

Research skills and academic information search strategies among nursing thesis students

Habilidades investigativas y estrategias de búsqueda de información académica en tesis

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ABSTRACT

Objective. To determine the relationship between research skills and academic information search strategies among nursing thesis students at Universidad de Huánuco, Peru. **Methods.** Quantitative, observational, correlational study. The population consisted of 313 thesis students, from which a sample of 173 students was selected through stratified probabilistic sampling. The Research Skills Scale and a questionnaire on academic information search strategies were applied, both of which had been previously validated and tested for reliability. For inferential analysis, Spearman's correlation was used with a significance level of $p < 0.05$. **Results.** Regarding research skills, more than half of the participants were at a developed level, with the instrumental dimension standing out (72.3%), while overall, 52% were classified as developed. Concerning information search strategies, there was a predominance of efficient use of databases (60.1%) and truncation tools (54.3%), although limitations were observed in the use of Boolean operators. At the inferential level, a positive and significant correlation was identified between research skills and search strategies ($\rho = 0.634$; $p < 0.001$), with the problematization dimension showing the highest correlation ($\rho = 0.728$; $p < 0.001$). **Conclusions.** It was determined that research skills are significantly and positively related to academic information search strategies.

Keywords: university students; research skills; information search; academic competencies; research.

RESUMEN

Objetivo. Determinar la relación de las habilidades investigativas con las estrategias de búsqueda de información académica en tesis de Enfermería de la Universidad de Huánuco (Perú). **Métodos.** Estudio cuantitativo, de tipo observacional, de diseño correlacional. La población estuvo constituida por 313 tesis, de los cuales fue seleccionada una muestra de 173 estudiantes mediante muestreo probabilístico estratificado. Se aplicó la escala de habilidades investigativas y un cuestionario de estrategias de búsqueda de información académica, previa validación y confiabilidad. En el análisis inferencial fue aplicada la correlación de Spearman con un $p < 0,05$. **Resultados.** En las habilidades investigativas, más de la mitad de los participantes se ubicó en un nivel desarrollado, destacando la dimensión instrumental (72,3 %), mientras que, a nivel global, el 52 % se ubicó en nivel desarrollado. Respecto a las estrategias de búsqueda de información, se observó un predominio de uso eficiente en bases de datos (60,1 %) y truncadores (54,3 %), aunque con limitaciones en el manejo de operadores booleanos. A nivel inferencial, se identificó una correlación positiva y significativa entre las habilidades investigativas y las estrategias de búsqueda ($\rho = 0,634$; $p < 0,001$), siendo la dimensión de problematización la de mayor correlación ($\rho = 0,728$; $p < 0,001$). **Conclusiones.** Se determinó que las habilidades investigativas se relacionan de manera significativa y positiva con las estrategias de búsqueda de información académica.

Palabras clave: estudiantes universitarios, habilidades de investigación, búsqueda de información, competencias académicas, investigación.

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INTRODUCCION

The development of research skills constitutes a fundamental pillar of university education, since it enables students to generate scientific knowledge, apply rigorous methodologies, and respond to academic and social problems. In the field of nursing, research skills are essential not only for ensuring the quality of research projects, but also for strengthening clinical practice grounded in scientific evidence. Likewise, strategies for searching academic information facilitate access to up-to-date and reliable sources, thereby consolidating the production of knowledge that is relevant to the profession (Huauya et al., 2021).

At the international level, both progress and limitations have been reported in relation to research competencies. In Malawi, Mapulanga et al. (2023) found that 66.7% of nursing researchers relied primarily on Google Scholar, although shortcomings persisted in the critical evaluation and ethical use of information. In Colombia, Alonso et al. (2022) showed that only 15.8% of students were familiar with Boolean operators, while more than 70% displayed low levels in academic search strategies. In Cuba, Pérez-Pérez et al. (2021) reported that more than 80% of university students experienced difficulties in retrieving and managing scientific information, which in turn limited the quality of their research output.

Across Latin America, the situation shows similar characteristics. In Ecuador, Álvarez-Ochoa et al. (2022) found moderate levels in the planning of objectives, problem formulation, and the construction of theoretical frameworks, thus revealing important gaps in the consolidation of research skills.

