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Title:

Incorporating Research into a 2-Year Practical Nursing Diploma Program

Short Title:

Research in Practical Nursing Program

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Abstract

Research utilization is becoming increasingly important in nursing programs, especially since sound clinical nursing practice must be based on evidence-based nursing. In this study, research was incorporated into a 2-year practical nursing diploma program at the College level. No formal method exists within the practical nursing program to implement research and therefore a paradigm similar to the undergraduate research programs present in universities was employed. Student selection was based on faculty consensus and a project spanning 2 semesters was selected. Faculty met with the student approximately once a month and the student indicated satisfaction with the way the research program was integrated within the practical nursing program. To provide motivation for students in the practical nursing program at Sheridan College to participate in the research component, a record of the participation can be made on the student's curricular record at the College. Other ways research can be incorporated into college-level practical nursing programs include the incremental introduction of research into specific courses within the program or provision a credited research course. A structured blueprint is provided to aid college-level health programs incorporate research into their curricula.

Abbreviations

FAHCS: Faculty of Applied Health and Community Studies

PN: Practical Nursing

RN: Registered Nurse

RPN: Registered Practical Nurse

CNO: College of Nurses of Ontario

TCPS2: Tri-Council Policy Statement Tutorial

Introduction

Research has been increasingly utilized in the Registered Nurse (RN) and Registered Practical Nurse (RPN) curriculum as a means to educate students on effective utilization of evidence based clinical practice. In the Assumptions created by the College of Nurses Ontario (CNO), entry-level RPNs must “have a knowledge base in nursing, health and social sciences, ethics, leadership, and research” (CNO, 2011). Additionally, the CNO requires that the RPN “reviews literature and consults with colleagues and other resources in selecting assessment tools or techniques” and “critiques and integrates research findings from nursing, and health and social sciences into one’s practice” (CNO, 2011). Despite such requirements, many nursing programs still find it challenging to integrate research with teaching and clinical practice (Ireland, 2006). Due to such CNO requirements, this article looks into a method for incorporating research into the 2-year Practical Nursing (PN) program at Sheridan College. In this research brief, the author’s experience incorporating such a research project is described. Even though this study is a pilot study, valuable insights are provided regarding project initiation and maintenance and student selection; recommendations are also made regarding methods that can be used to incorporate research into the PN curriculum.

Theoretical Background

Nurses constitute the largest group of health care practitioners and are monumental in providing the initial health care required by clients (Mittelman, 2010). Despite this important role, many nurses tend to rely on their extensive work experience in their clinical decisions and practice rather than utilize the appropriate research and knowledge (Florin, Ehrenberg, Wallin, & Gustavsson, 2012). In order to provide patient health care that is cost effective, appropriate, justifiable, and based on validated nursing interventions, clinical practice must be based on current evidence and best practices along with a strong and solid reliance on validated nursing research utilization (Graling, 1998; Mattila, Koivisto, & Haggman-Laitila, 2005; Roxburgh, 2006). It is however challenging to incorporate research into nursing practice and curriculum; in fact, nurses tend to excel in their roles as practitioners, educators, and collaborators, yet few seem to be able to incorporate the role of researcher in their portfolio (Ayers & Coeling, 2005). Despite being viewed as intimidating by nurses, research is integrated in their daily practice starting from when they listen to patient concerns, formulate intervention plans to address these concerns, and evaluate the success of the intervention plan (Granger, 2003).

A pilot study assessing the extent of nursing research performed at schools of nursing in the United States revealed that the percentage of faculty participating in nursing research is low (Broome, Ironside, & McNelis, 2012). Some of the barriers faced by nurses towards performing research include the lack of time, peer support, authority, confidence, interest, and knowledge to set up research projects in nursing (Breimaier, Halfens, & Lohrmann, 2011; Corchon, Portillo, Watson, & Saracibar, 2011; Heaslip, Hewitt-Taylor, & Rowe, 2012; Roxburgh, 2006). Additionally, nursing programs tend to have demanding curricula and contain a large number of students, both of which place a substantial demand on faculty and can limit their ability to conduct and participate in educational nursing research (Broome et al., 2012; Vessey & DeMarco, 2008). A more pressing barrier is the absence of well-developed methodology to incorporate research into nursing programs by management and the provision of insufficient protected time (from teaching and other duties) to perform research (Adderly-Kelly, 2003; Broome et al., 2012).

