

The Mediating Role of Motivation in the Effect of Nurse-Nurse Collaboration on Nurses' Work Performance: Descriptive Research

Hemşire-Hemşire İş Birliğinin Hemşirelerin İş Performansına Etkisinde Motivasyonun Aracı Rolü: Tanımlayıcı Araştırma

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ABSTRACT Objective: This study aimed to determine the mediating role of motivation in the effect of nurse-nurse collaboration on work performance. **Material and Methods:** The research was carried out as a correlational study using survey questions directed to the participants. One hundred thirty-one nurses who continued their active duties participated in the study. Within the scope of the research, a questionnaire consisting of nurse-nurse cooperation, motivation at work, job performance scales, and descriptive questions were used. All analyzes were done in SPSS version 22 and Hayes Process Macro. In the study, descriptive statistics were used to reveal participant characteristics. Process Macro model 4 was used to test the research hypotheses. Since the hypotheses were one-sided, the p value was accepted as 0.025. **Results:** As a result of the research, it has been determined that nurse-nurse cooperation directly affects work performance. It is statistically significant that the motivation to this effect has an increasingly positive effect. **Conclusion:** Nurses working in teams should be in professional solidarity. Because it is known that when the nurse cooperation reaches the desired levels, the motivation of the nurses increases, and it contributes to the best health outcomes for the patients. For higher performance and better health service delivery, it is recommended that hospital and nurse managers increase nurse cooperation and motivation.

ÖZET Amaç: Bu araştırma, hemşire-hemşire iş birliğinin iş performansına etkisinde motivasyonun aracı rolünü belirlemeyi amaçlamaktadır. **Gereç ve Yöntemler:** Araştırma, katılımcılara yönelik anket soruları kullanılarak ilişki arayıcı bir araştırma olarak gerçekleştirilmiştir. Araştırmaya, görevine devam eden 131 hemşire katılmıştır. Araştırma kapsamında hemşire-hemşire iş birliği, işte motivasyon, iş performansı ölçekleri ve tanımlayıcı sorulardan oluşan bir anket formu kullanılmıştır. Tüm analizlerde SPSS versiyon 22 ve Hayes Process Macro programları kullanılmıştır. Araştırmada, katılımcı özelliklerini ortaya koymak adına tanımlayıcı istatistikler kullanılmıştır. Araştırma hipotezlerini test etmek için ise Process Macro model 4 kullanılmıştır. Hipotezler tek yönlü olduğundan p değeri 0,025 olarak kabul edilmiştir. **Bulgular:** Araştırma sonucunda, hemşire-hemşire iş birliğinin iş performansını doğrudan etkilediği tespit edilmiştir. Bu etkiyi iş yeri motivasyonu pozitif biçimde istatistiksel olarak artırmaktadır. **Sonuç:** Takım hâlinde çalışan hemşireler mesleki dayanışma içinde olmalıdır. Çünkü hemşire iş birliği istenilen seviyelere ulaştığında hemşirelerin motivasyonunu artırmaktadır. Bu durumun hastaların en iyi sağlık sonuçlarına ulaşmasına katkı sağladığı bilinmektedir. Daha yüksek performans ve daha iyi sağlık hizmeti sunumu için hastane ve hemşire yöneticilerinin hemşire iş birliğini ve motivasyonunu artırmaları önerilir.

Keywords: Motivation; nurses; job performance

Anahtar Kelimeler: Motivasyon; hemşireler; iş performansı

Health is an indispensable element for individuals and the society. The primary goal of health care institutions is to improve human and public health. The coronavirus disease-2019 (COVID-19) pandemic has brought innovations and challenges to the health care system.¹ These difficulties, include ensuring that nurses working on the front lines, espe-

cially during the pandemic, perform their jobs efficiently and effectively to ensure public safety. In addition, nurses work in close contact with patients during the detection and treatment of COVID-19.² The death toll among healthcare workers who are in close contact with patients is significant.³ For these reasons, healthcare workers have experienced some

