Adıyaman Üniversitesi Sağlık Bilimleri Dergisi, 2025;11(2):137-147
doi:10.30569.adiyamansaglik.1588081

E-ISSN: 2458-9176

ADIYAMAN ÜNİVERSİTESİ SAĞLIK BİLİMLERİ DERGİSİ
JOURNAL OF HEALTH SCIENCES OF ADIYAMAN UNIVERSITY

Research Article/Özgün Araştırma

Factors affecting nurses' collaboration and communication skills with colleagues: The role of communication skills on collaboration

Hemşirelerin meslektaşlarıyla işbirliği ve iletişim becerilerini etkileyen faktörler: İletişim becerilerinin işbirliği üzerindeki rolü

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Atıf gösterme/Cite this article as: Kaplan A, Öztürk S. Factors affecting nurses' collaboration and communication skills with colleagues: The role of communication skills on collaboration. *ADYÜ Sağlık Bilimleri Derg*. 2025;11(2):137-147. doi:10.30569.adiyamansaglik.1588081

Abstract

Aim: To determine the factors affecting nurses' collaboration and communication skills with colleagues and to evaluate the role of communication skills on collaboration.

Materials and Methods: A descriptive cross-sectional study design was used. The study data was collected between July and December 2023. The study included 363 nurses working in a hospital with a total bed capacity 1607. Data were collected using the Descriptive Characteristics Information Form, Nurse-Nurse Collaboration Scale, and Communication Skills Scale. Parametric and nonparametric tests, structural equation modeling, and regression analysis were used to analyze the data.

Results: The analyses have demonstrated that communication skills are influential in nurses' collaboration with their colleagues. The level of collaboration among colleagues nurses is influenced by educational status, department, working style, satisfaction with working in the department, communication training status, and age.

Conclusion: Effective communication skills can improve the efficiency of health services and patient satisfaction by increasing collaboration among nurses.

Keywords: Communication; Cooperative behavior; Cross-Sectional studies; Nurses.

Öz

Amaç: Hemşirelerin meslektaşları ile işbirliğini ve iletişim becerilerini etkileyen faktörleri belirlemek ve iletişim becerilerinin işbirliği üzerindeki rolünü değerlendirmek.

Gereç ve Yöntem: Çalışmada tanımlayıcı kesitsel bir araştırma deseni kullanılmıştır. Çalışmanın verileri Temmuz-Aralık 2023 tarihleri arasında toplanmıştır. Çalışmaya toplam yatak kapasitesi 1607 olan bir hastanede çalışan 363 hemşire dahil edilmiştir. Veriler Tanıtıcı Özellikler Bilgi Formu, Hemşire-Hemşire İşbirliği Ölçeği ve İletişim Becerileri Ölçeği kullanılarak toplanmıştır. Verilerin analizinde parametrik ve nanparametrik testler, yapısal eşitlik modeli ve regresyon analizi kullanılmıştır.

Bulgular: Yapılan analizler, hemşirelerin iletişim becerilerinin meslektaşları ile iş birliğinde etkili bir faktör olduğunu göstermiştir. Hemşirelerin meslektaşları arasındaki iş birliği düzeyi; eğitim durumu, çalışılan bölüm, çalışma şekli, bölümde çalışmaktan memnuniyet, iletişim eğitimi alma durumu ve yaş faktörlerine göre değişiklik göstermektedir.

Sonuç: Etkili iletişim becerileri, hemşireler arasında iş birliğini artırarak sağlık hizmetlerinin verimliliğini ve hasta memnuniyetini geliştirebilir.

Anahtar Kelimeler: İletişim; İşbirlikçi davranış; Kesitsel çalışma; Hemşireler.

