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Do Nurses' Perceptions of Nursing Diagnoses Affect Patient Safety Culture?

Hemşirelerin Hemşirelik Tanılarını Algılama Durumları Hasta Güvenliği Kültürü Üzerinde Etkili Midir?

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ABSTRACT

It was aimed to determine whether nurses' perceptions of nursing diagnoses affect patient safety culture.

This research was conducted as a descriptive cross-sectional study. The sample of this study consisted of 270 nurses who volunteered to participate. The data were collected using the Nurse Identification Form, the Perceptions of Nursing Diagnosis (PND) Survey, and the Patient Safety Culture (PSC) Scale. Data analysis was performed using SPSS 26.

The average age of the nurses was found to be 29.53±5.36, the mean score of the PND was 2.39±0.64, and the mean score of the PSC was 2.72±0.62.

No relationship was detected between the mean score of the PND and the PSC (r=0.105; p=0.086), but a positive relationship was detected between the overall mean score of the PND and the mean score of employee behavior from the sub-dimensions of the PSC (r=0.122; p=0.046), between ease of use and employee behavior (r=0.122; p=0.044), and between the conceptual aspect and employee training (r=0.143; p=0.019). According to the results of this study, it was found that nurses' perceptions of nursing diagnoses were moderate, patient safety cultures were positive, and patient safety culture was not affected by the perception of nursing diagnoses but was affected by the previous patient safety situation. It is recommended that the factors affecting patient safety culture be examined in more detail.

Keywords: Nursing, Nursing Diagnoses, Patient Safety

ÖZ

Hemşirelerin hemşirelik tanılarına ilişkin algılarının hasta güvenliği kültürünü etkileyip etkilemediğini belirlemek amaçlanmıştır.

Bu araştırma tanımlayıcı kesitsel türde yürütüldü. Çalışmanın örneklemini gönüllü olarak katılan 270 hemşire oluşturmuştur. Veriler Hemşire Tanımlama Formu, Hemşirelik Tanılarına İlişkin Algılar (HTA) Anketi ve Hasta Güvenliği Kültürü (HGK) Ölçeği kullanılarak toplanmıştır. Veri analizi SPSS 26 kullanıldı.

Hemşirelerin yaş ortalaması 29,53±5,36, HTA 2,39±0,64 ve HGK 2,72±0,62 olarak bulunmuştur.

HTA ile HGK arasında ilişki saptanmazken (r=0.105; p=0.086), HTA genel ortalama puan ile HTA alt boyutlarından çalışan davranışı puan ortalaması (r=0.122; p=0.046), kullanım kolaylığı ile çalışan davranışı (r=0.122; p=0.044) ve kavramsal boyut ile çalışan eğitimi arasında pozitif ilişki saptanmıştır (r=0.143; p=0.019). Bu çalışmanın sonuçlarına göre hemşirelerin hemşirelik tanılarına ilişkin algılarının orta düzeyde olduğu, hasta güvenliği kültürlerinin olumlu olduğu, hasta güvenliği kültürünün hemşirelik tanılarına ilişkin algıdan etkilenmediği, fakat daha önceki hasta güvenliği durumundan etkilendiği bulunmuştur. Hasta güvenliği kültürünü etkileyen faktörlerin daha detaylı incelenmesi önerilmektedir.

Anahtar Kelimeler: Hemşirelik, Hemşirelik Tanıları, Hasta Güvenliği

Highlights

* Nurses' perception of nursing diagnoses is at a moderate level, and patient safety culture is positive.
* No relationship was determined between nursing diagnosis perception and patient safety.
* A positive relationship was observed between nursing diagnosis perception and employee behavior.
* It was determined that past training was effective in improving patient safety culture.

Ethics committee approval dated 07.06.2024 and numbered E-67796128-819-2400018525 from Ardahan University Scientific Publication and Ethics Board, and institutional permission dated 23.07.2024 from Kars Provincial Health Directorate were obtained.

