



## Implementation of a programme to develop research projects in a school of midwifery in Santiago, Chile

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### ABSTRACT

**Background:** The acquisition of research skills by midwifery students is increasingly important especially for midwifery programmes in universities. Recently, universities in Chile have included the development of research skills in the majority of professional curricula for basic and post-basic degree programmes. The lack of research training is a limitation recognised and shared with other Latin American countries which prevents scientific and technological development. **Objectives:** To describe the process of implementation of a programme of research projects by midwifery students in a school in Chile and the results obtained, and the perceptions of students and teachers. **Results:** 31 work groups were formed (92 students), who developed and implemented research projects in gynecology, public health and neonatology. Research was conducted at six public hospitals serving high risk populations, a private clinic, and nine family health centres. The average scores earned for the projects was a 5.7 (scale of 1–7). The students and teachers positively rated the experience of undertaking research. **Conclusion:** The development of research projects allows students to acquire competencies and confidence in their research skills. It is an experience that can be replicated in other countries supported by the commitment of the midwifery and university faculty and the training and motivation of a group of midwifery educators.

### Background

With the increased emphasis on evidenced-based practice, it is essential that midwifery students graduate with knowledge of the research process and approaches to undertaking research. This is important for two reasons. It is essential for the midwifery profession to be able to generate evidence about the midwifery models of care and test the effectiveness of different care approaches (ten Hoop-Bender et al., 2014). In general, lack of research training in Chile and other Latin American countries has limited scientific and technological development (Santelices, 2010). In common with other parts of the world, maternity care in Latin America includes practices that are not evidenced-based (Binfa et al., 2016) and in order to change that, health professional students in all disciplines need to understand research principles to better read and appraise the literature and understand the principles of research term and evidenced-based practice.

Three core research competences have been proposed for Chilean midwives graduating from pre-service midwifery programmes. These are: (1) use of evidence in solving health problems, valuing evidence-based practice; (2) awareness of how to develop, implement, and evaluate research; and (3) publish and disseminate findings of research or

evidenced-based practice in line with current internationally recognised standards (Vergara, 2011).

The objectives of this paper are to describe the development and implementation of a course aimed at enhancing research competencies among student midwives in a university in Chile. We also highlight the potential benefits not only to students but to faculty participating in this research programmes.

### Project description

This descriptive study reviews the implementation of a programme introduced in early 2016 to develop research projects by fifth year midwifery students at the Mayor University of Santiago, Chile. The students received basic courses earlier in their curriculum on epidemiology, biostatistics and research design that provided tools for evaluation of studies. These research projects were aimed to consolidate the knowledge and research skills acquired from these prior courses. A research unit within the Department of Midwifery was established which included midwifery teachers with experience in education or postgraduate research. The primary student learning objectives for the research projects were: to develop research skills through the use of scientific

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reasoning and critical thinking; to assess evidence to conduct a research project using quantitative tools; and to experience use of information technology and relevant software for data management. The students were also expected to demonstrate responsibility for personal development and self-directed learning.

Midwifery teachers were encouraged to participate using the incentive that successful student projects would be publishable, with the opportunity to develop connections with other ongoing research in clinical sites would help the teacher's own research plans. First, the team of midwifery tutors for the research projects identified the necessary steps for students to actually carry out a research project and what teaching and technical resources were needed. Collaboration with clinical sites and information technology support at research sites was an important identified need. Midwifery tutors also needed to discuss the expected scope of undergraduate research projects and be taught methods to facilitate student learning and how to foster critical thinking by the students in the tutoring groups in order to promote self-directed learning.

The role of midwifery tutors in the research tutoring groups was clearly delineated. Each tutor was to have no more than three groups and each group consisted of a maximum of three students. Each student group worked on a single research project. Tutors facilitated the groups to monitor and assure student feedback to each other was constructive, inclusive of all members, and encouraged the flow of ideas. They were responsible for helping students define the research problem and formulate a research plan and for coordinating student evaluations. Lastly, the tutors had to approve the completion of each project and they participated as members of the oral defense committee of each group of students. The student projects were undertaken based on four clear, discrete phases. During the *planning phase*, students conducted a review of the literature on the identified topic in English, an important skill given the majority of research papers are only available in English. From the review, they then proposed a research question that could be answered with a descriptive study, and identify a framework and methodology. During the *implementation phase*, students discussed in their research group any barriers encountered and discussed ideas about strategies to solve implementation issues. During the *evaluation phase*, student group discussions were also intended to contribute ideas about analyzing the data, appropriate ways to present data, and how to best to disseminate the results. An *oral defense* was the final phase where the students formally presented the research project to a committee including a midwifery faculty member, an experienced researcher, and the student's research group tutor.

