

ORIGINAL ARTICLE

Academic production of undergraduate theses defended in the Nursing Program of a private university, 2017-2024

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Keywords:

academic dissertation; electronic theses; nursing education; methodology; scientific production indicators; undergraduate education (source: MeSH-NLM).

ABSTRACT

Objective. To assess the academic production of undergraduate theses defended in the Nursing Academic Program of a private university. **Methods.** Quantitative, descriptive, and retrospective study with a census population of 493 theses registered in the institutional repository, both printed and virtual, between 2017 and 2024. Data collection was conducted using a structured form that included methodological, operational, execution, population, sample, statistical analysis, and scientific production dimensions. The analysis was performed using frequencies and percentages. **Results.** Observational studies predominated (97 %), with the majority being prospective (91.5 %) and cross-sectional (96.6 %). The most common designs were correlational (53.8 %) and descriptive (41.2 %). The most frequent research line was "health promotion and disease prevention" (74.2 %). The most commonly used techniques and instruments were surveys (39.8 %) and questionnaires (31 %). Ethical considerations were included in 94.5 % of the theses. The most frequent settings were hospitals (31.8%) and health centers (28.8 %), with the main study populations being mothers (20.5 %), older adults (15 %), and nurses (12.6 %). Non-parametric statistical tests predominated in the analysis (88 %), especially the chi-square test (83 %). The years with the most theses executed were 2016, 2017, and 2022, while defenses concentrated in 2023 (21.5 %). The scientific production derived was limited, with only 1 % of publications in scientific articles. **Conclusions.** The academic production of undergraduate theses in Nursing demonstrates adequate methodological development; however, there are still weaknesses that require strengthening, particularly in the generation of scientific production.

Producción académica de las tesis de pregrado sustentadas en el Programa de Enfermería de una universidad privada, 2017-2024

Palabras clave:

tesis académica; tesis electrónicas; educación en enfermería; metodología; indicadores de producción científica; educación de pregrado (fuente: DeCs-BIREME).


RESUMEN

Objetivo. Valorar la producción académica de las tesis de pregrado sustentadas en el Programa Académico de Enfermería de una universidad privada. **Métodos.** Estudio cuantitativo, descriptivo y retrospectivo, con una población censal de 493 tesis registradas en el repositorio institucional impreso y virtual entre 2017 y 2024. La recolección de datos fue efectuada mediante una ficha estructurada que incluyó dimensiones metodológicas, operativas, de ejecución, población y muestra, análisis estadístico y producción científica. El análisis fue realizado mediante frecuencias y porcentajes. **Resultados.** Predominaron los estudios observacionales (97 %), prospectivos (91,5 %) y transversales (96,6 %), con diseños principalmente correlacionales (53,8 %) y descriptivos (41,2 %). La línea de investigación más frecuente fue "promoción de la salud y prevención de enfermedades" (74,2 %). Las técnicas e instrumentos más utilizados fueron la encuesta (39,8 %) y el cuestionario (31 %). El 94,5 % de las tesis consideraron aspectos éticos. Los escenarios más frecuentes fueron hospitales (31,8 %) y centros de salud (28,8 %), siendo las principales unidades de estudio las madres (20,5 %), adultos mayores (15 %) y enfermeros (12,6 %). En el análisis estadístico predominó el uso de pruebas no paramétricas (88 %), especialmente la prueba chi-cuadrado (83 %). Los años con mayor ejecución de tesis fueron 2016, 2017 y 2022, mientras que las sustentaciones se concentraron en 2023 (21,5 %). La producción científica derivada fue limitada, con solo el 1 % de publicaciones en artículos científicos. **Conclusiones.** La producción académica de las tesis de pregrado de Enfermería evidencia un desarrollo metodológico adecuado; sin embargo, persisten debilidades que requieren fortalecimiento, especialmente en la generación de producción científica.

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INTRODUCTION

Scientific research plays a crucial role in the training of professionals and in the development of research skills ⁽¹⁾. In the field of health, in addition to care delivery, research constitutes an essential function in the development of nursing science, as it strengthens scientific competencies, promotes critical thinking, and favors problem-solving through the scientific method ^(2,3).

In the Peruvian context, research is fundamental in universities and is an indispensable requirement for obtaining the bachelor's degree and professional title established by University Law No. 30220 ⁽⁴⁾. This regulation, overseen by the National Superintendence of Higher University Education (SUNEDU, by its Spanish acronym), also provides that all theses must be registered in institutional open-access repositories in order to guarantee transparency and the dissemination of knowledge.

It is important to recognize that undergraduate theses primarily serve a formative function, aimed at enabling students to learn and apply the scientific method in real contexts. Within this framework, several studies indicate that undergraduate theses in different areas of health often present methodological errors or limitations, which are associated both with students' learning processes and with shortcomings in the pedagogical and methodological guidance provided by teachers and advisors. These deficiencies include inadequate problem formulation, inconsistencies in variables, weaknesses in measurement instruments, or insufficient statistical analyses, which may affect the quality and internal and external validity of the research, as well as its potential for scientific dissemination.

In Panama, Agrazal et al. ⁽⁵⁾ identified low thesis production, in which descriptive studies with a quantitative approach and without theoretical support predominated. In Mexico, Arvizu-Vieyras et al. ⁽⁶⁾ analyzed theses from two universities and found very basic methodological characteristics, with a low presence of experimental theses (21.2 %), multivariate studies (30.8 %), and longitudinal studies (26.9 %), as well as limited coherence between the statistical analysis plan and the stated objectives (17.3 %). In the same country, Hernández-Márquez et al. ⁽⁷⁾ found a predominance of quantitative methodology (91 %), mainly observational studies (88.9 %), with a smaller proportion of experimental studies (11.1 %). Most addressed clinical and care-related problems (60 %), and only 22 % presented results suitable for

publication in indexed journals, evidencing limited scientific dissemination.

