

RESEARCH ARTICLE

Research Skills in Nursing Undergraduate Students: A Case at a Chilean Private University

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Citation: Vera F. (2020) Research Skills in Nursing Undergraduate Students: A Case at a Chilean Private University. Open Science Journal 5(3)

Received: 1st May 2020

Accepted: 12th June 2020

Published: 10th July 2020

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Funding: The author(s) received no specific funding for this work

Competing Interests: The author has declared that no competing interests exist.

Abstract:

Tertiary education in Chile has increased radically over the past 20 years. According to the Higher Education Information Service (Servicio de Información de Educación Superior: SIES), in 2018, there were 1,188,423 students enrolled in undergraduate programs, totaling 94.1% of the 1,262,771 students enrolled in Higher Education Institutions (SIES, 2018). In fact, there are both private and public universities available for students who seek an undergraduate program. In this context, nursing is an increasingly in-demand program and an option for all ages in this country. In general, this program calls for and develops skills and qualities essential to the nursing profession, amongst them: technical knowledge, critical thinking, empathy and strong communication skills. The purpose of this paper is to examine the main difficulties that undergraduate nursing students, at a Chilean private university, encounter when conducting their research proposal. Two instruments were used to collect data: an online self-administered questionnaire consisting of 14 closed-ended questions and a rubric to assess students' research proposals. The sample comprised of a total of 41 students, who were in the 23-52 age group. The average age was 34 years (SD= 5.78). Female students accounted for 88.5% of the total group. Findings indicate that there is a gap in research skills in these students. This article is based on the author's teaching experience.

Keywords: Research proposal, Health care, Nursing, Scientific research.

Introduction

Unlike basic or fundamental research, considered as a systematic study oriented to gaining knowledge and better understanding of certain phenomena, without application, applied research refers to scientific study and research that seeks to solve practical problems. In nursing, it plays an important role solving practical problems that often have an impact on life, work, health and overall well-being. This type of research present findings that should be directly applied in all nursing areas, such as, pain management, patient education and nursing diagnosis. From this standpoint, research training is a core theme in this discipline because it helps nurses respond to changes in the healthcare environment and integrate the best clinical practices into decision making about the health care of individual patients.

Undoubtedly, nurses play a huge role in illness prevention and health promotion. Moreover, according to the Pan American Health Organization (PAHO), the current situation of nursing requires, above all, increasing the number of registered nurses, improving their qualifications and revisiting their role in primary health care (PAHO, 2018). From this perspective, the main role of nursing research is improving the health of populations and contributing to achieve the Sustainable Development Goals (SDG). The only SDG with comprehensive health outcome targets is SDG 3, Ensure healthy lives and promote well-being for all at all ages (United Nations, 2015).

In Chile, Bachelor of Science in Nursing (BSN) programs integrate a theoretical and a practical component, both developed in clinical settings. Training is characterized by lectures and in-class activities (theoretical-practical and laboratory classes), periods of clinical training at different health institutions and a course-based research methods training, being introduced late into the nursing curriculum. However, after completing this training in research methodology and methods, students are not competent (or at least literate) in those methods. Previous research studies recommend nursing research courses and concepts be introduced into the nursing curriculum as early as possible (Ertug̃ & Onal, 2014; Hung et al., 2019).

Furthermore, nursing research has a tremendous influence on current and future professional nursing practice, thus rendering it an essential component of the educational process. Notwithstanding, insufficient attention has been paid to research skills development in undergraduate nursing students (Allari, 2016; Nind et al., 2019). Similarly, according to the author, training on nursing practice has been poorly established into the curriculum. As a matter of fact, nurses' reported use of research evidence into nursing clinical practice is moderate (Yates, 2015). Although there is an interesting development in nursing research, the gap between theory and everyday clinical practice still remains a challenge for the nursing world (Athanasakis, 2013; Tiwaken et al., 2015; Aljezawi et al., 2018). Specifically, this situation is frequently referred to as research-practice gap.

