

Effect of Nurses' Autonomy Levels and Problem-Solving Skills on Job Satisfaction

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ABSTRACT

Objective: This study aimed to determine the effect of nurses' autonomy levels and problem-solving skills on job satisfaction and was conducted in public, private and university hospital between July and September 2021.

Methods: This descriptive and relational – screening study was conducted with 278 nurses. Data were collected through the Socio-demographic Form, the Problem-Solving Inventory, the Sociotrophy-Autonomy Scale, and the Minnesota Job Satisfaction Questionnaire (MJSQ). Data were analyzed using SPSS 26 and AMOS 24 programs using numbers, percentages, minimum/maximum values, means, and standard deviation values.

Results: Modern mediation analysis findings performed using the Bootstrap method showed that the indirect effect of the autonomy score on the overall satisfaction score with the mediation of the problem-solving skills was significant ($p < .05$).

Conclusion: Problem-solving skills were found to have a partial mediating role in the effect of nurses' autonomy levels on their job satisfaction.

Keywords: Autonomy, problem-solving skills, nursing, job satisfaction, structural equation

1. INTRODUCTION

Autonomy is defined as an individual's ability to protect and increase his/her rights and independence (1). While the developments in the health services with the developing technology have enabled many innovations as well as multidisciplinary work, they have also caused some changes in workers' attitudes and expectations. These changes have brought the need for considering workers' not only abilities but also values, preferences, and expectations in the work environments with a hierarchical structure (2). Developing the autonomy of individuals is possible only by respecting it. Autonomy is an intangible and complicated concept indicating individuals' conscious and independent decision-making capacity to reach desired outcomes (3,4). Beside individual autonomy, professional autonomy is defined as the ability to control the scope, management, and pacing of the things to be done to initiate and conclude a movement or a series of events (5). Autonomy is the freedom of an individual's making voluntary and binding decisions and taking action on these decisions (6). Nurses' actions such as saving the patient's life in emergency cases, coordinating care, enhancing patient safety, and preventing medical errors are also indicators of professional nurse autonomy. In all the stages of health services, nurses' fulfilling their independent

roles without limitations is highly important. In addition, autonomy, taking appropriate decisions for the solutions to the problems encountered during nursing practices, and problem-solving skills are considered to be among the top factors affecting the quality of care (7). Right decisions taken in these kinds of cases, by revealing nurses' knowledge and skills, could enhance experiencing a sense of accomplishment (8). Nurses' job satisfaction is also considered to be affected by the feelings of accomplishment. Job satisfaction is defined using the qualities such as workers' love and positive and negative attitudes about their job, meeting their needs in the workplace, and securing justice in the workplace (9). Factors enhancing job satisfaction and professional development were found to be positively associated with autonomy (10). Enhancing nursing skills with full autonomy is among the factors that affect job satisfaction the most (11-14). While lack of nurses' job descriptions despite the heavy workload has negative effects on their job satisfaction (15), job satisfaction levels were reported to be higher in nurses working in institutions that provide nurses with opportunities to improve their knowledge and skills and include clear role definitions (16). However, the literature in our country was found to include no studies that investigated the effect of

nurses' autonomy levels and problem-solving skills on their job satisfaction. Therefore, this study aims to determine the effect of nurses' autonomy levels and problem-solving skills on job satisfaction.

Research Questions

- Nurses' autonomy levels have positive effects on problem-solving skills.
- Nurses' autonomy levels have positive effects on their job satisfaction.
- Problem-solving skills have a mediating role in the effect of autonomy level on job satisfaction.

2. METHODS

2.1. Study Design

This study utilized a descriptive and relational screening design and was conducted in public, private and university hospital of a city center in the west of Turkey between July and September 2021.

2.2. Target Population and the Sample

The target population of the study was 476 nurses who worked in public, private and university hospital for at least one year. A purposeful sampling method was utilized for the sample, and the 300 data collection forms were administered to the nurses who agreed to participate in the study. Twenty-two forms that had missing or inaccurate data were excluded, so the study was completed with 278 nurses. Due to the pandemic process, it was tried to reach all the nurses in the universe.

2.3. Data Collection Tools

Data were collected through the Socio-demographic Form developed by the researchers to determine nurses' individual and professional characteristics, the Problem-Solving Inventory, the Sociotropy-Autonomy Scale, and the Minnesota Job Satisfaction Questionnaire (MJSQ).

2.3.1. The socio-demographic form

The form was composed of 8 questions regarding the participants' individual (age, the city where they live, marital status, education level, etc.) and some professional characteristics (the institution where they work, duration of working, the clinic where they work, etc.). "To what extent do you think the nurses are able to fulfill their professional roles in the clinics they work in?" The answers given to the question are expressed as levels. Participants were asked to mark from 1 to 5. 1=Very low, 5= Very high.

