeking and health information-seeking behaviour is emerging but remains limited for nursing and midwifery students specifically (C. Adjei et al., 2022; S. Adjei, 2022; Monne & Ibrahim, 2025; Quartey et al., 2025). Applying Wilson's model to this group can clarify their core information needs, preferred sources, and barriers across academic and clinical domains, providing evidence to improve curricula, library services, and digital resource provision.

Research Problem

Nursing and midwifery students in Ghana increasingly use digital tools and the internet for learning and health information, yet their specific information needs, preferred sources, and constraints are not well mapped. Nearly all nursing and midwifery trainees in Ghanaian universities and colleges own smartphones and use them heavily for learning and sharing academic information, but low bandwidth and poor campus connectivity limit full use of e-learning opportunities (Alhassan, 2020). During COVID-19, nursing and midwifery students in Northern Ghana reported substantial challenges with online learning, including unreliable internet, high data costs, and home distractions, which affected their educational experiences (Abdulai et al., 2024; Addae et al., 2022). Wider studies of Ghanaian students show active use of the internet for health information, but with barriers such as slow or unreliable connections, high costs, and limited power supply (Abukari, 2021). Demographic factors such as age, year of study, and place of residence also influence access, digital exposure, and learning experiences (Abdulai et al., 2024; Addae et al., 2022). However, there is limited empirical work that simultaneously examines (a) the detailed information needs of nursing and midwifery students in Ghana, (b) the range of sources they use, including digital and traditional channels, and (c) how demographic characteristics and connectivity conditions shape these patterns. This gap constrains efforts to design context-appropriate information literacy support, e-learning initiatives, and infrastructure investments tailored to this critical segment of the future health workforce.

Aim and Research Questions

The overall aim of this study is to examine the information needs, information sources, and connectivity-related constraints of nursing and midwifery students in Ghana, and how these vary by demographic characteristics.

Research Objectives

In line with the aim, and informed by prior Ghanaian research on e-learning preparedness and online learning experiences among nursing and midwifery students (Abdulai et al., 2024; Addae et al., 2022; Alhassan, 2020) and internet use for health information (Abukari, 2021), the specific objectives are to:

(i) identify and describe the major academic, clinical, and personal information needs of nursing and midwifery students in Ghana;

(ii) determine and classify the main sources through which nursing and midwifery students obtain information, and assess their relative frequency and perceived usefulness;

(iii) profile the demographic characteristics of nursing and midwifery students and examine associations between these characteristics and patterns of information needs and source use;

(iv) assess connectivity and digital access, including device ownership, internet availability on and off campus, bandwidth, stability of connection, and affordability of data; and

(v) generate evidence-based recommendations for educational institutions, policymakers, and library and information service providers on strengthening information provision, information literacy interventions, and ICT infrastructure for nursing and midwifery education in Ghana.

Research Questions

Guided by the research aim and objectives, the study addressed the following research questions:

1. What is the main academic, clinical, and personal information needs of nursing and midwifery students in Ghana?

2. Which sources (e.g., lecturers, peers, textbooks, libraries, the internet, social media) do nursing and midwifery students in Ghana use to access needed information, and which do they prefer?

3. What are the key demographic characteristics of nursing and midwifery students, and how are these characteristics associated with differences in information needs and source use?

4. What is the level of access to, and quality of, connectivity among nursing and midwifery students in Ghana?

LITERATURE REVIEW

Understanding the information needs and information-seeking behaviour of health sciences learners is critical for designing effective curricula, library services, and digital interventions. Studies among non-degree health sciences students in Tanzania show that students need information for educational requirements, clinical practice, and personal health, and that they consult print, human, and electronic sources, but have limited eHealth literacy and face infrastructural and skills-related barriers (Haruna et al., 2017). Similar patterns are observed among medical students and nurses in Nigeria, where information needs cluster around coursework, examinations, clinical decision-making, drug therapy, patient management, and professional development (Adewole, 2021; Baro & Ebhomeya, 2013; March et al., 2020; Wiche & Ray-Ogbonna, 2021). These studies consistently report heavy reliance on lecturers, colleagues, textbooks, and other traditional sources, with relatively low and often unskilled use of specialised databases and electronic journals (Haruna et al., 2017; March et al., 2020; Wiche & Ray-Ogbonna, 2021).

