

# Evaluating the Relationship between Nurses' Problem-Solving Skills and Automatic Thoughts

## Hemşirelerin Problem Çözme Becerileri ve Otomatik Düşünceleri Arasındaki İlişkinin İncelenmesi

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### ABSTRACT

**Aim:** This study aimed to evaluate the relationship between nurses' problem-solving skills and automatic thoughts.

**Methods:** This study was conducted as descriptive, cross-sectional, and correlational study between August and December 2016. The sample of the study comprised 112 nurses working at a training and research hospital. The Problem Solving Inventory, the Automatic Thoughts Questionnaire, and a sociodemographic form prepared by the researchers were used to gather the data. The data were analyzed using Statistical Package for Social Science (SPSS) 20.0.

**Results:** It was found that problem-solving, approach-avoidance, and personal control skills of nurse managers were higher than those of clinical nurses ( $p<.05$ ). The nurses who thought that nursing was not an appropriate profession for themselves and said that they were not satisfied with their profession had higher levels of automatic thought ( $p<.01$ ). There was a positive and significant low correlation between the scores obtained by the nurses from the Problem Solving Inventory and Automatic Thoughts Questionnaire ( $rs=0.259$ ,  $p<.01$ ).

**Conclusion:** This study showed that nurses' problem-solving skills were affected by working in the position of manager and by automatic thoughts about their profession. It is thought that practices to increase nurses' problem-solving skills and to reduce their automatic thoughts about their professions will be beneficial.

**Keywords:** Automatic thought, manager nurse, nurse, problem solving.

### ÖZ

**Amaç:** Bu çalışmanın amacı, hemşirelerin problem çözme becerilerini ile otomatik düşünceleri arasındaki ilişkinin araştırılmasıdır.

**Yöntem:** Bu çalışma tanımlayıcı, kesitsel ve korelasyonel olarak Ağustos-Aralık 2016 tarihleri arasında gerçekleştirildi. Araştırma örneklemini bir eğitim ve araştırma hastanesinde çalışan 112 hemşire oluşturdu. Veriler araştırmacılar tarafından hazırlanan sosyodemografik form, Problem Çözme Envanteri ve Otomatik Düşünceler Ölçeği kullanılarak elde edildi ve veriler istatistik paket program (SPSS 20.0) ile değerlendirildi.

**Bulgular:** Servis yönetici hemşirelerinin servis hemşirelerine göre problem çözme, yaklaşma kaçınma ve kişisel kontrol becerilerinin daha yüksek olduğu bulundu ( $p<.05$ ). Hemşirelik mesleğinin kendisi için uygun olmadığını düşünen ve mesleğinden memnun olmadığını ifade eden hemşirelerin otomatik düşünce düzeylerinin daha fazla olduğu tespit edildi ( $p<.01$ ). Hemşirelerin problem çözme envanteri ve otomatik düşünceler ölçeğinden aldıkları puan ortalamaları arasında düşük düzeyde pozitif yönlü ve anlamlı bir ilişki olduğu belirlendi ( $rs=0.259$ ,  $p<.01$ ).

**Sonuç:** Bu çalışma, hemşirelerin problem çözme becerilerinin, yönetici konumunda olmaktan ve mesleklerine ilişkin otomatik düşüncelerinden etkilendiğini göstermektedir. Hemşirelerin problem çözme becerilerini artıracak ve mesleklerine ait otomatik düşüncelerini azaltacak uygulamaların faydalı olacağı düşünülmektedir.

**Anahtar kelimeler:** Otomatik düşünce, yönetici hemşire, hemşire, problem çözme.

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**P**roblem solving is a complex process that includes a series of cognitive, emotional and behavioral activities and is used for solving the problems that may be encountered throughout life. Nurses face a large number of work-related problems during the day and need problem solving skills to make decisions about nursing interventions.<sup>(1,2)</sup> It is necessary to improve nurses' problem solving skills in order to provide an efficient nurse care and preserve nurses' mental health, which is closely associated with problem solving skills.<sup>(3,4)</sup> A previous study revealed that problem solving skills of clinical and nurse managers were at medium and high levels.<sup>(5-8)</sup> Nurses are involved in every stage of patient care and they are expected to deal with various crises within the scope of problem solving process. Some other studies have revealed that problem solving skills are effective for nurses in coping with negative emotions and thoughts, finding healthy solutions and enhancing the quality of care.<sup>(5,6,9)</sup>

Automatic thoughts stem from the beliefs of people about themselves, such as the ones that are of interest to rational-emotive behavior therapy and other cognitive-behavioral therapies.<sup>(10)</sup> Automatic thoughts are almost always stated as negative automatic thoughts.<sup>(11,12)</sup> It is indicated that automatic thoughts, which are shaped by a person's negative perceptions towards themselves, future and the world, are the most significant factors that reveal despair and anxiety.<sup>(13)</sup> Automatic thoughts do not follow a certain logical order in goal-oriented approach or problem solving.<sup>(14)</sup> Every individual can experience automatic thoughts.<sup>(15)</sup> It is stated that individuals with automatic thoughts experience difficulty in developing alternative solutions to problems<sup>(16)</sup> However, clinical settings need creative and professional nurses who are capable of effectively solving great patient problems.<sup>(17)</sup> In this respect, it is thought that investigating the relationship between problem solving skills and automatic thoughts of nurses will provide helpful insights to nurse managers and educators on how to support nurses and nurse students.