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negative outcomes during the pandemic such as stress, burnout, depression, and decreased motivation.⁴⁻⁷

Increasing workload and intensive work hours due to COVID are the main reasons for these harmful situations among healthcare workers. At the same time, the restriction of annual and other leave entitlements can be cited as an example.⁸ It is not always easy to provide services and show high performance in such complex and critical environment. One of the reasons for this is the increased workload during the COVID-19 process.⁹ Despite the increased workload, the performance, and work of nurses, who play an essential role in the delivery of health care services, are critical to the proper, smooth, and efficient functioning of health care services.¹⁰ In addition, nurses are expected to adapt to new protocols and constant changes during this time. Observing changes in nurses' performance as they adapt and caseloads increase can be seen as a possible outcome. One of the persistent difficulties before the COVID period is that the number of nurses per hundred thousand people is insufficient.¹⁰ The number of active nurses in Türkiye was reported to be 198,465 according to 2020 data. In line with these figures, the average number of patients per nurse in Türkiye is 431.2, while the Organization for Economic Co-operation and Development average is 102. The high number of patients per nurse in Türkiye requires nurses to perform at a higher level.

For this reason, nurse performance is one of the most studied topics in the literature. Factors that affect nurse performance include nurse self-efficacy, motivation, nurse leadership style, work-life balance, organizational commitment, and finding meaningful work topics that have been studied in the literature.¹¹⁻¹⁵

Collegial collaboration is of particular importance among these issues. The main reason for this is that health services consist of unique features. In order to improve the health care system, it provides for adaptation to the current situation in the health care system. It expects health care professionals to agree on the division of labor and to collaborate intra and interprofessionally.¹⁶ While the power that comes

from collaboration; has a positive impact on job satisfaction, job performance, and patient outcomes, it can also negatively impact patient care and hinder health care.¹⁷ Lack of or inadequate collaboration among health care teams, can lead to medical errors. The increase in medical errors increases mortality, morbidity, and costs.¹⁸ This situation has been exacerbated by the COVID-19 pandemic. Çelik Durmuş and Yıldırım mentioned in their research on nurse collaboration that collaboration is less emphasized. However, in order to provide quality health or nursing care, importance should be given to collaboration between nurses who spend most of their time with the patient.¹⁹ The factors that influence collaboration between nurses are studied based on five dimensions. These dimensions constitute conflict management, communication, sharing process, coordination, and professionalism.²⁰

Although collaboration is said to be important in enhancing nurse performance or achieving desired levels, other variables may contribute to this effect. Motivation is among the essential variables in nurses' performance because it involves internal and external processes and is one of the mechanisms that activate individuals. When examining the literature, motivation is directly related to job performance, and effects of nurses collaboration are encountered.¹²⁻²²

Although the concepts of collaboration, performance, and motivation are emphasized when examining the studies, no study of their effectiveness was found in the literature. Nurses collaborating with their colleagues could have a positive impact on performance by addressing the lack of motivation. In light of this information, the following hypotheses were formed;

H1: Nurse to nurse collaboration has a positive effect on performance.

H2: Collaboration between nurses and nurses has a positive effect on motivation.

H3: Motivation has a positive effect on performance positively.

H4: Motivation has a positive mediating role in the effect of nurse-nurse collaboration on nurse performance.

MATERIAL AND METHODS

STUDY DESIGN

The study was conducted in the form of a correlational and cross-sectional study using questionnaires addressed to the participants.

SAMPLE

The study was conducted in Sakarya Yenikent State Hospital, with a capacity of 347 beds. Active nurses were selected as the criterion for participation in the study. No sample was determined for the study. The aim was to reach 208 nurses, which is the total population, but not all of them. The study was completed by reaching 131 (62.9%) nurses from the population. Of the 131 participants, 55.7% were single; 44.3% worked in clinics; and most participants (61.8%) had undergraduate education.