In Peru, Estrada et al. ⁽⁸⁾ showed that the quality of Nursing theses at a university in Madre de Dios was at a fair level (19.2 %), with deficiencies mainly in the writing of the discussion, bibliographic references, and conclusions. Likewise, Sulca et al. ⁽⁹⁾ found a predominance of theses in the Nursing program compared with other health sciences programs at a university in Ayacucho, most of them being observational studies. However, a low proportion of papers published in indexed journals was reported (0.5 %). It should be noted that, in the university setting, the formative purpose of the undergraduate thesis is for students to acquire research competencies and complete a rigorous academic work; therefore, scientific publication does not constitute a mandatory requirement, except under specific institutional regulations. Nonetheless, its promotion remains a desirable added value, as it contributes to strengthening research culture and the academic visibility of students. Similarly, Tenorio et al. ⁽¹⁰⁾ reported that most theses from a university in Chiclayo were qualitative (83.6 %), with a case study design (63.44 %) and conducted in public and private health institutions (60.48 %); although they showed better methodological quality, only a few were adapted into articles and published in indexed journals (17.2 %).

The situation described regarding the academic production of theses poses a problem for the development of research competencies in nursing students, since the opportunity for undergraduate theses to contribute useful evidence for the design of health interventions and for the consolidation of a strong research culture in universities is being missed. It is relevant to point out that most undergraduate theses do not transcend beyond universities' institutional repositories ⁽¹¹⁾. This situation is related to various structural factors within the training process. Although SUNEDU establishes the need for degree programs to include courses oriented toward research and the preparation of academic work toward the end of professional training, the effectiveness of these courses depends largely on faculty human capital and on the strengthening of formative research within each program of study in the university context. In this regard, previous studies have identified that limitations in the academic dissemination of theses may be associated with insufficient training in scientific writing, unsystematic methodological advising, and limited faculty support ⁽¹²⁾. This highlights the need to consolidate competencies in both students and faculty in order to enhance the quality and scientific projection of undergraduate theses.

According to SUNEDU's Fourth Biennial Report 2021-2022 ⁽¹³⁾, there is a need to strengthen formative research in universities, which implies reflecting on the evolution and methodological support of undergraduate theses. Evaluating their methodological quality constitutes a future challenge, since it requires experience and mastery of diverse research approaches. In this sense, the progressive strengthening of formative research and faculty support is essential to improve institutional scientific quality and projection.

Therefore, the aim of this study was to assess the academic production of undergraduate theses defended in the Nursing academic program of a private university, 2017-2024.

METHODS

Study type and area

The study had a quantitative approach. The type of research was observational, cross-sectional, and retrospective, with a simple descriptive design oriented toward documentary analysis. The research was conducted in the Nursing Academic Program of the Universidad de Huánuco, La Esperanza, Huánuco, Peru, between 2024 and 2025.

Population and sample

The study population consisted of all undergraduate theses from the Nursing Academic Program of the aforementioned university, defended between 2017 and 2024. A census population was used, since all 493 theses available in the institutional electronic repository, as well as printed theses, were included. The main selection criterion was the inclusion of all completed and defended theses within the analysis period that were officially registered in the university repository.

Variables and data collection instruments

The variable in this study was the academic production of undergraduate theses in the Nursing academic program. Data were collected using a data extraction form that included the following dimensions: methodological characteristics, operational aspects, year of thesis execution and defense, characteristics of the population and sample, statistical analysis, and scientific article production. The "methodological characteristics" dimension included the study type, level, and design used in the theses. The "operational aspects" dimension covered the research line, instruments and data collection techniques, number

of references, and ethical considerations. The "year of execution and defense" dimension identified the temporal distribution of the studies conducted and defended by students. In the "characteristics of the population and sample" dimension, the units of analysis, population and sample size, sampling type, and study settings were examined.

For the "statistical analysis" dimension, the types of tests applied, their parametric or nonparametric nature, and the presence of hypotheses were considered. Finally, in the "scientific article publication" dimension, the publication of articles derived from the theses, the journals and databases in which they were disseminated, and the corresponding year of publication were evaluated. In addition, the "other publications" dimension was incorporated, in which the type of manuscript, the scientific journals where they were published, the databases, and the year of publication were considered.

Data collection procedure

For the execution of the study, the corresponding authorization was requested and obtained from the Coordination Office of the Professional Nursing Academic Program, after which data collection was carried out using the documentary analysis technique. Based on the official list of defended theses provided by the Office of Information Technology, the available theses were located and thoroughly reviewed in both the physical repository (Thesis Library) and the institutional virtual repository, analyzing their printed and digital versions in detail as appropriate. Each thesis was assessed by verifying each of the items established in the analysis instrument and recording the information in the corresponding forms. Likewise, to identify possible published scientific articles derived from the theses, a structured search strategy was implemented using the full thesis title, authors' surnames, abbreviated title, and keywords when available, searching Google Scholar, SciELO, RedALyC, DOAJ, and the institutional journal portal of the Universidad de Huánuco. The matches found were manually verified to confirm their correspondence with the original thesis. A quality control process was also carried out through cross-checking of the records in order to ensure consistency, accuracy, and fidelity of the data before consolidating the final database.

Data analysis

The collected data were organized and tabulated in statistical tables and presented using frequencies and percentages. The data were consolidated in Microsoft Excel 2016.

Ethical considerations

The study was conducted in accordance with the ethical principles of scientific research and the guidelines of responsible conduct in research. It was reviewed and approved by the Ethics and Scientific Integrity Committee (CETIC, by its Spanish acronym) of the Universidad de Huánuco through Report No. 001-2023. Ethical considerations applicable to documentary analysis were also taken into account, thereby ensuring the confidentiality, integrity, and responsible use of the information solely for academic purposes.

RESULTS

The results show that most theses were observational in nature (97 %), with limited presence of experimental studies. Regarding temporal planning, prospective designs predominated (91.5 %), indicating that thesis students collected data directly at the time of the study. In addition, 96.6 % of the investigations were cross-sectional. More than half of the studies

corresponded to analytical designs (56.4 %), while the rest were descriptive. With respect to the research level, the relational (50.9 %) and descriptive (43.8 %) levels predominated. The correlational design (53.8 %) was the most frequently used, followed by the descriptive design (41.2 %) (see Table 1).

When analyzing the operational aspects of the theses, the results show that the research line of health promotion and disease prevention (74.2 %) was the most frequently addressed, followed by public health (24.1 %). Other research lines, such as ethics, cancer, and neonatal health, had minimal representation. Regarding the type of measurement instruments, documentary instruments predominated, such as questionnaires (31 %). Concerning data collection techniques, surveys (49.9 %) were the most commonly used. Interviews and documentary analysis were less frequently employed. Most theses included between 50 and 100 bibliographic references (94.8 %), and 94.5 % considered ethical aspects (see Table 2).