In literature, there are a high number of studies<sup>(18-22)</sup> that evaluate problem solving skills of nursing students; however, there are only a few ones evaluating clinical nurses in this regard.<sup>(6,7)</sup> Besides, there is no study examining both the problem solving skills and automatic thoughts of clinical nurses. With regard to this information, determining problem solving skills and automatic thoughts of nurses and establishing the relationship between these variables would help nurses to provide a qualified patient care in clinics and to preserve their psychosocial health by presenting solutions.

## Aim

The aim of this study is to examine problem solving skills and automatic thoughts of nurses.

For this purpose, we sought answers for the following research questions:

- What are the levels of problem solving skills and automatic thoughts in clinical nurses?
- Which personal and occupational factors affect problem solving skills and automatic thoughts in clinical nurses?
- Is there a relationship between problem solving skills and automatic thoughts in clinical nurses?

## Methods

### Design

A descriptive, cross-sectional, and correlational design was used in this study.

### Sample and Setting

This study was conducted with nurses working at a training and research hospital serving as part of a university between August and December 2016. Population of the study included 311 nurses working at this hospital. In this study, sampling method was not used. The sample group consisted of nurses from every clinic who provided voluntary consent to participate in the study. Additional sample determination was not carried out. As a result, the sample of the study consisted of 112 nurses.

### Data Collection

The data of the study was collected using three tools; the sociodemographic form prepared by the researchers upon the literature review,<sup>(18,19,23,24)</sup> The Problem Solving Inventory (PSI), and The Automatic Thoughts Questionnaire (ATQ). The data collection forms were delivered collectively to the units where the nurses were working. The nurses filled out the forms at any time suitable for them independently of the researcher. The researchers daily followed up the forms completed by the nurses and then gathered them. The data collection process lasted for averagely 10 minutes for each participant.

**Sociodemographic Form:** This form includes 15 questions regarding demographic characteristics like "age, gender, educational level, marital status" and occupational characteristics like "clinic worked, working hours as a nurse, type of working, position at the clinic, working status (permanent or contracted), willingness on choosing the profession, thinking whether or not this profession is suitable for themselves, income status and existence of a chronic disease".

**Problem Solving Inventory (PSI):** Developed by Heppner and Petersen<sup>(25)</sup> (1982), the PSI was used for measuring problem solving skills. The PSI aims to evaluate people's thoughts about problem solving behaviors and approaches and how they evaluate themselves about their problem solving skills. Adapted into Turkish by Sahin and Heppner<sup>(26)</sup> in 1993, the PSI consists of 35 items describing the types of reactions to personal and daily life problems. Some items are scored as reversely because of their negative expressions (1, 2, 3, 4, 11, 13, 14, 15, 17, 21,

25, 26, 30, and 34). The PSI has a total score and a higher total score signifies that the individual perceives herself as insufficient in problem solving. The lowest and highest scores of the scale are 32 and 192, respectively. The reliability study of the scale that was adapted into Turkish was conducted with 244 university students and Cronbach's alpha reliability coefficient was found as .88. The PSI has three sub-scales as Confidence on Problem Solving Skills (CPSS), Approach-Avoidance (AA), and Personal Control (PC). CPSS determines the person's faith on solving new problems (5, 10, 11, 12, 19, 23, 24, 27, 33, 34, and 35), AA determines reviewing their initial problem solving efforts to use it in the future and investigating actively to find alternative solutions (1, 2, 4, 6, 8, 13, 15, 16, 17, 18, 20, 21, 28, 30, and 31) and PC determines the ability to maintain personal control in problematic situations (13, 14, 25, 27, and 32).<sup>(26,27)</sup> In this study, Cronbach's alpha internal consistency coefficient for total scale score was .84.