Within the wider student population in developing-country contexts, academic and career-related information dominate needs, libraries are underused, and information literacy is generally weak (Aborisade & Ogunbodede, 2025; C. Adjei et al., 2022; S. Adjei, 2022; Howlader & Islam, 2019). In Ghana, senior high school students and final-year university students still primarily depend on teachers and teacher-provided materials, with libraries and more advanced electronic resources ranking lower as preferred sources (Aborisade & Ogunbodede, 2025; C. Adjei et al., 2022; S. Adjei, 2022). Research on health information-seeking behaviour among university and college students shows strong reliance on the internet and social media for health topics, although expert sources remain more trusted, and demographic and psychosocial determinants (e.g., sex, age, self-efficacy, trust) shape patterns of seeking (Basch et al., 2018; Cynthia & Foluke, 2019; Musarezaie et al., 2023; Quartey et al., 2025).

Among nursing students specifically, information-seeking processes and profiles have been linked to approaches to learning, personality, and self-efficacy, with implications for targeted information literacy support (Stokes et al., 2021). Classic work on nurses' information needs highlights motivations such as better patient care, medication safety, and staying abreast of disease outbreaks, while identifying barriers such as lack of access to journals, inadequate database skills, and limited funding for resources (Baro & Ebhomeya, 2013; Dee & Stanley, 2005). Across these studies, infrastructural constraints (internet connectivity, power), lack of awareness of resources, and insufficient training in information retrieval recur as central obstacles (Aborisade & Ogunbodede, 2025; Adewole, 2021; Haruna et al., 2017; March et al., 2020).

Taken together, this body of work indicates that nursing, midwifery, and related health sciences learners in low- and middle-income settings have multifaceted academic, clinical, and personal information needs, but their information-seeking behaviour is often constrained by contextual and skill-based barriers. These patterns underscore the relevance of theory-driven models of information behaviour, such as Wilson's model, for structuring empirical investigation of information needs, activating mechanisms, intervening variables, and outcomes in specific contexts such as Ghanaian nursing and midwifery education.

METHODS

Study Design

A quantitative, descriptive, cross-sectional survey design was used to assess the information needs and information-seeking behaviour of nursing and midwifery students. Cross-sectional questionnaires are widely used in comparable work on student and nurse information behaviour (Haruna et al., 2017; Howlader & Islam, 2019; March et al., 2020; Wiche & Ray-Ogbonna, 2021).

Theoretical Framework and Instrument Development

The questionnaire was developed based on Wilson's model of information behaviour, which outlines how contextual factors, activating mechanisms, and intervening variables shape information needs and subsequent seeking, processing, and use (Soong et al., 2019; Wilson, 2019). Wilson's model conceptualises information behaviour as beginning with a person-in-context whose information need is activated by particular demands; the resulting seeking behaviour is then moderated by intervening variables, which Wilson groups into personal (e.g., knowledge, skills, self-efficacy), interpersonal (e.g., peers, mentors), and environmental or economic variables (e.g., access to technology, cost, time). Domains and items were informed by prior surveys of health sciences students' and nurses' information needs and health information-seeking behaviour (Dee & Stanley, 2005; Haruna et al., 2017; March et al., 2020; Stokes et al., 2021), as well as methodological recommendations for instrument development and validation (Chi et al., 2020).

The instrument included sections on (a) sociodemographic characteristics; (b) types and contexts of information needs (academic, clinical, personal, and professional); (c) sources and strategies used; (d) connectivity, barriers, and facilitators; and (e) perceived adequacy of, and satisfaction with, information and services (Haruna et al., 2017; March et al., 2020; Wiche & Ray-Ogbonna, 2021). Information need and source items were measured on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree).

Setting, Population, and Sampling

This was a multi-site study conducted across several nursing and midwifery training institutions in Ghana. To capture the diversity of nursing and midwifery education in the country, the participating institutions comprised both public Nursing and Midwifery Training Colleges (which award certificates and diplomas) and the nursing and midwifery departments of universities (which award degrees). This multi-institutional design is reflected in the sample, in which 90.3% of respondents were drawn from training colleges and 9.7% from universities.

The target population comprised nursing and midwifery students with sufficient academic and clinical exposure to articulate their information needs and the sources they use, with an emphasis on students beyond their first year (Monne & Ibrahim, 2025). Participants were recruited through a convenience sampling approach: eligible

students who were present in class during the data-collection period and who consented to take part were invited to complete the questionnaire. Inclusion criteria were (a) current enrolment as a nursing or midwifery student in a participating institution and (b) willingness to provide informed consent. Students who were absent during data collection, or who returned substantially incomplete questionnaires, were excluded. A total of 155 completed and usable questionnaires were retained for analysis.