The results show that the highest number of theses, according to year of execution, corresponded to 2016

Table 1. Methodological characteristics of undergraduate theses defended in the Nursing Academic Program of the Universidad de Huánuco, 2017–2024

Methodological characteristics	n = 493	
	fi	%
Type of study according to researcher intervention		
Observational	478	97.0
Experimental	10	2.0
Quasi-experimental	5	1.0
Type of study according to data collection planning		
Prospective	451	91.5
Retrospective	36	7.3
Ambispective	6	1.2
Type of study according to number of measurements		
Cross-sectional	476	96.6
Longitudinal	17	3.4
Type of study according to number of variables		
Analytical	278	56.4
Descriptive	216	43.8
Level of research		
Descriptive	216	43.8
Relational	251	50.9
Explanatory	15	3.0
Applied	11	2.2
Study design		
Pre-experimental	3	0.6
Quasi-experimental	12	2.4
Observational	10	2.0
Descriptive	203	41.2
Correlational	265	53.8

Table 2. Operational aspects of undergraduate theses defended in the Nursing Academic Program of the Universidad de Huánuco, 2017-2024

Operational aspects	n = 493	
	fi	%
Research line		
Health promotion and disease prevention	366	74.2
Public health	119	24.1
Ethics	3	0.6
Cancer	3	0.6
Neonatal health	2	0.4
Type of measurement instruments		
Documentary (questionnaires, scales, inventories)	462	93.7
Mechanical	31	6.3
Data collection instruments		
Questionnaire	153	31.0
Questionnaire and Likert scale	64	13.0
Interview guide and questionnaire	51	10.3
Assessment form	31	6.3
Questionnaire and assessment forms	30	6.1
Interview guide and Likert scale	28	5.7
Interview guide	23	4.7
Likert scale	16	3.2
Interview guide, Likert scale, and questionnaire	15	3.0
Observation guide and questionnaire	13	2.6
Interview guide and observation guide	11	2.2
Interview guide, observation guide, and questionnaire	7	1.4
Questionnaire and checklist	5	1.0
Interview guide and assessment form	5	1.0
Data collection techniques		
Survey	246	49.9
Interview and survey	55	11.2
Survey and observation	48	9.7
Interview	54	10.9
Documentary analysis	25	5.1
Interview and observation	23	4.7
Survey and documentary analysis	12	2.4
Survey, observation, and documentary analysis	7	1.4
Interview, survey, and documentary analysis	6	1.2
Interview and documentary analysis	4	0.8
Online survey	4	0.8
Survey, observation, and psychometrics	3	0.6
Observation and documentary analysis	3	0.6
Interview, survey, and observation	3	0.6
Number of bibliographic references		
50 - 100	471	94.8
101 - 150	22	5.2
Ethical considerations		
Yes	466	94.5
No	27	5.5

(14.8 %), 2017 (13.6 %), and 2022 (15.2 %). The years 2015 (2.2 %), 2020 (2.2 %), and 2024 (1.8 %) had the lowest number of executions (fieldwork). Regarding retrospective studies, their frequency was very low, with a few conducted between 2022 and 2023 (2 %). In terms of year of defense, the periods with the highest number of defenses were 2023 (21.5 %), 2017 (19.1 %), and 2024 (16.0 %) (see Table 3).

The results show that the theses mainly focused on mothers (20.5 %), older adults (15.0 %), nurses and adults (12.6 %) as units of analysis. To a lesser extent, children, adolescents, young people, and university students were studied. Regarding population size, most theses considered between 101 and 150 individuals (22.4 %), followed by samples between 51 and 100 (20.0 %) and 301 to 500 (13.6 %). With

Table 3. Year of execution and defense of undergraduate theses defended in the Nursing Academic Program of the Universidad de Huánuco, 2017-2024

Year of execution and defense	n = 493	
	fi	%
Prospective execution year		
2015	11	2.2
2016	73	14.8
2017	67	13.6
2018	64	13.0
2019	61	12.4
2020	11	2.2
2021	33	6.7
2022	75	15.2
2023	62	12.6
2024	9	1.8
Retrospective execution period		
2015-2016	3	0.6
2016-2017	3	0.6
2017-2018	1	0.2
2017-2019	1	0.2
2019-2020	1	0.2
2020-2021	3	0.6
2020-2022	1	0.2
2021-2022	1	0.2
2022-2023	10	2.0
2023-2024	3	0.6
Year of defense		
2017	94	19.1
2018	60	12.2
2019	47	9.5
2020	22	4.5
2021	35	7.1
2022	50	10.1
2023	106	21.5
2024	79	16.0

Table 4. Population and sample characteristics of undergraduate theses defended in the Nursing Academic Program of the Universidad de Huánuco, 2017-2024

Population and sample characteristics	n = 493	
	fi	%
Unit of analysis		
Children	55	11.2
Adolescents	23	4.7
Young adults	18	3.7
Adults	43	12.6
Older adults	74	15.0
Mothers	101	20.5
Nurses	62	12.6
Students	18	3.7
Inhabitants	15	3.0
University students	53	10.8
Medical records	12	2.4
Population size		
Less than 50	49	9.8
51 – 100	103	20.6
101 – 150	105	22.4
151 – 200	44	8.8
201 – 300	61	12.2
301 – 500	68	13.6
More than 500	63	12.6
Sample size		
50 – 100	188	37.6
101 – 200	214	42.8
201 – 300	76	15.5
More than 300	15	4.1
Sampling type		
Probability sampling	253	51.3
Non-probability sampling	109	22.1
Census population	131	26.3
Study setting		
Educational institutions	70	14.2
Population centers	51	10.3
Hospitals	157	31.8
Health centers	142	28.8
Universities	61	12.4
Markets	10	2.0
Police station	2	0.4

respect to sample size, ranges between 101 and 200 participants predominated (42.8 %), followed by 50 to 100 (37.6 %). In relation to the study setting, the most commonly used locations were hospitals (31.8 %) and health centers (28.8 %), followed by educational institutions (14.2 %) (see Table 4).