2.3.2. The Problem-Solving Skills Inventory (PSSI)

The Problem-Solving Inventory developed by Heppner and Petersen (1982) is a tool that is utilized to determine the phases of the problem-solving process and evaluate what individuals think about their own problem-solving behaviors and approaches (17). Turkish reliability and validity of the scale were performed by Taylan et al. (1990), and the form is composed of 35 items rated on a 6-point Likert scale. While 1 point indicates strong agreement, 6 points indicate strong disagreement (18). The inventory is composed of three sub-scales, which include Problem-Solving Confidence, Approach-Avoidance, and (Ability to Maintain) Personal Control. The original Cronbach alpha value of the scale is 0.88. This study Cronbach's alpha value was found to be 0.92.

2.3.3. The Sociotropy-Autonomy Scale

The scale was developed by Beck, Nepstein, Harrison, and Emery in 1983 and was adapted to Turkish by Şahin et al. in 1993 (19). The test-retest reliability coefficient of the original form ranged between α .65 and α .88 for the sociotropy feature, and between α .66 and α .75 for the autonomy feature. The reliability alpha coefficient of the Turkish version of the scale was found to be α .70 and α .81 for sociotropy and autonomy, respectively. The scale is responded on a 5-point Likert scale with responses including 0= not at all like me, 1= somewhat like me, 2=quite like me, 3= like me, and 4=very much like me. The scale is composed of two sub-scales called Sociotropy and Autonomy. The top score to be obtained from each sub-scale is 120. The sub-scales can also be utilized separately. This study utilized the autonomy sub-scale. Higher scores indicate higher autonomy levels. The autonomy sub-scale includes personal accomplishment, independence, and enjoying loneliness sub-scales (20-22). Cronbach's alpha value of the autonomy sub-scale was reported 0.81. This study found the Cronbach's alpha value as 0.93.

2.3.4. The Minnesota Job Satisfaction Questionnaire (MJSQ)

The Minnesota Job Satisfaction Questionnaire, developed by Weiss et al. (1967) to measure job satisfaction, was first translated to Turkish as 20 items by Baycan (1985). Each item includes five options defining one's level of satisfaction with his job: not satisfied at all (1), not satisfied (2), not sure (3), satisfied (4), and very much satisfied (5). Scores to be obtained from the scale range between 20 and 100, and the 60 points in the middle indicate neutral satisfaction. While scores close to 20 indicate a low satisfaction level, scores close to 100 indicate higher satisfaction. Cronbach's alpha coefficient of the scale was reported 0.90 (23,24). Cronbach's alfa coefficient was found 0.88 in this study.

2.4. Data Analysis

The analysis of the data was performed using SPSS 26 and AMOS 24 programs. Construct validity of the scales

utilized in the study was analyzed using the second-order Confirmatory Factor Analysis and the research hypotheses were tested using structural equation models (SEM). Since the kurtosis (Mardia's coefficient) value of the multivariable normality assumption in the CFAs performed in the AMOS program did not meet the critical ratio (<20), the Unweighted Least Squares (ULS) method was utilized as the estimation method. As for the SEM analyses, since the multivariable normality assumptions were met, the Maximum Likelihood (ML) method was used as the estimation method (25-27). With 5000-sample utilized in the analyses conducted, factor loads and effects between the variables were analyzed with a 95% confidence interval. The fitness and reliability of the model in the CFA and SEM analyses were analyzed using fit index values. The reliability of the scales was analyzed using Cronbach's alpha internal consistency coefficient. Descriptive findings were demonstrated using numbers, percentages, minimum/maximum values, means, and standard deviation values. Statistical significance was accepted $p < .05$.

2.5. Ethical Considerations

Before the study was conducted, ethics committee approval was obtained from the Non-invasive Clinical Research Ethics Committee of the Related University (Decision no: 2021/025 and Code: 2021019). Written permission was obtained from the hospital where the study was conducted. The nurses who were invited to participate in the study were informed about the purpose of the study and those who gave verbal consent were included.

3. RESULTS

The distribution of participating nurses' descriptive characteristics is presented in Table 1. The average age of the nurses was found 35.35 ± 7.17 . When the educational status of the nurses is examined, 7.2% of them are associate degree, 17.6% are undergraduate, 59.7% and 15.5% are graduate education graduates. Of all the nurses, 74.5% were married and 32.06% have children.

The scale items were included in the CFA models as the observed variables to determine the construct validity of the scales utilized in the study, and related implicit variables were formed. Items were eliminated from the analyses to make model fit index values in the analyses have the desired level, and analyses were reperformed after each item elimination.