In Peru, Ramos (2022) found that 68.8% of undergraduate students at a university in Lima demonstrated research competencies at a moderate level, while Herrera (2022), in Piura, confirmed that project-based learning was significantly correlated with the development of these competencies ($p = 0.721$; $p < 0.05$). In the context of Huánuco, there is a clear disparity between the training requirement that thesis students demonstrate research proficiency in order to defend their degree projects, and the low actual effectiveness with which they integrate their research skills, including methodological design, data analysis, and scientific writing, together with their academic information search strategies, especially the insufficient use of specialized databases. This combined shortcoming not only compromises the methodological quality of theses, but, as recent literature supports (Campos et al., 2023), it also affects the development of the

knowledge, skills, and attitudes needed for scientific research within the nursing profession. Consequently, this gap directly limits students' future ability to apply evidence-based practice, which justifies the need for this study to diagnose and analyze the relationship between these two crucial variables. In Huánuco, Zacarías (2021) reported that only 25.3% of students reached a high level of research skills, whereas the majority (62.7%) remained at a moderate level, with limitations in problem formulation, methodological management, and the use of reliable sources.

Although there is literature addressing research skills and search strategies separately, there is still little research examining their bidirectional relationship and their synergistic impact within the specific context of nursing education at the university under study. This therefore remains an underexplored area.

Peru's University Law No. 30220 (Ministerio de Educación, 2014) requires the completion of a thesis for professional qualification, positioning universities as key institutions in the training of researchers and the generation of knowledge. This regulation underscores the importance of ensuring that future professionals acquire solid research skills and master efficient strategies for searching academic information—both of which are critical to the quality of their theses and to their future scientific contribution. By analyzing research skills and academic information search strategies among thesis students, the present study seeks to identify areas for improvement in university training, ensuring that graduates are fully prepared to meet the challenges of research and to fulfill the legal mandate of promoting scientific advancement in the country.

Accordingly, this study sought not only to diagnose the current situation of the variables under examination, but also to determine the relationship between research skills and academic information search strategies among nursing thesis students.

METHODS

Study type and area

This research adopted a quantitative approach and was observational, cross-sectional, and correlational in design. The study was conducted in the province of Huánuco, Peru, at the Universidad de Huánuco, during 2023.

Population and sample

The finite population consisted of 313 thesis students from the Nursing Program, whose information was obtained through the official list provided by the

Academic Coordination Office. A simple random sample of 173 thesis students was determined using a sample size calculation for finite populations, with a 95% confidence level and a 5% margin of error. To ensure representativeness according to academic progress, stratified probabilistic sampling was applied based on cycles V to VIII. The inclusion criteria required regular enrollment in those cycles and voluntary acceptance through informed consent. Only students who were repeating research courses were excluded, in order to maintain the homogeneity of curricular progress.

Variables and data collection instruments

The variable "research skills" was measured using the scale developed by Berrocal (2019), which consists of 48 items distributed across four dimensions: epistemological (9 items), problematization (10 items), methodological (16 items), and instrumental (13 items). In all cases, responses were recorded using five options: never, almost never, sometimes, almost always, and always. Research skill levels were classified as not developed, in the process of development, and developed.

The second variable, "academic information search strategies," was assessed using a questionnaire designed by the researchers. It consisted of 28 items organized into six dimensions: search engines (4 items), databases (7 items), journals (3 items), repositories (7 items), Boolean operators (3 items), and truncation operators (4 items). A five-point Likert scale was used, with the response categories never, almost never, sometimes, almost always, and always. This variable was rated as deficient, somewhat efficient, and efficient, both overall and for each dimension.

The statistical reliability of the instruments was determined using Cronbach's alpha coefficient, yielding values of 0.71 for the research skills scale and 0.89 for the academic information search strategies questionnaire.

In addition to measuring research skills and academic information search strategies, the study collected a set of demographic, academic, and research-experience data in order to contextualize the participants.

Data collection techniques and procedures

The data collection phase was carried out after obtaining formal authorization from the coordination of the Nursing Program in September 2023. Subsequently, the survey administrators were trained in order to ensure a uniform and standardized application of the measurement instruments. The formal administration then proceeded using the face-

to-face survey technique. After being duly informed, the participants signed the informed consent form and completed the data collection instruments.