DATA COLLECTION

Although this is a quantitative study, the survey method was used as a data collection tool. The questionnaire form consists of four parts. The average time taken by the participants to complete the questionnaire was calculated as 8 minutes +- 45 seconds. After the participants were given all to the questionnaires, they had enough time to complete them. The completed questionnaires were taken back from them in sealed envelopes. A 5-point Likert scale was used for all scales (one=strongly disagree, five=strongly agree). Researchers collected data using the questionnaires from November 10-to December 10, 2021. Informed consent was obtained from all participants.

Participant Information Form: Participants were asked questions about sociodemographic information that included marital status, age, education level, department, hours worked at facility, and income.

The Nurse-Nurse Collaboration Scale consists of 25 statements and five dimensions based on the Nurse-Nurse Collaboration Scale developed by Dougherty and Larson.²⁰ The dimensions of the scales are conflict management, communication, sharing process, coordination, and professionalism. In this study, the sub-dimensions of the scale were

not considered, and analyzes were performed using the general average of the scale. Temuçin et al. conducted the Turkish validity and reliability study of the scale.²³ While the Cronbach's alpha value in the Turkish version of the scale was 0.90, a value of 0.92 was obtained in this study.

Goris et al. developed the Job Performance Scale. Toklu conducted the Turkish validity and reliability study of the scale.²⁴ The scale consists of a single dimension and five items. Nurses evaluated their job performance on this scale. The questions in the scale measure nurses' perceptions of whether they perform their tasks in a timely and competent manner. The Cronbach's alpha coefficient of the scale was reported as 0.79. The Cronbach's alpha value of the Turkish version was 0.85.

The Motivation at Work Scale, which consists of four dimensions and 12 statements, was used by Gagné et al. for the validity and reliability analyzes of the English and French constructs.²⁵ The dimensions of the scale were determined to be intrinsic, defined, introjected, and extrinsic motivation. In this study, the scale was considered as a single dimension to examine the level of motivation at work. The Turkish validity and reliability study of the scale was conducted by Akbolat et al.²⁶ In the Turkish validity study, the Cronbach's alpha coefficient of the scale was 0.89. In this study, it was found to be 0.87.

STATISTICAL ANALYSIS

All analyzes were performed in SPSS version 22 (Chicago, Illinois, USA) and Hayes Process Macro. In the study, descriptive statistics (frequency, percentage, mean and standard deviation) were used to reveal participant characteristics. Process Macro model 4 (regression and mediating effect) was used to test the research hypotheses. Because the hypotheses were one-sided, the p value was assumed to be 0.025.

ETHICAL CONSIDERATIONS

The ethics committee of Sakarya University approved the study (date: November 5, 2021, no: E-61923333-050.99-77666). In addition, the investigators conducted the study in accordance with the Helsinki principles throughout the research process.

RESULTS

Table 1 shows the sociodemographic characteristics of the participants. According to the results, 64% of the participants were women, the mean age was 28,893 years, and the standard deviation was 6,716 years. Most participants had 0-5 years of work experience (79.4%) and most of them continued to work in clinics (44.3%) or polyclinics (29.8%).

In Table 2 according to the findings of the correlation analysis conducted within the scope of the research, all variables are in a positive relationship with each other. However, a moderately high relationship was found between nurse-nurse collaboration and work performance. In contrast, a moderate-low relationship was found between workplace motivation and nurse-nurse collaboration and work performance.

The Process macro model 4 analysis's findings to test the research hypotheses are given in Table 3 and Figure 1. In Table 3, nurse-nurse collaboration directly had an effect on work performance by 0.608 ($p \leq 0.000$). Nurse-nurse collaboration also directly affected workplace motivation by 0.137 ($p \leq 0.000$). Workplace motivation also directly affected job performance by 0.355 ($p \leq 0.000$). At the same time,

workplace motivation played a mediating role in the effect of nurse-nurse cooperation on work performance (indirect effect: 0.050). Thus, the total effect of nurse-nurse collaboration on job performance increased to 0.658. In line with these results, the H1, H2, H3, and H4 hypotheses established within the scope of the research were accepted.