To ensure rigor, students were evaluated at each phase with a different evaluator. Initially a student group submitted their research proposal and research question to the research site for approval. The research proposal was also reviewed by the unit. The second report which presented the implementation phase was reviewed by each group tutor, with a final evaluation provided by the whole team of midwifery group tutors. The average of the three evaluation reports contributed 50% to the student's final grade. The other 50% of the grade was based on the evaluation of the oral defense committee.

## Results

In the first complete year of the programme, 31 groups consisting of 92 students participated in the research projects under the mentorship of eight midwifery tutors. Of 31 projects presented, three were accepted as submitted and 26 were returned with comments, then redefined, and subsequently accepted. Only two projects were initially rejected due to unrealistic timeframes. They were modified and then accepted. The thematic areas of research were gynecology (11), public health (12), and neonatology (8). Project designs included 23 descriptive quantitative studies, one case study, two qualitative studies, and five were systematic reviews. The 26 primary research projects were conducted in six public hospitals with complex patient populations (14 projects), one private clinic (1 project), and nine family health centres (11 projects).

Student performance on all phases of the project was very good. On a scale of 1–7, the average rating for the planning phase was 5.1, the implementation phase was 5.7, and the evaluation phase was 6.0. Oral defense scores averaged 5.8. Finally, the overall score as an average of evaluations by phase and oral defense was 5.7.

Students and tutors perceptions about participation in this research experience were outstanding. Of the 92 students participating, 75 (81.5%) believed that the research project provided them with important research skills and was a valuable aspect of their academic preparation. In fact an overwhelming percent stated they would be available to continue working on the project and work toward publishing results (87.8%). Three-quarters felt they had acquired skills which would enable them to be part of future research teams and they were motivated to continue their training in research. Most felt the tutors were freely available to students to assist with the process. All tutors stated the projects met their expectation and fulfilled the objectives of the educational experience. Although a relatively new programme, three papers have already been accepted for publication.

## Discussion

This year long research programme in the fifth year of an undergraduate midwifery programme demonstrates that students can acquire skills and abilities in research required for graduation. Although it required a modest investment in the development and coordination by the Department Midwifery, it proved to be feasible and successful in meeting objectives of both students and midwifery tutors. This model is sustainable, because it uses current human resources in the school and only requires a decision to repeat the experience year after year while allocating sufficient time to tutors to meet the challenge. All tutors from the first cohort have agreed to continue participation in the next cohort.

The delivery of research content should be considered a cross-cutting dimension in the curriculum, from the early stages of education of students. Universities are implementing crosscutting programmes, such as the "seeds of research", which provide an environment designed to identify and reaffirm the investigative collaboration between students and teachers (Miyahira, 2009). Such collaboration can benefit students by contributing to their competitiveness in future job opportunities and it may promote their acceptance into a graduate school (Cohen et al., 2008). In 2017 three students entered the master's programme in midwifery offered by this school. At the same time, for teachers, the publication of findings in peer-reviewed journals can influence promotion, salary and academic recognition (Cohen et al., 2008).

As many midwifery education programmes move from vocational schools to university programmes, acquisition of basics of research principles will be an expectation. At minimum, midwives should be expected to be good consumers of the research literature in order to assist in translating that research into midwifery practice (Bick and George, 2010). As recommended by a recent global report, midwifery education should also prepare midwives to be active members of multidisciplinary teams needed for successful implementation of evidenced-base practice change (Jylha et al., 2017). Students in the first cohort of this project overwhelmingly felt the project accomplished these two goals.

## Conclusion

Developing and implementing a programme where midwifery students conduct research projects in their final year of midwifery education is feasible and sustainable. Such a programme consolidates prior coursework related to research and helps students achieve competency and confidence to use these skills in their future employment and possibly for furthering their research career. Our experience shows that such a programme is possible in an international setting.

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