Ethical Considerations

Permission to access students was obtained from the management of each participating institution. Before completing the survey, participants received information about the study aims and were assured that participation was voluntary and anonymous and that they could withdraw at any time without penalty; informed consent was obtained from all participants. No personally identifying information was collected, and completed questionnaires were stored securely and used solely for research purposes. Ethical approval for the study was granted by College of Nursing and Midwifery Sunyani, Ethical Committee Board (**CNMSL-ECB-04-260001**).

Validity and Reliability

Content and face validity were established through expert review by nursing education and information behaviour specialists, following good practice in instrument development (Chi et al., 2020; Stokes et al., 2021). A pilot test with a small sample of students was used to refine wording and structure and to assess completion time, similar to validation procedures reported in nursing and information-seeking research (Monne & Ibrahim, 2025; Stokes et al., 2021); pilot participants were not included in the final sample.

The internal consistency of the multi-item scales was assessed using Cronbach's alpha. The information needs scale (6 items) and the information sources scale (8 items) yielded Cronbach's alpha values of .93 and .81, respectively. Both values exceeded the conventional 0.70 criterion, indicating good to excellent internal consistency. The scale-level reliability statistics are summarised in Table 3.

Data Analysis

Data were entered, cleaned, and analysed using IBM SPSS Statistics version 27. Descriptive statistics (frequencies, percentages, means, and standard deviations) were used to summarise sociodemographic characteristics, connectivity, information needs, and information sources (Adewole, 2021; Haruna et al., 2017; March et al., 2020). For inferential analysis, a composite information-needs score and a composite information-sources score were computed for each respondent as the mean of the constituent scale items. To examine relationships between demographic variables (gender, age group, programme of study, qualification type, type of institution, and level of study) and these composite scores, independent-samples t-tests were used for two-group comparisons (gender and type of institution) and one-way analysis of variance (ANOVA) for comparisons involving more than two groups (age group, programme of study, qualification type, and level of study). Where ANOVA indicated a significant difference, Tukey's HSD post-hoc test was used to identify the specific group differences, and the homogeneity-of-variance assumption was checked using Levene's test. The threshold for statistical significance was set at $p < .05$.

RESULTS

Table 1. Demographic characteristics of respondents (N = 155)

Variable	**N**	**%**
Gender		
Male	29	18.7%
Female	126	81.3%

Age (years)		
18–20	22	14.2%
21–25	103	66.5%
26–30	20	12.9%
30 and above	10	6.5%
Programme of Study		
Nurse Assistant (Clinical/Preventive)	11	7.1%
Registered General Nursing	135	87.1%
Registered Midwifery	9	5.8%
Qualification Type		
Bachelor of Science (BSc)	15	9.7%
Certificate	4	2.6%
Diploma	136	87.7%
Type of Educational Institution		
Nursing and Midwifery Training College	140	90.3%
University	15	9.7%
Level of Study		
1st year	8	5.2%
2nd year	114	73.5%
3rd year	29	18.7%
4th year	4	2.6%

The sample consisted of 155 nursing and midwifery students, predominantly female (81.3%) and aged 21–25 years (66.5%), comparable to the age and sex distributions reported in other Ghanaian and African nursing student populations (Addae et al., 2022; Alhassan, 2020; Monne & Ibrahim, 2025). The overwhelming majority were enrolled in Registered General Nursing (87.1%), with small proportions in Nurse Assistant Clinical/Preventive (7.1%) and Registered Midwifery (5.8%), reflecting the dominance of general nursing programmes in Ghanaian training institutions (Addae et al., 2022; Alhassan, 2020). Most respondents were diploma students (87.7%) drawn mainly from nursing and midwifery training colleges (90.3%), consistent with the structure of pre-service nursing and midwifery education in Ghana (C. Adjei et al., 2022). The majority were in their second (73.5%) or third (18.7%) year, mirroring similar studies that target students with sufficient academic and clinical exposure (Alhassan, 2020; Monne & Ibrahim, 2025).