**Automatic Thoughts Questionnaire (ATQ):** Automatic Thoughts Questionnaire aims to measure the frequency of a person's negative evaluations about themselves. Being developed by Hollon and Kendall<sup>(21)</sup> (1980), ATQ is a likert scale with 30 items which are scored between 1 and 5. Score interval of the scale is between 30-150. Total score obtained from the scale shows that automatic thinking occurs frequently in the individual. In the reliability studies conducted in Turkey, Cronbach's alpha internal consistency coefficient was found as .93 in the study by Sahin and Sahin<sup>(29)</sup> (1992) and 0.95 in the study by Aydın and Aydın<sup>(28)</sup> (1990). In this study, Cronbach's alpha internal consistency coefficient obtained from a sample including 112 nurses was found as .93.

### Ethical Considerations

A written consent from Amasya University General Secretary of Public Hospital Union and an ethics committee approval from Amasya University Health Sciences Ethics Committee were obtained (Consent number: 30640013-044). The participants were informed about the content of the study and the nurses willing to participate were included in the study.

### Statistical Analysis

The data of the study were evaluated using Statistical Package for the Social Sciences (SPSS) 20 (IBM Corporation, New York). Compatibility of the data to normal distribution was measured by using Shapiro Wilk and Kolmogorov Smirnov tests. The results revealed that the data were not normally distributed ( $p < .05$ ). Descriptive statistical tests, median, minimum-maximum (min-max) points, Mann Whitney U test, Kruskal-Wallis analysis of variance, Spearman correlation analysis, and Cronbach's alpha were used for the analysis of the data. Statistical significance was accepted as  $p < .05$ .

### Results

Table 1 shows the nurses' median and min-max scores of PSI,

PSI subscale, and ATQ. It was found that total median and min-max score obtained by the nurses from the PSI was 86 (Min 47-Max 120) and their total median and min-max score of the ATQ was 47 (min 30- max 108). With reference to median and min-max score of the PSI subscale, it was detected that median and min-max score of CPSS was 24 (min 11- max 46), median and min-max score of AA was 44 (min 22- max 73). Median and min-max score of PC was 19 (min 11- max 31).

**Table 1. The Descriptive Statistics for Problem Solving Inventory & Automatic Thoughts Questionnaire (n=112)**

Scale Scores	Min-Max	Median
Overall PSI score	47-120	86
<b>PSI subscale scores</b>		
Confidence on problem solving skills	11-46	24
Approach-avoidance	22-73	44
Personal control	11-31	19
Overall ATQ score	30-108	47

Min-Max: Minimum- maximum, ATQ: Automatic Thoughts Questionnaire, PSI: Problem Solving Inventory

Table 2 shows median and min-max scores of PSI and ATQ in terms of descriptive characteristics of the nurses. Of the nurses participating in the study, 55.4% were aged between 36-44 years, 93.8% was female, 76.8% were married, and 43.8% were undergraduates. In this study, no significant difference was determined between age, gender, marital status and education levels of the nurses and their scores of PSI, PSI subscales and ATQ ( $p > .05$ ).

Table 3 shows median and min-max scores obtained by the nurses from ATQ and PSI. Of the nurses participating in the study, 30.4% were working in daytime clinic wards (blood samples, training units, hemodialysis-peritoneal dialysis, endoscopy etc.), 27.7% were working at internal medicine clinics, 15.2% were working at surgical clinics, 32.1% were working for 17-25 years, 64.3% were working at their current clinics for 1-4 years, 83.0% were clinical nurses and 56.3% were working in day-night shifts. There was no significant difference between PSI and ATQ median scores of the nurses in terms of the clinic worked, terms of employments as nurse, terms of employment at their current clinics, and their working shifts ( $p > .05$ ).

When the nurses were evaluated according to their duties in the service (clinical nurse or nurse manager), this evaluation revealed that there was a significant difference between their PSI, AA, and PC median scores ( $p < .05$ ). It was also determined that the nurse managers had higher problem solving skills than clinical nurses and they felt AA and PC against problems. Additionally, there was no significant difference in ATQ in terms of being a clinical nurse or nurse manager.

Table 4 shows median and min-max scores obtained by the nurses from PSI and ATQ in terms of their opinions on the