Data analysis

In the descriptive phase, frequencies, percentages, and measures of central tendency were calculated to characterize the sample. For hypothesis testing and inferential analysis, Spearman's rho correlation coefficient (ρ) was used. The choice of this nonparametric coefficient was justified by the ordinal nature of the main study variables, without relying on the assumption of strict normality. A significance level of $\alpha = 0.05$ was established for the interpretation of the results. Data analysis began with the tabulation and coding of the collected data in Microsoft Excel, where the initial cleaning process was carried out to ensure data quality before exporting the database to IBM SPSS Statistics, version 20.

Ethical considerations

To ensure the scientific integrity of the study, it adhered to the bioethical principles of beneficence, non-maleficence, justice, and autonomy, guaranteeing voluntary participation through informed consent and the confidentiality of the data. Responsible research practices specific to each stage of the study were also taken into account. In the planning stage, methodological rigor and the declaration of the absence of conflicts of interest were ensured, as the study was self-funded. During the execution stage, participant anonymization was implemented to ensure secure data handling. Finally, in the analysis and writing of the article, accuracy in data processing and transparency were guaranteed.

RESULTS

Most of the thesis students were young adults (95.4%), and the female gender predominated (64.7%). With respect to academic progress, they were concentrated mainly in the seventh cycle (45.4 %) and in the Thesis I and II courses (43.3%). The great majority were regular students (90.8 %). Regarding the research stage, 68.2% had not yet completed the project planning phase, and only 17.9% were in the implementation stage, while 22.5% had reached the article-writing stage. Basic research (71.1%), observational studies (74.0%), prospective designs (69.4%), cross-sectional studies (72.2%), and descriptive research (64.2%) predominated. The most commonly used learning strategies were summaries (46.8%) and mind maps (37.6%). In addition, 80.3% had participated in research seminars, and more than half expressed satisfaction with the instruction received (54.3%) (see Table 1).

Table 1
Sociodemographic and academic characteristics of the nursing thesis students

		n = 173	
		fi	%
Demographic characteristics			
Age group			
Young adults (18-29)		165	95.4
Middle-aged adults (30-39)		8	4.6
Gender			
Male		61	35.3
Female		112	64.7
Academic characteristics			
Course currently being taken			
Research Seminar I		17	9.8
Research Seminar II		34	19.7
Thesis I		36	20.8
Thesis II		39	22.5
Scientific Writing and Publication		35	20.2
Parallel Courses		12	6.9
Current cycle			
Fifth		17	9.8
Sixth		34	19.5
Seventh		78	45.4
Eighth		44	25.4
Student status			
Regular		165	90.8
Irregular		16	9.2
Research stage currently in progress			
Project planning (proposal development)	Yes	55	31.8
	No	118	68.2
Implementation (data collection process)	Yes	31	17.9
	No	142	82.1
Final report	Yes	50	28.9
	No	123	71.1
Scientific article writing	Yes	39	22.5
	No	134	77.5
Type of research under study			
According to study objective	Basic	123	71.1
	Applied	50	28.9
According to researcher intervention	Observational	128	74.0
	Experimental	45	26.0
According to source of data collection	Retrospective	53	30.6
	Prospective	120	69.4
According to number of times the study variable will be measured	Cross-sectional	126	72.2
	Longitudinal	47	27.2
According to variable of interest	Descriptive	111	64.2
	Analytical	62	35.8
Learning strategy used			
Summaries		81	46.8
Mind maps		65	37.6
Concept maps		21	12.1
Flowcharts		6	3.5
Participation in seminars or courses related to research in the last year			
Yes		139	80.3
No		34	19.7
Satisfaction with research teaching (self-perceived)			
Good		94	54.3
Fair		79	45.7

In the epistemological dimension, more than half of the thesis students perceived themselves as having frequent reading habits (54.3% sometimes and 25.4% almost always); 49.7% reported questioning what they read in order to assess its validity, and 34.1% stated that they consistently developed critical thinking, although only 20.8% indicated that they always enjoyed reading scientific articles.

In the problematization dimension, 48.0% perceived aspects to improve in research problems, and 33.5% reported having innovative ideas for initiating projects, whereas 53.3% showed difficulty distinguishing main ideas from secondary ones in their reading.

In the methodological dimension, 48.6% always managed to relate objectives to problems and the research title, 45.1% linked the methodology to the topic under study, and 49.1% correctly applied Vancouver citation standards.

