

Assessment of Problem Solving Skills of Students Using a Care Plan, and Evaluation of Their Opinions on the Use of Care Plan*

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Abstract: The present study was carried out to evaluate the problem solving skills of midwifery and nursing students that use a care plan. The research was conducted as a cross-sectional study on 410 2nd, 3rd and 4th grade students receiving education in Faculty of Health Sciences Midwifery and Nursing Department. Personal information form and "Problem Solving Inventory" (PSI) were used for data collection. Student's t test, variance analysis, mann-whitney u and kruskal-wallis tests were used for data evaluation. During the research the students were asked their opinion on the use of a care plan. 45.4% stated that the use of care plan increases their workload, 39.8% stated that it should be routinely used in clinics and 33.2% stated that it is possible to use a care plan for every care-receiving individual. The overall PSI score of participating students was 82.23±19.11, as a subgroup scale problem solving confidence score was 25.87±8.05, personal control score was 19.14±3.70 and approach-avoidance score was 40.98±10.09. An evaluation of problem solving inventory mean scores of the students, based on the variables, indicate that the students receiving education in midwifery department, willingly practicing their profession, receiving information regarding the process of problem solving, as well as the ones who claim to have improved problem solving skills as an outcome of their education, and sufficient communication skills and theoretical knowledge to prepare a care plan, had statistically significantly lower scores as compared to others ($p < 0.05$). In line with the results of the study, providing students with a lifelong support and learning environments for improvement of their problem solving and communications skills as well as their knowledge on care plan, is recommended.

Keywords: Care plan, midwife, nurse, problem solving, student

I. Introduction

A problem is a situation which emerges as an impediment on an individual's pathway to his/her goal [1]. In other words, a problem is an obstacle that stands before an individual's all power at hand, gathered in an attempt to reach a goal [2]. Problems have direct impact on the efficiency and performance of individuals and organizations. Accordingly, building on the present and shaping the future is in many ways dependent on the presence of problems, since each problem brings about a solution [3].

Problem solving is a complex, vast and comprehensive process which involves cognitive, emotional and behavioral activities [4]. All kinds of problems arising either from daily routines, or the course of life, require all human beings to use their problem solving and communication skills to effectively maintain their lives [5]. In this respect, problem solving skill is a determining factor in the process of becoming an individual or while coping with environment [6].

Problem solving requires an individual to comprehend, process and use information. This information can be related with the individual's personal or professional life [7]. Midwives and nurses often deal with problems related with their professional practice, in addition to daily problems [6]. Each day healthcare professionals take on more responsibility with ever-increasing health-related demands which necessitates the improvement of nursing and midwifery skills such as critical thinking, decision making, and problem solving [8]. Insufficient levels of problem solving skills, which bring about dynamism to the scope and context of the profession, negatively influence the quality of service, effectiveness, efficiency, the inclination to change, other professional skills, and the ability to act autonomously [9]. Therefore, the process of problem solving holds great importance in terms of providing a safe and efficient care in modern nursing and midwifery applications [6, 9]. For a nurse or midwife, finding a proper solution for an individual's problem entails identification of the source, scope and context of the problem, in other words, being aware of the problem, determining the means and instruments for finding a solution, and evaluating the options and possibilities [10].

During provision of health care, care plan provides a systematic approach based on scientific methods. Care plan provides basis for health care applications [11, 12]. In this respect, nurses and midwives are supposed to effectively use their problem solving skills with care plan, while fulfilling the needs of healthy individuals and patients. Midwives' and nurses' ability and aptitude to improve their problem solving skills holds great

importance in terms of providing the individuals with higher care quality. While carrying out their duties such as serving the individuals with different needs, identifying their problems, prioritizing them and evaluating the results, nurses and midwives are supposed to use their problem solving skills to increase the quality of care provided to individuals and to assist them [13, 14, 15]. Previous researches on the topic show that, students with higher problem solving skills act with more perseverance, more autonomously with more insight [16], with lower levels of hopelessness, [17] and higher levels of critical thinking [4]. Therefore, the aim of the present study was to evaluate the opinions of midwifery and nursing students, who have an active role in provision of health care for individuals, as a means to determine the current situation, and to introduce suggestions regarding the relevant factors. In this context, the present research was carried out to evaluate the problem solving skills and the opinions of midwifery and nursing students on the use of care plan.

II. Materials And Methods

2.1. Study Design and Sample

The research was conducted as a cross-sectional study on 410 2nd, 3rd and 4th grade students (total number of students is 491 and 83.5% were reached) receiving education in Faculty of Health Sciences Midwifery and Nursing Department.

