Revista Eletrônica de Enfermagem ISSN 1518-1944 UFG

Original Article

Problem solving skills of the nursing and midwifery students and influential factors

Habilidades para solução de problemas pelos estudantes de enfermagem e obstetrícia e fatores influenciadores

Habilidades para resolución de problemas por estudiantes de enfermería y partería y sus factores determinantes

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ABSTRACT

Effective problem solving strategies and decision making skill based on a powerful basis of knowledge are behaviors expected from midwife and nurses students that need to be developed during their vocational education. This study aimed to determine and to compare the problem solving skills of nursing and midwifery students during their education and to verify the factors that influence the problem solving skills. The sampling comprised all the 252 students of the Midwifery and Nursing departments at School of Health Sciences of the University of Sakarya who volunteered for participating in the study and were present at school when data were collected (98 midwifery students and 154 nursing students). Data were collected using a questionnaire and "Problem Solving Scale" developed by Heppner and Petersen and the Turkish validity and reliability study was carried out by Sahin et al. The average problem solving scores were found to be 83.05±15.68 for the midwifery students and 86.85±18.55 for the nursing students. The midwifery students were found to be more successful than nursing students. It was also found that problem solving skills of inquisitive-extroverted students were better than that of the reserved ones.

Descriptors: Obstetrical Nursing; Student, Problem Solving, Influential factors.

RESUMO

Estratégias eficazes na solução de problemas e tomadas de decisões baseados em alicerce consistente de conhecimento são aspectos esperados dos alunos de enfermagem e obstetrícia, que precisam ser desenvolvidos durante sua formação profissional. Estudo com objetivo de determinar e comparar as habilidades dos estudantes de enfermagem e obstetrícia na resolução de problemas durante sua formação e verificar os fatores que influenciam as habilidades na resolução de problemas. Amostragem compreendeu todos os 252 alunos dos Departamentos de Enfermagem e de Obstetrícia da Faculdade de Ciências da Saúde da Universidade de Sakarya, que participaram voluntariamente no estudo e estavam presentes na escola quando os dados foram coletados (obstetrícia: 98 estudantes; enfermagem: 154 estudantes). Os dados foram coletados por questionário e "Escala de Resolução de Problemas" desenvolvida por Heppner e Petersen e validado na Turquia em estudo de confiabilidade realizado por Sahin et al. Os escores médios de resolução de problema encontrados foram de 83,05 ± 15,68 para os estudantes de obstetrícia e 86,85 ± 18,55 para os estudantes de enfermagem. Constatou-se que os estudantes de obstetrícia tem mais sucesso que os de enfermagem. Verificou-se também que as habilidades na resolução de problemas dos alunos curiosos e extrovetidos foram melhores que daqueles mais reservados.

Descritores: Enfermagem Obstétrica; Estudantes; Resolução de Problemas; Fatores influenciadores.

RESUMEN

Estrategias eficaces de resolución de problemas y habilidades de toma de decisiones fundamentada en una sólida base de conocimientos son los comportamientos esperados de alumnos de enfermería y obstetricia, que necesitan ser desarrolladas en la formación profesional. Estudio tuvo como objetivo determinar y comparar las habilidades de los estudiantes de enfermería y obstetricia en la resolución de problemas en la formación profesional y verificar los factores que influencian las habilidades en la resolución de problemas. La muestra fue constituida por todos los 252 estudiantes del Departamento de Enfermería y de Obstetricia de la Facultad de Ciencias de la Salud de la Universidad de Sakarya, que se ofrecieron voluntariamente para participar en el estudio y estuvieron presentes en la escuela cuando los datos fueron recogidos (Obstetrícia: 98 estudiantes y Enfermería: 154 estudiantes). Los datos fueron recolectados por un cuestionario y "Escala de Solución de Problemas", desarrollado por Heppner y Petersen y validado en Turquía en estudio de fiabilidad desarrollado por Sahin et al. La puntuación media encontrada de resolución de problemas fue 83,05 para los estudiantes de obstetricia y 86,85 ± 18,55para los estudiantes de enfermería. Los estudiantes de obstetricia tienem más éxito que los de enfermería. Se encontró también que las habilidades para la resolución de problemas de los estudiantes curiosos-extrovertidos fueron mejores que dos más reservados.

Descriptores: Enfermería Obstétrica; Estudiantes; Resolución de Problemas; Factores influenciadores.

INTRODUCTION

Problem solving is essential in nursing. The development of a problem solving for nursing has been one of the most important changes in nursing last decade[1-2].