Due to the importance of basing clinical decisions on evidence-based nursing, nursing students at both the university and community college level need to be provided with opportunities to participate in research during their undergraduate training (Thorpe & Smutko, 1998; Vessey & DeMarco, 2008). Some of the ways research can be incorporated in such programs include utilizing undergraduate honours programs, hiring students as research assistants, inclusion of mentorship research programs by pairing students with clinical nursing researchers, involving students in performing literature reviews, and joining/creating journal clubs and research seminars (Hamilton, 2010; Vessey & DeMarco, 2008). Students can also become involved in the research process by helping faculty in their existing research, collecting, coding, and entering data, and performing data and statistical analyses (Ireland, 2006). Some of the benefits that can be reaped by students from the incorporation of research into the curriculum include fostering positive relationships with their communities, ability to see the relationship between the research process and the nursing process, development of a positive attitude towards research, and perception of fewer barriers towards implementing and participating in research in their own practice (Florin et al., 2012; Ireland, 2006; Niven, Roy, Schaefer, Gasquoine, & Ward, 2013).

Implementation of a research component in nursing programs requires a committed leadership, a positive collegial culture that offers strong mentorship opportunities to newly emerging nurse researchers, a strong infrastructure mechanism, and presence of funding opportunities to support ongoing researchers (Adderly-Kelly, 2003; Broome et al., 2012). A strong and supportive leadership also provides the support mechanisms required to implement research into the nursing curriculum, such as providing faculty with release time to perform research in addition to research training on how to write an ethics application, collect data, manage a multi-site study, write a grant for funding, and disseminate and analyze results (Broome et al., 2012; Roxburgh, 2006). Research result dissemination is an important aspect of nursing research and can take the form of presenting research findings to the entire nursing group and provision of updates through global emails to ensure all members of the team are briefed on the latest findings (Nixon, Young, Sellick, & Wright, 2013). Once established, such an enabling and positive research environment will allow the formation of interdisciplinary teams of students and faculty working together on all aspects of the research project and forming collegial collaborations based on trust, integrity, respect, and ethical practices (Broome et al., 2012; Wilkes & Jackson, 2013).

Method

Program Description and Research Introduction

The Practical Nursing Program at Sheridan College is a 2-year diploma program that prepares students for a career as an RPN. During the program, students are introduced to topics such as Fundamentals of Practical Nursing, Self and Profession, Anatomy and Disease Conditions, Pharmacology, Health Assessment, Realities of Practice, Family Care Nursing, and Mental Health Nursing. At the culmination of the 2-year program, graduates are provided with the skills and knowledge to practice as a practical nurse within a professional health care team. Full details on the program can be obtained from <http://www.sheridancollege.ca/programs-and-courses/full-time-programs/programs-a-z-index/practical-nursing.aspx>. Since no formal method exists within the PN program to incorporate research into the curriculum, the principal investigators decided to utilize a paradigm similar to the Undergraduate Honours Program to introduce research into the curriculum, where the research project is performed separate from the curriculum under the supervision of a faculty mentor with the ability of the student to incorporate some of the research components such as the literature searches within the assessments of specific courses in the program (Vessey & DeMarco, 2008).

Student Selection

Feedback regarding student selection was gathered from PN faculty members during the weekly PN Faculty meeting. A description of the research methodology was provided during the faculty meeting and faculty were asked to suggest the names of students who would have the aptitude and ability to participate in the proposed research project. Faculty recommendations were to be based on both student professional conduct (determined through general actions and demeanor in PN labs and classroom) and academic performance (based on Grade Point Average or GPA and course grades). Additionally, faculty were asked to consider research specific characteristics when making their recommendations; this included determining the student's ability to perform extensive literature searches, critically appraise peer-reviewed journal articles, produce high quality reports in the proposed research area, and provide and obtain continuous feedback during the process.

Research Project Initiation

It was anticipated that the project would span 2 semesters, and therefore the student was to be selected from within the third semester to ensure the ability to continue the project to completion (the PN program is a 4-semester program). Following the definition of the project, an orientation meeting was set up with the selected student to introduce the student to the research process. A one-page document was created outlining the project title, a brief description of the project, and an outline of the required work and responsibilities. This document also contained the proposed timelines for the project and the required milestones. The principal investigators briefly outlined to the student how to perform a literature search, narrow the field of research to identify a research question or aim, construct a questionnaire, and prepare a research ethics application. Samples of ethics applications previously submitted by the principal investigators were provided to the student as a guide to the successful completion of an application. The student was informed that the project will occur in two phases: the first would be to prepare for the study by performing a comprehensive literature review and complete the ethics application and the second phase would be conducting the actual research study. No formal schedule was placed for meeting times; instead the student was encouraged to make appointments with the principal investigators as required to discuss progress. The student was informed of the flexibility in the research project: if certain topics appeared to pique the student's interest through the literature search process, the student was encouraged to discuss the topics with the principal investigators in order to further pursue the area(s) of interest.

Student Experience Survey

To determine the student's experience during phase 1 of the research project and to gauge the efficacy of incorporating research into the PN curriculum, a questionnaire was designed for the student to complete. The student signed an informed consent form prior to completing the questionnaire and was asked to provide answers to the questions from the perspective of what can be done and improved upon to help future students interested in conducting a similar research project within the PN program. The scope of the questionnaire ranged from asking the student whether the provided orientation session was appropriate to evaluating the extent of skills the student felt could be gained from participating in this research project.