2.2. Data Collection Tools

Personal information form and likert type "Problem Solving Inventory" (PSI), comprising 35 items, developed by Heppner and Petersen and adapted to Turkish by Şahin et al., were used for data collection. The inventory is suitable for use in the fields of psychological counseling, medicine and education, to determine the individual's way of problem solving or coping. The inventory has an easy-to-use outline with easy scoring. There was no time limitation for answering and average replying time was 15 minutes. Each respondent was asked how often they behaved as specified in the scale items for each item. The alternatives were "I always behave like this", "I generally behave like this", "I frequently behave like this", "I occasionally behave like this", "I seldom behave like this", "I rarely behave like this", and "I never behave like this".

In the inventory, item "1" indicates behaving accordingly at any given time, and "6" indicates behaving accordingly under no circumstances. Negative items (1, 2, 3, 4, 11, 13, 14, 15, 17, 21, 25, 26, 30, 34th items) were reverted during scoring, whereas some of the items (9, 22, and 29th items) were excluded. The overall inventory score is between 32 and 192. Lower inventory scores are indication of effectiveness in problem solving, and behaviors and attitudes related with high problem solving skills, whereas higher scores indicate failure in producing effective solutions.

The inventory consists of three sub-dimensions. These are; "Problem Solving Confidence" (PSC) indicating the individual's self-confidence in solving newly encountered problems; "Approach-Avoidance Style" (AAS) representing the ability to survey previous problem solving efforts and actively search for alternative solutions; and "Personal Control" (PC) representing the individual's capability to maintain his/her control over the situation under problematic conditions. Cronbach alpha reliability coefficient of the scale was found as .88, and those of "problem solving confidence", "approach-avoidance style", and "personal control" were respectively found as .76, .78 and .69 [18].

2.3. Data Analysis

The collected data was evaluated using SPSS 14.0 software package using student t test, variance analysis and kruskal-wallis test.

2.4. Ethical Considerations

Written permission of the relevant organization was received for collection of the data. The aim of the study was introduced to the students upon their consent, and confidentiality policy was applied.

III. Results

The average age of the students was found as 21.19 ± 1.42 . 84.6% of the participating students were female, 39.3% were in midwifery department, 28.8% were senior students, and 58.1% were resident in provincial center. Mother of 13.7% and father of 39.7% were at least high school graduates, 89.8% were of an elementary family, monthly family income of 41.1% was within 1000-1999 TL, and the monthly income of 49% partly met the needs of the participant. Additionally, according to the statements of the participants, 62.9% intentionally chose their profession, 76.3% received information related with problem solving during their undergraduate education and 58.5% improved their problem solving skills to a certain degree by this education (Table 1).

According 45.4% of the students care plan increases their workload; 39.8% think that it should be routinely used in clinics; 33.2% think that it is possible to apply a care plan for each care-receiving individual.

40.7% think that care plan is useful for students, and 57.6% think it is useful for care-receiving person, 11% think it is not time consuming, 9.5% think it does not require filling too many forms, 46.6% state that they will use a care plan in their working life. On the other hand, 53.4% stated that they have sufficient communication skills and 43.7% stated that they have enough theoretical knowledge to prepare a care plan (Table 2).

Overall PSI score of the participating students was 82.23 ± 19.11 , PSC score was found as 25.87 ± 8.05 , PC score was 19.14 ± 3.70 and AAS score was 40.98 ± 10.09 (Table 3).

In a variant-based analysis of average PSI scores; the students receiving education in midwifery department (79.47 ± 18.60 , 84.01 ± 19.27), willingly carrying out their profession (80.19 ± 18.19 , 92.86 ± 20.42), receiving information as to the process of problem solving (80.81 ± 18.98 , 86.80 ± 18.92), stating that their problem solving skills were improved through education (74.02 ± 18.04 , 84.78 ± 18.35 , 90.65 ± 18.65), suggesting that care plan should be used as a routine application (77.65 ± 18.29 , 83.53 ± 17.29 , 87.77 ± 21.29) and that it is possible to implement a care plan for every individual (76.36 ± 18.51 , 84.15 ± 17.79 , 86.16 ± 19.74), stating that it is useful both for students (78.65 ± 17.72 , 88.61 ± 20.08) and the care-receiving individuals (78.69 ± 18.18 , 85.60 ± 18.76 , 91.50 ± 20.69), that it is not time consuming (74.82 ± 18.74 , 84.51 ± 19.46) and that they intend to use it in their working lives (78.19 ± 18.31 , 85.75 ± 19.14), stating that they have sufficient communication skills (79.00 ± 19.14 , 84.38 ± 17.94 , 92.82 ± 19.34) and theoretical knowledge (75.99 ± 18.29 , 85.80 ± 17.86 , 99.04 ± 19.14) to prepare a care plan, were found to have statistically significantly lower scores ($p < 0.05$) as compared to the other students (Table 4).