Problem solving is accepted to be an intellectual process requiring reflecting and creative thinking. It is known that the problem solving education increases the skills of the students in coping with the difficulties all along the undergraduate education program, and an education integrated with the special enterprising strategies such as gumption and social skills education develops the problem solving skills[3-5].

Education is an ongoing process, providing personal and professional stimulation to improve life. Human life is full of problems of different numbers and structures which need to be solved. Thus, today's society requires that the individuals be creative, critical, analytically-thinking and able to produce effective solutions to the problems they face with. Problem solving skill is the level of attaining the knowledge which leads the person to the solution and applying this knowledge to the solution of the problem by integrating them in a way which is ready to use[6].

Problem solving is an important but little understood part of the contemporary nursing and midwifery. Individualized nursing care necessitates the recognition and solution of the health problems of the patients. And this requires the problem solving approach. Understanding this process completely and correctly and using them in patient care is the basic condition of the development of the professional skills[7]. The learning experiences performed by means of the problem solving approach makes it possible for the students to attain a development in their knowledge, skills and attitudes regarding the cognitive, perceptual and kinetic fields[3,8]. Teaching nursing students how to use the nursing problem solving process (nursing process) is critical to their ability to provide quality nursing care[1].

Nursing and midwifery students have to face some unique problems such as a hospital-medical centre environment, the personalities of various members of the medical team, and all the drama, trauma, joy, and sorrow found in a hospital, as well as having to cope with the usual problems a university student may encounter; therefore, a high degree of stress is involved in nursing education. An education involving such a degree of stress also affects the problem solving skills of the students. Both nurses and student nurses are expected to be able to choose the best solution for the problems encountered by patients in order to meet their needs. However, it was found in a research study among nurses that they were lacking in problem formulation skills[4,7].

In a research study among students, it was found that they were lacking in problem solving skills[7], but in today's complex health care environment, nurses must be able to solve problems accurately, thoroughly, and quickly. These skills must begin at school and continue in health care. Therefore it is important to determine the problem solving abilities and influencing factors[7].

Nursing and midwifery are dynamic processes planning the patient care under the bodily, emotional and social health requirements of the individuals from every segment of the society, putting these plans into application and evaluating this care plan in a systematic way. In order for the nurse/midwife to solve the problems of individuals, they are required to focus on their independent functions and to use intellectual skills such as critical thinking, decision making and problem solving while performing these functions.

This skills are needed for managing the growing complexity of the professional nursing role[9]. Problem solving is the production and attainment of the various potentially effective alternatives in order to cope with the problem and increasing the probability of choosing the most effective one among these alternatives. With the nurses and midwives using the problem solving skills effectively, both the professionalization of the occupation will be contributed and the quality of the patient care will be improved[3-4].

In Turkey, the nursing and midwifery education is given as a 4-year vocational education after the 4 year high school education. In the theoretical and practical education of the nursing and midwifery students, the educational methods and techniques which support their problem solving skills are preferred. The methods and techniques which can develop the problem solving skills of the students should continually be revised and developed[4,10-12]. The present study, which we carried out with the purpose of contributing to the fulfillment of this necessity, has as objective to determine and to compare the problem solving skills of the nursing and midwifery students during their education and to verify the factors that influence the solving problem skills.

METHOD

This is a descriptive and exploratory study designed to determine the relations among variables. The sample consisted of 252 students, 154 nursing students and 98 midwifery students, from School of Health Sciences, the University of Sakarya (19-24 March 2007), who agreed to participate in the research. Necessary permission was taken from the school administration and students before the study.

Data were collected by using a questionnaire and "Problem Solving Scale" The first part of the form contained questions about the students' ages, number of siblings, the education levels of their parents, the place they lived in and the number of years of school education. And it also included information to be used for the evaluation of the student's problem solving skills, his/her success level at school and the identification of his/her psychosocial situation.

The second part of the form was devoted to the Problem Solving Inventory developed by Heppner and Peterson[13].The inventory's reliability and validity for our country had been tested by Şahin et al[14]. The reliability and validity tests statistical results indicated that the measurement model was highly valid. The Problem Solving Inventory aims to assess the self-confidence and feeling of self-control of the individual in problem solving.

The inventory can be used to determine how an individual approaches or copes with a problem and consists of 35 items that are assessed on a Likert scale of 1-6 by the participant. "1" denotes "totally agree" whereas "6" denotes "totally disagree". The items contain positive and negative judgments about problem solving, and the negative judgments are later reversed while the scores are being evaluated. Low scores indicate effectiveness as well as having the behavior and attitudes for successful problem

solving. High scores indicate an inability to reach a successful solution when faced with a problem.