Nursing research skills

Research and evidence are important components of professional nursing practice, and inform the core curriculum of nursing education (Stevens, 2013). It is paramount that nurses acquire the necessary knowledge, skills and attitudes towards research before they can utilize it effectively in their clinical practice. As

an example, in a study conducted to determine the problems faced by 29 graduate students (8 Postgraduate and 21 PhD students, respectively), when conducting scientific research, 41.37% of this group said its main problem was a lack of scientific knowledge (Akyürek & Afacan, 2018). Although, according to these researchers, some participants experienced problems in all of the areas identified (level of scientific knowledge, supervisor-related issues, methodology, problems with resources, legal procedures and problems with participants).

With regard to the undergraduate scenario, students also encounter many problems during the scientific research process (Akyürek & Afacan, 2018). Moreover, in-class observations indicate that most nursing students prefer practical issues as opposed to intellectual work and difficulties in implementing research in practice. Accordingly, most undergraduate nursing students struggle both to choose a discipline-oriented research topic and to state their research question or problem, in such a way that its meaning is clear to all types of audiences.

Common errors in undergraduate research proposals

Embarking on a research project is compulsory for every nursing student who intends to graduate as a health professional. Designing a research proposal takes time, skill and knowledge. Here are the most common errors found in students' research work:

- Inadequate topic selection;
- Difficulties in stating the research question;
- Excess of research objectives;
- Failure to critically examine and assess prior research (state of the art);
- Unnecessary background (irrelevant to research proceedings);
- Failure to clearly define study variables;
- Failure to clearly specify population and sample;
- Lack of control of the measurement process; and
- Lack of adequate referencing (writing style and format for academic documents).

Most of the above-mentioned errors are due to students' low critical thinking ability and lack of metacognitive skills. As a strategy to overcome these errors, the following critical metacognitive questions are proposed:

- What is my research problem all about?
- What do I already know about this topic that could guide my research?
- How could my research project contribute to my disciplinary field?
- Which research paradigm fits my research best?
- Do I have enough time to complete my research project?

Metacognition pertains to the knowledge and skills for organizing, guiding, and controlling one's own thinking, actions, and learning processes. Metacognitive practices help students become aware of their strengths and weaknesses as learners, writers, readers, group members, researchers, etc. A key element is recognizing the limit of one's knowledge or ability and then figuring out how to expand that knowledge or extend the ability. Current researches have shown these metacognitive skills should be promoted from an early age (Sáiz & Carbonero, 2017; Coşkun, 2018). In the last few years, researchers in various

areas, particularly reading, memory development, and special education have been showing great interest in exploring the role of cognitive monitoring and other aspects of metacognition in the fulfillment of cognitive tasks (İşgör, 2016). These researchers are of the view that metacognitive beliefs, decisions and actions are the predictors of success or failure in a variety of activities, yet they are frequently overlooked.

Regarding nursing research, not all nurses are prepared to participate as members of a research team, since education and training in clinical nursing research are not consistently included in nursing curricula (Eckardt, et al., 2017). In fact, the utilization of research findings in clinical nursing practice has been found to be low and sometimes unsuccessful. The most important barriers to the application of research findings from the nurses' perspective are lack of access to resources, lack of time to read research, lack of colleague cooperation, no authority to change care protocols, little or no managerial support, poor team working and no incentives (Athanasakis, 2013; Yates, 2015; Bahadori et al., 2016; Aljezawi, 2018).

Importance of research in nursing education

Nursing research is a vital component to the health care field. In fact, integrating research into practice improves patient outcomes, as nurses can provide the best evidence-based healthcare service available worldwide (Erkin et al., 2017; Fiset et al., 2017; Nibbelink & Brewer, 2018). Additionally, nursing research helps in the life-long care of individuals and focuses on developing the following areas:

- Improving clinical decisions and evidence-based activities;
- Providing healthcare to patients during long term illnesses;
- Developing advancements that aid patients in recovery;
- Developing high standards to reduce the number of diseases in the community;
- Promoting healthy lifestyles in the community;
- Preventing the onset of preventable diseases and illnesses; and
- Implementing techniques and treatments to increase patients' perception of service quality.