In the instrumental dimension, 52.0% always verified that the measurement instruments had been answered in full, 48.6% applied them in the proper order, and nearly one third (31.8%) carried out inferential analysis using Excel or SPSS, while 39.9% frequently interpreted descriptive tables and 34.7% always did so, showing stronger command of descriptive analysis than inferential analysis (see Table 2).

Table 2
Description of the corresponding items by dimension in nursing thesis students

Items in the epistemological dimension	n = 173									
	Never		Almost never		Sometimes		Almost always		Always	
	fi	%	fi	%	fi	%	fi	%	fi	%
You have reading habits.	9	5.2	0	0.0	94	54.3	44	25.4	26	15.0
You are interested in studies that help solve social problems.	0	0.0	29	16.8	57	32.9	58	33.5	29	16.8
You apply critical thinking to resolve doubts about your research topic.	3	1.7	15	8.7	70	40.5	59	34.1	26	15.0
You reinforce your autonomous learning.	12	6.9	9	5.2	70	40.5	5.5	31.8	27	15.6
You reinforce your learning through reading scientific articles.	3	1.7	15	8.7	56	32.4	55	31.8	44	25.4
You ask yourself questions about the topics you read and study to determine whether you find them convincing.	3	1.7	0	0.0	57	32.9	86	49.7	27	15.6
You reflect on the easiest way to learn new knowledge.	0	0.0	9	5.2	60	34.7	59	34.1	45	26.0
You enjoy reading original research articles.	0	0.0	19	11.0	61	35.3	57	32.9	36	20.8
You reflect on the strategies you use to learn new knowledge.	9	5.2	6	3.5	58	33.5	65	37.6	35	20.2
Problematization dimension										
You perceive aspects that should be improved in order to better understand the problem under study.	9	5.2	10	5.8	83	48.0	33	19.1	38	22.0
You have innovative and creative ideas for starting a research project.	0	0.0	34	19.7	57	32.9	58	33.5	24	13.9
You perceive that your senses become sharper when observing problems to investigate.	3	1.7	37	21.4	57	32.9	44	25.4	32	18.5
You develop critical thinking when analyzing a research problem.	12	6.9	19	11.0	42	24.3	51	29.5	49	28.3
You search in depth for information on the topic you wish to investigate.	3	1.7	11	6.4	72	41.6	43	24.9	44	25.4
You like to challenge yourself in research.	3	1.7	36	20.8	55	31.8	33	19.1	46	26.5
You identify the differences between research approaches.	12	6.9	28	16.2	38	22.0	54	31.4	41	23.7
You develop ideas and argue them thoroughly.	3	1.7	18	10.4	68	39.3	55	31.8	29	16.8
You investigate before solving a problem.	0	0.0	8	4.6	46	26.6	65	37.6	54	31.2
During reading, you find it difficult to differentiate the main idea from secondary ideas.	15	8.7	32	18.5	61	53.3	17	9.8	48	27.7
Methodological dimension										
New ideas occur to you for proposing a research title.	0	0.0	17	9.8	78	45.1	70	40.5	8	4.6
You are able to formulate the general and specific problems for a research study.	9	5.2	14	8.1	74	42.8	40	23.1	36	20.8
You are able to develop the theoretical framework.	0	0.0	29	16.8	55	31.8	57	32.9	32	18.5

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Table 2
Description of the corresponding items by dimension in nursing thesis students