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Geliş Tarihi/Received:20.11.2024 **Kabul Tarihi/Accepted:**09.04.2025 **Yayım Tarihi/Published online:**30.08.2025

Introduction

The provision of quality care in health services depends on effective collaboration and effective communication among health professionals.[1] Nurses are one of the leading professionals at the center of patient care, and they directly affect the continuity, safety, and quality of health services.[2] The responsibilities of nurses in the clinical practice process include not only patient care but also effective collaboration with the healthcare team, sharing knowledge and experience, and active participation in decision-making processes by using communication skills. These elements support adopting a holistic approach to patient care and contribute to creating an environment of trust and respect among colleagues.[3] Therefore, nurses' communication and collaboration skills in clinical settings play a critical role in improving the quality of patient care and providing safe health services.[4]

Nurses' collaboration with their colleagues is critical in developing their professionalism. Collaboration is defined as the process of individuals coming together to share their knowledge, skills, and resources and work in a coordinated manner to achieve common goals.[5] Factors such as organizational support, leadership style, communication skills, presence of common goals and mutual trust play a decisive role in the formation of effective collaboration among nurses.[4,5] Nursing collaboration is an essential factor in improving the quality and efficiency of care and an indispensable element of nursing.[6] Nurses working together for a common purpose increase the quality of health services.[4] Nurses who interact with each other learn from each other by sharing their knowledge and experiences, and this process supports their professional development and helps them adopt current practices.[7] In addition, nurses who collaborate with their colleagues are more successful in achieving their shared goals.[8] Accordingly, it can be said that nurses' collaboration among colleagues is an eminent factor that supports their professional development while enabling them to play an effective and professional role in health services.

The development of communication skills is also essential for the development of nurses' professional identities.[9] Communication enables nurses to communicate effectively with patients, understand their feelings, and meet their needs. At the same time, open and effective communication with colleagues facilitates team collaboration and ensures patient care coordination.[10] This, in turn, helps nurses enhance patient safety and satisfaction, foster strong teamwork with their colleagues, and, most importantly, deliver effective and comprehensive patient care. Conversely, a lack of intra-team communication can adversely affect patients' treatment processes and reduce the effectiveness of healthcare services.[11]

Healthcare environments are constantly changing, and nurse-nurse collaboration is becoming extremely important in meeting the needs of people and ensuring patient safety.[12] Traditionally, nurses' communication and collaboration skills have focused more on nurse-patient or nurse-physician interaction.[13,14] However, effective communication and collaboration between colleagues directly affects not only team cohesion but also the efficiency of care processes and patient outcomes.[2,15] This study aims to identify the factors affecting nurses' collaboration and communication skills with colleagues and to provide research-based evidence to create a more effective communication and collaboration culture in healthcare by evaluating the role of communication skills on collaboration.

Research questions

- Investigating how nurses' communication skills affect collaboration among colleagues.
- Investigation of the factors affecting the communication skills of nurses.
- Investigating the factors affecting the level of nurses' collaboration with colleagues.

Materials and Methods

Study design

A descriptive cross-sectional study design was used.

The population and sample of the study

The study was conducted in a City Hospital in a province of Turkey, one of the largest in the Central Anatolia region, with a 1607-bed capacity and advanced technological facilities. Approximately 1500 nurses work at the hospital, and the study population included all nurses employed there. Nurses with at least six months of working experience, direct contact with the patient, and volunteered to participate were included in the study. Nurses who worked in outpatient clinics had administrative duties and incompletely filled out the data collection form, so they were not included in the study. The flow diagram of the study is given in Figure 1. Posthoc power analysis was performed with G power (version 3.1.9.4) program to examine the adequacy of the sample size.[16] The effect size f^2=1.67 (large effect) and power 0.999 (99.9%) were found in the post hoc power analysis according to the R^2= 0.633 value obtained in the regression analysis, which was determined that some predictor variables were effective on the cooperation score of nurses with colleagues, which is one of the results of this study.

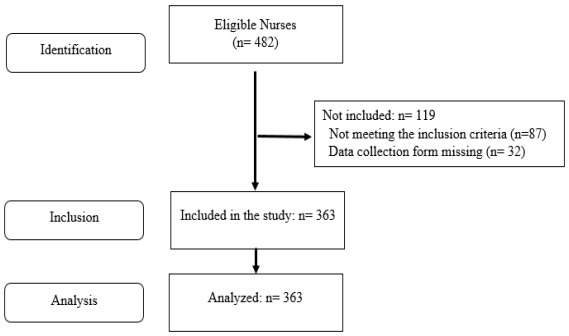

Figure 1. Flow diagram of the research.