According to literature review, research influences current and future professional nursing practice, in a significant manner. Therefore, it is a crucial component of the educational process for the next generation of nurses to acquire such skills as conducting research, reading scientific articles, making independent clinical decisions and problem solving (Erkin et al., 2017; Eckardt et al., 2017). Thus, when research is cultivated as a critical thinking skill in the new nursing workforce, academic outcomes are outstanding.

To be specific, it is likely that the direct involvement of students in research efforts increases their motivation and interaction with faculty members. For instance, a group of nursing undergraduate students enrolled in a Chilean state university has investigated the traditional healthcare system among the community of Pan de Azúcar - a rural sector in Coquimbo, Chile. Results of this research work were presented at the Eighth Iberoamerican Qualitative Research Congress of Health Promotion, held at Universidade Federal de Santa Catarina

(UFSC), in Florianópolis, Brazil (UFSC, 2018). These students' research undertakings are critical for personal and institutional development. They can also contribute to publications including papers, books and conference presentations.

The example given above lead to the necessity to transform nursing curricula, thereby, enabling more coherent teaching practices in nursing education in order to create better learning opportunities. In addition, the concept of cross-curricular research training should be integrated as a strategy to promote life-long learning that extends beyond the confines of classroom settings. This approach impels Chilean universities to train their faculty members in research-based teaching methods and active-learning strategies.

Evidence-Based Practice

Evidence-Based Practice (EBP) could be understood as science of patients' health care focused on the papers' key findings and implications for nursing practice. Thus, it systematically searches a wide range of international health care journals applying strict criteria for the validity of research and relevance to best nursing practice. This approach can be defined as the process through which nurses make clinical decisions using the best evidence available in research for their clinical practice and integrating patients' preferences.

More specifically, this problem-solving approach to clinical practice is defined as a process aimed at selecting the best scientific arguments for solving problems within the clinical practice. To reduce gaps between theory and clinical practice, nursing students require education that integrates EBP knowledge across classroom and clinical settings (Fiset et al., 2017). This study was conducted to identify and examine the literature related to nursing students' use of evidence in clinical education and to identify associated research gaps.

In short, EBP allows nurses to access, summarize, and apply information from the literature to day-to-day clinical problems. Consequently, this health care-oriented approach requires an emphasis on systematic observation and experience and a reliance on the research literature to substantiate nursing decisions (Nibbelink & Brewer, 2018). As it can be noted, the ability to use science and continuous questioning of reality to guide care management is a hallmark that must prevail in professional nursing practice, as it allows nurses to meet a daily need for valid information about clinical situations.

Materials and methods

This study employed a descriptive research survey design. The purpose of the present study was to examine the main difficulties that undergraduate nursing students, at a Chilean private university, encounter when conducting their undergraduate research project. Forty-one undergraduate students registered in the "Graduate Seminar course" participated in this study. Of this group, 34 (82.9%) were predominantly females (aging from 28-52 years) and 7 (17.0%) were males (aging from 23-35 years). It is important to note that as enforced requisites for this course, the students must have completed the previous courses "Research methodology" and "Nursing research".

Findings indicate that there is a gap in research skills in these nursing students. This article is based on the author's teaching experience. The researcher was the instructor of this course and all the instructions were given in Spanish. Considering that the Grade Point Average (GPA) in Chile ranges from 1.0 up to 7.0 (with one decimal place). Students should pass this course with a minimum grade 4.0. Chilean universities use a percentage grading system of 1 to 100% and the course-passing grade for most courses is 60%.

The data was collected through the use of a self-administered online questionnaire. The questions were divided into two main groups: Part A – Demographic data of nursing students (gender and age) and Part B – level of knowledge of research methodology and topic selection, consisting of 14 closed-ended questions (10 questions on knowledge of research methodology and four questions on topic selection). In addition, performance data was collected through a rubric from formative assessment methods. Thus, to benefit students from results-oriented approaches, their research proposals were assessed using formative assessment, with a referential grade.