Nonparametric tests predominated, with chi-square (83.4 %) as the main test; parametric tests were used infrequently (Student's *t* test 2.6 %; Pearson correlation 1.6 %). In addition, 98.0 % of the theses formulated research hypotheses. This pattern reflected an emphasis on bivariate associations with categorical variables (see Table 5).

Table 5. Statistical analysis of undergraduate theses defended in the Nursing Academic Program of the Universidad de Huánuco, 2017-2024

Statistical analysis	n = 493	
	fi	%
Type of statistical test		
Nonparametric		
Chi-square	411	83.4
Spearman correlation	26	5.3
Wilcoxon test	6	1.3
Fisher's exact test	1	0.2
Mann-Whitney U test	1	0.2
Gamma coefficient	1	0.2
Kruskal-Wallis test	1	0.2
Kendall's tau-b	1	0.2
Parametric		
Student's t test	13	2.6
Pearson correlation	8	1.6
Mixed	7	1.4
Not applicable	30	6.1
Research hypothesis		
Yes	483	98.0
No	10	2.0

During 2017-2024, the thesis-to-article conversion rate was very low (1.0 %; 5 of 493), and the few derived manuscripts were published mainly in *Desafíos* and in the *Revista Peruana de Ciencias de la Salud* (journals of the Universidad de Huánuco). Visibility and indexing were concentrated mainly in Latindex/Dialnet, with minimal presence in SciELO and no presence in higher-impact databases for this subset. In the broader set of publications (not derived from theses), original articles predominated (73.9 %) in regional journals, with Latindex 2.0/Dialnet (65.2 %) as the main index, SciELO (26.1 %) as secondary, and Scopus (8.7 %) as a minor index. Production was concentrated in 2021 and increased again in 2022 and 2024 (see Table 6).

Figure 1 presents the comparison between defended theses and theses published as articles. A notable variation is evident in the number of defended theses, with a high count in 2017, followed by a progressive decline until 2020. Thereafter, beginning in 2021, a moderate increase is observed, reaching its highest point in 2023, and then declining slightly in 2024. In contrast, the production of articles derived from theses is considerably limited, with 2019 showing the highest number of publications, although this was not substantial.

Table 6. Publication of scientific articles from the Nursing Academic Program of the Universidad de Huánuco, 2017-2024

Publication of scientific articles	n = 493	
	fi	%
Theses with a published article		
Yes	5	1.0
No	488	99.0
Scientific journals where they were published		
<i>Desafíos</i>	2	0.4
<i>Revista Peruana de Ciencias de la Salud</i>	2	0.4
<i>Revista Científica de Salud UNITEPC</i>	1	0.2
Database		
Latindex and Dialnet	4	0.8
SciELO	1	0.2
Year of publication		
2018	1	0.2
2019	1	0.2
2021	2	0.4
2023	1	0.2
Other publications		
Original articles	17	73.9
Letter to the editor	6	26.1
Scientific journals		
<i>Revista Peruana de Ciencias de la Salud</i>	5	21.7
<i>Revista Científica de Salud Universidad Técnica Privada Cosmo (UNITEPC)</i>	3	13.0
<i>Desafíos</i>	3	13.0
<i>Revista Científica de Enfermería</i>	2	8.7
<i>Revista Científica de Ciencias Sociales</i>	2	8.7
<i>Revista Gaceta Científica</i>	1	4.3
<i>Revista Eugenio Espejo</i>	1	4.3
<i>Revista de la Facultad de Ciencias de la Salud</i>	1	4.3
<i>Revista Venezolana de Salud Pública</i>	1	4.3
<i>Revista del Nacional (Itauguá)</i>	1	4.3
<i>Revista de la Facultad de Medicina Humana</i>	1	4.3
<i>Revista Científica Cuidado y Salud Pública</i>	1	4.3
<i>Revista de Investigación en Salud (REPIS)</i>	1	4.3
Database		
Latindex 2.0 and Dialnet	15	65.2
SciELO	6	26.1
Scopus	2	8.7
Year of publication		
2019	2	8.7
2020	2	8.7
2021	6	26.1
2022	5	21.7
2023	3	13.0
2024	5	21.7

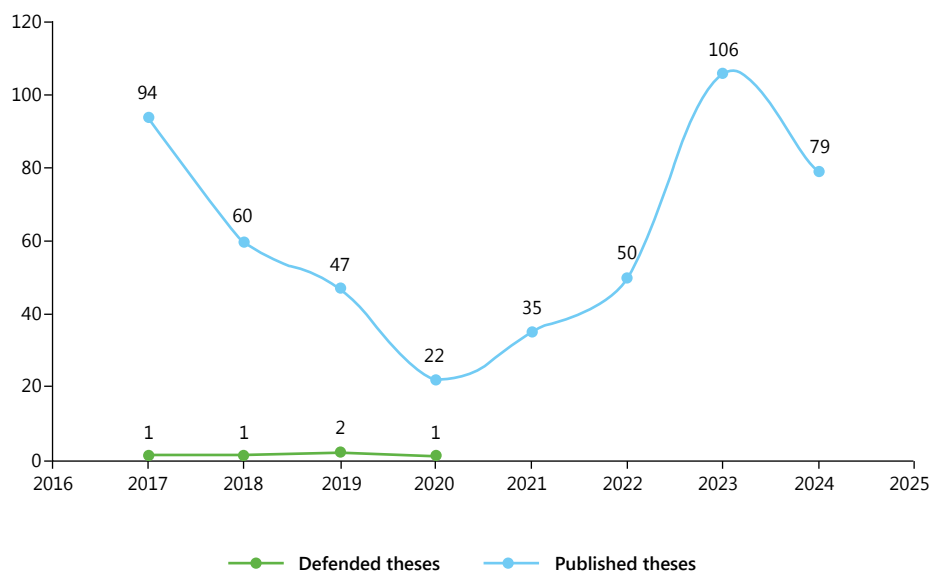


Figure 1. Comparison between defended theses and articles derived from theses

DISCUSSION

The results of this study described the recent landscape of academic production derived from undergraduate Nursing theses and their formative contribution to the development of research competencies⁽¹⁴⁾. Taken together, the dimensions analyzed—methodological characteristics, operational aspects, population and sample, statistical analysis, and conversion into publications—showed a profile consistent with the formative stage of undergraduate education, but also revealed gaps that still limited the generation of evidence applicable to clinical practice and nursing care management.