Items in the epistemological dimension	n = 173									
	Never		Almost never		Sometimes		Almost always		Always	
	fi	%	fi	%	fi	%	fi	%	fi	%
You identify the methodology used in a research topic.	0	0.0	18	10.4	47	27.2	72	41.6	36	20.8
You develop measurement instruments to assess the variables in your research.	0	0.0	26	15.0	47	27.2	81	46.8	19	11.0
You plan the steps you will follow during the data collection process.	0	0.0	9	5.2	69	39.9	63	36.4	32	18.5
You reach precise conclusions based on the results obtained in a research study.	0	0.0	24	13.9	60	34.7	58	33.5	31	17.9
You justify the research topic according to a theoretical, practical, and methodological context.	13	7.5	12	6.9	77	44.5	42	24.3	29	16.8
The problems you formulate are related to the research topic.	0	0.0	13	7.5	55	31.8	26	15.0	79	45.7
The objectives you formulate in a research study are related to the problems and the research title.	0	0.0	9	5.2	44	25.4	36	20.8	84	48.6
The hypotheses you formulate are related to the research question as well as to the proposed title.	0	0.0	18	10.4	23	13.3	56	32.4	76	43.9
The methodology you propose in a research study is related to the title and topic under study.	9	5.2	3	1.7	40	23.1	43	24.9	78	45.1
You review the university regulations on degrees and titles when conducting research.	0	0.0	14	8.1	58	33.5	58	33.5	43	24.9
You take research outlines into account when developing the content of the study.	0	0.0	3	1.7	35	20.2	82	47.4	53	30.6
When conducting the research study, you consider aspects related to content formats.	9	5.2	8	4.6	24	13.9	46	26.6	86	49.7
You apply citations and references according to Vancouver or APA standards.	0	0.0	17	9.8	8	4.6	85	49.1	63	36.4
Instrumental dimension										
You verify that the measurement instruments are properly structured.	0	0.0	12	6.9	25	14.5	74	42.8	62	35.8
You apply informed consent before administering the measurement instruments to the study subjects.	0	0.0	5	2.9	26	15.0	64	37.0	78	45.1
You validate the measurement instruments (questionnaires and scales) before using them.	0	0.0	12	6.9	21	12.1	56	32.4	84	48.6
You verify that the study sample has answered all the questions in the measurement instruments.	0	0.0	8	4.6	29	16.8	46	26.6	90	52.0
You code categorical responses with numbers for data tabulation.	9	5.2	9	5.2	26	15.0	56	32.4	73	42.2
You classify the collected data categorically and numerically.	0	0.0	9	5.2	35	20.2	40	23.1	89	51.4
You use Excel for statistical analysis.	9	5.2	14	8.1	47	27.2	55	31.8	48	27.7
You use SPSS for statistical analysis.	6	3.5	13	7.5	36	20.8	62	35.8	56	32.4
You perform descriptive analysis using Excel or SPSS.	15	8.7	8	4.6	44	25.4	59	34.1	47	27.2
You perform inferential analysis using Excel or SPSS.	6	3.5	8	4.6	50	28.9	54	31.2	55	31.8
You generate tables and figures following the style of a current standard.	0	0.0	18	10.4	37	21.4	84	48.6	34	19.7
You interpret descriptive tables.	0	0.0	13	7.5	31	17.9	69	39.9	60	34.7
You interpret inferential tables.	3	1.7	48.9	28.3	15	8.7	32	18.5	31	17.9

In overall terms, most thesis students showed developed research skills (52.0%), while 46.2% were still in the process of development, and only 1.7% had not yet attained them. By dimension, the instrumental dimension was the most strengthened, with 72.3% of students at the developed level, followed by the methodological dimension with 57.2%. In contrast, the epistemological and problematization dimensions showed a higher

percentage of students in the process of development (55.5% and 59.5%, respectively), although both also showed important progress in the developed category (42.8% and 38.7%). These findings suggest that, although most students had consolidated their methodological and instrumental skills, there is still a need to strengthen the epistemological and problematization foundations of nursing thesis students (see Table 3).

Table 3
Research skills by dimension in nursing thesis students

Dimensions	n = 173					
	Not developed		In process of development		Developed	
	fi	%	fi	%	fi	%
Epistemological dimension	3	1.7	96	55.5	74	42.8
Problematic dimension	3	1.7	103	59.5	67	38.7
Methodological dimension	0	0.0	74	42.8	99	57.2
Instrumental dimension	9	5.2	39	22.5	125	72.3
Research skills at the global level	3	1.7	80	46.2	90	52.0

When analyzing the variable “academic information search strategies,” the search engines dimension showed that nearly half of the thesis students (48.6%) always used Google Scholar, whereas the use of RefSeek (34.7% sometimes) and Microsoft Academic (26.0 % sometimes) was more limited. In the databases dimension, the use of Scopus (50.9% always), SciELO (57.2% always), and PubMed (39.9% always) predominated, while ERIC and Web of Science were consulted less frequently. With regard to journals, 41.6% consulted health sciences journals, and more than 30% used journals published by their own university. Among repositories, Renati stood out (45.7% always),

followed by each university’s institutional repository (35.8% always) and Alicia (38.2% always), in contrast to the lower use of international repositories. Regarding Boolean operators, the most commonly applied was OR (35.8% sometimes), although their use was generally low. In the truncation operators dimension, the most frequently used was the asterisk (*), with 44.5% reporting almost always, followed by quotation marks (“”), with 36.4% almost always. These results show that thesis students favored general search engines and recognized databases such as Scopus and SciELO, but still had limitations in the use of operators and advanced search strategies (see Table 4).