Procedure and data collection

The data of the study were collected between July and December 2023. In the institution where the institutional permit was obtained, nurses work eight-hour day shifts and full shifts of 24 hours. In the institution, the work plan is made monthly. A nurse leaving a full shift rests for at least 48 hours. The number of nurses may vary according to the department and the number of patients on duty. A rotating plan can be made between nurses for rest or break during the duty period.

The list of emergency services, intensive care units, and clinics, as well as the number of nurses working, were obtained from the hospital administration. Since the number of emergency departments and intensive care units were accessible, all units in these areas were reached. Since there was a high number of internal or surgical clinics, a random data collection method was used to collect data in these areas. The charge nurses of the departments participating in the study were informed about the research, and data collection forms were distributed to the nurses by the department charge nurses. Reminders were sent to the charge nurses every other day via text message to maximize the response rate. One week later, the researcher received the completed and blank forms from the charge nurses in a sealed envelope. The researchers' contact information was provided on the written informed consent forms, and any questions from nurses interested in participating were addressed via telephone or email.

Data collection tools

Descriptive characteristics information form

The form prepared by the researchers consists of 12 questions. The form includes socio-demographic characteristics of the nurses, such as age, gender, marital status, and professional characteristics, such as type of shift, average weekly working time, and total working time in the profession.[7,17-19]

Nurse-Nurse collaboration scale

The Turkish validity and reliability of the scale developed by Dougherty and Larson in 2010 was conducted by Temuçin et al. in 2019. The scale was developed to determine nurses' collaboration level with their colleagues in the work process. The scale comprises 25 items across five sub-dimensions, designed in a 4-point Likert format ranging from 1 to 4. Questions 2.3 and 2.4 of the scale items are reverse-coded. The total score ranges from 25 to 100, with higher scores indicating better collaboration among nurses. In the original version of the scale, Cronbach's Alpha value was 0.89; in the Turkish validity and reliability study, Cronbach's Alpha value was 0.90; and in this study, Cronbach's Alpha value was 0.86.[20]

Communication Skills Scale (CSS)

The scale was developed by Korkut Owen and Bugay in 2014 to determine the communication skills of individuals. The scale comprises 25 items across four sub-dimensions, designed in a 5-point Likert format scored from 1 to 5. There are no reverse-coded items in the scale. Total scores range from 25 to 125, with higher scores indicating stronger communication skills. The Cronbach's Alpha value in the original version of the scale was 0.88, while the Cronbach's Alpha value in this study was found to be 0.89.[21]

Data analysis

The data obtained were evaluated using IBM SPSS (International Business Machines Statistical Package for the Social Sciences) Statistics 23.0 and IBM SPSS AMOS (Analysis of Moment Structures) version 22 software programmers.[22] When the Skewness and Kurtosis values fall between -1 and +1, the data can be considered normally distributed.[23] The analyses presented descriptive statistics as a number, percentage, mean, standard deviation, median, and interquartile range. In comparing two independent groups, the Independent Sample t-test was preferred for normally distributed data, and the Mann-Whitney U test was preferred for non-normally distributed data. A one-way analysis of variance was used to compare normally distributed data with three or more independent groups. Kruskal-Wallis Test was applied for the data that did not show normal distribution. Post-hoc or Dunn's test was applied as a multiple comparison test for statistically significant data. Pearson correlation analysis was performed to determine the relationship between the scales. Structural equation modeling analysis was used to test the effect of communication skills on the level of collaboration among nurses' colleagues. In this context, it was proved that there was a positive relationship assumption in line with the fit indices considering the sub-dimensions of the scale. Regression analysis was also performed to determine the factors affecting the level of collaboration between nurses and their colleagues. Variables with significant values in the comparisons made with the NNCS were included in the multiple linear regression model together with the Communication Skills Scale. The regression model was created using the enter method. For statistically significant results, a $p<0.05$ value was accepted.