Table 2. Connectivity and main device used (N = 155)

Variable	**N**	**%**
Access to Internet on Campus		

No	7	4.5%
Sometimes	41	26.5%
Yes	107	69.0%
Main Device Used for Searching for Information		
Laptop	1	0.6%
Smartphone	154	99.4%

With respect to connectivity, 69.0% of students reported having internet access on campus, 26.5% reported access only sometimes, and 4.5% reported no access, indicating broad though not universal connectivity. This aligns with earlier work among Ghanaian health trainees and university students, in which nearly all owned internet-enabled devices and accessed the internet daily for academic and health-related purposes (Abukari, 2021; Alhassan, 2020). Almost all participants (99.4%) used smartphones as their main device for searching for information, with laptops used by only 0.6%. Similar smartphone dominance has been documented among nursing and midwifery trainees in Ghana and other low- and middle-income settings, where smartphones are the most convenient and affordable tool for online learning and information seeking (Addae et al., 2022; Alhassan, 2020; Chereka et al., 2024; Sambah et al., 2023). These patterns suggest that interventions to support information seeking and digital learning among nursing and midwifery students should prioritise mobile-friendly platforms and address residual inequities in campus internet access and the cost of data (Abdulai et al., 2024; Addae et al., 2022; Alhassan, 2020).

Table 3. Internal consistency (reliability) of the study scales

Scale	**No. of items**	**Cronbach's alpha**
Information needs	6	.93
Information sources	8	.81

As shown in Table 3, both scales demonstrated satisfactory internal consistency, with Cronbach's alpha values of .93 for the six-item information needs scale and .81 for the eight-item information sources scale, exceeding the 0.70 threshold conventionally regarded as acceptable.

Table 4. Information needs of nursing and midwifery students (N = 155)

Item / Response	**N**	**Mean (SD)**	**%**
I frequently need academic information for assignments		**3.85 (0.92)**	
Strongly Disagree	5		3.2%
Disagree	6		3.9%
Neutral	31		20.0%
Agree	79		51.0%
Strongly Agree	34		21.9%
I need information to support my clinical practice		**3.97 (1.05)**	

Strongly Disagree	8		5.2%
Disagree	5		3.2%
Neutral	24		15.5%
Agree	64		41.3%
Strongly Agree	54		34.8%
I search for information to understand medical conditions and treatments		**4.05 (1.03)**	
Strongly Disagree	8		5.2%
Disagree	3		1.9%
Neutral	21		13.5%
Agree	64		41.3%
Strongly Agree	59		38.1%
I need up-to-date research information for my coursework		**3.89 (1.03)**	
Strongly Disagree	9		5.8%
Disagree	4		2.6%
Neutral	25		16.1%
Agree	74		47.7%
Strongly Agree	43		27.7%
I seek information to improve my professional knowledge in nursing and midwifery		**4.05 (1.02)**	
Strongly Disagree	8		5.2%
Disagree	4		2.6%
Neutral	16		10.3%
Agree	71		45.8%
Strongly Agree	56		36.1%
I search for information to prepare for examinations		**4.02 (1.03)**	
Strongly Disagree	6		3.9%
Disagree	8		5.2%
Neutral	21		13.5%

Agree	62		40.0%
Strongly Agree	58		37.4%

Students reported high levels of information need across the academic, clinical, and professional domains. Mean scores were highest (4.05 on a 5-point scale) for searching for information to understand medical conditions and treatments and for improving professional knowledge, closely followed by preparing for examinations (4.02) and supporting clinical practice (3.97). The relatively narrow standard deviations (approximately 0.92–1.05) indicate fairly consistent agreement across respondents. The frequent need for academic information for assignments (mean = 3.85) and up-to-date research for coursework (mean = 3.89) is consistent with broader findings that academic requirements, clinical decision-making, and professional development are central drivers of student information seeking (Sambah et al., 2023; Tachie-Donkor & Ezema, 2023).

