

A Curriculum Development Project for a School Nursing Certification Program in Turkey: A Delphi Study

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ABSTRACT

Objective: School nursing education has not been standardized in Turkey so that it was decided the Delphi technique would be used to develop a curriculum for a program of education in school nursing.

Methods: The data were collected from the expert panel via the Delphi technique by means of e-mail. Data were collected in three consecutive Delphi rounds. The population of the study comprised academic nurses and school nurses working in the area of school nursing in Turkey. A total of 83 experts were invited to participate in the study. The data were evaluated in terms of Quartile 1, Quartile 3, medians, interquartile ranges. Interquartile range refers to the difference between Quartile 3 and 1. Consensus was considered as less than the interquartile range of 1.2.

Results: At the end of Round-1, 177 learning outcomes, nine main topics, 262 sub-topics were obtained. At the end of Round-2, 167 learning outcomes, nine main and 255 sub-topics were gathered, while at the end of Round-3, agreement was reached regarding nine main topics, 255 sub-topics, 167 learning outcomes, thus ending the Delphi rounds.

Conclusions: The curriculum on which agreement was reached will be treated as a guide to school nursing education and contribute to the standardization of this instruction.

Keywords: Certification, curriculum, delphi technique, school nurse education

1. INTRODUCTION

School nursing is a specialized branch of nursing that contributes to students' health, academic achievement, and life-long wellbeing. Toward this aim, school nurses help students to adapt to their normal process of development, work to improve the health and safety of both students and the community, intervene in actual and potential health issues, engage in case management, help students and their families develop their capacities for self-management and learning, while at the same time working with other employees in active collaboration (1).

School nurses are required to have the skills of analyzing data for diagnosis, determining nursing diagnoses and results, identifying outcomes, planning, implementation, coordinating care, providing health education and improving health, consultation, progressing toward attaining results and evaluating the quality of nursing practices, gaining skills and competences, assessing professional practices, contributing to the development of their colleagues and school personnel, and developing competences and standards in the areas of

cooperation, ethics, research, in using resources, engaging in leadership and program management (2). In Turkey, the Ministry of Health has outlined the duties, powers and responsibilities of school nurses in its "Regulation No. 27910 on Amending Nursing Regulations" that was published in 2011. In line with this regulation, this branch of nursing includes a widely comprehensive range of duties related to matters such as defining school health needs, defining powers, performing periodical physical examinations, immunization, health screening, health education and planning (3).

In school nursing applications around the world, there are differences in the approach to the role of the school nurse, in percentages of nursing students, care supervision, proposed nursing education as well as in local needs. Systems of education and services are shaped differently where there is no standard model for school health services or implementing school nursing practices. Because of this, the effectiveness of the school nurse and the quality of school health services are directly related to the leadership, management, cooperative

effort and advocacy skills with which nurses can meet students' needs (4).

In Turkey, school nursing education is provided within the scope of basic nurses' training as part of the public health nursing curriculum, whereas in developed countries, this is defined as a separate field of specialization (5, 6). The American Nurses Association (ANA) requires a minimum bachelor's degree for performing professional nursing practices (7). ANA and the National Association of School Nurses (NASN) requires school nurses to pass a program of education in order to be prepared for their roles in this capacity. It has been stated that this training needs to be conducted at the level of a national certification program (8). In Turkey, school nursing is taught as an elective course in School nursing in Nursing Undergraduate programs, as a course as part of the Public Health Nursing Graduate Program, as a Graduate program in School nursing, and as a School Nursing Certification program.

The lack of a standard in school nursing education in Turkey, the fact that school nurses are predominantly employed in private schools and boarding institutions, the lack of agreement on what school nursing education programs should entail are among the problem experienced in this area. Nurses must attend a course of education after graduation in order to be able to work in the field of school health. Well-known international organizations such as the NASN and the American Speech-Language-Hearing Association (ASHA) recommend that school nurses attend a certification program (9, 10, 11). Setting up certification programs and making graduate education in the area of school nursing more widespread is of the greatest importance in terms of educating qualified school nurses and improving school health in general (12). School nursing is only newly developing in Turkey and yet, no certification is required to become a school nurse. A national standard for knowledge and practices must be adopted if certification programs and graduate education are to succeed. In the light of the lack of standardization in Turkey for school nursing, we made the decision to use the Delphi technique to develop a national school nursing curriculum in order to answer the need to achieve consensus among experts as to curriculum content in this branch of nursing.