Regarding methodological characteristics, it was found that the vast majority of studies were oriented toward observational designs, predominantly prospective and cross-sectional, with a relational level and correlational designs. This pattern is expected at the undergraduate level due to its logistical, ethical, and temporal feasibility, and because it allowed students to prioritize mastery of the basic processes of the scientific method (measurement and descriptive/relational analysis), without intervening in the natural course of the phenomena⁽¹⁵⁾. However, the concentration of observational studies implies a greater risk of selection bias and confounding, inherent to nonexperimental designs, which may have compromised causal inferences and the unbiased estimation of associations⁽¹⁶⁾. Although

this methodological architecture constitutes a useful basis for situational diagnosis and for identifying associated factors as a preliminary stage to the design of interventions, it also leaves a gap toward quasi-experimental or experimental designs capable of estimating the effectiveness of nursing strategies with greater rigor, which are necessary to strengthen evidence-based practice.

The analysis identified a substantial proportion of studies that employed prospective designs, reflecting a preference among thesis students for collecting information directly and at the time of interest. This pattern may be associated with the conditions inherent to undergraduate education, where the availability of accessible populations and the ease of applying instruments favor this type of approach. Nevertheless, it was also observed that many theses had methodological limitations, mainly due to the absence of systematic temporal control processes and dependence on care settings with practical restrictions, elements that reduce the robustness expected in more consolidated prospective designs. Likewise, the recurrent presence of cross-sectional studies was consistent with the most frequent objectives in the theses analyzed, focused on describing characteristics of a population and exploring relationships between variables at a single point in time. This type of design was consistent with the resources, timelines, and competencies characteristic of the formative level; however, cross-sectional approaches limit

the possibility of analyzing changes over time or establishing attributable effects, which constitutes a methodological challenge for future undergraduate research ⁽¹⁷⁻²⁰⁾.

Despite the fact that a predominance of studies at the relational level was identified, limitations were also observed arising from variability in the operational definitions, conceptual frameworks, and measurement strategies employed, which affected the comparability of results and the strength of their conclusions. This finding highlights the need to improve methodological and conceptual coherence in the formulation of variables, as well as in the selection of instruments and analysis procedures. Likewise, the results suggest that, although the relational approach is consistent with the formative interests of undergraduate education, the challenge of strengthening capacities that allow progress toward more robust methodological designs with greater explanatory capacity in future student cohorts still remains ⁽²³⁾.

Although a predominance of relational studies was identified, this pattern was interpreted as an approach consistent with the formative interests of undergraduate education, aimed at describing phenomena and exploring links between variables relevant to nursing practice. However, the results also showed that this type of study, by focusing on specific associations, offers limited scope for understanding processes of change or attributable effects. This poses a challenge for future student cohorts: to strengthen the methodological capacity needed to diversify research designs and move toward studies capable of generating more robust and applicable evidence in real care settings, within the possibilities and resources of the formative level ⁽²³⁻²⁵⁾.

Regarding the use of sources, a substantial number of theses cited between 50 and 100 references, which was interpreted as a sign of rigor and methodological formalism, favorable for supporting relational analyses and for grounding the line of health promotion and prevention in solid theoretical models. Nonetheless, the benefit of an extensive bibliography depended on the quality, relevance, and currency of the sources; therefore, it was emphasized that the evaluation of scientific quality could not be reduced to the number of citations, but rather required additional criteria for assessment ⁽²⁶⁻²⁹⁾.

With respect to population and sample, it stood out that nearly half of the studies worked with sample sizes between 100 and 200 participants, a range usually considered adequate for descriptive and relational

analyses typical of undergraduate education ⁽³⁰⁾. When justified by precision parameters and reasonable assumptions, this sample size provided sufficient power to detect associations of moderate magnitude and gave credibility and representativeness to the conclusions, without exceeding the operational capacity of thesis teams ⁽³¹⁾.

In statistical analysis, the chi-square test accounted for most comparisons, accompanied by other nonparametric tests (Spearman, Wilcoxon, Mann-Whitney, Kruskal-Wallis), whereas parametric tests (Student's *t*, Pearson) were used infrequently. This pattern was methodologically consistent with predominantly categorical variables generated by questionnaires, with nominal/ordinal measurement levels, and with the bivariate relational approach typical of undergraduate education ⁽³²⁻³⁶⁾. Even so, it was recognized that nonparametric tests generally have lower power and limit progress toward multivariate analyses. Consequently, it was suggested to strengthen training in advanced statistics, encourage more precise measurement scales, and promote multivariable models (logistic, generalized linear, or ordinal regression), as well as the systematic reporting of effect sizes and confidence intervals, and the rigorous verification of assumptions, in order to move from bivariate association to more robust explanations ^(34,37,38).

A relevant finding was that most theses included hypotheses (98 %), which reflects an institutional and formative preference for structuring the work under a deductive approach. However, it should be considered that the mere presence of hypotheses does not determine the methodological quality of a study, since there are designs, particularly descriptive ones, that do not require hypotheses to maintain rigor and scientific coherence. In this review, the quality of the hypotheses posed was not evaluated, so it is not possible to state whether they were adequately formulated; only their frequency was recorded as part of the reported methodological characteristics ⁽⁴¹⁻⁴³⁾.

Finally, it was observed that the proportion of theses converted into scientific articles was very low (1 %), which must be interpreted within the formative nature of undergraduate education, whose main purpose is for the student to learn how to conduct research and not necessarily to publish. Although publication may be considered a desirable outcome, it does not constitute an academic requirement except where specific institutional regulations exist. In this sense, the low rate found is consistent with what has been reported in other contexts, where the dissemination of undergraduate theses is usually limited and

varies widely according to area, country, and level of training. Likewise, it is important to recognize that, by being available in institutional open-access repositories, theses adequately fulfill their function of making academic work visible, even when they are not transformed into scientific articles. These findings highlight the importance of continuing to strengthen formative research and methodological support, so that students who wish to advance toward scientific publication may have adequate technical and editorial support⁽⁴⁴⁻⁴⁹⁾.