Ethics committee approval

The research was conducted by the Declaration of Helsinki and ethical rules. Firstly, the ethics committee (55171, 10.04.2023) and institutional permissions were obtained. Permission was obtained from the scale developers via e-mail to use the scales used in the study. Necessary explanations were given to the nurses about the study, and written informed consent was obtained from the volunteers. Participants' privacy and the confidentiality of personal data were safeguarded throughout the study; the collected data were solely used for scientific research purposes and were not disclosed to third parties.

Results

The distribution of demographic and professional characteristics of the nurses is given in Table 1. According to the data in the table, 37.7% of the nurses were between 31-40 years of age, 76.0% were female, 57.3% were married, 69.4% were bachelor's degrees, and 89.3% had income equal to their expenses. In addition, when the professional characteristics of the nurses were analyzed, 49.9% of them worked in internal or surgical clinics, 82.4% worked complete shifts for 24 hours, 75.2% were satisfied with working in their department, 41.6% worked in the institution for a total of five years or less, 65.3% worked in the profession for a total of 11 years or more, 53.2% worked an average of more than 48 hours per week, and 82.4% had previously received communication training.

The mean total scores and Cronbach Alpha values of the NNCS and CSS are given in Table 2. The mean total score of the NNCS was 82.00±5.45, and the mean total score of the CSS was 103.08±9.40. Among the sub-dimensions of the NNCS, the mean score of the conflict management sub-dimension was 13.31±0.97, the mean score of the communication sub-dimension was

12.91±1.23, the mean score of the sharing process sub-dimension was 13.02±1.04, the mean score of the coordination sub-dimension was 16.72±1.38, and the mean score of the professionalism sub-dimension was 26.02±3.02. Among the sub-dimensions of the CSS, the mean score of the communication principles and basic skills sub-dimension was 41.05±4.13, the mean score of the personal expression sub-dimension was 16.30±1.95, the mean score of the nonverbal expression sub-dimension was 25.04±2.51, and the mean score of willingness to communicate sub-dimension was 20.67±2.36.

Table 1. Distribution of demographic and occupational characteristics of nurses (n=363).

Characteristics	n (%)	Characteristics	n (%)
Age		**Type of shift**	
≤30	98 (27.0)	Continuous daytime	64 (17.6)
31-40	137 (37.7)	Full shift (24 hours)	299 (82.4)
≥41	128 (35.3)		
Gender		**Satisfaction with the department**	
Female	276 (76.0)	Yes	273 (75.2)
Male	87 (24.0)	No	90 (24.8)
Marital Status		**Average Weekly Working Time**	
Married	208 (57.3)	≤48 hours	170 (46.8)
Single	155 (42.7)	>48 hours	193 (53.2)
Education Status		**Total Working Time in the Institution (Year)**	
Associate degree	54 (14.9)	≤5	151 (41.6)
Bachelor's degree	252 (69.4)	6-10	107 (29.5)
Postgraduate	57 (15.7)	≥11	105 (28.9)
Economic Status		**Total Working Time in the Profession (Years)**	
Income less than expenditure	16 (4.4)	≤5	47 (12.9)
Income matches expenditure	324 (89.3)	6-10	79 (21.8)
Income more than expenditure	23 (6.3)	≥11	237 (65.3)
Department		**Previous Communication Training Status**	
Emergency service	88 (24.2)	Yes	299 (82.4)
Internal or surgical clinic	181 (49.9)	No	64 (17.6)
Intensive care	94 (25.9)		

Table 2. Mean scores of nurses regarding scales (n=363).