The Delphi technique is a means of identifying consensus. The technique was first developed by Helmer and Dalkey in the 1950s for an evaluation of military topics. The goal of the Delphi technique is to achieve consensus by collecting expert judgments. It is a fact that in political interaction especially and in other settings where there are differences of status, individuals may be reluctant to freely express their views. This technique allows persons to be comfortable with expressing their views, leading to possible consensus. In general, the Delphi technique has three characteristics: 1. Confidentiality of participation, 2. Statistical analysis of group reaction, 3. Controlled feedback. In the implementation of the technique, a sequence of questionnaires might be sent out to the experts. Each feedback is reported to the

participants. This procedure continues until consensus has been reached (13, 14).

An examination of studies in the international nursing literature that have used the Delphi technique reveals that this method is commonly employed in determining research priorities, introducing a particular method, carrying out scale development processes, identifying nursing branch competences, developing protocols, setting up care protocols, and in determining nursing program curriculums (15,16).

Because of the wide use of the Delphi technique in nursing, we aimed in this study to identify the content of a certification program for school nurses by reaching a consensus through the collection of views from school nurses and academics.

2. METHODS

This study was conducted by using the Delphi consensus technique over the period 24 September 2020 – 8 July 2021.

2.1. Data Collection

The data were collected from the expert panel via the Delphi technique by means of email. Data were collected in three consecutive Delphi rounds.

2.2. Steps in the Delphi Technique

Step 1: Identifying the Experts

In this study, academic nurses (with the status of Professor, Associate Professor, Assistant Professor and Research Assistant) and School Nurses working in the area of School Nursing in Turkey were identified as the panel of experts.

Step 2: Creating the First Delphi Questionnaire

At the end of a full-day workshop in which the authors shared experiences with a panel of 10 experts, the main headings, sub-headings, learning outcomes and application terms for the certification program that could be included in a school nursing certification program were identified. The first Delphi questionnaire was thus created. Besides the topic headings and the learning outcomes, the experts were also asked for their views regarding the prerequisites for a school nursing certification program application, the period of time needed for theoretical and practical instruction in the program, and the term of validity of the proposed certification.

Step 3: Delivery of the First Delphi Questionnaire to the Experts

The first Delphi questionnaire that contained the information put together by the researchers addressing the was sent to experts by email. At this stage, the experts were asked to make additions to the curriculum that had been drawn up.

Step 4: Reviewing the First Delphi Questionnaire and Creating the Second

The first Delphi questionnaires returned by the experts were revised by the research team, and the second Delphi questionnaire was thus created. At this stage, repeating views were combined and grouped. An evaluation scale was added to each learning outcome and topic on the second questionnaire. This scale was a Likert-type of scale with points between 1-7 (1: must definitely not be in the curriculum; 7: must definitely be in the curriculum).

Step 5: Delivery of the Second Delphi Questionnaire

The second Delphi Questionnaire was re-sent to the participating experts. At this stage, the experts were asked to use the 7-point Likert scale to evaluate each learning outcome, main topic and sub-topic.

Step 6: Analysis of the Second Delphi Questionnaire and Creating the Third

The data of the second Delphi questionnaire evaluated by the experts were analyzed. In this analysis, Quartile 1, Quartile 3, interquartile range and median calculations were made; the results of the analysis were added to the second Delphi questionnaire, thus creating the third Delphi questionnaire.

Step 7: Delivery of the Third Delphi Questionnaire to the Experts

The third Delphi questionnaire was sent to the experts once again for evaluation. At this stage, the experts were asked to review the topics on which they did not agree and score these.

Step 8: Analysis of the Third Delphi Questionnaire and Ending the Rounds

At this stage, another analysis was made of the third Delphi Questionnaire. Since there were no changes in the views, the rounds were ended (Figure 1).