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INTRODUCTION

Nursing is a health discipline that combines science and art and helps all segments of society to improve their health. It is also responsible for providing all preventive, curative, and rehabilitative healthcare services. While performing their duties related to nursing, nurses manage the "nursing process", which is an approach that provides the implementation of treatment and care with a holistic patient evaluation in line with certain standards of nursing services. In this respect, the nursing process is important.[1,2]

Nursing diagnoses can ensure that nursing becomes a professional discipline, that a common language is created among nurses, that a systematic approach is demonstrated, that standardization is ensured, and that higher quality and safer care and treatment are provided. In this sense, nurses need to employ nursing diagnoses for their institutions, their patients, and their profession.[3] In a previous study, it was reported that 53.49% of nurses did not use nursing diagnoses when planning nursing care, that they thought nursing diagnoses were difficult, and that they associated the reason for this difficulty with time constraints and difficulty in understanding nursing diagnoses.[4] In another study, 32.9% of nurses reported that the care plan was unnecessary.[5] When studies investigating the knowledge, practice, and attitudes of nurses regarding nursing diagnoses were reviewed, it was found that nurses were deficient in understanding the importance, meaning, and use of nursing diagnoses and that they needed to be supported.[4–6] In a qualitative study conducted with nurses, it was reported that although there are difficult aspects of using the nursing process in nursing care, there are more advantages, which are associated with the nursing process facilitating nursing practice, supporting the care procedure, and providing confidence in behaviors.[7] A good perception of nursing diagnoses will help provide more careful and complete nursing care by increasing the use of nursing diagnoses. It is considered that this will increase patient safety.

Patient safety is defined as the precautions taken to ensure that no accidents or undesirable situations occur regarding the care and procedures provided to the patient while services are delivered in healthcare institutions. It can also be defined as keeping the patient away from accidents during medical treatment and care. Striving to positively influence a patient safety culture is important for reducing the occurrence of medical errors and for ensuring effective treatment and care by healthcare personnel.[8] Patient safety culture is linked to quality issues, patient care and follow-up, teamwork, information exchange with other institutions, organizational learning, the general perception of patient safety culture, and leadership support.[9] Although patient safety is important for the institution providing the service and the patient receiving the service, the reporting rates of situations that impair patient safety are quite low.[10,11] Low reporting is also among the factors that affect the perception of patient safety, as it prevents medical error rates from being seen and hinders the search for solutions to reduce the error rate. It has been reported in the literature that increasing patient safety culture will increase the quality of care.[12-15] In the literature review, nurses' perception of nursing diagnoses[7,16–18] and their perception of patient safety culture[12–14,19] were evaluated separately. However, no study was detected that addressed these two issues together and showed the importance of using nursing diagnoses appropriately for patient safety.

The findings of this study have the potential to inform clinical practice by highlighting the importance of nurses' perceptions of nursing diagnoses in shaping patient safety culture. Improving nurses' skills in understanding and using nursing diagnoses can contribute to improved patient outcomes, reduced medical errors, and the development

of more effective patient safety policies in healthcare institutions.

It was conducted to evaluate the effect of nurses' perceptions of nursing diagnoses on patient safety culture.

Research Questions

1.What is nurses' perception of nursing diagnoses and the level of patient safety culture?

2.Is there a relationship between the perception of nursing diagnoses and patient safety culture?

3.Do nurses' perceptions of nursing diagnoses affect patient safety culture?

MATERIALS AND METHODS

Type of Study

This research was conducted with a cross-sectional design.

Population and Sample

This study was carried out with nurses working under the Kars Provincial Health Directorate. A total of 700 nurses, 524 of whom worked for the state and 176 of whom worked at the university, constituted the population of this study.[20] The sample size was calculated using a program. In the analysis performed with an effect size of 0.25, a power of 80% and a margin of error of 0.05, it was determined that the sample size should be at least 200. Nurses who volunteered and were not on leave during the data collection process were included in the study. This research was completed with 270 nurses.

Data Collection Tools

The Nurse Identification Form, the Perceptions of Nursing Diagnosis Survey (PND), and the Patient Safety Culture Scale (PSC) were used. Data were collected by the researchers through face-to-face interviews in a hospital setting. During the research process, nurses who were not on leave or sick leave and who agreed to participate voluntarily were given survey forms. These nurses completed the survey and returned it to the researchers. Each survey took approximately 15-20 minutes to complete.