Descriptive statistical, percentage, average and analysis of variance were used in evaluating the data.

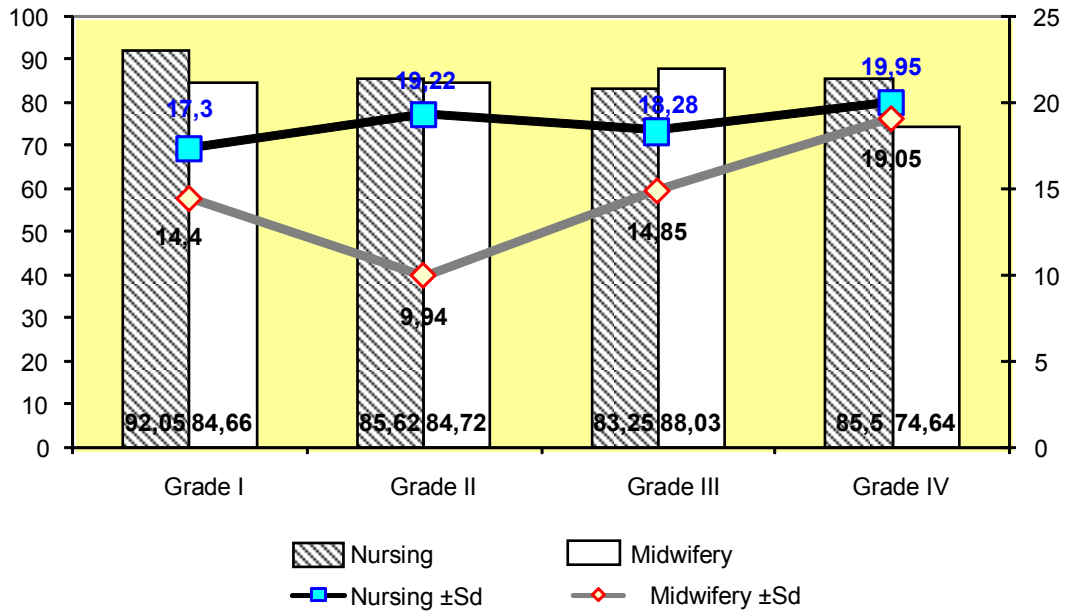
RESULTS

All 252 students completed the questionnaire. 154 of the respondents were student nurses and 98 were student midwives. 62 of all participants were 1st year students, 65 of them were 2nd year students, 67 were 3rd year and 58 were 4th year students. 247 students, which are almost all of the participants, were single. When the educational status of the participants' mothers was examined, most of them (190) were found be literate or first school graduates. Fathers were either literate or primary school graduates. 75 of the fathers were elementary/high school graduates and 31 had higher school or university education.

51.2 % of the students were 21-23 years old, 130 of them lived in dormitories, 51 with their families, 6 with their relatives and 65 with their friends. It was found that the average score of the students' problem solving was 85.37±17.56. When the average scores of the students were compared, it was seen that the students in midwifery found themselves most successful in problem solving, their average score being 83.05±15.68. On the other hand, students in the nursing department considered themselves to be less successful in problem solving; their average scores were 86.85±18.55.

It can be seen in Graphic 1 that the problem solving scores of the last grade nursing and midwifery students are better. Besides, the average problem solving score of the midwifery students is higher than the average problem solving score of the nursing students. Both the difference between the nursing and midwifery grades and the difference between the departments are statistically meaningful (F: 2.247, p: 0.020).

Graphic 1: Problem Solving Score Averages based on grades (Sakarya, 2007)



It can be seen Table 1 that among the nursing students, the ones that evaluated themselves successful in their problem solving skills had higher scores from the problem solving skills scale. It was also found that the problem solving scale average score for the students evaluating themselves as 'successful' and 'very successful' was statistically meaningfully higher than that of the ones who evaluated themselves as 'partly successful' and 'unsuccessful' (F: 6.98, p: 0.00).