Table 4
Items by dimension of academic information search strategies in nursing thesis students

	n = 173									
	Never		Almost never		Sometimes		Almost always		Always	
	fi	%	fi	%	fi	%	fi	%	fi	%
Search engines										
You use the Google Scholar search engine.	14	8.1	12	6.9	10	5.8	53	30.6	84	48.6
You use the RefSeek search engine.	15	8.7	52	30.1	60	34.7	38	22.0	8	4.6
You use the Microsoft Academic search engine.	10	11.0	40	23.1	45	26.0	44	25.4	25	14.5
You use the Science Research search engine.	10	5.8	39	22.5	57	32.9	33	19.1	34	19.7
Data bases										
You use the SciELO database.	9	5.2	6	3.6	19	11.0	40	23.1	99	57.2
You use the DeCS/MeSH database.	28	16.2	14	8.1	63	36.4	51	29.5	17	9.8
You use the Scopus database.	0	0.0	15	8.7	27	15.6	43	24.9	88	50.9
You use the PubMed database.	8	4.6	20	11.6	11	6.4	65	37.6	69	39.9
You use the Latindex database.	0	0.0	6	3.5	10	5.8	87	50.3	70	40.5
You use the Web of Science database.	13	7.5	28	16.2	48	27.7	46	26.6	38	22.0
You use the Dialnet database.	27	15.6	12	6.9	21	12.1	5.9	34.1	54	31.2
Journals										
You consult health sciences journals.	9	5.2	0	0.0	40	23.1	52	30.1	72	41.6
You use the journal <i>Desafíos</i> of the Universidad de Huánuco.	3	1.7	16	9.2	41	23.7	58	33.5	55	31.5
You use the <i>Revista Peruana de Ciencias de la Salud</i> of the Universidad de Huánuco.	0	0.0	25	14.5	34	19.7	54	31.2	60	34.7

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Table 4
Items by dimension of academic information search strategies in nursing thesis students

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	n = 173									
	Never		Almost never		Sometimes		Almost always		Always	
	fi	%	fi	%	fi	%	fi	%	fi	%
Repositories										
You use the Alicia repository.	10	5.8	22	12.7	32	18.5	4	24.9	66	38.2
You use the Renati repository.	5	2.9	16	9.2	42	24.3	31	17.9	79	45.7
You use repositories of national universities.	20	11.6	27	15.6	46	26.6	48	27.7	32	18.5
You use the repository of the Instituto Nacional de Salud.	20	11.6	29	16.8	29	16.8	82	47.4	13	19.7
You use repositories of private universities.	20	11.6	45	26.0	34	19.7	40	23.1	34	19.7
You use Latin American repositories.	15	8.7	32	18.5	43	24.9	54	31.2	29	16.8
You use your university's academic repository.	15	8.7	11	6.4	19	11.0	66	38.2	62	35.8
Boolean operators										
You use the AND operator (intersection).	20	11.6	45	26.0	54	31.2	34	19.7	20	11.6
You use the OR operator (union).	20	11.6	24	13.9	62	35.8	36	20.8	31	17.9
You use the NOT operator (exclusion).	20	11.6	31	17.9	59	34.1	37	21.4	26	15.0
Truncation operators										
You use parentheses "(" as a truncation operator.	14	8.1	39	22.5	18	10.4	74	42.8	28	16.2
You use quotation marks "" as a truncation operator.	5	2.9	11	6.4	58	33.5	63	36.4	36	20.8
You use the question mark "?" as a truncation operator.	19	11.0	18	10.4	36	20.8	75	43.4	25	14.5
You use the asterisk "*" as a truncation operator.	15	8.7	28	16.2	31	17.9	77	44.5	22	12.7

Most thesis students showed an efficient level in the use of databases (60.1%), journals (60.1%), and truncation operators (54.3%), whereas in the handling of repositories performance was split between efficient (44.5%) and somewhat efficient (42.8%). In contrast, the greatest limitations were observed in the use of Boolean operators, where 46.2% reached

a somewhat efficient level and only 28.3% were efficient. At the global level, academic information search strategies were distributed almost evenly between somewhat efficient (47.4%) and efficient (46.8%), showing strengths in access to recognized sources but weaknesses in the use of advanced search tools (see Table 5).