The Nurse Identification Form consists of 8 questions regarding the participants' age, gender, marital status, educational status, economic status, length of service, length of service at the current institution, and whether they have received patient safety training previously.[2,21]

PND was developed in 1991 to assess perceptions of nursing diagnoses.[2] The scale consists of 26 items. The sub-dimensions are definition and introduction of the nursing profession, clear diagnosis of the patient's condition, ease of use, and conceptual aspect. The scale is scored on a 5-point Likert type, where 1 = completely agree and 5 = completely disagree. The PND average score is found by dividing the total PND score by the number of items. High scores indicate that nursing diagnoses are perceived negatively, while low scores indicate that they are perceived positively. The Cronbach's alpha was determined as 0.84.[2] In this study, it was determined as 0.936.

PSC was developed in 2011 to evaluate patient safety culture, comprising 53 items. It has 5 sub-dimensions: management and leadership, employee behavior, unexpected events and errors, employee training, and care environment. The scale, which is scored on a 4-point Likert scale, is evaluated using a score average. When the average approaches 4, it is interpreted as a positive patient safety culture, and when it approaches 1, it is interpreted as a negative patient safety culture. The Cronbach's alpha was determined as 0.97.[21] In this study, it was determined as 0.981.

Permission to use the scale was requested from the scale owners.

Evaluation of the data

SPSS 26 program was used for data analysis. Descriptive statistics were provided for the characteristics of the nurses. Statistical

significance was considered at $p < 0.05$, and for normal distribution, Skewness and Kurtosis values of ±1.5 were used as the criteria.[22] Independent samples t-test and one-way ANOVA were performed to compare scale means with sociodemographic characteristics. The Bonferroni test was applied for further analysis. Correlation analysis was used to determine the relationships between the scales, and regression analysis was used to assess the effects of variables on each other. The regression model was established including the perception of nursing diagnoses, age, economic status, length of service, and previous patient safety training status, which are thought to predict patient safety culture.

Ethical considerations

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RESULTS

The age of the nurses who participated in this study was 29.53±5.36, 68.9% were female, 52.6% were single, 48.1% had a bachelor's degree, 64.4% had a moderate economic status, 43% had been working for 0-5 years, and 65.9% had previously received patient safety training (Table 1). The differences in the means of the PND and PSC according to sociodemographic variables are given in Table 1. It was found that the mean score of the PND differed according to economic status, and the mean score of the PSC differed according to gender ($t = 2.274$; $p = 0.024$), economic status ($F = 4.938$; $p = 0.008$), working time ($F = 4.698$; $p = 0.003$), and having previously received patient safety training ($t = 3.638$; $p < 0.001$) (Table 1).

Table 2 gives the relationship between the PND and its sub-dimensions and the PSC and its sub-dimensions. No correlations were detected between the overall mean of the PND and the overall mean of the PSC ($p > 0.05$). A positive and significant relationship was detected between the overall mean of the PND and the employee behavior sub-dimension of the PSC ($r = 0.122$; $p = 0.046$). There was a positive relationship between the ease of use, among the sub-dimensions of the perception of nursing diagnoses scale, and employee behavior, among the sub-dimensions of the PSC ($r = 0.122$; $p = 0.044$), and a positive relationship between the conceptual aspect, among the sub-dimensions of the PND, and employee training, among the sub-dimensions of the PSC ($r = 0.143$; $p = 0.019$) (Table 2).

A multiple regression analysis was performed to determine the factors that affect the PSC. The analysis evaluated the effects of the perception of nursing diagnoses, age, economic status, working hours, and previous patient safety training on the PSC. The model created in this way was significant ($F(8, 261)= 3.704$, $p < 0.001$), the explanatory level was $R^2 = 0.102$, and the adjusted R^2 value was found to be 0.074. These values show that all independent variables explain 7.4% of the variance in patient safety culture. Among the independent variables, only the status of having received patient safety training before was found to be significant (**B** = 0.242, β = 0.185, p = **0.002**) (Table 3).

DISCUSSION

This study examined the impact of nurses' perceptions of nursing diagnoses on patient safety culture. The findings are discussed in the context of the relevant literature.