	Number of Items	X̄±SD	Minimum	Maximum	Alpha	Skewness	Kurtosis
Nurse-Nurse Collaboration Scale Total	25	82.00±5.45	58	92	0.86	-1.663	1.974
Conflict management	4	13.31±0.97	10	16	0.66	0.015	0.780
Communication	4	12.91±1.23	9	15	0.72	-0.789	0.346
Sharing process	4	13.02±1.04	9	16	0.71	-0.515	0.157
Coordination	5	16.72±1.38	11	20	0.69	-0.865	1.014
Professionalism	8	26.02±3.02	12	32	0.88	-1.499	0.255
Communication Skills Scale Total	25	103.08±9.40	82	117	0.89	-0.390	-1.231
Communication Principles and Basic Skills	10	41.05±4.13	31	48	0.86	-0.451	-0.925
Personal Expression	4	16.30±1.95	12	20	0.77	-0.382	-0.981
Nonverbal Expression	6	25.04±2.51	17	29	0.75	-0.638	-0.243
Willingness to Communicate	5	20.67±2.36	15	25	0.79	-0.440	-0.711

The relationship between the descriptive characteristics of the nurses included in the study and the scales are given in Table 3. It was determined that there was a statistically significant relationship between the total scores of the NNCS and the characteristics of

the nurses, such as educational status, working department, working type, satisfaction with working in the department, communication training status, and age (p<0.05). The descriptive characteristics of the nurses, which had a statistically significant relationship with the total mean scores of the CSS, were education status, the department, the type of shift, the status of receiving communication training, and age (p<0.05).

Table 3. Comparison of descriptive characteristics and scale total scores (n=363).

Characteristics	Nurse-Nurse Collaboration Scale		Communication Skills Scale	
	Mean±SD	Test	Mean±SD	Test
Marital Status				
Married	82.02±5.35	t=-0.059	102.77±9.43	t=-1.071
Single	82.05±5.57	p=0.953	103.83±9.28	p=0.285
Education Status				
Associate degree	80.09±6.83[a]	F=16.228	100.33±10.73[a]	F=27.281
Bachelor's degree	81.69±5.27[a]	***p*<0.001**	102.09±8.93[a]	***p*<0.001**
Postgraduate	85.42±2.63[b]		110.96±5.11[b]	
Department				
Emergency service	83.77±2.44[a]	F=42.568	102.06±9.22[a]	F=22.132
Internal or surgical clinic	79.69±6.53[b]	***p*<0.001**	101.09±9.63[a]	***p*<0.001**
Intensive care	84.93±2.22[a]		108.42±6.72[b]	
Type of Shift				
Continuous daytime	77.82±5.71	t=-7.293	98.43±8.26	t=-4.631
Full shift (24 hours)	82.93±4.94	***p*<0.001**	104.25±9.28	***p*<0.001**
Working in the Department				
Satisfied	82.84±4.86	t=5.065	103.68±9.14	t=1.619
Not satisfied	79.60±6.33	***p*<0.001**	101.84±9.96	p=0.106
Average Weekly Working Time				
≤48 hours	81.65±5.20	t=-1.248	104.08±8.90	t=1.644
>48 hours	82.37±5.64	p=0.213	102.47±9.72	p=0.101
Previous Communication Training Status				
Yes	82.60±5.03	t=4.422	104.30±9.04	t=4.872
No	79.37±6.45	***p*<0.001**	98.20±9.30	***p*<0.001**
	M (IQR)	Test	M (IQR)	Test
Age				
≤30	84.00(4.00)[a]	KW=7.897	109.50(14.25)[a]	KW=8.544
31-40	84.00(4.00)[a]	***p*=0.019**	105.00(16.00)[ab]	***p*=0.014**
≥41	82.00(7.75)[b]		100.00(18.00)[b]	
Gender				
Female	84.00(4.00)	U=-0.893	108.00(17.00)	U=-1.304
Male	83.00(5.00)	p=0.372	99.00(17.00)	p=0.192
Total Working Time in the Institution (Year)				
≤5	84.00(5.00)	KW=2.064	108.00(18.00)	KW=0.493
6-10	83.00(5.00)	p=0.356	100.00(17.00)	p=0.782
≥11	83.00(5.00)		106.00(18.00)	
Total Working Time in the Profession (Years)				
≤5	84.00(5.00)	KW=0.386	106.00(18.00)	KW=3.346
6-10	84.00(4.00)	p=0.534	110.00(15.00)	p=0.067
≥11	83.00(5.00)		103.00(17.00)	
Economic Status				
Income less than expenditure	82.50(3.75)	KW=1.997	106.00(18.75)	KW=0.107
Income matches expenditure	84.00(4.75)	p=0.368	106.00(17.50)	p=0.948
Income more than expenditure	84.00(4.00)		105.00(15.00)	