Table 5
Academic information search strategies by dimension in thesis students

Dimensions	n = 173					
	Deficient		Somewhat efficient		Efficient	
	fi	%	fi	%	fi	%
Search engines	5	2.9	125	72.3	43	24.9
Databases	5	2.9	64	37.0	104	60.1
Journals	0	2.9	64	37.0	104	60.1
Repositories	22	12.7	74	42.8	77	44.5
Boolean operators	44	25.4	80	46.2	49	28.3
Truncation operators	16	9.2	63	36.4	94	54.3
Academic information search strategies at the global level	10	5.8	82	47.4	81	46.8

Table 6
Spearman correlation between research skills and academic information search strategies

Variables	Academic information search strategies	
	Spearman's rho coefficient	p-value
Research skills	0.634**	0.000
Epistemological	0.460**	0.000
Problematization	0.728**	0.000
Methodological	0.474**	0.000
Instrumental	0.583**	0.000

A positive and significant correlation was found between research skills and academic information search strategies ($\rho = 0.634$; $p < 0.001$), indicating that the greater the mastery of research skills, the better the use of search strategies. The dimension with the strongest association was problematization ($\rho = 0.728$; $p < 0.001$), followed by the instrumental dimension ($\rho = 0.583$; $p < 0.001$), while the epistemological ($\rho = 0.460$) and methodological ($\rho = 0.474$) dimensions showed moderate correlations (see Table 6).

DISCUSSION

The findings showed that most students displayed research skills that were either in the process of development (46.2%) or developed (52.0%). This points to significant progress in the research training of future nursing professionals, although challenges still remain in fully consolidating these skills. Overall, this pattern suggests that students are gradually moving toward a more competent research profile, which is essential within the framework of contemporary higher education.

The findings are consistent with those reported by Pérez-Pérez et al. (2021) in Cuba, who confirmed that search strategies help improve research skills among health sciences students, in line with the positive correlation found in this study. Similarly, Alva (2021) corroborated that didactic strategies—including systematic information-search strategies—are significantly related to the development of research skills. In turn, Corrales (2023) found high levels of research competencies among nursing students. Taken together, these results reinforce the importance of incorporating information-search strategies into the university curriculum in order to strengthen research capacity from the early stages of training.

However, the findings differ from those reported by Alonso et al. (2022), who identified low levels of

information-search skills even though students used Google as their main search engine. This difference may be explained by the fact that, in our context, thesis students were enrolled in specific research courses and benefited from greater academic guidance, which likely facilitated the use of more advanced and effective search techniques.

By contrast, Mapulanga et al. (2023) reported that nursing students use Google Scholar (66.7%) and value the quality of information (81.2%), which is consistent with the predominance of developed levels identified in this study.

With regard to the epistemological dimension, more than half of the students (55.5 %) were still in the process of development. This suggests that, although thesis students are able to formulate research ideas, they still need to further strengthen the critical reflection and theoretical grounding of their work. These findings are consistent with those of Ramos (2022), who found moderate levels in the cognitive component of research among medical students, and with Zacarías (2021), who reported that only one quarter of university students manage to develop these capacities solidly. Such findings can be explained through Bandura's social cognitive theory, which holds that research competencies are strengthened through observation, interaction with peers, and guided practice. This implies that reinforcing the epistemological dimension requires specific training strategies that promote critical thinking and scientific self-reflection (Rodríguez-Rey & Cantero-García, 2020).