DISCUSSION

The research examined how nurses' increasing and changing workload during the COVID-19 process and nurse-nurse collaboration affected their performance. In addition, an attempt was made to determine the extent to which workplace motivation played a role in this effect. As a result of the study, it was found that nurses' job performance (3.711 ± 0.461) and nurse-nurse collaboration (3.806 ± 0.448) were moderately high on average. Finally, workplace motivation was found to be high on average (4.472 ± 0.168). Moderately high performance of nurses was among the expected results. This is because it was considered necessary for nurses with low numbers to perform at a high level in order to meet the increasing demand.¹⁰ In their study in Türkiye, Durmuş et al. examined the collaboration outcomes of 859 nurses.¹⁸ After this study, it was found that the aver-

TABLE 1: Sociodemographic characteristics of the participants (n=131).

Variable	Group	Frequency	Percent %
Marital status	Married	58	44.3
	Single	73	55.7
Educational status	High school	14	10.7
	Associate degree	31	23.7
	Undergraduate	81	61.8
	Graduate	5	3.8
Current department	Clinics	58	44.3
	Polyclinics	39	29.8
	Operating rooms	20	15.3
	Administrative staff	14	10.7
Work experience	0-5 years	104	79.4
	6-11 years	19	14.5
	12-17 years	8	6.1
Income	-4,000 TL	42	32.1
	4,001-6,000 TL	51	38.9
	6,000+ TL	38	29.0

TABLE 2: Correlations between variables.

	1	2	Mean	SD
Workplace motivation (1)	1		4.472	0.168
Nurse-nurse collaboration (2)	0.371**	1	3.806	0.448
Job performance (3)	0.232**	0.596**	3.711	0.461

**p<0.01; SD: Standard deviation.

age collaboration of nurses was above the minimum level that should be achieved, but they concluded that they could collaborate more. In this study, this can be expressed similarly. Nurse collaboration was below the minimum required, but could be higher. These results have similarities with other recent studies. Aktaş found in his study that the collaboration between nurses was above expectations.²⁷ The nurses’ motivation was also in line with the studies conducted.²⁸

As a result of correlation analysis, it was found that all variables had a positive and significant relationship with each other. In the literature, there are similar studies on the relationship between motivation and job performance among health care and nursing staff.²⁹ In addition, there are similar results between nurse-nurse collaboration and job performance and motivation.^{30,31} These studies mainly focus

on nurse collaboration and work performance; they found that motivation and work performance, nurse collaboration, and motivation were related.

The Hayes Macro Model 4 regression analysis conducted to test the research hypotheses found that nurse collaboration has a direct effect on job performance and that motivation has a slight positive effect. Although a model similar to the research model was not found in the literature, there are studies on the direct effects of variables on each other.²²⁻³⁰

From the studies in the literature and these research findings, meaningful conclusions can be drawn about the performance of nurses who have essential roles in protecting and developing public health, especially in the COVID period. First, it has been confirmed that nurses’ collaboration is among the essential variables for increasing individual nurses’ performance. Increasing nurses’ individual performance is expected to play a significant role in improving both organizational and societal positive outcomes (effective, efficient, and uninterrupted health care).

Second, it is assumed that nurse collaboration will be sufficient to increase nurse performance, but that work motivation must also be provided. The fact that motivated nurses work together in harmony

TABLE 3: Direct and indirect effects.

Variables	Direct effect	Indirect effect	Total effect	LLCI	ULCI	t value	p value
Nurse-nurse collaboration	0.608	0.050	0.658	0.812	1.928	4.857	0.000
Workplace motivation	0.355			0.469	0.757	8.435	0.000

Note: The dependent variable is job performance; LLCI: Lower limit confidence interval; ULCI: Upper limit confidence interval.