Confirmatory Factor Analysis Findings of the Autonomy Scale

Model Fit Values; χ^2/df : 2.128 GFI: .976 AGFI: .971 NFI: .969 RMR: .080

Confirmatory Factor Analysis Findings of the Problem-Solving Inventory

Model Fit Values; χ^2/df : 2.018 GFI: .959 AGFI: .951 NFI: .943 RMR: .078

Confirmatory Factor Analysis Findings of the Minnesota Satisfaction Questionnaire

Model Fit Values; χ^2/df : 1.623 GFI: .976 AGFI: .967 NFI: .963 RMR: .065

These findings showed that the final models related to the scales fit the model fit indexes and were reliable, and the factor loads were statistically significant.

Table 1. Distribution of the descriptive characteristics of the nurses (n=278)

Descriptive Characteristics		n	%
Marital Status	Married	207	74.5
	Single	71	25.5
Place of living	City center	136	48.9
	District	138	49.6
	Town/Village	4	1.4
Education level	High School	20	7.2
	Associate degree	49	17.6
	Undergraduate degree	166	59.7
	Postgraduate degree	43	15.5
Working Institution	Public hospital	245	88.1
	Private hospital	7	2.5
	University hospital	26	9.4
Working Clinic	Intensive care	91	32.7
	Emergency Service	48	17.3
	Clinics or Polyclinics	95	34.2
	FHC, City Health	42	15.1
	Administrative		
	Other	2	0.7
Level of nurses' fulfilling their professional roles in the clinics they were assigned	Very low	2	0.7
	Low	40	14.4
	Middle	123	44.2
	High	81	29.1
	Very high	32	11.5
	Mean \pm SD		
Levels		3.36 \pm 0.89	
Age		35.35 \pm 7.17	
Years of working		12.81 \pm 7.85	

SD: Standard Deviation

Table 2. Statistical findings and reliability coefficients of the variables

Variables	Minimum	Maximum	Mean.	SD	Cronbach Alfa
Autonomy	23.00	92.00	66.30	18.38	0.932
Problem – Solving Confidence	10.00	34.00	19.21	6.49	0.852
Approach – Avoidance Style	12.00	46.00	23.08	9.31	0.870
(Ability to Maintain) Personal Control	4.00	15.00	8.76	3.34	0.735
Problem Solving Skills total	26.00	95.00	51.06	17.43	0.921
Internal Satisfaction	16.00	40.00	30.41	4.89	0.815
External Satisfaction	7.00	30.00	21.87	4.81	0.862
Overall Satisfaction	28.00	70.00	52.28	8.69	0.886

SD: Standard Deviation

Statistical findings regarding the variables of the scales and the reliability coefficients are demonstrated in Table 2. These findings show that nurses' autonomy scale total mean score was 66.30±18.38, the Problem-Solving Inventory total mean score was 51.06±17.43, and the Minnesota Satisfaction Questionnaire total mean score was 52.28±8.69. Cronbach's alpha coefficients indicated that the scales and the sub-scales were reliable.

Table 3: Mediation model analysis findings

	Standardized Estimation(β)	
	Model 1	Model 2
Overall Satisfaction ← – Autonomy	0.468*	0.282*
Problem-solving Skills ← – Autonomy		0.614*
Overall Satisfaction ← – Problem-solving Skills		0.297*
	CFI: 1.000	χ^2 /sd: 0.937
	GFI: 1.000	CFI: 1.000
	RMR: 0.000	GFI: 0.992
	SRMR: 0.000	AGFI: 0.977
	(Full Model)	RMSEA: 0.000

* $p < .05$

In the first model analyzed, the autonomy score was found to affect the overall satisfaction score ($\beta = .468$; $p < .05$) (Figure 1)

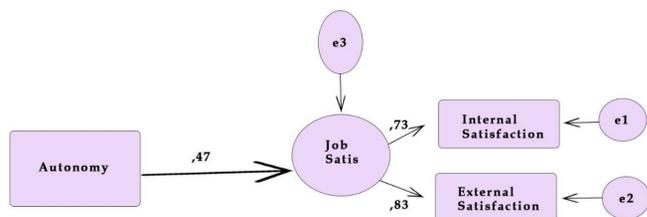


Figure 1. Structural Equation Model 1

In the second model analyzed, the autonomy score was found to affect the problem-solving skills score ($\beta = .614$; $p < .05$), problem-solving skills score affected the overall satisfaction score ($\beta = .297$; $p < .05$), and the positive effect of the autonomy score on general satisfaction score was found to decrease ($\beta = .282$; $p < .05$) (Figure 2).