**Table 2.** Evaluation of PSI and ATQ Median and Min-Max Scores in Terms of Descriptive Characteristics of the Nurses

Variables	n	%	PSI		CPSS		AA		PS		ATQ	
			Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median
<b>Age</b>												
18-26 years	22	19.6	63-120	94	14-45	26	30-73	47	16-31	21	30-75	46
27-35 years	15	13.4	66-114	82	21-42	25	29-56	47	14-24	19	30-82	43
36-44 years	62	55.4	49-117	86	11-46	24	22-61	45	11-29	11	30-108	47
45 years and over	13	11.6	47-105	75	11-30	21	25-53	40	11-27	18	33-75	47
Test and p value	112	100	$\chi^2=7.133$ p=.068		$\chi^2=5.667$ p=.129		$\chi^2=5.268$ p=.153		$\chi^2=4.101$ p=.251		$\chi^2=1.067$ p=.785	
<b>Gender</b>												
Female	105	93.8	47-120	85	11-46	24	22-73	44	11-29	20	30-108	47
Male	7	6.3	67-104	90	15-39	23	36-57	51	17-31	18	41-64	46
Test and p value	112	100	Z=.908 p=.364		Z=0.349 p=.727		Z=-1.221 p=.222		Z=0.694 p=.488		Z=-0.421 p=.674	
<b>Marital status</b>												
Single	26	23.2	49-120	86	14-46	24	22-73	44	11-31	19	30-81	53
Married	86	76.8	47-114	86	11-45	24	25-61	45	11-29	19	30-108	45
Test and p value	112	100	Z=-0.069 p=.945		Z=0.307 p=.759		Z=-0.017 p=.986		Z=0.388 p=.698		Z=-0.396 p=.692	
<b>Educational status</b>												
Health college	13	11.6	49-104	87	14-39	23	22-60	49	14-31	19	30-64	45
Associate degree	43	38.4	50-117	90	11-46	25	25-60	46	11-29	21	31-108	46
Undergraduate	49	43.8	47-120	82	11-45	24	26-73	45	11-25	19	30-76	48
Postgraduate	7	6.3	55-102	77	12-32	24	32-52	39	15-24	18	30-72	51
Test and p value	112	100	$\chi^2=2.531$ p=.470		$\chi^2=3.334$ p=.343		$\chi^2=2.405$ p=.493		p=.546 $\chi^2=2.127$		$\chi^2=0.717$ p=.869	

AA: Approach-Avoidance, ATQ: Automatic Thoughts Questionnaire, CPSS: Confidence on Problem Solving Skills, Min-Max: Minimum-Maximum, PC: Personal Control, PSI: Problem Solving Inventory  
 $\chi^2$ : Kruskal-Wallis, Z: Mann Whitney U

**Table 3.** PSI and ATQ Median and Min-Max Scores in Terms of Professional Characteristics of the Nurses

Variables	n	%	PSI		CPSS		AA		PC		ATQ		
			Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median	
<b>Clinical Worked</b>													
Internal Medicine Clinic	31	27.7	49-117	82	11-46	23	22-61	41	14-29	19	30-108	52	
Surgical Clinic	18	16.1	65-120	89	15-45	24	30-73	47	16-31	21	31-76	51	
Intensive Care Clinic	17	15.2	65-105	88	15-33	23	29-60	46	11-25	20	30-63	45	
Operation Room	7	6.3	69-114	95	23-42	29	29-56	51	15-24	20	38-72	44	
Other Units	34	30.4	47-108	82	11-38	25	26-59	43	11-27	19	30-82	43	
Emergency Clinic	5	4.5	79-112	101	24-45	30	42-54	49	17-24	18	32-64	48	
Test and p value	11	2	100	$\chi^2=5.334$ p=.377		$\chi^2=7.028$ p=.219		$\chi^2=3.624$ p=.605		$\chi^2=1.008$ p=.962		$\chi^2=2.243$ p=.815	
<b>Duration Of Employment As A Nurse</b>													
1-8 years	34	30.4	63-120	88	14-45	25	29-73	46	14-31	20	30-75	45	
9-16 years	28	25.0	50-117	87	12-46	24	27-57	44	13-26	19	31-82	42	
17-25 years	36	32.1	49-114	87	11-44	25	22-61	46	11-29	20	30-108	56	
26-33 years	14	12.5	47-112	77	11-45	22	25-53	41	11-27	18	33-75	47	
Test and p value	112	100	$\chi^2=2.966$ p=.397		$\chi^2=2.683$ p=.515		$\chi^2=2.683$ p=.344		$\chi^2=2.683$ p=.749		$\chi^2=7.168$ p=.067		
<b>Duration Of Employment At The Current Clinics</b>													
1-4 years	72	64.3	47-117	86	11-46	24	22-61	43	11-31	20	30-108	46	
5-8 years	27	24.1	50-120	85	11-39	24	27-73	46	11-29	19	30-82	46	
9-12 years	9	8.0	66-112	85	19-45	24	31-55	45	17-24	18	38-71	60	
13 years and above	4	3.6	68-95	82	15-30	26	32-51	40	17-27	21	38-72	50	
Test and p value	112	100	$\chi^2=0.610$ p=.894		$\chi^2=1.602$ p=.659		$\chi^2=2.693$ p=.441		$\chi^2=0.491$ p=.921		$\chi^2=3.129$ p=.372		
<b>Position</b>													
Clinical nurse	93	83.0	49-120	89	11-46	24	22-73	46	11-31	20	30-108	47	
Nurse managers	19	17.0	47-114	75	11-38	21	26-61	38	11-24	18	31-76	43	
Test and p value	112	100	Z=-2.466 p=.014*		Z=-1.596, p=.110		Z=-2.394 p=.017*		Z=-2.001 p=.045*		Z=-0.617 p=.538		
<b>Working Shift</b>													
Daytime only	49	43.8	47-114	82	11-45	43	22-60	44	11-27	19	30-82	48	
Day+Night	63	56.3	50-120	89	11-46	26	25-73	45	11-31	20	30-108	46	
Test and p value	112	100	Z=-1.012 p=.311		Z=-1.299 p=.194		Z=-0.857 p=.391		Z=-0.934 p=.350		Z=-0.103 p=.918		