Regarding limitations, the review included both the physical and virtual repositories, as during the evaluated period some theses were available only in printed format or had incomplete records in the digital platform; therefore, it was necessary to use both sources to ensure proper identification of authorship, year, and title. In this process, minor variations in certain metadata were observed, typical of archival systems in transition, which required additional manual verification, particularly to ensure correspondence between the record and the final document. Nevertheless, these situations do not compromise the validity of the study, as double-review procedures and standardized data extraction were applied, allowing the database to be refined using consistent criteria. Rather than structural limitations, these findings highlight the need to strengthen institutional support and standardization of repositories to facilitate future systematization processes and promote more efficient document management.

The findings of the study underscore the importance of continuing to strengthen methodological support throughout research training. In this regard, it is pertinent that faculty responsible for research courses have access to continuous training in methodology, statistical analysis, and scientific writing, so that they can provide clear, coherent guidance aligned with the undergraduate training level. Likewise, it is recommended to strengthen the capacities of thesis advisors by promoting standardized advisory criteria, timely feedback, and strategies that support the appropriate planning and execution of studies. From an institutional perspective, it would be valuable to establish mechanisms that facilitate faculty mentoring, standardization of instruments, and the quality of repositories, as well as to promote—when there is student interest and appropriate academic conditions—the development of articles derived from theses, not as a requirement but as a formative opportunity. These actions would contribute to the progressive consolidation of students' research competencies and to strengthening the research culture within the program.

Conclusions

Undergraduate theses from the Nursing Academic Program showed methodological patterns consistent with the formative characteristics of this level, highlighting the frequent use of observational, prospective, and cross-sectional designs, as well as descriptive and correlational approaches. The conversion of these theses into scientific publications was limited (1%). However, the results suggest the need to strengthen institutional strategies that facilitate the academic dissemination of these works—through presentations, conference participation, posters, or derived scientific articles, when appropriate—in order to progressively enhance the visibility and utilization of the knowledge generated by students.



BIBLIOGRAPHIC REFERENCES

1. Navarro-Cabrera JR. Importancia de la investigación científica universitaria. *Rev Cient Epistem Tekne* [Internet]. 20 de enero de 2022 [cited 2025 Oct 8];1(1):e302. <https://doi.org/10.51252/rceyt.v1i1.302>
2. Vojvodic-Hernández IM. La investigación en las escuelas de las ciencias de la salud. *Horiz Med.* [Internet]. 27 de marzo de 2024 [cited 2025 Oct 8];24(1):e2439. <https://doi.org/10.24265/horizmed.2024.v24n1.13>
3. Benitez J. La importancia de la investigación en Enfermería. *Enferm. investig.* [Internet]. 2020 [cited 2025 Oct 8];5(1):1-2. <http://dx.doi.org/10.29033/enferm.%20investig.v5i1.826>
4. Perú. Ministerio de Educación. Ley Universitaria N.º 30220. *Diario Oficial El Peruano, Año XXXI - N.º 12914.* Lima: Congreso de la República; 2014. Available from: <https://www.sunedu.gob.pe/wp-content/uploads/2017/04/Ley-universitaria-30220.pdf>
5. Agrazal García J, Barrios Barrios D, Bonilla Castro YE. Características de la producción científica de tesis. *Facultad de enfermería. Universidad de Panamá 2000-2023.* EDH [Internet]. 28 de febrero de 2025 [cited 2025 Oct 8];4(2):45-62. Available from: <https://revistas.anep.org.pa/index.php/edh/article/view/106>
6. Arvizu-Vieyra NM, Alonso-Trujillo J, Alonso-Ricardez A. Estructura metodológica de tesis de licenciatura en enfermería en dos instituciones educativas. *CuidArte* [Internet]. 15 de agosto de 2024 [cited 2025 Oct 8];13(26). <https://doi.org/10.22201/fesi.23958979e.2024.13.26.87352>
7. Hernández-Márquez C, Ojeda-Chacón T, Torres-Paz PI, Arizmendi-Jaime E. Caracterización de las investigaciones de tesis de posgrado en enfermería. *Enfermería Universitaria* [Internet]. 2020 [cited 2025 Oct 8];17(3):329-335. <https://doi.org/10.22201/eneo.23958421e.2020.3.758>
8. Estrada Araoz EG, Gallegos Ramos NA, Huaypar Loayza KH. Calidad metodológica de las tesis de pregrado de una universidad pública peruana. *Universidad y Sociedad* [Internet]. 2022 [cited 2025 Oct 8];14(3):22-29. Available from: <https://rus.ucf.edu.cu/index.php/rus/article/view/2838>
9. Sulca Añanca JR, Quispe Gutiérrez R. Producción científica de tesis de pregrado sustentadas y publicadas en una facultad de ciencias de la salud, 2011-2021 [Internet]. *Ayacucho: Universidad Nacional de San Cristóbal de Huamanga; 2023* [cited 2025 Oct 8]. Available from: <http://repositorio.unsch.edu.pe/handle/UNSCH/5176>