Table 1: Distribution of the students based on some of the defining variants (n=410)

Variants	n	%
Gender		
Female	347	84.6
Male	63	15.4
Department		
Midwifery	161	39.3
Nursing	249	60.7
Grade		
II. grade	146	35.6
III. grade	146	35.6
IV. grade	118	28.8
Main place of residence		
Province	240	58.5
District	125	30.5
Village	45	11.0
Mother's educational status		
Illiterate	51	12.4
Primary school	259	63.2
Secondary school	44	10.7
High school and higher	56	13.7
Father's educational status		
Illiterate	9	2.2
Primary school	159	38.8
Secondary school	79	19.3
High school and higher	163	39.7
Family type		
Elementary	368	89.8
Large	41	10.0
Divorced	1	0.2
Monthly income status (n=347)		
999 TL and lower	99	28.5
1000-1999 TL	146	42.1
2000-2999 TL	83	23.9
3000 TL and higher	19	5.5
Whether the monthly income meets requirements		
Sufficient	170	41.5
Partly sufficient	201	49.0
Insufficient	39	9.5
Whether he/she willingly chose the profession		
Willingly	258	62.9
Reluctantly	152	37.1
Whether he/she loves his/her profession		
Loving	344	83.9
Not loving	66	16.1
Whether he/she receives information on problem solving		
Receiving	313	76.3
Not receiving	97	23.7

Whether the problem solving skills were improved during education		
Improved	123	30.0
Partly improved	240	58.5
Not improved	47	11.5

Table 2: Distribution of the students based on their opinions on the use of care plan (n=410)

Variants	n	%
Whether a care plan increases their workload		
Increases	186	45.4
Partly increases	140	34.1
Does not increase	84	20.5
As to whether the routine use of care plan in clinics is a necessity		
Required	163	39.8
Partly required	147	35.8
Not required	100	24.4
As to whether it is possible to apply a care plan for every individual/patient		
Possible	136	33.2
Partly possible	139	33.9
Impossible	135	32.9
Usefulness of care plan for student		
Useful	167	40.7
Partly useful	166	40.5
Not useful	77	18.8
Usefulness of care plan for care receiving individual		
Useful	236	57.6
Partly useful	132	32.2
Not useful	42	10.2
Whether the preparation of care plan is a time consuming activity		
Time consuming	211	51.5
Partly time consuming	154	37.5
Not time consuming	45	11.0
Whether preparation of care plan requires filling too many forms		
Requires	257	62.7
Partly requires	114	27.8
Does not require	39	9.5
Intention of using care plan in working life		
Intending	191	46.6
Not intending	219	53.4
Whether he/she has sufficient communication skills to prepare a care plan		
Sufficient	219	53.4
Partly sufficient	156	38.0
Insufficient	35	8.6
Whether he/she has sufficient theoretical knowledge to prepare a care plan		
Sufficient	179	43.7
Partly sufficient	209	51.0
Insufficient	22	5.3

Table 3: Distribution of the students average Problem Solving Inventory (PSI) scores (n=410)

PSI Sub-dimensions	Average scores X ± SS
Confidence in PS Skill	25.87 ± 8.05
Personal Control	19.14 ± 3.70
Approach-Avoidance	40.98 ± 10.09
Total PSI score	82.23 ± 19.11

Table 4: Distribution of students' PSI scores based on some of the variants

Variants	n	PSI Score X ± SS	Test Score
Department			
Midwifery	161	79.47 ± 18.60	t 2.363
Nursing	249	84.01 ± 19.27	p 0.019
Whether he/she loves his/her profession			
Loving	344	80.19 ± 18.19	t 5.080
Not loving	66	92.86 ± 20.42	p 0.001
Whether he/she receives information on problem solving			
Receiving	313	80.81 ± 18.98	t 2.717
Not receiving	97	86.80 ± 18.92	p 0.007
Whether the problem solving skills were improved during education			
Improved*	123	74.02 ± 18.04	F 19.694
Partly improved	240	84.78 ± 18.35	p 0.001
Not improved	47	90.65 ± 18.65	