AA: Approach-Avoidance, ATQ: Automatic Thoughts Questionnaire, CPSS: Confidence on Problem Solving Skills, Min-Max: Minimum-Maximum, PC: Personal Control, PSI: Problem Solving Inventory  
 $\chi^2$ : Kruskal-Wallis, Z: Mann Whitney U \*p<.05

**Table 4.** PSI and ATQ Median and Min-Max Scores According to the Nurses' Opinions on Profession

Variables	n	%	PSI		CPSS		AA		PC		ATQ	
			Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median	Min-Max	Median
<b>Said that they were satisfied with profession</b>												
Satisfied <sup>a</sup>	32	28.6	54-114	85	11-42	23	32-61	44	13-26	19	30-76	40
Partially satisfied <sup>b</sup>	61	54.5	47-120	84	11-46	24	22-73	44	11-31	20	30-82	50
Dissatisfied <sup>c</sup>	19	17.0	65-111	89	15-44	27	29-56	45	14-24	18	30-108	57
Test and p values	112	100	$\chi^2=0.564$ p=.754		$\chi^2=3.033$ p=.219		$\chi^2=0.195$ p=.907		$\chi^2=1.601$ p=.449		$\chi^2=8.576$ p=.014* c a,b	
<b>Choosing The Profession Willingly</b>												
Yes	79	70.5	47-120	85	11-46	25	22-73	43	11-31	19	30-82	45
No	33	29.5	54-114	88	11-44	24	29-61	46	14-27	20	31-108	56
Test and p values	112	100	Z=-0.077 p=.939		Z=-0.051 p=.959		Z=-1.012 p=.311		Z=-.872 p=0.383		Z=-1.555 p=.120	
<b>Suitability Of The Profession</b>												
Suitable	56	50.0	49-114	85	11-42	23	22-60	46	14-31	19	30-76	43
Partially suitable	43	38.4	47-120	83	11-46	24	26-73	43	11-27	20	31-82	56
Not suitable	13	11.6	63-102	97	17-45	27	29-60	52	15-27	19	34-108	58
Test and p values	112	100	$\chi^2=2.613$ p=.271		$\chi^2=3.575$ p=.167		$\chi^2=1.299$ p=.522		$\chi^2=0.162$ p=.922		$\chi^2=10.725$ p=.005**	

AA: Approach-Avoidance, ATQ: Automatic Thoughts Questionnaire, CPSS: Confidence on Problem Solving Skills, Min-Max: Minimum-Maximum, PC: Personal Control, PSI: Problem Solving Inventory  
 $\chi^2$ : Kruskal-Wallis, Z: Mann Whitney U \*p<.05

**Table 5.** The Relationship Between PSI and ATQ Scores of The Nurses

	PSI	CPSS	AA	PC	ATQ	
PSI	s	1.000	0.773	0.894	0.679	0.259
	p	.	<.001	<.001	<.001	0.006*
	n	112	112	112	112	112
ATQ	s	0.259	0.338	0.115	0.172	1.000
	p	.006*	<.001	0.227	0.070	.
	n	112	112	112	112	112

rs: spearman correlation coefficient

AA: Approach-Avoidance, ATQ: Automatic Thoughts Questionnaire, CPSS: Confidence on Problem Solving Skills, PC: Personal Control, PSI: Problem Solving Inventory \*p<.01

profession. It was found that 54.5% of the nurses were partially satisfied with their working conditions, 70.5% had chosen the profession voluntarily, and 50.0% regarded the nursing profession as a suitable profession for themselves. No significant difference was found between the status of expressing satisfaction with the nursing profession and PSI and its subscales (p>.05).

A significant difference was found between the ATQ median scores of nurses and the status of saying that they were satisfied with their professions (p<.05). The ATQ scores of the nurses saying that they were satisfied with their professions were higher. Additionally, it was also determined that nurses thinking that nursing profession is not suitable for themselves had significantly higher ATQ median scores than those who thought the profession is suitable or partially suitable for themselves (p<.01). No significant difference was found

between PSI median scores of the nurses thinking that nursing profession is suitable for themselves (p>.05).