10. Tenorio Paz C, Rodríguez Cruz L, Ñique Carbajal C, Diaz Manchay R. Characteristics and scientific production of research at a nursing school in Peru. *Univ. Med.* [Internet]. 2021 [cited 2025 Oct 8];62(2). <https://doi.org/10.11144/Javeriana.umed62-2.cpci>
11. Mamani-Benito O, Ramos-Vilca G, Ccaso D, Quispe M, Chipana P. Publicación científica y características de las tesis de salud de universidades del Perú. *Horiz Med. (Lima)* [Internet]. 2020 [cited 2025 Oct 8];20(3):e1149. Available from: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S1727-558X2020000300010
12. Fernández-Guzmán D, Rojas-Vásquez P, Córdova-Guillén R, Alarcón-Zapata M. Barreras y limitaciones en la publicación de tesis de pregrado en ciencias de la salud. *Rev Cub Enferm.* [Internet]. 2023 [cited 2025 Oct 8];39(2):e4796. Available from: <http://revenfermeria.sld.cu/index.php/enf/article/view/4796>
13. Superintendencia Nacional de Educación Superior Universitaria. Ranking universitario del IV Informe Bienal 2021-2022 [Internet]. Lima: SUNEDU; 2025 [cited 2025 Oct 8]. Available from: <https://www.gob.pe/institucion/sunedu/informes-publicaciones/7200066-ranking-universitario-del-iv-informe-bienal-2021-2022>
14. Nordsteien A, Horntvedt M, Syse J. Use of research in undergraduate nursing students' theses: A mixed methods study. *Nurse Educ Today* [Internet]. 2017 [cited 2025 Oct 16];56:23-8. <https://doi.org/10.1016/j.nedt.2017.06.001>
15. Manterola C, Otzen T. Estudios observacionales: los diseños utilizados con mayor frecuencia en investigación clínica. *Int J Morphol.* [Internet]. 2014 [cited 2025 Oct 16];32(2):634-45. <http://dx.doi.org/10.4067/S0717-95022014000200042>
16. Mariani AW, Pêgo-Fernandes PM. Estudios observacionales: ¿por qué son tan importantes? *Sao Paulo Med J.* [Internet]. 2014 [cited 2025 Oct 16];132(1):1-2. <https://doi.org/10.1590/1516-3180.2014.1321784>
17. Quispe AM, Porta-Quinto T, Maita YA, Sedano CA. Serie de redacción científica: estudio de cohortes. *Rev Cuerpo Med HNAAA* [Internet]. 2020 [cited 2025 Oct 16];13(3):333-8. <http://dx.doi.org/10.35434/rcmhnaaa.2020.113.751>
18. Martín-Conejero A, Alonso-García M. Estudios observacionales analíticos. *Angiología* [Internet]. 2023 [cited 2025 Oct 16];75(6):385-90. <https://dx.doi.org/10.20960/angiologia.00544>
19. Cvetkovic-Vega A, Maguiña JL, Soto A, Lama-Valdivia J, López LE. Estudios transversales. *Rev Fac Med Hum.* [Internet]. 2021 [cited 2025 Oct 16];21(1):179-85. <http://dx.doi.org/10.25176/rfmh.v21i1.3069>
20. Campo-Torregrosa Y, et al. Intervención comunitaria para el cuidado de la salud en la comuna 7 de Santa Marta, Colombia. *Duazary* [Internet]. 2020 [cited 2025 Oct 16];17:47-53. <https://doi.org/10.21676/2389783x.3599>
21. Rojas M, Espejo R. La inversión en investigación científica como medida del capital intelectual en las instituciones de educación superior. *Inf Technol.* [Internet]. 2020 [cited 2025 Oct 16];31:79-90. <https://doi.org/10.4067/s0718-07642020000100079>
22. Pozzo M, Borgobello A, Pierella M. Using questionnaires in research on universities: analysis of experiences from a situated perspective. *REIRE Rev Innov Rec Educ.* [Internet]. 2019 [cited 2025 Oct 16];2(2),1-16. <https://doi.org/10.1344/reire2019.12.227010>
23. Oberto M, Mamondi V, Ferrero M, Sánchez R. Relato de una experiencia de promoción de la salud en escuelas: fomentando el lavado de manos. *Rev Educ.* [Internet]. 2020 [cited 2025 Oct 16];44:360-85. <https://doi.org/10.15517/revedu.v44i2.37581>
24. Iriarte-Roteta A, López-Dicastillo O, Mujika A, Ruíz-Zaldibar C, Hernantes N, Bermejo E, Pumar-Méndez M. Nurses' role in health promotion and prevention: a critical interpretive synthesis. *J Clin Nurs.* [Internet]. 2020 [cited 2025 Oct 16]. <https://doi.org/10.1111/jocn.15441>
25. Kemppainen V, Tossavainen K, Turunen H. Nurses' roles in health promotion practice: an integrative review. *Health Promot Int.* [Internet]. 2013 [cited 2025 Oct 16];28(4):490-501. <https://doi.org/10.1093/heapro/das034>
26. Richard L, Gendron S, Beaudet N, Boisvert N, Sauvé M, Garceau-Brodeur M. Health promotion and disease prevention among nurses working in local public health organizations in Montréal, Québec. *Public Health Nurs.* [Internet]. 2010 [v];27(5):450-8. <https://doi.org/10.1111/j.1525-1446.2010.00878.x>
27. Campos-Asensio C. Search for information in nursing: sources and resources. *Enferm Intensiva (Engl Ed.)* [Internet]. 2018 [cited 2025 Oct 16]. <https://doi.org/10.1016/j.enfie.2017.11.002>
28. Castelló-Cogollos L, Sixto-Costoya A, Lucas-Domínguez R, Dios J, Aleixandre-Benavent R. Bibliometría e indicadores de actividad científica (XI). Otros recursos útiles en la evaluación: Google Scholar, Microsoft Academic, 1findr, Dimensions y Lens.org. *Acta Pediatr Esp.* [Internet]. 2018 [cited 2025 Oct 16];76:123-30. https://serviciopediatria.com/wp-content/uploads/2019/12/XI_OTROS-INDICADORES-%C3%9ATILES.pdf
29. Ramírez M, Gutiérrez J, Tamayo M. State and evolution of the Investigación y Educación en Enfermería journal from a metric analysis. *Invest Educ Enferm.* [Internet]. 2021 [cited 2025 Oct 16];39. <https://doi.org/10.17533/udea.iee.v39n3e02>
30. Mamani-Benito O, Ramos-Vilca G, Ccaso D, Paye N, Mayta F, Ccasa-Valero L, Mejía C. Prioridades de investigación en salud en las tesis universitarias en Puno, Perú. *Horiz Med. (Lima)* [Internet]. 2021 [cited 2025 Oct 16];21(3):e1581. <https://doi.org/10.24265/horizmed.2021.v21n3.10>
31. Salazar E, Hernández-Segura G, García-Gutiérrez M, Gallegos-Torres R. Percepción de la satisfacción laboral del personal de enfermería del Hospital General de Ticomán. *Eur Sci J. (ESJ)* [Internet]. 2020 [cited 2025 Oct 16];16(21):347-356. <https://doi.org/10.19044/esj.2020.v16n21p347>
32. Quintero O, Quintero M. Pruebas paramétricas versus pruebas no paramétricas y sus aplicaciones en la investigación odontológica. *Rev. Fac. Odontol. Univ. Antioq.* [Internet]. 2016 [cited 2025 Oct 16];54:11-12. Available from: <https://revistas.udea.edu.co/index.php/odont/article/view/328946>
33. Navarro P, Ottone N, Acevedo C, Cantín M. Diseños de investigación y pruebas estadísticas utilizadas en revistas odontológicas de la red SciELO. *Av Odontoestomatol.* [Internet]. 2017 [cited 2025 Oct 16];33(1):1-9. <https://doi.org/10.4321/s0213-12852019000100003>
34. Pelea L. ¿Cómo proceder ante el incumplimiento de las premisas de los métodos paramétricos? o ¿Cómo trabajar con variables biológicas no normales? *Rev Cubana Invest Bioméd.* [Internet]. 2018 [cited 2025 Oct 16];39(1):1-12. Available from: <https://www.medigraphic.com/cgi-bin/new/resumen.cgi?IDARTICULO=84944>
35. Arribas-García S, Alboniga-Mayor J, Iturrioz E. Satisfacción y fatiga por compasión en personal de enfermería de oncología: estudio descriptivo y correlacional. *Enferm Glob.* [Internet]. 2020 [cited 2025 Oct 16];19(57):120-144. <https://doi.org/10.6018/eglobal.417261>
36. Taboada S, García A, Chudáčik M, Galán I, Carreira J, Álvarez M. Conocimiento y cumplimiento de las medidas de bioseguridad del personal de enfermería en los servicios especiales. *Rev Enferm CyL.* [Internet]. 2017 [cited 2025 Oct 16];19(2):15-20. Available from: <https://www.revistaenfermeriacyl.com/index.php/revistaenfermeriacyl/article/view/153>
37. Castro J, Martini H. Potencia estadística y cálculo del tamaño del efecto en G*Power: complementos a las pruebas de