As to whether the routine use of care plan in clinics is a necessity			
Required*	163	77.65 ± 18.29	F 9.593
Partly required	147	83.53 ± 17.29	p 0.001
Not required	100	87.77 ± 21.29	
As to whether it is possible to apply a care plan for every individual/patient			
Possible*	136	76.36 ± 18.51	F 10.433
Partly possible	139	84.15 ± 17.79	p 0.001
Impossible	135	86.16 ± 19.74	
Usefulness of care plan for student			
Useful*	167	78.65 ± 17.72	F 7.539
Partly useful	166	82.87 ± 19.27	p 0.001
Not useful	77	88.61 ± 20.08	
Usefulness of care plan for care receiving individual			
Useful*	236	78.69 ± 18.18	F 5.177
Partly useful	132	85.60 ± 18.76	p 0.006
Not useful	42	91.50 ± 20.69	
Whether the preparation of care plan is a time consuming activity			
Time consuming	211	84.51 ± 19.46	F 10.433
Partly time consuming	154	81.27 ± 18.21	p 0.001
Not time consuming*	45	74.82 ± 18.74	
Intention of using care plan in working life			
Intending	191	78.19 ± 18.31	t 4.069
Not intending	219	85.75 ± 19.14	p 0.001
Whether he/she has sufficient communication skills to prepare a care plan			
Sufficient*	219	79.00 ± 19.14	F 9.898
Partly sufficient	156	84.38 ± 17.94	p 0.001
Insufficient	35	92.82 ± 19.34	
Whether he/she has sufficient theoretical knowledge to prepare a care plan			
Sufficient*	179	75.99 ± 18.29	KW 40.271
Partly sufficient	209	85.80 ± 17.86	p 0.001
Insufficient	22	99.04 ± 19.14	

IV. Discussion

Problem solving and care plan preparation processes are important yet under-investigated topics of the professions of midwifery and nursing. A thorough and complete understanding of these processes increases the quality of the care and improves professional skills. A quality care entails good diagnosis and solution of health issues, which can be accomplished by means of the problem solving approach. Health professionals are supposed to possess problem solving skills as a means to meet the needs of individuals and families dealing with complex health issues [19]. Effective use of such skills by health professionals during the provision of health service is an important factor while providing individuals with a safe and effective care along with an improved service quality [19, 20, 21]. In this context, nursing and midwifery students were asked their opinions on implementation of care plan which has a major role in their professional lives, and 45.4% stated that care plan increases their workload, 39.8% suggested that it should be used as a routine application in clinics, and 33.2% claimed that it is possible to use a care plan for every individual that receives care (Table 2). The high percentage of students with the notion that care plan increases their workload, and lower percentage of students suggesting that it should be implemented routinely in clinics and on every care-receiving individual, are among the remarkable results of the study.

The use of care plan allows midwives and nurses to provide care in line with predefined plan, thus enables effective use of time and improves the communication among team members [11]. Also, use of a care plan enables provision of individual-oriented care [22]. Students are expected to proceed with their care plan-aided problem solving skills, obtained in their education, during their professional lives as well [12]. Regarding the use of care plan; 40.7% of the students stated that it is useful for students, and 57.6% stated that it is useful for care-receiving individual; 11% were of the opinion that it is not a time consuming activity; 9.5% suggested that it does not require filling too many forms, 46.6% stated that they were likely to use a care plan in their working life as well. 53.4% of the participants stated that they have sufficient communication skills, and 43.7% stated they have enough theoretical knowledge to prepare a care plan (Table 2). Midwifery and nursing diagnosis requires the nurses and midwives to use their decision making skills and knowledge to reach a solution, and to possess theoretical knowledge on physical, behavioral and social sciences [23].

It is a known fact that the steps of care plan improve the problem solving skills of students [24]. The overall PSI score of the participants was 82.23±19.11, and their PSC, PC and AAS sub-dimension scores were respectively, 25.87±8.05, 19.14±3.70 and 40.98±10.09. After a variant-based analysis of average PSI scores; the students receiving education in midwifery department, willingly carrying out their profession, receiving information regarding the process of problem solving, claiming to have improved problem solving skills after training, suggesting that care plan applications should be routinely used and that it is possible to apply a care

plan for every person, stating that it is useful for students and care receiving individuals, and that it is not time consuming, that they intend to use it also in their working life, claiming that they have sufficient communication skills and enough theoretical knowledge to prepare a care plan, were found to have statistically significantly lower scores. These results are supported with Ulupınar's (1997) research who found that willingly choosing the profession has positive effect on the problem solving skills [25]. The results of Bahar's (2006) research also supports the current study as it was reported that the individuals who received problem solving training (score:64.31) were more effective in problem solving than the others (score:77.02) [26]. Additionally, Stevenson (1993) reported that individuals who received problem solving training, had improved problem solving skills, which supports the results of this study [27]. In the previous studies, the scores for receiving problem solving training and problem solving skills were found to be significantly different, which is in agreement with the present study [25, 26, 27, 28, 29]. These results indicate that the individuals that intentionally chose this profession and the ones that willingly carry out their job are more apt to think that the use of care plan is a necessity. Also, the participants who do not believe in the necessity and usefulness of a care plan, do not intend to use it in their working lives.

V. Conclusion

In the present research, the average PSI scores were found to be at a medium level. In line with the results of the study, providing guidance for students throughout their educational lives in terms of problem solving and the use of care plan; enabling them to apply a care plan for each individual under their care; providing them with learning environments that improve their communication skills and theoretical knowledge; and rendering the care plan forms more user-friendly with modifications in their content, are recommended, based on the variants that effect the average score.

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