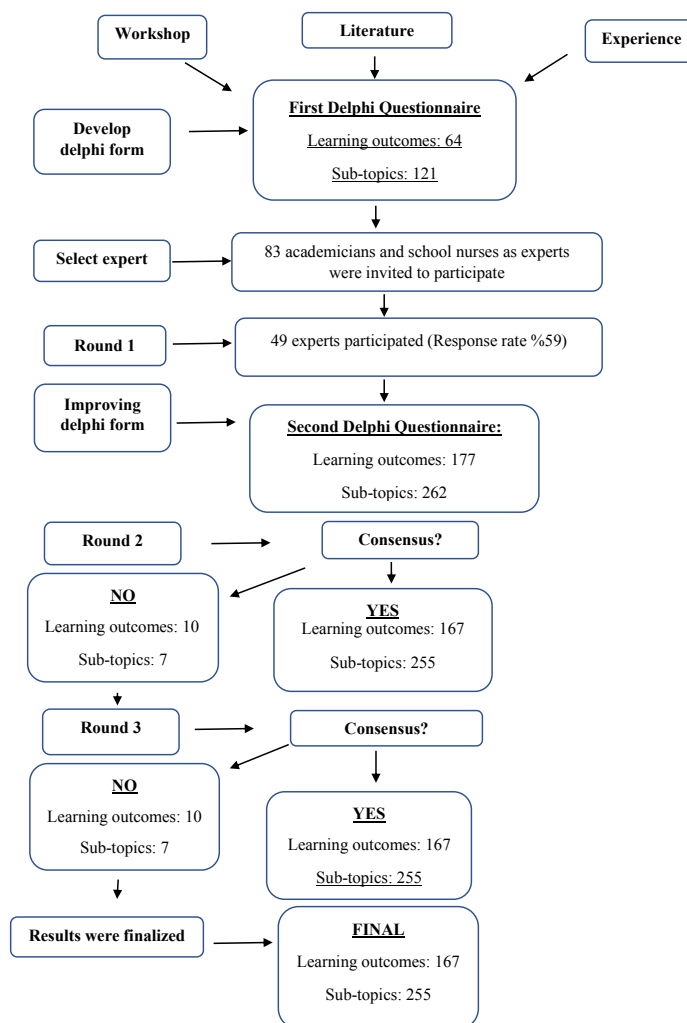


Figure 1. Three round Delphi process

2.3. Study Population

The population of the study comprised academic nurses (with the status of Professor, Associate Professor, Assistant Professor and Research Assistant) and School Nurses working in the area of School Nursing in Turkey. Eighty three experts were invited to participate in the study.

2.4. Ethical Considerations

Approval for the study was obtained from the Ethics Board of Marmara University Health Sciences Institute (19.12.2019-222). The faculty members and school nurses were invited to the study through the delivery to them of the data collection tool, consent form, and information sheet.

2.5. Analysis of the Data

The data were analyzed on the SPSS 26 package program. The data were evaluated in terms of Quartile 1, Quartile 3, medians and interquartile ranges. Interquartile range refers to the difference between Quartile 3 and Quartile 1. A low difference indicates agreement; a higher value means that consensus has not been reached. It is recommended that the interquartile range should be 1.2 or less for consensus (13).

3. RESULTS

First Delphi Questionnaire was sent via email to the 83 experts invited to participate in the study (Table 1). In Round 1, 49 of the 83 experts participated (participation rate of 59%), contributing their views. In Round 1, 177 learning outcomes, 9 main topics and 262 sub-topics were created. In Round 2, 43 out of the 49 experts participated; the consensus was achieved on 167 learning outcomes, 9 main topics and 255 sub-topics. The agreement could not be reached regarding 7 sub-topics, 10 learning outcomes and the prerequisites for application to a school nursing certification program, the theoretical and practical duration of such a program, exemption from practical work, and the term of validity of a certificate. Forty-two out of 43 experts participated in Round 3. Consensus could still not be achieved regarding the 7 sub-topics and 10 learning outcomes on which agreement could not be reached previously. Therefore, the Delphi rounds were ended at the end of Round 3, with a total of 9 main topics, 255 sub-topics and 167 learning outcomes. At the end of the Delphi rounds, agreement had been reached on the following main topics: School nursing, Identifying the school community, Health evaluation and nursing diagnosis, Improving health and disease prevention, Health issues and nursing management, School environment and safety, Disaster and emergency management, Sensitive/vulnerable/disadvantaged groups, risk evaluation and