Table 5. Sources through which students access information (N = 155)

Item / Response	**N**	**Mean (SD)**	**%**
I use the university/college library to search for academic information		**2.60 (1.08)**	
Strongly Disagree	33		21.3%
Disagree	30		19.4%
Neutral	63		40.6%
Agree	24		15.5%
Strongly Agree	5		3.2%
I use online academic databases (e.g., PubMed, ScienceDirect)		**3.11 (1.18)**	
Strongly Disagree	20		12.9%
Disagree	22		14.2%
Neutral	52		33.5%
Agree	43		27.7%
Strongly Agree	18		11.6%
I search for information using Google or other search engines		**4.22 (0.96)**	
Strongly Disagree	5		3.2%
Disagree	5		3.2%
Neutral	13		8.4%
Agree	60		38.7%
Strongly Agree	72		46.5%
I consult textbooks for academic information		**3.83 (1.03)**	
Strongly Disagree	7		4.5%

Disagree	7		4.5%
Neutral	35		22.6%
Agree	63		40.6%
Strongly Agree	43		27.7%
I seek information from lecturers/tutors		**3.51 (1.03)**	
Strongly Disagree	7		4.5%
Disagree	13		8.4%
Neutral	58		37.4%
Agree	48		31.0%
Strongly Agree	29		18.7%
I consult classmates or colleagues		**3.86 (1.05)**	
Strongly Disagree	8		5.2%
Disagree	4		2.6%
Neutral	37		23.9%
Agree	58		37.4%
Strongly Agree	48		31.0%
I use professional healthcare websites		**3.45 (1.06)**	
Strongly Disagree	11		7.1%
Disagree	10		6.5%
Neutral	57		36.8%
Agree	52		33.5%
Strongly Agree	25		16.1%
I use social media platforms for academic information		**3.42 (1.24)**	
Strongly Disagree	15		9.7%
Disagree	18		11.6%
Neutral	45		29.0%
Agree	41		26.5%
Strongly Agree	36		23.2%

In terms of sources, the most intensively used option was Google and other search engines (mean = 4.22, SD = 0.96), with more than 85% of students agreeing or strongly agreeing that they used search engines to find

information. Classmates and colleagues (mean = 3.86), textbooks (mean = 3.83), lecturers and tutors (mean = 3.51), professional healthcare websites (mean = 3.45), and social media (mean = 3.42) were also widely used, reflecting a mixed reliance on interpersonal, print, and digital sources (Apalayine & Ehikhamenor, 1996; March et al., 2020; Wiche & Ray-Ogbonna, 2021). By contrast, the university/college library had the lowest mean (2.60), with more than 40% of students disagreeing that they used it for academic information and a further 40.6% remaining neutral. Use of online academic databases was moderate (mean = 3.11) but with a substantial proportion neutral, suggesting limited familiarity or confidence with specialised databases such as PubMed or ScienceDirect. The larger standard deviation for social media (1.24) indicates greater variability in how students engage with that source.

Table 6. Associations between demographic characteristics and information-seeking behaviour

Demographic variable	**Test**	**Information needs**	**Information sources**
Gender	t-test	$t(153) = -0.85$, $p = .395$	$t(153) = 0.54$, $p = .590$
Age group	ANOVA	$F(3, 151) = 1.21$, $p = .307$	$F(3, 151) = 2.32$, $p = .077$
Programme of study	ANOVA	$F(2, 152) = 1.93$, $p = .148$	$F(2, 152) = 0.47$, $p = .626$
Qualification type	ANOVA	$F(2, 152) = 0.03$, $p = .969$	$F(2, 152) = 0.61$, $p = .542$
Type of institution	t-test	$t(153) = -0.13$, $p = .897$	$t(153) = 0.48$, $p = .635$
Level of study	ANOVA	**$F(3, 151) = 4.59$, $p = .004$***	$F(3, 151) = 1.60$, $p = .193$

Note. Composite information-needs and information-sources scores were compared across demographic groups. * $p < .05$.

As summarised in Table 6, the only statistically significant association was between level of study and information needs, $F(3, 151) = 4.59$, $p = .004$, $\eta^2 = .084$. Levene's test indicated that the homogeneity-of-variance assumption was met ($p = .295$). Tukey's HSD post-hoc comparisons showed that first-year students reported significantly lower information needs (mean = 3.15) than second-year (mean = 4.07; $p = .018$) and fourth-year students (mean = 4.62; $p = .026$); the remaining pairwise differences were not significant. None of the other demographic characteristics gender, age group, programme of study, qualification type, or type of institution was significantly associated with information needs, and no demographic characteristic was significantly associated with information-source use (all $p > .05$). These results indicate that, with the exception of level of study, the information needs and source preferences of nursing and midwifery students were broadly similar across demographic subgroups.

Taken together, the results indicate that nursing and midwifery students in Ghana experience strong and multifaceted information needs particularly around understanding medical conditions, examination preparation, and professional development and that they primarily satisfy these needs through easily accessible online tools, smartphones, and interpersonal networks rather than through formal library channels.