With respect to the problematization dimension, 59.5% of the thesis students were at the in-process-of-development level, showing that although students are able to identify research problems, they are still working to strengthen their capacity for analysis and the formulation of relevant questions. This result is consistent with the findings of Chamorro

(2021), who showed that the analysis of reality and the identification of research problems are correlated with the use of information-search strategies. Likewise, Álvarez-Ochoa et al. (2022) reported moderate levels (55.1%) in these competencies, confirming that this is a gradually constructed phase. In contrast, Gómez (2020) found high levels (55%) in planning and solving research problems, which underscores the differences that may exist across university contexts. In this regard, Lewin's action research theory helps explain why the development of problematization skills is key to applying solution-oriented methods and using effective search strategies in response to real problems. This shows that the problematization dimension constitutes a critical axis in strengthening research capacity, as it connects the identification of problems with the search for well-founded solutions (Doria & Castro, 2012).

As for the methodological dimension, 57.2% reached developed levels, whereas 42.8% remained in the process of development. This finding suggests that students have an increasingly solid command of research techniques, representing clear progress compared with previous dimensions. Similar results were reported by Ramos (2022) and Coaquira (2021), who highlighted the association between methodological skills, teaching strategies, and research performance. Likewise, Álvarez-Ochoa et al. (2022) found moderate levels among medical students, indicating that these components still need to be reinforced in different academic contexts. At this point, it is important to stress that methodological development affects not only the quality of research work, but also thesis students' ability to apply scientific knowledge in professional practice.

In the instrumental dimension, most thesis students (72.3%) were at the developed level, showing an adequate command of technological, bibliographic, and data-analysis tools. These findings are consistent with those of Corrales (2023), who found high levels in the organization and management of information, and with Gómez (2020), who linked technological proficiency to the development of research skills. Nevertheless, the results differ from those described by Holguín (2023), who found that a large proportion of students were still in the process of developing digital tool use. This highlights the relevance of the instrumental component as a key support for scientific research, since it facilitates access to, processing of, and analysis of data with academic rigor.

The relationship between research skills and information-search strategies showed a positive and significant correlation. This indicates that as

thesis students strengthen their research skills, they also improve their performance in the use of academic search tools. Both variables reinforce one another: whereas research skills allow students to formulate, structure, and analyze research problems, search strategies enable them to access updated and reliable sources that support that process. This interdependence confirms that the integrated development of both dimensions is essential for consolidating scientific training in nursing.

Taken together, the findings of this study lead to the conclusion that there is a significant correlation between research skills and academic information-search strategies among nursing thesis students. This relationship reaffirms the importance of systematically integrating the teaching of search strategies alongside the development of research skills, in order to improve scientific production and strengthen evidence-based professional practice.

These findings should be interpreted in light of certain limitations. First, the study was limited to thesis students at the Universidad de Huánuco, which restricts the possibility of generalizing the results to other academic contexts. Second, the collection of information through self-report may have been influenced by participants' subjectivity. Finally, external factors such as access to digital technologies or socioeconomic conditions were not considered, even though they may also affect the development of research skills and information-search strategies.

CONCLUSIONS

The study showed that the nursing thesis students at the Universidad de Huánuco were predominantly young adults and women, with a global level of research skills that was mainly developed, especially in the instrumental dimension. In relation to academic information-search strategies, they demonstrated greater efficiency in the use of databases and truncation operators, although weaknesses persisted in the handling of Boolean operators and repositories. Overall, a positive and significant correlation was found between research skills and search strategies, with the problematization dimension showing the strongest correlation. This confirms that stronger mastery of research skills directly favors the effective management of academic information during the thesis process.

Recommendation

At the undergraduate level, in order to ensure higher-quality research training for future thesis students, research skills should be integrated transversally

throughout the curriculum, including in the syllabi of all courses as cross-cutting competencies, rather than being limited solely to methodology and/or research courses. This integration should be supported by the implementation of continuous and mandatory training programs for students, with special emphasis on the main weaknesses identified: the advanced use of Boolean operators, the proper use of institutional and thematic repositories, and the optimized use of search engines and databases. Likewise, the positive correlation found in this study should be leveraged by prioritizing the problematization dimension, directly linking the formulation of research problems with the practice of efficient search strategies. In addition, teachers must serve as active role models and facilitators within their courses, requiring the use of high-quality sources, such as databases and repositories.

The findings provide useful evidence for guiding improvements in academic training, optimizing curricula, and strengthening evidence-based professional practice, thereby contributing to the development of higher-quality scientific production.

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