Subsequently, a statistical analysis of the data collected was performed, which consisted of reviewing the students' responses to an online questionnaire and other statistical results, such as, gender, age and points obtained in the questionnaire on knowledge of research methodology. Statistical results were also performed on students' research proposals.

This study was designed to give answers for the following research questions:

1. What are the common challenges faced by nursing students when writing research proposals?
2. What is the nursing students' current level of knowledge of research methodology?
3. Which field do nursing students' research proposals mostly fit in?

Results

The participants were in the 23-52 age group and the average age was 34 years ($SD= 5.78$). Female students accounted for 82.9% of the total group. The knowledge of research methodology was measured through 10 questions covering the following dimensions: Problem statement, type of research study, population/samples and operationalization, as shown in Table 1.

Table 1. Knowledge of research methodology

Dimensions	n	%
Problem statement		
Correct answers	4	9.75
Incorrect answers	37	90.24
Type of research study		
Correct answers	16	39.02
Incorrect answers	25	60.97
Population and sample		
Correct answers	14	34.14
Incorrect answers	27	65.85
Operationalization		
Correct answers	6	14.63
Incorrect answers	35	85.36

As far as topic selection is concerned, four closed-ended questions were designed to find out students' mastery of key issues in nursing research, such as, patient care, current understanding of the research topic, need for access to state-of-the-art research and evidence-based nursing (Figure 1).

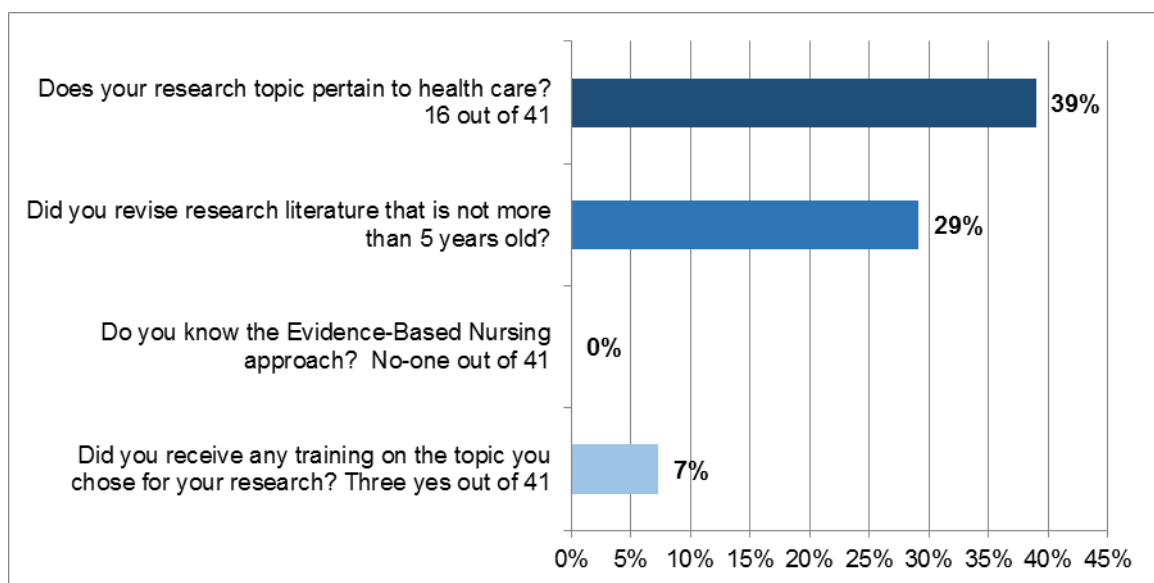


Figure 1. Percentage of students responding "Yes" to topic-selection questions

As it is shown in Figure 1, only 16 students chose a healthcare-related topic (39%). This contradicts the need to focus nursing research on patient care. In fact, results clearly demonstrate that there is a direct gap between practice and research, as the topics these students have chosen for their research proposal will benefit other areas of health, thereby preventing nursing to develop as a scientific field.