Using nursing diagnoses in patient treatment and care can provide an opportunity for accurate and complete planning, implementation, and evaluation of healthcare.[23] In this study, it was found that nurses' PND was at a moderate level (2.39±0.64). This can also be interpreted as nurses' having a positive perception of

nursing diagnoses. In agreement with the results of this study, other studies in the literature showed that PND was at a moderate level.[17,24–26] In a previous study that was conducted with nurses who worked in a city hospital, the mean PND was reported to be positive at 2.27±0.67. In other words, it was determined that they perceived nursing diagnoses positively. [27] In another study, it was determined that nursing diagnoses were perceived positively by nurses and future nurse candidates.[28] It has been reported that the positive increase in PND causes nurses to gain a critical perspective and increase their problem-solving skills.[29]

Table 1. Comparison of Nurses' Perceptions of Nursing Diagnosis Survey and Patient Safety Culture Scale Mean Scores According to Sociodemographic Characteristics

Characteristics	n	%	Perceptions of Nursing Diagnosis Survey	Patient Safety Culture Scale
Gender				
Female	186	68.9	2.39±0.64	2.78±0.61
Male	84	31.1	2.39±0.64	2.59±0.63
Test and p			t=0.002; p=0.998	t=2.274; p= **0.024**
Marital status				
Married	120	44.4	2.37±0.57	2.75±0.65
Single	142	52.6	2.41±0.70	2.71±0.59
Divorced	8	3.0	2.09±0.51	2.55±0.58
Test and p			F=1.098; p=0.335	F=0.443; p=0.643
Educational Status				
High school	43	15.9	2.42±0.57	2.71±0.45
Associate's degree	55	20.4	2.30±0.49	2.69±0.56
License	130	48.1	2.37±0.67	2.70±0.70
Postgraduate	42	15.6	2.51±0.75	2.84±0.57
Test and p			F=1.005; p=0.391	F=0.607; p=0.611
Economic situation				
Good (1)	76	28.1	2.50±0.64	2.88±0.50
Moderate (2)	174	64.4	2.37±0.59	2.68±0.63
Poor (3)	20	7.4	2.07±0.89	2.45±0.80
Test and p			F=3.840; p= **0.023*;** 1>3	F=4.938; p= **0.008*;** 1>3
Working hours				
0-5 years (1)	116	43.0	2.27±0.68	2.68±0.64
6-10 years (2)	66	24.4	2.44±0.71	2.56±0.71
11-15 years (3)	27	10.0	2.47±0.54	2.74±0.51
16 years and above (4)	61	22.6	2.50±0.47	2.96±0.42
Test and p			F=2.228; p=0.085	F=4.698; p= **0.003*;** 4>1
Have you received patient safety training before?				
Yes	178	65.9		
No	92	34.1	2.37±0.58	2.82±0.59
Test and p			2.43±0.73	2.53±0.63
			t=-0.742; p=0.459	t=3.638; **p<0.001**

**Bonferroni test, t=Independent samples t-test, F=one-way ANOVA test*

Table 2. Correlation Analysis Between Nurses' Perceptions of Nursing Diagnosis Survey and Patient Safety Culture Scale

Scales and sub-dimensions	1	1.a.	1.b.	1.c.	1.d.	2.	2.a.	2.b.	2.c.	2.d.	2.e.
1. Perceptions of Nursing Diagnosis Survey general	**1** -										
1.a. Definition and promotion of the nursing profession	0.807** **p < 0.001**	1 -									
1.b. Diagnosing the patient's condition clearly	0.894** **p < 0.001**	0.562** **p <0 .001**	1 -								
1.c. Ease of use	0.877** **p <0 .001**	0.584** **p < 0.001**	0.769** **p < 0.001**	1 -							
1.d. Conceptual aspect	0.895** **p < 0.001**	0.610** **p < 0.001**	0.796** **p < 0.001**	0.713** **p < 0.001**	1 -						
2. Patient Safety Culture Scale (PSC) – General	0.105 0.086	0.105 0.084	0.060 0.322	0.087 0.152	0.107 0.079	1 -					