Results

Student Selection

Two students were recommended by PN Faculty; the principal investigators narrowed the selection to one student based on relevance of the research project to the student's interests and background. The selected student also had a previous degree in science, which the principal investigators felt would help in terms of research conduct.

Project Initiation

During the initial student orientation meeting, the principal investigators reviewed the one page research proposal with the student. The student was shown how to access and search databases such as pubmed, the Cochrane Library, CINAHL, PsycInfo, and Google Scholar and informed of the importance of keeping track of research keywords. Since no formal meetings were scheduled, the student contacted the principal investigators by email as required and whenever new progress was achieved. On average and over the span of two semesters, the student met with the principal investigators approximately once a month. An initial package of original and review peer-reviewed articles on the research topic were prepared and provided to the student during the first orientation meeting; several other packages were also dispatched to the student over several meetings. The aim of these articles was to provide the student with a starting point to conduct a comprehensive literature search on the research topic; additionally, these articles served as an example of the types of articles that need to be perused to conduct and participate in the research project. The student was encouraged to read and critique the articles while summarizing the findings in an electronic format. Finally, the student was encouraged to complete the Tri-Council Policy Statement Tutorial (TCPS2) as this is a requirement for anyone conducting research with human subjects at Sheridan College.

Survey Administration and Student Experience

Results from the survey administered to the student towards the end of Phase 1 indicated student satisfaction with the initial proposal provided during the research orientation meeting and the associated reading materials (rated 4 out of 5). The predominant type of reading material provided to the student was in the form of peer-reviewed articles; while the student felt that was appropriate, the recommendation was to provide a variety of other reading material in the form of items from the popular literature and articles from different journal types. The student also indicated a preference to be provided with incremental packages of information as the research project progressed. When asked to rate the skills gained from participating and conducting the research project, the student indicated satisfaction with the ability to perform literature searches (rated 5 out of 5), critical analysis of research articles (rated 4 out of 5), summarizing research articles (rated 5 out of 5), creating survey questions (rated 4 out of 5), and composing a research ethics application (rated 4 out of 5). The student indicated the ability to read, comprehend, and analyze statistical data in articles as an additional skill gained by participating in this research project. The student performed literature searches on a weekly basis with a total of 5 hours a week devoted to reading and preparing for the research project and 4 hours a week spent on applying the knowledge gained in the research project towards other curricular and course work. Instead of leaving meetings to an as needed basis, the student preferred a formal and well-defined meeting schedule to be in place with planned objectives for each meeting. The student also indicated the preference to be provided with the option of various research projects to select the final project from. Presence of a formal training session prior to starting the research project or participation in a Research Methodologies workshop during the

semester prior to starting the research project were preferred by the student as an introduction to research within the PN program.

Discussion

PNs and associate nurses play an immensely important role in bedside client care and are therefore well positioned to enhance nursing knowledge through research utilization and participation (Ayers & Coeling, 2005). Despite this important role, studies examining the incorporation of research into associate nursing degrees at the diploma level are scarce. In this pilot study, the incorporation of a research component in a 2-year PN diploma program is described. No formal methodology exists within the PN program at Sheridan College regarding the implementation of a research project and therefore the onus was on the principal investigators to define the research project and associated requirements and needs from both a faculty and student perspective. The first step in incorporating research in the curriculum requires the selection of student(s) willing to participate in such a research project, and this should be sought from program faculty. The research project principal investigators took into account faculty recommendations and made a decision on student selection based on characteristics such as student maturity, scholastic performance (in all semesters of the program), originality, ability to think outside the box, background, creativity, and agility.

College programs interested in implementing research into the curriculum must select research projects with an applied nature and of sufficient breadth in order to allow its completion within 1 – 3 semesters in the program. It is therefore important to define the semester where the student will be selected from; for this study, the selected student was from the third semester as this ensured sufficient time is available to complete the research project and that the student has been exposed to ample experience in course and clinical work to exhibit the required knowledge and maturity to conduct the research project. Once the project timeline is defined, an orientation session must be set with the student to discuss basic research skills, review how to perform a literature search, and critique journal articles. The student should also be encouraged to complete the Tri-Council Policy Statement Tutorial (TCPS) and obtain the TCPS2 Certificate as this will ensure proper exposure to research methods conducted with human participants. Based on results from this study, student selection to participate in a research project should be partly based on grades, since higher grades indicate a specific level of knowledge and competency. In order to facilitate student recruitment, faculty biographies should be made available to the student and should include a description of the faculty's personal research interests, the projects they are involved, and the research methodologies.