M: Median, IQR: Interquartile Range
The superscripts a and b indicate a difference within a group. The same letters indicate that there is not an in-group difference, and different letters indicate an in-group difference

The correlation analysis between the scales is presented in Table 4. A statistically strong and significant positive relationship exists between the CSS and the NNCS.

The results of the structural equation modeling analysis to test the effect of nurses' communication skill levels on the level of collaboration among colleagues are given in Table 5. The study proved that nurses'

communication skills have a statistically significant positive effect on nurse-nurse collaboration. In addition, in the GFI assessment, which is a measure of the fit between the hypothesized model and the observed covariance matrix, the CMIN/DF value for the relationship between nurses' communication skill levels and the level of collaboration between colleagues was found to be 2.209 (RMSEA value of Model 1 = .058). Considering the other fit indices of the model established according to the research results, GFI = .968, NFI = .961 and CFI = .978 values have excellent fit (Figure 2).

Table 4. Correlation between scales (n=363).

	Communication Skills Scale Total
Nurse-Nurse Collaboration Scale Total	r=0.723 ***p*<0.001**

r: Pearson correlation analysis

Table 5. Fit indexes regarding the structural equation model analysis (n=363).

Fit indexes							
	CMIN	**CMIN/DF**	**p**	**NFI**	**RMSEA**	**GFI**	**CFI**
MODEL	55.229	2.209	*p*<0.001	0.961	.058	.968	.978

*CMIN/DF: the value of chi-square, NFI: Normed fit index, RMSEA: root mean square error of approximation, GFI: Goodness-of-fit index, CFI: Comparative fit index

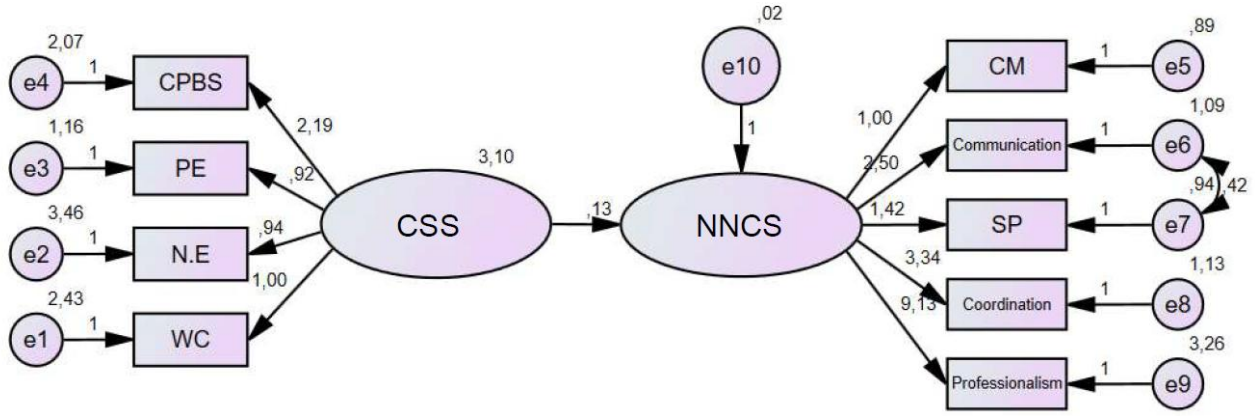

Figure 2. Structural equation model analysis results.
NNCS: Nurse-Nurse Collaboration Scale, CSS: Communication Skills Scale, CM: conflict management, SP: sharing process, CPBS: communication principles and basic skills, PE: personal expression, NE: nonverbal expression, WC: willingness to communicate