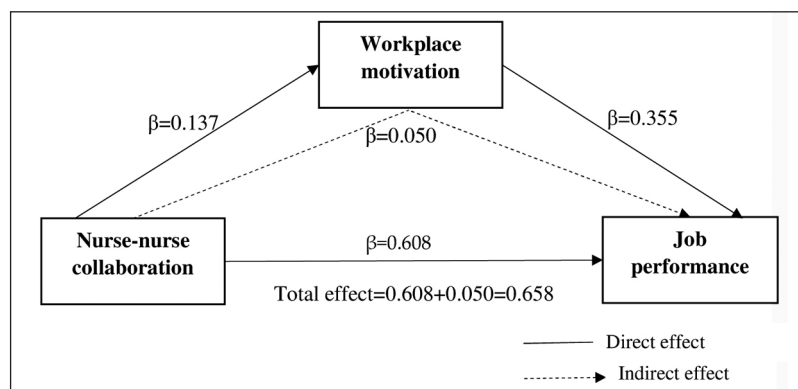


FIGURE 1: Research model regression results.

shows that they can raise their performance to a higher level.

LIMITATIONS

The most important limitation of this study is that it was conducted in only one hospital. For the generalizability of the results of the study, it is recommended to repeat the study in different geographies and to cover different hospitals.

CONCLUSION

Many health professionals work in teams simultaneously when providing health care services. Teams are constantly sharing their experiences to make shared decisions that improve health outcomes. Nurses working in these teams need to collaborate within the profession and between professions because it is known that nurses' motivation increases when collaboration reaches the desired level, and this contributes to the best health outcomes for patients.^{21,22}

There are major deficiencies in the literature on nurse motivation (in nurses working in hospitals in terms of compensation, benefits, rewards, recognition, appreciation, flexible work hours and workload, impact of night shifts, equal treatment, career advancement, and management-employee relationship), but it was found that there is a strong direct relationship with nurses' performance.^{32,33}

Another important fact is the collaboration between nurses. The literature finds that collaboration between nurses has a positive effect on performance, albeit in different departments (critical care, operating room, etc.).³⁴ In addition, nurses who collaborate not only increase their performance, but also transfer their knowledge and skills more quickly by sharing their professional experience.

This collaboration also leads to higher work performance when nurses have high motivation in the workplace. This shows that the motivation of collaboration between nurses should be increased in terms of their performance.

RECOMMENDATIONS

For higher performance and better healthcare service delivery, it is recommended that hospital and nursing

service managers increase nurses' collaboration and motivation.

Considering that several factors indirectly affect cooperation and motivation, it is important to identify these factors. In identifying the factors, nurse managers should regularly review nurses' performance, and motivation, and determine whether they are working together harmoniously. After knowing the relevant factors, it is necessary to create and reward a culture of collaboration and practice for staff by making them a part of hospital management. It is recommended to conduct in-depth interviews with the exceptional developments that affect these factors. In this way, concrete steps can be taken in to solve the main problems. In addition, establishing good communication between nurses, mobilization of nurses and other health professionals, and administrative staff can help improve the performance of nurses. Finally, continuing education, workshops, and seminars in nursing departments and in continuing education should be developed to emphasize the importance of professional collaboration, communication principles, team building, and shared processes. In addition, the concept of intraprofessional collaboration should be incorporated into the nursing curriculum and collaboration and communication skills should be modeled in interactions with students.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Mustafa Amarat, Mahmut Akbolat; **Design:** Mahmut Akbolat; **Control/Supervision:** Mahmut Akbolat; **Data Collection and/or Processing:** Oya Adiyaman, Onur Gözübüyük; **Analysis and/or Interpretation:** Mustafa Amarat, Oya Adiyaman; **Literature Review:** Oya Adiyaman, Onur Gözübüyük; **Writing the Article:** Mustafa Amarat, Mahmut Akbolat; **Critical Review:** Mahmut Akbolat.

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