Table 1: Problem Solving Score Averages for Nursing Students based on self-evaluation of skills (Sakarya, 2007)

Self Evaluation	n	Problem Solving Score		F/p
		Problem Solving		
		X	± Sd	
Unsuccessful	5	115.20	18.49	
Partly Successful	57	90.36	19.46	F: 6.98
Successful	83	83.86	16.40	p: 0.00
Very Successful	9	76.33	13.98	
Total	**154**	**86.85**	**18.55**	

It can be seen Table 2 that among the midwifery students, the ones that evaluated themselves successful in their problem solving skills had higher scores from the problem solving skills scale. It was also found that the problem solving scale average score for the students evaluating themselves as 'successful' and 'very successful'

was statistically meaningfully higher than that of the ones who evaluated themselves as 'partly successful' and 'unsuccessful' (F: 5.23, p: 0.02).

Table 2: Problem solving Score Averages for Midwifery Students based on Self-Evaluation of Problem Solving Skills (Sakarya, 2007)

Problem solving Score				
Self Evaluation	**n**	**Problem Solving**		**F/p**
		X	**±Sd**	
Unsuccessful	3	108.66	23.00	
Partly Successful	31	87.22	13.59	F: 5.23
Successful	54	80.66	15.34	p: 0.002
Very Successful	10	75.30	12.34	
Total	**98**	**83.05**	**15.68**	

It can be seen Table 3 that a statistically meaningful difference was found between the success of the students in school and their problem solving score averages. The students evaluating themselves as successful in school were found to be successful in problem solving as well.

Table 3: Success of Students in School and Their Problem Solving Score Averages (Sakarya, 2007)

Problem Solving Score				
Success Level	**n**	**Problem Solving**		**F/p**
		Mean	**SD**	
Unsuccessful	17	90.05	14.98	
Partly Successful	132	89.07	18.62	F: 9.18
Successful	103	79.85	15.04	p: 0.00
Total	**252**	**85.37**	**17.56**	

It can be seen Table 4 that the students evaluating themselves as 'successful' and 'very successful' in clinical practice were found to get higher scores from the problem solving skill scale and the difference between them and the students evaluating themselves as 'partly successful' and 'unsuccessful' was statistically meaningful (F: 6.73, p: 0.00).

Table 4: Student Self-Evaluation on Success Levels in Professional Practice and Problem solving Score Averages (Sakarya, 2007)

Problem solving Score				
The Success Level in Professional Practice	**n**	**Problem Solving**		**F/p**
		Mean	**SD**	
Unsuccessful	2	109.00	11.31	
Partly Successful	71	92.01	18.21	F: 6.73
Successful	156	82.73	16.53	p: 0.00
Very Successful	23	80.73	16.31	
Total	**252**	**85.37**	**17.56**	

As can be seen in the Table 5, the inquisitive – extrovert students were found to have better problem solving skills than the reserved ones. The difference between then was found to be statistically meaningful (F: 3.29, p: 0.039).

Table 5: Self-Evaluation of Students and Problem solving Score Averages (Sakarya, 2007)

Problem solving Score				
Self Evaluation	**n**	**Problem Solving**		**F/p**
		X	**±Sd**	
Reserved	49	90.97	16.48	
Logical	145	84.42	16.79	F: 3.29
Inquisitive – extrovert	58	83.01	19.55	p: 0.039
Total	**252**	**85.37**	**17.56**	

It was found that the students seeking the help of a professional when they have a problem were more successful in problem solving (F: 4.86, p: 0.00).

The students assessing themselves as 'good' in terms of their psychological state were successful in problem solving. The difference between them is statistically meaningful (F: 9.58, p: 0.00).

It was also determined that there were no correlations between the problem solving skills of the students and the school they had graduated from, the place they had been born, the educational background of their parents, the type of their family and the number of the family members (F: 0.578 p: 0.67, F: 1.12 p: 0.34, F: 0.79, 0.53, F: 0.90 p: 0.46, F: 1.06 p: 0.34, F: 1.45 p: 0.18).

DISCUSSION

All of the 252 students at the University of Sakarya's undergraduate Nursing and Midwifery school participated in this research that was aimed to determine the problem solving skills of the students and the relation among variables. It was found that the total average score of the students' problem solving was 85.37 ± 17.56. The average scores showed a similarity with results obtained from a similar studies among midwifery and nursing students by using the same scale[4,7].

Altun[7] found that the total average problem solving score of the students was 83.54 ± 19.14. The fact that the problem solving scores of the last grade students are better than the ones of the first grades shows that the nursing and midwifery educations influence the problem solving skills of the students in a positive way. Besides, it was determined that the average problem solving skills score of the midwifery students were higher than nursing students.

In fact, the nursing process is a problem solving process. It is also the most commonly cited component for many nursing programs[1,14-15]. It is not seen that the evidence-based research that explain the reason for the high score at midwifery about problem solving skills.