Regarding students' performance in their research proposals, data was collected using a rubric for research projects from a formative assessment approach, as shown in Table 2.

Table 2. Students' performance in research proposals
Scoring (0 to 4 points)

Categories	Points	n	%
1. Title and abstract	4	32	78.0
2. Research question	3	7	17.0
3. Hypothesis or objectives	3	7	17.0
4. Setting of the study	4	37	90.2
5. Organization and neatness of the proposal	3	28	68.3
6. Budget and timeline	3	26	63.4
7. Academic writing	2	25	60.1

Discussion and interpretation of findings

There are many common difficulties that students face when preparing their research proposals as an enforced requisite for graduation. These difficulties can make a big impact, from having their proposals rejected by their instructor, to extreme difficulties down the line when they are in the midst of conducting their research. In this case, results indicate that most of the students do not recognize basic research methodology-related concepts that are key for identifying and stating a research problem. This could prevent them from successfully completing their undergraduate research proposals. In this context, stating the research problem is the first issue being addressed when starting a research proposal. Although these nursing students have completed the enforced requisites for the Graduate Seminar course, their research skills are low. A research question must be feasible, interesting, novel, ethical, relevant, manageable and systematic.

Another critical finding is the choice of the research topic, which, in this case, focused mainly on health-related issues and not specifically on health care. Evidence indicates that nursing research should focus on the disciplinary field in order to promote patient care (Yates, 2015; Bahadori et, 2016; Eckardt et al, 2017; PAHO, 2018). Regarding students' final research proposals, results show that their academic achievement is unfortunately low. This is probably due to an ineffective nursing education and/or improper instructor guidance during the development of a research project.

In addition, most studies and literature on nursing research agree that there is a gap between theory and everyday clinical practice, which still remains a challenge for the nursing world (Athanasakis, 2013; Tiwaken et al, 2015; Yates, 2015; Bahadori et al., 2016; Aljezawi et al., 2018). This inconsistency between what students acquire through conventional classroom lectures and what they actually experience in clinical settings is also observed in these nursing students, when conducting their research proposals.

Recommendation

The findings obtained from this study demonstrated that ineffective preparation and lack of EBP training are nursing students' main challenges when undertaking a research project. Specifically, ineffective preparation in nursing research is one of the most important factors affecting students' learning and performance. So, before submitting research proposals for approval, it should be ascertained that undergraduate students have foundational understanding of the

role of research in assessing, evaluating and improving nursing practice and that they are theoretically and practically prepared to investigate topics of their own choice.

In order to develop nursing research skills, it is suggested that students are properly guided in determining the topics of their research proposals. Additionally, it is recommended that students should learn how to analyze the latest nursing research available online. This strategy would help them know what the nursing research priorities are locally, nationally and internationally. Otherwise, they will not be able to understand the conceptual boundaries of their disciplinary field. It is also suggested that nursing education should be transformed in a number of ways to prepare nursing graduates not only to work collaboratively, but also to conduct research in order to effectively promote patient outcomes. Accordingly, the following recommendations have been made for the integration of research into nursing curriculum design:

- Practicing observation as a primary research strategy;
- Involving students as partners in academic research;
- Implementing research-informed teaching strategies;
- Developing critical thinking skills that engage students;
- Planning the developmental process of research;
- Deciding on research topics regarding patient care;
- Browsing recent work conducted on chosen research topics;
- Browsing research methodology books;
- Accessing different nursing databases and journals;
- Using inductive and deductive reasoning; and
- Submitting students' research proposals to nursing congresses.

Finally, as nursing students are not prepared in evidence-based practice, it is suggested that nursing education should be revised to meet new educational nursing needs. Furthermore, observation plans should be made for nursing students to visit hospitals and take note of the best clinical practices available, before they begin their research. It is also recommended that a cross-curricular research approach should be implemented as a strategy to promote students' meaningful learning. This strategy could help create seamless research support structures for schools of nursing. More importantly, it is suggested that nursing research should address how evidence can be translated into practice and become the new standard in nurse education for the 21st century healthcare workforce.

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