nursing interventions, School health services management and evidence-based practices (Table 2). Besides the topic headings and the learning outcomes, the experts were also asked for their views regarding the prerequisites for applying for a school nursing certification program, the period of time needed for theoretical and practical instruction in the program and the term of validity of the proposed certification. All of the experts were in agreement that nurses would have to hold an undergraduate degree as a prerequisite for application to a school nursing program. Among the experts, 64.3% stated that the applicant's 4-year grade average would have to be at least 2.5 on a scale of 4. Among the experts, 78.6% believed that prerequisites for a certificate should be a health report obtained from a fully qualified hospital, while 88.1% said that basic life support certification or a certificate earned during the program would be necessary. A majority (92.9%) of the experts said that clinical experience would be a requirement. On the other hand, the experts' views on how long a period of clinical experience was necessary varied from between at least 6 months to 5 years, leading to a failure to achieve consensus on this point. A group of experts representing 85.7% stated that there should be no exemption from practical work, and that each participant in the program should be required to complete the practical instruction. On the matter of how long the theoretical part of the certification program should take suggestions for a period of 20 hours-240 hours were offered in Round 1, but at the end of the Delphi rounds, durations of between a minimum of 80 hours-240 hours were suggested. No agreement could be reached on any of the suggestions, however. In the matter of the duration of practical work in the certification program, all of the experts agreed that the program should include practice sessions. No agreement could be reached, however, on the duration of these practice sessions. The experts offered the view that practice sessions should be held for a period of 40-300 hours. The highest percentage in this context was 38.1%, seen in the suggestion that half of the program be devoted to apply teaching. Concerning the matter of the term of validity of the certification program, the experts formed a consensus on establishing a refresher course every 5 years.

Table 1. Response rates of professionals

| Professionals | Round 1 | Round 2 | Round 3 |
|---------------------|----------|----------|----------|
| | n | n | n |
| Professor | 7 of 22 | 7 of 7 | 6 of 7 |
| Associate Professor | 9 of 15 | 7 of 9 | 7 of 7 |
| Assistant Professor | 21 of 32 | 20 of 21 | 20 of 20 |
| Research Assistant | 4 of 6 | 3 of 4 | 3 of 3 |
| School Nurse | 8 of 8 | 6 of 6 | 6 of 6 |
| Total | 49 of 83 | 43 of 49 | 42 of 43 |

Table 2. Number of learning outcomes and sub-topics meeting consensus from the three round Delphi process

| Main topics | Learning Outcomes | | | Sub-topics | | |
|--|---|---|---|----------------------------------|--|--|
| | Number of learning outcomes at baseline | Number of learning outcomes meeting consensus | Percentage of learning outcomes meeting consensus | Number of sub-topics at baseline | Number of sub-topics meeting consensus | Percentage of sub-topics meeting consensus |
| School nursing | 25 | 22 | 88 | 21 | 20 | 95.2 |
| Identifying the school community | 12 | 11 | 91.6 | 7 | 6 | 85.7 |
| Health evaluation and nursing diagnosis | 18 | 17 | 94.4 | 15 | 14 | 93.3 |
| Improving health/disease prevention | 25 | 22 | 88 | 53 | 50 | 94.3 |
| Health issues and nursing management | 15 | 14 | 93.3 | 90 | 90 | 100 |
| School environment and safety | 25 | 24 | 96 | 25 | 24 | 96 |
| Disaster and emergency management | 9 | 9 | 100 | 12 | 12 | 100 |
| Sensitive/vulnerable/disadvantaged groups, risk evaluation and nursing interventions | 24 | 24 | 100 | 21 | 21 | 100 |
| School health services management and evidence-based practices | 24 | 24 | 100 | 18 | 18 | 100 |
| Total | 177 | 167 | 94.3 | 262 | 255 | 97.3 |

4. DISCUSSION

In this study, we looked into the learning outcomes, curriculum and prerequisites of a school nursing certification program by employing the Delphi technique to seek consensus among a panel of 42 experts comprising academic nurses and school nurses working in the field of school nursing in Turkey. We encountered no study in the literature that dealt with the curriculum of school nursing education. The lack of literature in this particular area makes this study unique. At the moment, school programs, including undergraduate programs, are in flux and every university program does not belong to a single prototype. School nursing in Turkey is taught at several levels—in the form of a course in School nursing as part of the Nursing Undergraduate program or the Graduate Nursing program, as a graduate program in School nursing, as well as in the form of a School Nursing Certification program. As can be understood from the various levels at which this discipline is taught in Turkey, it could be seen that there is no consensus on what the curriculum of a school nursing education program should consist of.