DISCUSSION

This study examined the information needs, preferred sources, connectivity context, and demographic correlates of information-seeking behaviour among nursing and midwifery students in Ghana, using Wilson's model of information behaviour. Three findings stand out: students hold uniformly high academic, clinical, and professional information needs (item means ≈ 3.9–4.1); they meet those needs overwhelmingly through smartphones, search engines, and interpersonal sources; and they make comparatively little use of libraries (mean = 2.60) and academic databases (mean = 3.11). The discussion below interprets these findings, first through the lens of Wilson's model and then in terms of their distinctive contribution and practical implications, rather than simply restating the prior literature.

Interpreting the findings through Wilson's model

Wilson's (2019) model offers a coherent explanation for the pattern observed in this sample. The students' strong and consistent information needs represent the model's context of information need: the need is generated by concrete, recurring demands assignments, examinations, understanding medical conditions, and professional development that arise directly from the curriculum and clinical placements. Within Wilson's activating mechanism, the pressure of assessment and the responsibility of safe clinical practice convert these latent needs into active seeking, consistent with the stress/coping and risk/reward reasoning embedded in the model.

The behaviour that follows is then channelled by Wilson's intervening variables, and it is here that the present data are most informative. Personal variables notably limited information literacy and low confidence with scholarly databases and environmental/economic variables campus bandwidth, the cost of data, and unreliable power together account for why students gravitate towards low-effort, high-availability channels (Google and smartphones) and away from libraries and databases. The near-universal reliance on smartphones (99.4%) and the dominance of search engines (mean = 4.22) represent the path of least resistance once these intervening variables are taken into account. Interpersonal variables are visible in the sustained use of classmates (mean = 3.86) and lecturers (mean = 3.51) as trusted, accessible sources. The low engagement with libraries and databases therefore reflects a truncated information-seeking and information-use stage, in which genuine needs are satisfied through accessible but not necessarily authoritative channels precisely the outcome Wilson's model predicts when intervening variables raise the cost of formal seeking.

The inferential findings refine this interpretation. The significant effect of level of study on information needs with first-year students reporting markedly lower needs than second- and fourth-year students maps directly onto Wilson's personal intervening variables: as students accumulate academic and clinical exposure, their information needs are activated more strongly, whereas newly enrolled students have yet to encounter the full demands of coursework and clinical placement. Equally informative is what was not significant. Information-source use did not differ by gender, age, programme, qualification, or institution type, and needs did not differ by these variables either. This suggests that the intervening variables shaping source choice in this setting connectivity, cost, and information-literacy skills operate fairly uniformly across demographic subgroups rather than being driven by them. In Wilsonian terms, the environmental and economic constraints are pervasive enough to dominate individual demographic differences, which helps explain the homogeneous reliance on smartphones and search engines across the sample.

Contribution of the study

The distinctive contribution of this study is both empirical and conceptual. Empirically, it quantifies a clear and actionable gap: students report high information need yet make limited use of the scholarly resources best suited to meeting it, and this gap is largely consistent across demographic groups rather than confined to a particular subgroup. Conceptually, by organising the analysis around Wilson's intervening variables, the study demonstrates the explanatory value of the model in a low-resource African training context and moves beyond description towards an account of why the behaviour occurs. Unlike prior Ghanaian work that has examined nursing and midwifery students mainly as e-learning users during COVID-19 (Addae et al., 2022; Alhassan, 2020), or that has focused on secondary-school and general university populations (S. Adjei, 2022; Sambah et al., 2023), this study provides an integrated, theory-driven account of the information needs, sources, connectivity, and demographic correlates of pre-service nursing and midwifery students specifically.

Implications

Three implications follow. First, the marginal role of libraries and databases, set against high information need, indicates that information literacy training covering database searching, critical appraisal, and the safe use of online health information should be embedded directly within nursing and midwifery curricula rather than offered as an optional add-on. Second, because the intervening variables that suppress formal seeking are largely infrastructural and apply across the student body, investment in affordable, reliable campus connectivity and mobile-optimised access to scholarly resources is a precondition for any gains from such training. Third, the level-of-study effect suggests that information-literacy support should begin early and be reinforced as students'

progress, with particular attention to orienting first-year students, whose needs and engagement are still developing.