The regression analysis was performed to determine the cause-and-effect relationship between the factors that may affect the total score of the NNCS of the nurses included in the study (educational status, department, working style, satisfaction with working in the department, the status of receiving communication training and total score of the CSS) was found to be significant (F= 101.925; *p*<0.001; R^2= 0.633; Adj R^2= 0.626). According to these data, as the CSS scores of nurses increase by one unit, their NNCS scores increase by 0.380 points (*p*<0.001). In the multiple regression model, the identified criteria explain 62.6% of the NNCS (Adj R^2= 0.626). It is possible to say that this value provides a statistically significant contribution. In addition, the factors of nurses' working department, type of shift, and satisfaction with working in their department also affect the NNCS level (*p*<0.001, *p*=0.008, *p*<0.001, respectively). According to the model statistics, the model established meets the assumptions of linear regression analysis (Table 6).

Discussion

It is an undisputed fact that communication skills play a critical role in the provision of health services.[15] In particular, nurses' ability to communicate effectively in the patient care process strengthens their relationships with both patients and colleagues. In this context, research on the role of nurses' communication skills in the clinical practice process makes an essential contribution to the improvement of quality and patient care processes.[9] However, the gaps in the literature on the subject indicate that there is a need for a deeper understanding of the effect of nurses' communication skills

on inter-colleague collaboration. In this context, it aimed to investigate the factors that may be effective on the inter-colleague collaboration of nurses in the clinical practice process to improve the quality of patient care and nursing services. In addition, factors that may be effective on nurses' communication skills were also examined in the study.

Table 6. Evaluation of the factors affecting nurses' NNCS scores with multiple univariate linear regression analyses (n=363).

Independent Variable	Unstandardized coefficients		Standardized coefficients	t	*p*	95% Confidence Interval	
	B	SE	ß			Lower	Upper
Constant	39.829	2.363		16.856	**<0.001**	35.182	44.476
CSS	0.380	0.021	0.655	18.394	**<0.001**	0.340	0.421
Education Status	0.242	0.336	0.025	0.720	0.472	-0.418	0.902
Department	1.422	0.239	0.215	5.950	**<0.001**	0.952	1.891
Type of Shift	1.383	0.515	0.097	2.684	**0.008**	0.370	2.397
Satisfaction with Working in the Department	-1.825	0.415	-0.145	-4.399	**<0.001**	-2.641	-1.009
Previous Communication Training Status	-0.209	0.477	-0.015	-0.438	0.662	-1.148	0.730

Model Summary: *F=101.925; p<0.001; R^2=0.633; Adj R^2= 0.626*; Power=*0.999*
Model Statistics
Collinearity Statistics: Tolerance=0.792-0.952; Variance inflation factor= 1.051-1.466
Autocorrelation in the residuals: Durbin-Watson Statistic=1.156

One of the most critical factors in the nursing profession is the nurse's ability to use communication skills effectively, to understand the patient correctly and then to express what they want to tell the patient correctly.[10] Therefore, it is essential for nurses to recognize themselves and to be aware of their strengths and weaknesses. The study demonstrated that the nurses' communication skills were significantly above the scale average, aligning with the findings of specific studies in the literature (Table 2).[18,19] In addition, it was found that there was a significant difference between the communication skills of the nurses and the variables of educational status, the department they worked in, the working style, the status of receiving communication training and age (Table 3). The findings support some studies in the literature on academic status, communication training status, and age.[17,18] The department worked in, and the working style provides a new contribution to the literature. It has been proved that communication skills of nurses are a skill that can be improved with education and completion of postgraduate education is an effective factor in the process of improving communication skills. The reasons for the higher communication skills of emergency department and intensive care nurses compared to clinical nurses were thought to be intensive working environment, ability to cope with sudden and critical situations, patient circulation and teamwork.[24,25] Based on these findings, considering the variety of factors associated with communication skills, various strategies can be developed to strengthen nurses' communication skills.