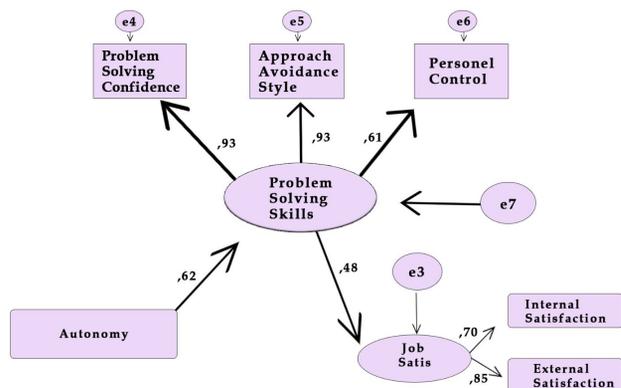


Figure 2. Structural Equation Model

These findings indicate the partial mediating role of problem-solving skills in the effect of the autonomy score on job satisfaction.

Modern Mediation analysis findings performed using the Bootstrap method showed that the indirect effect of the autonomy score on overall satisfaction through problem-solving skills was significant ($\beta = .183$; %95 GA [0.073, 0.290]).

These findings show that the modern method analyzing the indirect effects at 95% reliability interval, as they did not include 0 (zero) values, also support the mediating role of problem-solving skills on the effect of the autonomy score on job satisfaction.

4. DISCUSSION

This study investigated the effect of nurses' autonomy levels and problem-solving skills on job satisfaction, and the findings obtained are discussed in line with the related literature. The Autonomy Scale total mean score of the nurses was found 66.30±18.38, indicating a medium level of autonomy. This finding could be associated with nurses' responsibilities and authorities indicated by law as well as the assignments varying depending on the institutions where they work. In their study that investigated Iranian nurses' experiences of professional autonomy, Setoodegan et al. (2019) identified autonomy associated with four themes including freedom of speech, independence in the workplace, involvement in professional decision-making processes, and professional accountability, and in each theme reported nurses' dissatisfaction with the nurse autonomy perceptions. Nurses' education, legislation, organizational culture, perceptions of professional autonomy, and desire and capacity for gaining professional autonomy varying from country to country are of importance (28). Participating nurses' Minnesota Satisfaction Questionnaire total mean score was 52.28±8.69, indicating a medium-level satisfaction. An analysis of the studies conducted in Turkey regarding job satisfaction indicates low (29-32) or medium level (33-35) job satisfaction of nurses.

The first structural equation model in the study showed that the autonomy score had positive effects on job satisfaction ($\beta = .468$; $p < .05$). Similar to the present study, a study reported that experiencing a major depression period within the last 12 months was significantly associated with lower autonomy and higher workload (36).

This study found nurses' problem-solving mean score as 51.06±17.43, indicating below-average problem-solving skills. Studies on problem-solving in the field of nursing have generally focused on students. These studies showed that nursing students generally had high levels of problem-solving skills, which had positive effects on their clinical interaction, clinical decision-making, and critical thinking skills (37-39). On the other hand, as they start work-life, nurses' autonomy and problem-solving skills might decrease due to the process and procedures of the institutions where they work.

In the second model, the autonomy score was found to affect the problem-solving skills score ($\beta = .614$; $p < .05$), problem-solving skills score affected the overall satisfaction score ($\beta = .297$; $p < .05$), and the autonomy score was found to have positive effects on the general satisfaction score ($\beta = .282$; $p < .05$). These findings indicated the partial mediating role of the problem-solving skill in the effect of the autonomy score on job satisfaction.

Increasing nurses' job satisfaction is of vital importance as it has the potential to increase nurses' job satisfaction and improve care quality perceptions and adequate nursing labor force. Indirect relationships and predictors of job satisfaction contribute to the understanding of the complicated job satisfaction phenomenon more comprehensively, which might, in turn, could help to develop effective strategies to deal with nursing force deficit and improve the quality of nursing care (40). Job satisfaction has significant effects on nurses' job quality of life and psychological empowerment and organizational commitment (41,42). Aloiso et al. (2021) investigated 28 studies on factors associated with job satisfaction and grouped them under two categories as personal and organizational. While no important organizational factors were determined regarding nurses' job satisfaction, individual factors associated with job satisfaction were found to be age, health condition, determination of one's own destiny/autonomy, psychological empowerment, commitment to the job, job fatigue, and job stress.

5. CONCLUSION

While nurses' autonomy and job satisfaction levels were found to be moderate, their problem-solving skills levels were found to be low. Problem-solving skills were found to have a partial mediating role in the effect of autonomy levels on job satisfaction. It is recommended that multivariate study designs should be conducted to determine the factors enhancing job satisfaction.

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Author Contributions:

Research idea: NB, DSK, OUB, ZG

Design of the study: NB, DSK

Acquisition of data for the study: NB, OUB

Analysis of data for the study: NB

Interpretation of data for the study: NB

Drafting the manuscript: OUB

Revising it critically for important intellectual content: OUB

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