The relationship between PSI, ATQ, and their subscale scores of the nurses were analyzed by using Pearson Correlation Coefficient as shown in Table 5. A low-level positive correlation was found between PSI and ATQ scores of the nurses (rs=0.259, p<.01).

### Discussion

PSI and ATQ levels of the nurses and the relationship between them were investigated in this study. Problem solving ability is a very important factor in professional nursing practice. In this study, it was determined, that problem solving skills and automatic thoughts were not affected by the nurses' age, gender, marital status, educational levels, and opinions about the profession. Similar to the results of this study, the study by Basar et al.,<sup>(30)</sup> revealed no correlation between marital status, gender, educational status, working unit and problem solving ability. These results suggested that personality traits of individuals, upbringing, and life experiences may be more determinative for problem solving skills.

Professional nursing role is based on communication and decision making for both nurse managers and clinical nurses. Problem situations are an important part of the practice of administrative nurse managers and clinical nurses.<sup>(31)</sup> Being more skilled on problem solving is attributed to nurse managers. However, as clinical nurses and nurse managers may replace each other according to functioning of the clinic, problem solving skills are among the skills clinical nurses should also



have.<sup>(22)</sup> Additionally, this study indicated that nurse managers had higher problem solving skills than clinical nurses when the nurses were evaluated according to their duties during the service. In contrast to the results of this study, Basar et al.,<sup>(30)</sup> did not find any significant difference between problem solving skills of nurse managers and clinical nurses. In another study, there was no significant differences in problem solving skills of the nurse managers, and also it was stated that the nurses who did not have management responsibilities trusted to their problem solving skills more and defined themselves as people willing to handle problems.<sup>(8)</sup> The related studies have shown the opposite by suggesting that nurses with management responsibilities have lower problem solving skills.<sup>(7)</sup> However, another study revealed that clinical nurse managers had better problem solving skills.<sup>(5)</sup> There are contradictory results on this matter; however, it is thought that being a nurse manager after a long term of employment as a nurse can be related to nurse managers' better problem solving skills since higher education and a certain level of professional experience are required for management positions.

In the PSI subscales, it was found that there was a difference between the AA and PC levels of clinical nurses and nurse managers, but there was no difference between their CPSS. The fact that there was no significant difference in CPSS subscale in the study suggested that the beliefs of clinical nurses and nurse managers towards problem solving were similar. PC subscale represents a case of providing alternative solutions to a problem encountered and maintaining personal control in problematic situations.<sup>(27)</sup> A significant difference was also found in this study in favor of the nurse manager in AA and PC subscales. This result may be due to the fact that nurse managers were more likely to encounter problems, to produce alternative solutions to problems, and to provide high levels of personal control in problematic situations.

Nurses must possess a positive self-image and professional identity in order to provide optimal professional care for patients.<sup>(31)</sup> When ATQ scores of the nurses were evaluated, it was found that the nurses who said they were not satisfied with their professions had higher ATQ scores. In the literature, it is reported that automatic thoughts in nurses are based on the stress related to their professions.<sup>(32)</sup> According to the results obtained in this study, it is understood that there is a relationship between emergence of automatic thoughts and nurses' being not satisfied with their professions and finding the profession not suitable for themselves. Recognizing stressful situations that cause arousal of automatic thoughts and

replacing them with realistic thoughts are necessary to empower the individual in the face of problems.<sup>(33)</sup> It is thought that automatic thoughts will decrease as the nurses acquire positive thoughts about their professions.

There was a low positive significant correlation between PSI and ATQ mean scores. This result might be interpreted as PSI decreasing with increased automatic thoughts. This correlation was also detected in other similar studies with different samples.<sup>(34,35)</sup> In another related study, it was found that automatic thoughts were hindering the development of problem solving skills.<sup>(35)</sup> Reduction of automatic thoughts in terms of professional development of nursing is thought to have a positive effect on problem solving skills of nurses.

## Conclusion

Nurses' problem solving skills and automatic thoughts were examined and the relationship between them was determined in this study. According to the study results, nurse managers are more likely to have problem solving skills, to provide alternative solutions to a problem encountered, and to maintain personal control in problematic situations. Automatic thoughts were lower in nurses who said that they were satisfied with their profession and that the nursing profession is appropriate for themselves. In addition, problem solving skills of the nurses were adversely affected by automatic thoughts.

This study was a single-center study. In order to increase the power of the results to represent the study population, larger sampled and multicentered studies should be conducted. Studies for understanding and specifying the factors that cause nurses to be not satisfied with their professions and to feel not suitable for their profession can provide valuable information. In addition, it is recommended to make meetings that provide nurse managers to share their experiences and knowledge on effective problem solving skills with clinical nurses.