It had also been reported in Altun's study that the midwives had been more successful in problem solving[7].

Nursing Grade III students and Midwifery Grade IV students evaluates themselves as more successful in problem solving (F: 2.247, p: 0.020). It was determined that the problem solving skills of the students improved with the increased number of years of education. Can and her colleagues in a study showed the problem solving skills to increase with the increasing number of years of education[3]. Altun's study also showed this[7]. The fact that the individual learning increases in the last grade students, that the methods making the students more active are employed and that the students have a tendency towards research increase their problem solving skills. It is mentioned that problem solving skills of students can be promoted in Wang and colleagues' studies[12].

A statistically meaningful difference was found between the self-description of the students and their problem solving score averages (F: 3.29, p: 0.039). The students describing themselves as 'reserved' was found to be less successful in problem solving than the ones who approach to problem solving 'logically'. The students who were the most successful in problem solving were found to be the ones who describe themselves as 'inquisitive' and 'extrovert'. When the fact that examining the solution alternatives and decision making are important stages of problem solving is taken into consideration, this result should be deemed normal.

Self- awareness is important in any interaction. Self-awareness is the process of understanding one's own beliefs, thoughts, motivations, biases, and limitations and recognizing how they affect others. Self-awareness allows us to serve others with compassion, respect and understanding. The development of self-awareness requires a willingness to be introspective and to examine personal beliefs, attitudes and motivations. The development of self-awareness will enhance the students' objectivity[7].

Students finding themselves to be 'successful' in problem solving, and students finding themselves 'very successful' in problem solving were also found to be successful in problem solving. Those who considered themselves to be partially successful and partially unsuccessful in problem soling were also found to be less successful in problem solving. Statistical analysis revealed a significant relation between the average problem solving scores and how successful students consider themselves to be in problem solving (Midwifery students: F: 5.23, p: 0.002, Nursing students F: 6.98, p: 0.00) (Table 2, 3).

The same relation was also present between the success of the students at school and their problem solving skills. The students evaluating themselves as more successful got higher scores in the problem solving scale (Table 4, 5). The results of the study performed by Altun[7] are also similar to the results obtained from our present study. This result is important, as it shows that students were able to evaluate themselves objectively.

No correlation was found with the educational background of the mothers of the students (F: 0.79, p: 0.53) and that of the fathers of the students (F: 0.90, p: 0.46). These results can be interpreted that the educational backgrounds of the parents who serve as models in terms of the problem solving methods of the students do not cause a meaningful difference in the students' perception of the problem solving skills.

It was determined that the students seeking help from a professional when faced with a problem were more successful in problem solving (F: 4.86, p: 0.00). It was found that the nursing and midwifery students who consider themselves as 'successful' in terms of their problem solving skills got higher scores from the problem solving skills scale.

We identified that those who were successful from a student's perspective, were the students who were competent, had a positive personality, promoted feelings of self- acceptance and were concerned with personal and professional growth. It was observed that our students perceived themselves as quite successful in problem solving at the time the study was performed. In the results obtained from the studies[6,16] was found that the student nurses and working nurses evaluated themselves as adequate problem solvers in terms of perceiving the problem solving skills. As it is known, problem solving is a skill which is learnable and can be developed through experiences. When the problems experienced in our country regarding the practice of the profession of nursing, it is crystal clear that there is a need to have graduates having developed problem solving skills. In fact, the amendments carried out in the curriculums and content studies can be considered as a sign of the need for nurses who can think critically, have developed problem solving skills, use their autonomy and are care-oriented[3-4,8,16-17].

CONCLUSION

Effective problem solving strategies and a decision making skill based on a powerful basis of knowledge are behaviors expected from midwifes and nurses. These skills of the students need to be developed during their vocational education.

In our study, it was found that the nursing and midwifery education influenced the problem solving skills of the students in a positive way and especially the last grade students were better in problem solving. It was also found that the nursing and midwifery students who consider their own problem solving skills as successful got higher scores from the problem solving skills scale. This result can be accepted as a sign that the students could evaluate

themselves correctly. Another point determined in the study was that the students who seek help from professionals were successful in problem solving.

The development of self-awareness will enhance the students' problem solving capacity. The levels of the students' problem solving skills should be assessed and the education should be planned based on this assessment in order to develop the students' self-awareness.

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Manuscript received 12.05.2009
Approved on 11.09.2010
Article published 12.31.2010