The findings obtained from the nurses included in the study show that the collaboration among nurses' colleagues is generally positive. However, when the related factors are considered, it is seen that the level of collaboration is low in some subgroups. In particular, it was found that nurses with low education level, working in clinical areas, working in continuous day shift, dissatisfied with the department they work in, not receiving communication training and being older had low levels of collaboration with their colleagues (Table 3). Previous studies have shown that factors such as education level and age similarly influence nurses' collaboration with their colleagues.[26,27] However, contrary to the findings in some studies, it is emphasized that the collaboration of young nurses is lower and education is ineffective.[4,28] nurses with higher education levels specialize in different fields, have more theoretical knowledge, and improve their communication skills may have helped them cooperate better with their

colleagues. On the other hand, young nurses can adapt more quickly to new practices or changing working methods, which may have positively affected collaboration. Emergency department and intensive care unit nurses had higher levels of collaboration due to the working conditions and culture in these units. This finding differs from the results of a study conducted on a similar topic.[29] The fact that emergency department and intensive care nurses have to come together quickly and effectively and act in a coordinated manner may have positively affected their collaboration skills. In addition, the fact that nurses are satisfied with the unit where they work is very important in ensuring collaboration by strengthening interpersonal communication.[30] These findings emphasize that specific strategies should be developed to increase nurse collaboration.

The strong communication skills of nurses are associated with factors such as empathizing, sharing information, openly discussing problems and presenting different perspectives, building trust, and coordinating patient care. It is also thought to increase collaboration among colleagues.[31,32] Although the mechanisms underlying this relationship remain unclear, this study offers a significant contribution to the literature by enhancing the understanding of this connection, particularly within the context of nursing services in the clinical practice process. Both structural equation modeling and regression analysis were employed in the study to examine the impact of nurses' communication skills on collegial collaboration during the clinical practice process (Table 5, Figure 2). In the findings obtained, it was proved that nurses' communication skills were significantly practical in inter-colleague collaboration. When nurses' CSS scores increase by one unit, their NNCS scores increase by 0.380 points (Table 6). The fact that no study explicitly examines this relationship in the literature and that this relationship is remarkably high reveals the study's originality. The literature emphasizes the importance of communication skills, professionalism, a component of education and knowledge, and inter-colleague collaboration.[33] However, unlike our findings, one study reported a negative relationship between professionalism and collegiality.[34] A strong level of collaboration among nurses can enhance the quality of nursing services, improve patient safety, and contribute to the overall quality of healthcare services.[35,36] Therefore, it is essential for healthcare organisations to develop policies and practices that promote collaboration and relationships among nurses.

Limitations

This study has several limitations. Firstly, obtaining data from a single hospital setting may restrict the generalizability of the findings. Studies conducted with larger sample groups can enhance the applicability of the results to a broader population. Secondly, the measurement tools used in this study may have subjective potential, and the impact on participants' responses should be considered. Additionally, the low number of male participants in the research may be due to the predominance of females in nursing. This could lead to a lack of complete understanding of gender-based differences in collaboration with their colleagues levels among male nurses and may affect the generalizability of the results.

Conclusion

The analyses revealed that communication skills effectively influence nurses' collaboration among colleagues. Nurses' level of inter-colleague collaboration is affected by factors such as educational status, department, working style, satisfaction with working in the department, communication training status, and age. In addition, among the personal factors affecting nurses' communication skills, educational status, department, working style, communication training status, and age play an important role. These findings may be a valuable guide in determining future training and orientation strategies to improve nurses' inter-colleague interactions and strengthen their communication skills. Integrating these results into nurses' education programs and work environments will enhance their communication skills and increase collaboration among colleagues. In addition, it is essential to establish continuous education

and support programs to improve nurses' communication skills.

Ethics committee approval

The Ethics Committee of Kayseri University (No: 55171, Date: 10.04.2023)

Informed consent

This study was conducted with ethical principles, and informed consent was obtained from all participants before data collection.

Acknowledgments

We want to thank the department manager nurses who helped during the data collection phase and all the nurses who participated in the study.

Conflict of interest

The authors have declared no conflict of interest.

Funding sources

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Peer-review

Externally peer-reviewed.

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