An examination of the topics on which consensus was achieved in this study shows that these are generally consistent with what is reported in the school nursing literature. It is evident that the experts reached consensus on matters such as the evaluation of health, system-related health issues and nursing management, acute and emergency situations, chronic health problems, infectious diseases, groups with special health needs, health education, and professionalism in school nursing, similar to those topics set forth by the National Board for Certification of School Nurses (17). Similar topics are also contained in school nursing certification programs at the university level in Turkey (18, 19) (Available

from: <https://selcuksem.selcuk.edu.tr/Educations/uzaktan-egitimler/17>; <https://sayem.subu.edu.tr/egitimler/uzaktan-egitim/saglik-egitimleri/okul-sagligi-hemsireligi-sertifika-programi> Accessed Date: 10.09.2021).

A study in Turkey that also used the Delphi consensus technique to create a curriculum for public health nursing included similar subjects in the school nursing division of the department (20).

All of the experts in our study were in agreement that nurses would have to hold an undergraduate degree as a prerequisite for application to a school nursing program. In the same way, NASN has required that nurses be graduates with a B.A. degree from an accredited college or university and be registered on a board of nurses. These requirements constitute the minimum preparation for the skills needed for entry-level school nursing (9). Furthermore, NASN supports the granting of school nursing certification on a state level and also certifies school nurses through the NBCSN. The Nursing and Midwifery Council (NMC) is the regulatory authority in the U.K. This council requires school nursing certification to be granted on an undergraduate or graduate level and that application for this certification be restricted to registered midwives or nurses (21, 22).

In our study, 88.1% of the experts stated that applicants for certification must have basic life support certification or a certificate earned during the program. The U.S. New Jersey State School Nurses Association states that nurses to apply for school nursing certification must hold Cardiopulmonary Resuscitation or Automatic External Defibrillator Certification from authorized organizations (23).

Almost all of the experts in the study set forth the view that clinical experience was necessary. The NBCSN requires

at least 1000 hours of clinical practice before entering the certification examination. This period of time is equivalent to about a full working year of a full-time school nurse who works at least 6 hours a day in a 180-day school year (17). Similarly, in our study, the experts reached a consensus on the view that candidates should have at least 6 months of clinical experience. According to the New Jersey State School Nurses Association, the requirement for becoming a school nurse is to have completed at least 21 semesters worth of credits, at least 6 semesters of credit hours being derived from clinical practice in a school nurse's office (23).

As to the theoretical training in the certification program, this was deemed to be a minimum of 80 and a maximum 240 hours of instruction. No agreement could be reached on any of the suggestions, however. It is to be noted that certification programs at the university level in Turkey amount to 150 hours. The accredited certification and graduate programs in the U.K. require a minimum 52 weeks–1 full year–of a 120-180-credit program of education. In the matter of the duration of practice sessions in the certification program, all of the experts agreed that the program should include applied sessions. As to the matter of the duration of the program, 38.1% of the experts expressed the view that half of the program should be devoted to practical instruction. Certification programs conducted in the U.K. require that half of the program be devoted to clinical practice. In certification programs conducted in different states around the U.S., the duration of practical instruction varies from 75 to 300 hours.

Concerning the matter of the term of validity of a certification program, the experts agreed that a refresher course should be conducted every 5 years. Similarly, NASN defines a five-year validity period for school nursing certification (17).

The limitation of this research is that the number of experts at the beginning of the first Delphi round is gradually decreasing in the ongoing Delphi rounds and seven experts have left the study.

5. CONCLUSION

A three-stage Delphi process was used to reach consensus on the curriculum of a nationwide school nursing certification program. The result of our study was that the main topics and learning outcomes of a school nursing certification program, as well as the prerequisites for application to the program were defined. There is a need for a certification program in Turkey for school nursing and for standardization of education in this branch of nursing. The curriculum created is expected to be treated as a guide to school nursing education, becoming a framework for its implementation. We believe that our findings will provide a resource for eliminating differences in school nursing education.

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Author Contributions:

Research idea: İNÖ, HK

Design of the study: İNÖ, HK

Acquisition of data for the study: İNÖ, HK

Analysis of data for the study: İNÖ, HK

Interpretation of data for the study: İNÖ, HK

Drafting the manuscript: İNÖ, HK

Revising it critically for important intellectual content: İNÖ, HK

Final approval of the version to be published: İNÖ, HK

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