Table 2. Continued

Scales and sub-dimensions	1	1.a.	1.b.	1.c.	1.d.	2.	2.a.	2.b.	2.c.	2.d.	2.e.
2.a. Management and leadership	0.038 0.532	0.070 0.253	0.009 0.877	0.010 0.875	0.038 0.534	0.851** **p < 0.001**	1 -				
2.b. Employee behavior	0.122* **0.046**	0.107 0.078	0.075 0.218	0.122* **0.044**	0.116 0.058	0.884** **p < 0.001**	0.822** **p < 0.001**	1 -			
2.c. Unexpected event and error reporting	0.077 0.208	0.117 0.055	0.029 0.635	0.044 0.474	0.069 0.255	0.891** **p < 0.001**	0.689** **p < 0.001**	0.709** **p < 0.001**	1 -		
2.d. Employee training	0.117 0.055	0.082 0.181	0.088 0.151	0.095 0.118	0.143* **0.019**	0.911** **p < 0.001**	0.671** **p < 0.001**	0.722** **p < 0.001**	0.787** **p < 0.001**	1 -	
2.e. Care environment	0.103 0.092	0.089 0.143	0.060 0.329	0.108 0.077	0.099 0.105	0.896** **p < 0.001**	0.659** **p < 0.001**	0.713** **p < 0.001**	0.742** **p < 0.001**	0.820** **p < 0.001**	1 -

***. 0.01 level*. 0.05 level.*

It was concluded in this study that the average PND was better in nurses who had a good economic situation than in nurses who had a poor economic situation. This can be interpreted as nurses with a good economic situation having greater opportunities to access studies, books, and training, thus demonstrating a more positive perception of nursing diagnoses. Being in a good economic situation can lead to positive perceptual changes in individuals.[30] In this study, it was found that the PND did not differ according to gender, age, marital status, and educational status. The results of studies in the literature are consistent with our study in this sense.[17,25,27] While the findings in this study and the literature generally indicate that male nurses tend to have lower PNDs, studies by Kurtgöz and Çayır Yılmaz (2023) and Seçer and Karaca (2021) indicate that male nurses have higher perceptions of nursing diagnoses. This higher perception of nursing diagnoses suggests that they perceive nursing diagnoses more negatively. This suggests that perceptions of nursing diagnoses can vary depending on individual, cultural, and professional factors.[24,26]

Having a positive perception of nursing diagnoses might prevent malpractice by providing more reliable care and treatment, reducing oversight and negligence, and thus increasing patient safety.[31] In this study, it was found that nurses had a positive perception of patient safety culture and that the average was 2.72±0.62, which is above the moderate level. Similar to our study results, studies in the literature also report that patient safety culture was above the moderate level.[32–34] It was reported in two studies that patient safety culture was at a moderate level.[35,36] This may help nurses provide more reliable care and treatment to patients, reduce carelessness and negligence, and therefore increase patient safety.

In this study, it was found that PSC differed significantly according to gender, economic status, length of service, and previous patient safety training. It was found that the PSC average of nurses who were female, had a good economic status, had a working period of more than 16 years, and had previously received patient safety training was significantly higher. It can be said that women have a higher awareness of patient safety culture because they work more frequently in the nursing profession.[37] Being economically well-off can help provide more resources and increase PSC.[38] Increasing working experience can increase the knowledge and experience of individuals and increase patient safety culture.[38] In a previous study, contrary to our study and the literature, PSC scores of new nurses were found to be higher.[36] This situation can be associated with the fact that the theoretical knowledge of newly graduated nurses is recent, they try to apply it in the field and their motivation is high.

Although it is considered that applying nursing diagnoses affects patient safety, no relationship was detected between the PND and the PSC in this study. The failure to observe a relationship between the perception of nursing diagnoses and patient safety culture may be due to the influence of potential confounding variables. Furthermore, limitations regarding the validity and reliability of the measurement tools used, or perceptions shaped by social desirability, can

also complicate the interpretation of the results. Therefore, multivariate analyses and the use of different measurement methods in future research could contribute to a clearer understanding of the relationship. A weak and positive relationship was detected between the mean score of the PND and employee behavior. This situation can be interpreted as indicating that an increase in the PND may positively affect employee behaviors. As the perception of nursing diagnoses increases, the focus will also increase due to the increase in communication and motivation among employees, which can positively affect treatment and care and increase patient safety.[39]

A weak and positive relationship was detected between the ease of use sub-dimension of the PND and the employee behavior sub-dimension of the PSC. It can be interpreted that nurses who perceive that the use of nursing diagnoses is easy have a positive attitude toward patient safety.[40] It was found that there was a very weak and positive relationship between the conceptual aspect of the PND and the employee training sub-dimension of the PSC, which shows that employee training can help strengthen conceptual understanding.