The student who participated in this research study preferred a rigid and formal meeting structure to be in place however meetings should also be conducted on an as needed basis; it is important for faculty to be available to meet with the students outside pre-arranged meeting times to address arising issues and concerns. To facilitate this, no more than 4 students should be assigned to one supervisor or principal investigator (Ireland, 2006). Offering a formal Research Methodologies workshop in the semester prior to the initiation of the research project may also be an option to introducing research into the PN curriculum. The workshop can be graded to provide students with the motivation to complete it; additionally, the student would be required to complete and obtain the TCPS2 certificate during that time. Additional models described in the literature that can also be used to introduce research into a nursing diploma program include introducing a credited course in the nursing curriculum open to students who complete their first semester in the program or incrementally introducing students to research starting from their first semester within the program and continuing until the final semester

with an aim of encouraging the use of research in clinical practice (Ayers & Coeling, 2005; Thorpe & Smutko, 1998). Regardless of the research model utilized in the program, result dissemination must be addressed and can include presenting a poster, participating in a Research Symposium, and sharing results among classmates. Student names should also be included in publications arising from the research project, since this will give them the chance to participate in the peer review process and provide them with experience on how to prepare manuscripts for such journals.

Students who learn about research methodology during their studies tend to perceive fewer barriers to research utilization in nursing practice; yet students tend to find it challenging to be involved in research due to a lack of motivation in the process practice (Ayers & Coeling, 2005; Hamilton, 2010; Thorpe & Smutko, 1998). By providing the students with the flexibility to narrow the field of research and encouraging the exploration of various areas of interest within the umbrella of the project, the student can be motivated to participate in a research study during curriculum. This will also allow the student to develop an appropriate nursing research acumen that fosters feelings of ownership towards the project. Allowing students to apply the knowledge gained from the research project towards other courses in the curriculum will also provide a tangible benefit and motivating factor to participate in a research project. Introducing a research component in the PN curriculum at Sheridan College allowed the student to perform literature searches and analyze and summarize articles. This is a substantial benefit, since the literature indicates that the frequency with which nurses read literature articles from academic journals is low (Roxburgh, 2006). Results of this study illustrated though that it was essential though to aid the student in the literature searches by providing incremental packages of articles during the initial phases of the research. Even though the student in this study was satisfied with the number, depth, and scope of articles provided during the project, additional forms of information in the form of newspaper articles, magazines, video links, and items from the popular literature were recommended; despite being non-peer reviewed, such literature sources may be useful in familiarizing the student with the research topic at hand and providing them with the information to research in order to delve deeply into the project.

Introducing a research component into a program typically requires a strong leadership and management investment, a well-established research infrastructure, and the presence of collaboration and mentorship at all levels (O'Byrne & Smith, 2011). If the student realizes a reward from participating in a research project in the form of a record in their curricular transcript, this can entice them to participate in such an initiative. Sheridan College has introduced a Co-Curricula record that records participation of students in pre-defined extra-curricular activities on the transcript; participation in a research component during their studies needs to be included as a pre-defined co-curricular activity as a reward for participating. Institutional support for research will allow more reception towards incorporating research in programs, especially since results of this study indicated reluctance from students to participate in research. The PN program at Sheridan College tends to have a heavy course-load and therefore students need to make an informed decision on whether they would like to participate in such an opportunity; the importance of research in the nursing profession however does not allow research participation to be an option and it may be more prudent to incorporate minor research aspects in all courses of the program throughout the 2 years of the diploma. In such a scenario, students will still need to be provided with a research workshop provided during the first weeks the student is enrolled in the program or even during the program orientation week to ensure all students are comfortable with research methodologies and requirements. Construct of a research manual can also help students learn more about the research process; this manual can be introduced during the research orientation session and should detail the scope of the research, roles of the principal investigators in the study, data collection methods, and basic principles of ethics.

Limitations and Conclusion

This pilot study describes an attempt to incorporate research into a 2-year practical nursing program at Sheridan College. Overall, the student participating in this research project felt that the experience was knowledge-enhancing and eased the course load and work required during the semester. Even though promising, one of the limitations of this study is that the results are based on a single student. Additionally, this result is based on a single semester however it may be possible to extract the results to create a generic research model that can be used as a platform to incorporate research into the curriculum and a general blue print can be built to help programs interested in incorporating research into their curriculum based on these results. The first aspect that must be considered within this blueprint is ensuring the project is appropriately designed and the selected students are properly oriented with research methodologies. Meeting time points should be set for the project along with milestones, however flexibility should also be provided to allow the student to meet with the principal investigator whenever needed. Finally, a reward system needs to be in place that offers the student a tangible benefit from participating in the research project; this can include recording the participation in the transcript as a co-curricular activity, providing the student with a certificate attesting completion of the research project, and inclusion of student name in publications arising from the research project.

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