Limitations

Several limitations should be considered when interpreting these findings. First, the data were entirely self-reported and may therefore be subject to social-desirability and recall biases; students' actual information-seeking behaviour may differ from their reported perceptions. Second, the cross-sectional design captures information behaviour at a single point in time and cannot establish causal or temporal relationships between demographic characteristics, connectivity, and information-seeking behaviour. Third, participants were recruited through convenience sampling from students present during data collection, which may introduce sampling bias and limit generalisability; the marked over-representation of training-college students (90.3%), Registered General Nursing students (87.1%), and diploma students (87.7%), together with the small number of midwifery, university, first-year, and fourth-year respondents, constrains subgroup comparisons. The significant level-of-study effect, in particular, rests partly on small first-year (n = 8) and fourth-year (n = 4) groups and should be interpreted with caution and confirmed in larger samples. Fourth, the questionnaire measured self-perceived needs and source use rather than objective information-seeking performance or information-literacy competence. Finally, although the instrument was theoretically grounded in Wilson's model, it may not have captured the full range of contextual and psychosocial factors that influence information behaviour. These limitations point directly to the future research directions outlined below.

CONCLUSION

This study examined the information needs, information sources, demographic characteristics, and connectivity of nursing and midwifery students in Ghana. Most respondents were female, aged 21–25 years, enrolled mainly in Registered General Nursing and diploma programmes, and studying in nursing and midwifery training colleges. Connectivity was generally high, with over two-thirds reporting regular internet access on campus and almost all students using smartphones as their primary device for information searching.

Students reported strong information needs related to academic work, clinical practice, understanding medical conditions and treatments, preparing for examinations, and improving professional knowledge, with item means of approximately 3.9–4.1 on a 5-point scale. In terms of sources, students relied heavily on Google and other search engines, classmates, textbooks, and lecturers, while use of university and college libraries and specialised academic databases such as PubMed and ScienceDirect was relatively low. The scales were highly reliable (α = .93 and .81), and information needs increased significantly with level of study, while needs and source use were otherwise similar across demographic groups. Interpreted through Wilson's model, these patterns show how strong information needs are diverted, by pervasive personal and infrastructural intervening variables, towards accessible but potentially less rigorous sources. The study therefore highlights a clear gap between students' information needs and their use of evidence-based resources, indicating the need for structured support in information literacy and resource utilisation, alongside investment in connectivity and the early targeting of interventions.

RECOMMENDATIONS

Recommendations for Practice and Policy

Based on these findings, several practical recommendations are proposed. First, nursing and midwifery training institutions should strengthen information literacy training by integrating sessions on database searching, critical appraisal, and the use of evidence-based resources (e.g., PubMed, CINAHL, ScienceDirect) into the curriculum, explicitly addressing how to move beyond general search engines to authoritative academic sources. Second, libraries should be made more visible and user-friendly through extended opening hours, orientation programmes, and collaboration between librarians and faculty to embed library use in coursework and clinical assignments. Third, given the near-universal use of smartphones, institutions should optimise access to digital library resources and databases through mobile-friendly platforms and applications and ensure reliable campus

internet connectivity. Fourth, lecturers and clinical preceptors should actively model evidence-based information seeking by directing students to professional healthcare websites and academic databases when discussing clinical scenarios and assignments. Finally, policymakers and institutional administrators should invest in continuous professional development for teaching staff and librarians on emerging digital resources and consider partnerships with database providers to improve access. Implementing these recommendations can help align students' strong information needs with high-quality, evidence-based information sources, ultimately improving academic performance and clinical competence.

Recommendations for Future Research

Future research should extend the present findings in several directions. First, qualitative studies using in-depth interviews and focus group discussions are needed to explore the lived information-literacy challenges of nursing and midwifery students and the specific barriers that deter them from using academic databases such as PubMed, CINAHL, and ScienceDirect; such work would illuminate the perceptions, skills gaps, and institutional constraints that quantitative scores alone cannot capture. Second, longitudinal and intervention studies should evaluate whether structured information-literacy programmes produce measurable change in database utilisation and critical-appraisal skills over time, and would clarify the developmental pattern suggested by the level-of-study effect observed here. Third, mixed-methods investigations could examine issues of trust, credibility judgement, and confidentiality in students' use of online and social-media health information. Finally, larger, probability-based and comparative studies across regions and across different types of training institutions would help establish how generalisable these patterns are and would support the design of context-specific interventions.

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