In this study, as a result of the regression analysis conducted to evaluate the effect of PND, age, economic status, working hours, and patient safety training on PSC, it was determined that only having received patient safety training was effective on patient safety culture. This situation can be explained by the fact that an increase in education level leads to an increase in the patient safety culture. Our study is consistent with the literature in terms of the high average patient safety culture among nurses who received patient safety training.[34,41] This finding highlights the importance of patient safety training, particularly for nurses, to strengthen patient safety culture. Nurse managers and educators can focus on improving staff awareness and skills in patient safety by increasing the content and frequency of training programs. Policymakers can improve the overall safety culture of healthcare institutions by encouraging the implementation of mandatory and regular patient safety training. Furthermore, a more positive perception of patient safety culture among trained nurses can contribute to improved quality of care and patient outcomes. Therefore, expanding the scope of patient safety training and ensuring its continuous updating will play a critical role in improving the quality of healthcare.

Table 3. Effects of Nurses' Perceptions of Nursing Diagnoses, Age, Economic Status, Working Time, and Receiving Patient Safety Training on Patient Safety Culture

Model		*B*	SE	*β*	*t*	*p*
(Constant)		2.742	0.337		8.142	**p<0.001**
Perception of nursing diagnoses		0.090	0.058	0.093	1.538	0.125
Age		-0.005	0.008	-0.046	-0.636	0.525
Economic situation	**Good**	0.00	-	-	-	-
	Moderate	-0.080	0.090	-0.061	-0.883	0.378
	Poor	-0.212	0.161	-0.090	-1.321	0.188
Years of experience	**0-5 years**	-0.184	0.118	-0.147	-1.559	0.120
	6-10 years	-0.360	0.119	-0.212	-2.572	**0.011**
	11-15 years	-0.138	0.143	-0.067	-0.960	0.338
	Over 16 years[a]	0.00	-	-	-	-
Previous patient safety education status	**Yes**	0.242	0.079	0.185	3.055	**0.002**
	No [a]	0.00	-	-	-	-

R^2= 0.102, Adjusted R^2 = 0.074, F= 3.704, p < **0.001**

[a] *Reference Level, β: Regression Coefficient, SE: Standard Error*

CONCLUSION AND RECOMMENDATIONS

This research aimed to determine the effects of nurses' PND on PSC. The results of the study revealed that nurses' PND levels were moderate and their PSC levels were positive. PND did not affect PSC, indicating that PSC varied significantly according to certain variables.

Based on the results of this study, it is recommended that:

- To reduce medical error rates, nurses should improve their PND and PSC levels through in service training.
- Educational programs that include case studies as well as theoretical training to enhance the understanding of nursing diagnoses should be developed.
- Educational activities aimed at improving PSC should be increased.
- Multi-center studies with larger samples should be conducted on PND and PSC.
- Experimental studies should be designed to evaluate the effects of PND on PSC.

Limitations

Due to the use of a cross-sectional design, causality cannot be inferred from the relationships between variables; this requires caution in interpreting the findings. In future studies, longitudinal or experimental designs will allow for clearer identification of cause-and-effect relationships.

Because the study was conducted in a public hospital in the Kars province, the data cannot be generalized to the entire country. Furthermore, because the scales are based on self-reported data, there is a potential risk of bias due to social desirability.

Declaration of Interest

The authors declare no conflict of interest.

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Authors' Contributions

D.Ş; research, conceptualization, formal analysis, methodology, writing – review, editing, supervision, project management

G.G; research, conceptualization, data collection, formal analysis, writing – review, editing.

All authors have read and approved the published version of the article.

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