## The Limitations of the Study

This study has several limitations. In this study, the rate of the nurses in target group was 36%, which was low. The power of the data to represent all the nurses in the hospital seems limited. Also, the total number of patients in the busy hospital where data were collected may affect the result of the present study and may be different from other hospitals which is less busy or has less number of patients. So, the results of the present study may not reflect the PSI and ATQ levels of nurses working in other hospitals accepting fewer patients.

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<b>Informed Consent:</b> Written informed approval was obtained from the nurses who participated in this study.	<b>Bilgilendirilmiş Onam:</b> Çalışmaya katılan hemşirelerden yazılı onam alınmıştır.
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## REFERENCES

- Gurden D. How to become a good problem solver. *Nurs Stand*. 2016;31(3):35. doi: 10.7748/ns.31.3.35.s40.
- Tascı S. The problem solving process in nursing. *Journal of Health Sciences*. 2005;14:73-8. Available from: <http://sagens.erciyes.edu.tr/dergi/hemsire/Sultan2.pdf>
- Bell AC, D'Zurilla TJ. Problem-solving therapy for depression: A meta-analysis. *Clin Psychol Rev*. 2009;29(4):348-53. doi: 10.1016/j.cpr.2009.02.003.
- Jun WH, Lee G. The role of ego-resiliency in the relationship between social anxiety and problem solving ability among South Korean nursing students. *Nurse Educ Today*. 2016;49:17-21. doi: 10.1016/j.nedt.2016.11.006.
- Kelleci M, Golbasi Z. Investigation of problem solving abilities of some occupational nurses in a university hospital in terms of some variables. *Cumhuriyet University School of Nursing Journal*. 2004;8(2):1-8. Available from: <http://eskidergi.cumhuriyet.edu.tr/makale/1024.pdf>
- Terzioğlu F. The perceived problem solving ability of nurse managers. *J Nurs Manag*. 2006;14(5):340-7. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2934.2006.00551.x>
- Erkus B, Bahcecik N. Level of critical thinking and problem solving skills of administrator nurses and nurses who work at private hospitals. *Journal of Marmara University Institute of Health Sciences*. 2015;5:1(1):1-9. Available from: <https://dergipark.org.tr/tr/download/article-file/165453>
- Abaan S, Altıntoprak A. Nurse's perceptions of their problem solving ability: Analysis of self appraisals. *Journal of Hacettepe University School of Nursing*. 2005;12(1):62-76. Available from: <https://dergipark.org.tr/download/article-file/88606>
- Shamian J. Effect of teaching decision analysis on student nurses' clinical intervention decision making. *Res Nurs Health*. 1991;14(1):59-66. doi: 10.1002/nur.4770140109.
- Soflau R, David DO. A meta-analytical approach of the relationships between the irrationality of beliefs and the functionality of automatic thoughts. *Cognit Ther Res*. 2016;41(2):178-92. doi: 10.1007/s10608-016-9812-y.
- Hicdurmaz D, Oz F. Empowerment of self via cognitive approach. *Hacettepe University Faculty of Health Sciences Nursing Journal*. 2011;68-78. Available from: <https://dergipark.org.tr/download/article-file/88500>
- Iancu I, Bodner E, Joubran S, Lupinsky Y, Barenboim D. Negative and positive automatic thoughts in social anxiety disorder. *Isr J Psychiatry Relat Sci*. 2015;52(2):129-35. Available from: [http://doctorsonly.co.il/wp-content/uploads/2015/07/11\\_Negative-and-Positive.pdf](http://doctorsonly.co.il/wp-content/uploads/2015/07/11_Negative-and-Positive.pdf)
- Sirin H, Izgar H. Relationship between undergraduates' communication skills and their negative automatic thoughts. *Elementary Education Online*. 2013;12(2):585-96. Available from: <http://ilkogretim-online.org.tr/index.php/ieo/article/view/1422>
- Beck JS. *Cognitive Behavioral Therapy, Foundation and Beyond*. 2nd ed. Sahin M, editor. Ankara: Nobel Academic Publication; 2014.
- Duy B. The effect of group counseling based on cognitive-behavioral approach on loneliness and non-functional attitudes [doctoral dissertation]. Ankara: Ankara University, Institute of Educational Sciences; 2003.
- Lam D, Cheng L. Cognitive behaviour therapy approach to disputing automatic thoughts: a two-stage model. *J Adv Nurs*. 1998;27(6):1143-50. doi: 10.1046/j.1365-2648.1998.00650.x.