- significación estadística y su aplicación en psicología. *Summa Psicol UST*. [Internet]. 2014 [cited 2025 Oct 16];5(2):210-244. <https://doi.org/10.22199/s07187475.2014.0002.00006>
38. López C, Galeano S, Blandón D. Relación entre el personal de enfermería y las gestantes durante el trabajo de parto. *Rev Cuid*. [Internet]. 2020 [cited 2025 Oct 16];17(1):71-84. <https://doi.org/10.22463/17949831.1636>
 39. Farji-Brener A. ¿Plantear o no plantear hipótesis? Sugerencias para estudiantes, directores y revisores. *Ecol Austral*. [Internet]. 2022 [cited 2025 Oct 16];32(2):191-198. <https://doi.org/10.25260/ea.22.32.2.0.1914>
 40. Salas-Rueda R, Salas-Rueda É, Salas-Rueda R. Diseño y uso de una aplicación web para el campo de la estadística considerando el modelo ASSURE y la ciencia de datos. *Texto Livre: Linguagem e Tecnologia* [Internet]. 2019 [cited 2025 Oct 16];12(1):48-71. <https://doi.org/10.17851/1983-3652.12.1.48-71>
 41. Garabito R, Gómez S, González M, Macías L, D'Agostino M, Cabo J. Revisiones sistemáticas exploratorias. *Med Segur Trab (Madr)*. [Internet]. 2009 [cited 2025 Oct 16];55(216):12-19. <https://doi.org/10.4321/s0465-546x2009000300002>
 42. Rodríguez M, Ávila M, Pérez I, Martínez G, Díaz L, Sotomayor M, Olvera E. Tendencias y características de la investigación en enfermería publicada en México. *Enferm Univ*. [Internet]. 2011 [cited 2025 Oct 16];8(1):7-16. <https://doi.org/10.22201/eneo.23958421e.2011.1.268>
 43. Marone L, Casenave J, Del Solar R. La tesis sintética de la verdad ayuda a mitigar la "crisis de reproducibilidad" e inspira a la ecología predictiva. *Rev Hist Nat Viv*. [Internet]. 2019 [cited 2025 Oct 16];14:363-376. <https://doi.org/10.22370/rhv2019iss14pp363-376>
 44. Touissi Y, Boulaich O, Idrissi F, Hjiej G, Stitou O, Belakbyer H, et al. Medical students' contribution to research: the scientific output of medical theses held in Moroccan medical schools during the last decade (2011–2021). *Med Educ Online*. [Internet]. 2023 [cited 2025 Oct 16];28(1):2218677. <https://doi.org/10.1080/10872981.2023.2218677>
 45. Karaca O, Çalıřkan S, Durak H. The publication of health sciences theses in Turkey: a study of Ege University. *Learn Publ*. [Internet]. 2020 [cited 2025 Oct 16];33(4):1-8. <https://doi.org/10.1002/leap.1324>
 46. Khatri P, Chapagain B, Sharma M. Publication status of theses among post-graduate students in nursing from Institute of Medicine. *J Nepal Health Res Counc*. [Internet]. 2024 [cited 2025 Oct 16];22(1):96-100. <https://doi.org/10.33314/jnhrc.v22i01.4460>
 47. Amgad M, Tsui M, Liptrott S, Shash E. Medical student research: an integrated mixed-methods systematic review and meta-analysis. *PLoS One* [Internet]. 2015 [cited 2025 Oct 16];10(6):e0127470. <https://doi.org/10.1371/journal.pone.0127470>
 48. Arriola-Quiroz I, Curioso W, Cruz-Encarnación M, Gayoso O. Characteristics and publication patterns of theses from a Peruvian medical school. *Health Info Libr J*. [Internet]. 2010 [cited 2025 Oct 16];27(2):148-154. <https://doi.org/10.1111/j.1471-1842.2010.00878.x>
 49. Hollmann M, Borrell C, Garin O, Fernández E, Alonso J. Factors influencing publication of scientific articles derived from master's theses in public health. *Int J Public Health* [Internet]. 2015 [cited 2025 Oct 16];60(4):495-504. <https://doi.org/10.1007/s00038-015-0664-0>

Authorship contribution

AVLY: Conceptualization, Funding acquisition, Project administration.

IAPM: Data curation, Formal analysis.

JCC-E: Data curation, Formal analysis.

JEAA: Investigation, Methodology, Writing – original draft, Writing.

MR-A: Investigation, Methodology, Writing – original draft, Writing – review & editing.

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Conflict of interest statement

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