- Oldenburg NL, Hung WC. Problem solving strategies used by RN-to-BSN students in an online problem-based learning course. *J Nurs Educ*. 2010;49(4):219-22. doi: 10.3928/01484834-20091118-01.
- Durmaz S, Kacar Z, Can S, Koca R, Yesilova D. Problem solving skills and some factors affecting Canakkale Health School students. *Ataturk University Journal of Nursing School*. 2007;10(4):63-71. Available from: <https://dergipark.org.tr/download/article-file/29384>
- Olgun N, Onturk ZK, Karabacak UK, Aslan FE. Problem solving skills of nursing students: One year follow-up results. *Acibadem University Journal of Health Sciences*. 2010;1(4):188-94. Available from: [http://acibadem.dergisi.org/uploads/pdf/pdf\\_AUD\\_45.pdf](http://acibadem.dergisi.org/uploads/pdf/pdf_AUD_45.pdf)
- Yoo MS, Park JH. Effect of case-based learning on the development of graduate nurses' problem-solving ability. *Nurse Educ Today*. 2014;34(1):47-51. doi: 10.1016/j.nedt.2013.02.014.
- Jun WH, Lee G. The role of ego-resiliency in the relationship between social anxiety and problem solving ability among South Korean nursing students. *Nurse Educ Today*. 2017;49:17-21. doi: 10.1016/j.nedt.2016.11.006.
- Yılmaz E, Karaca F, Yılmaz E. Examination of problem solving skills of high school students in terms of some variables. *Ataturk University School of Nursing Journal*. 2009;12(1):38-48. Available from: <https://dergipark.org.tr/tr/download/article-file/29446>
- Bozkurt N, Aysan F. Validity and reliability study of the improved automatic thinking scale on high school students. *Marmara University Ataturk Education Faculty Journal of Educational Sciences*. 2000;12:91-108. Available from: <https://dergipark.org.tr/download/article-file/1990>
- Kanbay Y, Aslan O, Isik E, Kilic N. Problem solving and critical thinking skills of undergraduate nursing students. *Journal of Higher Education and Science*. 2013;3:244-51. Available from: <https://www.researchgate.net/publication/307822884>
- Heppner PP, Petersen CH. The development and implications of a personal problem solving inventory. *Journal of Counseling Psychology*. 1982;29(1):66-75. doi: 10.1037/0022-0167.29.1.66.
- Savasir I, Sahin NH. Assessment in cognitive-behavioral therapies: Commonly used scales. *Turkish Psychological Association Publications*. No: 9. Ankara: Ozyurt Publication; 1997.
- Ulusoy H, Tosun N, Aydin JC. Problem solving skills of health management students. *Journal of Health and Nursing Management*. 2014;1(1):1-8. Available from: [https://www.journalagent.com/shyd/pdfs/SHYD\\_1\\_1\\_1\\_8.pdf](https://www.journalagent.com/shyd/pdfs/SHYD_1_1_1_8.pdf)
- Aydın G, Aydın O. Otomatik Düşünceler Ölçeğinin geçerlik ve güvenirliği. *Türk Psikoloji Dergisi*. 1990;7(24):51-5. Available from: <https://www.psikolog.org.tr/yayinlar/dergiler/1031828/tpd130044331990000m000355.pdf>
- Sahin N, Sahin NH. Reliability and validity of the Turkish version of the Automatic Thoughts Questionnaire. *J Clin Psychol*. 1992;48(3):334-40. doi: 10.1002/1097-4679(199205)48:3<334::aid-jclp2270480311>3.0.co;2-p.
- Basar G, Akin S, Durna Z. Evaluation of nurses' and nursing students' problem-solving skills and communication skills. *Gumushane University Journal of Health Sciences*. 2015;4(1):125-47. Available from: <https://dergipark.org.tr/download/article-file/220168>
- Schmieding NJ. Reflective inquiry framework for nurse administrators. *J Adv Nurs*. 1999;30(3):631-9. doi: 10.1046/j.1365-2648.1999.01134.x.
- Ohue T, Moriyama M, Nakaya T. Examination of a cognitive model of stress, burnout, and intention to resign for Japanese nurses. *Jpn J Nurs Sci*. 2011;8(1):76-86. doi: 10.1111/j.1742-7924.2010.00161.x.
- Hicdurmaz D. The effect of cognitive behavioral group counseling on self-perception and stress coping styles [doctoral dissertation]. Ankara: Hacettepe University Health Sciences Institute; 2010.
- Durmaz NS. Examination of the relationship between problem solving skills and automatic thinking of divorce dividend processes [master's thesis]. İzmir: Dokuz Eylül University, Educational Sciences Institute; 2015.
- Tümkaya S, İflazoğlu A. Investigation of automatic thinking and problem solving levels of Cukurova University classroom teaching students according to some socio-demographic variables. *Cukurova University Journal of Social Sciences*. 2000;6(6):143-58. Available from: <https://dergipark.org.tr/tr/download/article-file/50057>