COLLABORATION AMONG NURSES AND TENDENCY TO MAKE MEDICAL ERROR OF NURSES WORKING IN A UNIVERSITY HOSPITAL: A DESCRIPTIVE CROSS SECTIONAL STUDY[1]

Bir Üniversite Hastanesinde Çalışan Hemşirelerin Tıbbi Hata Yapma Eğilimi ve Hemşireler Arası İşbirliği: Tanımlayıcı Kesitsel Bir Çalışma

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ABSTRACT

Aim: This research was conducted to examine collaboration among nurses and tendency to make medical error of nurses working in a university hospital.

Metods: The descriptive study was conducted with 270 nurses working in a university hospital in Ankara between January and May 2018. Data were collected with the Descriptive Data Form, Nurse-Nurse Cooperation Scale, and Medical Error Tendency Scale. Numbers, percentages, mean, standard deviation and Spearman correlation analysis were used to analyze the data.

Findings: It was determined that the mean score of collaboration between nurses was above average and at a good level, and the average score of nurses' tendency towards medical errors was determined to be low. In the study, it was determined that as the level of collaboration between nurses increased, there was a decrease in drug and transfusion practices, hospital infections, patient follow-up and material safety, falls, communication and general medical error tendencies.

Conclusions: It was found that the collaboration between nurses is at a high level, and the nurses' tendency to make medical error is low. As the collaboration between nurses increases, the tendency of nurses to make medical mistakes decreases. According to these results; It is recommended that administrators should carry out studies to improve collaboration between nurses and increase awareness of medical errors.

Relevance to clinical practice: Findings showed that when team collaboration and effective communication among nurses increase, they reduce the tendency to make medical errors and increase patient safety. Therefore, coollaboration between nurses should be given great importance.

Key words: Nurse, Collaboration, Medical Error, Patient Safety

ÖZET

Amaç: Bu araştırma, hemşireler arası işbirliği ve bir üniversite hastanesinde çalışan hemşirelerin tıbbi hata yapma eğilimlerini incelemek amacıyla yapılmıştır.

Yöntemler: Tanımlayıcı araştırma, Ankara'da bir üniversite hastanesinde çalışan 270 hemşire ile Ocak-Mayıs 2018 tarihleri arasında yapılmıştır. Veriler Tanımlayıcı Veri Formu, Hemşire-Hemşire İşbirliği Ölçeği ve Tıbbi Hata Eğilim Ölçeği ile toplanmıştır. Verilerin analizinde sayı, yüzde, ortalama, standart sapma ve Spearman korelasyon analizi kullanıldı.

Bulgular: Hemşireler arası işbirliği puan ortalamalarının ortalamanın üzerinde ve iyi düzeyde olduğu, hemşirelerin tıbbi hatalara eğilim puan ortalamalarının düşük olduğu belirlendi. Araştırmada hemşireler arası işbirliği düzeyi arttıkça ilaç ve transfüzyon uygulamaları, hastane enfeksiyonları, hasta takibi ve malzeme güvenliği, düşme, iletişim ve genel tıbbi hata eğilimlerinde azalma olduğu belirlendi.

Sonuç: Hemşireler arasındaki işbirliğinin yüksek düzeyde olduğu ve hemşirelerin tıbbi hata yapma eğilimlerinin düşük olduğu bulundu. Hemşireler arası işbirliği arttıkça hemşirelerin tıbbi hata yapma eğilimleri azalmaktadır. Bu sonuçlara göre; Yöneticilerin hemşireler arası işbirliğini geliştirmeye ve tıbbi hatalara karşı farkındalığı artırmaya yönelik çalışmalar yapması önerilmektedir.

Klinik uygulamaya uygunluk: Bulgular, hemşireler arasında ekip işbirliği ve etkili iletişim arttığında tıbbi hata yapma eğilimini azalttığını ve hasta güvenliğini artırdığını göstermiştir. Bu nedenle hemşireler arasında soğukkanlı çalışmaya büyük önem verilmelidir.

Anahtar Kelimeler: Hemşire, İşbirliği, Tıbbi Hata, Hasta Güvenliği

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1. INTRODUCTION

Today, as in many areas, innovations and changes in the field of health services continue at full speed. In addition to the fact that all personnel in hospitals providing healthcare services are affected by this change, it is stated that nurses who spend the most time with the patient are the people who have a direct impact on improving the quality of care and ensuring patient safety (Aydemir Gedük, 2018; Rice, Kotti, and Beninati, 2008; Swickard, Swickard, Reimer, Lindell, and Winkelman, 2014).

Deaths and injuries due to medical errors are increasing rapidly in the world. The quality of healthcare services decreases due to many wrong applications and medication errors during treatment and care (Kıymaz & Koç, 2017). It is stated that the lack of effective communication and collaboration among nurses who have an important role and responsibility in health services increases medical errors and negatively affects patient safety (Aydemir Gedük, 2018; Henneman et al., 1995).

The concept of "collaboration" is defined as an act of working together that enables decision making and communication, based on authority and power sharing (Henneman, Lee, & Cohen, 1995). "Collaboration between nurses" is expressed as a coordinated process that interacts with patient care (Celik Durmus & Yildirim, 2018). Nurses can reduce or prevent medical errors by collaborating each other (Avcı & Aktan, 2015; Henneman et al.,1995), use communication actively and correctly (Lemetti, Lemetti, Stolt, Rickard, & Suhonen, 2015), They can make the right decisions, work in harmony and demonstrate their professional skills during all of these (Ekici, 2013). Nurses who lack these skills, display careless and negligent behavior, prepare the environment for medical errors. Nurses should improve themselves in these areas and increase the quality of patient care (Aydemir Gedük, 2018; Henneman et al., 1995).

The Institute of Medicine (IOM], 1999) defines the concept of medical error as "inability to complete a planned action properly or using a wrong plan while reaching the goal" (WHO, 2005a). It is stated that collaboration, communication, and effective decision-making between nurses who take the role of patient care within the healthcare team increase patient safety by preventing medical errors (AACN, 2005; Pronovost et al., 2003; Lemetti et al., 2015). In the 2018 data of the Joint Commission International (JCI), it was determined that adverse events resulted in 52% death between 2005 and 2017 (JCI, 2018).

It is stated that effective communication and coordination, which are accepted as sub-parameters of collaboration between nurses, significantly reduce mortality rates (Dougherty & Larson, 2005). First of all, it is necessary to accept errors, identify errors, focus on unsafe conditions and develop error reporting strategies to prevent errors (Wolf & Hughes, 2008). In this process, people who interact with all employees and are responsible for their collaboration are seen as nurses. In addition, it is stated that nurses play a vital role in reducing medical error rates with high level of collaboration between nurses (Apker, Propp, Ford, & Hofmeister, 2006).

The focus of patient safety in healthcare services is patient harm. The main indicator of patient safety is medical errors. It is stated that collaboration between nurses while ensuring patient safety will reflect positively on medical error rates (AACN, 2005; Dougherty & Larson, 2010; ICN, 2018).It has been stated that communication, process sharing, problem solving, coordination and professionalism, which are sub-dimensions of collaboration, indirectly reflect positively on patient care outcomes and affect patient safety, but since there is no study on this subject in the world literature (Abaan and Altıntoprak 2005; Çelik Durmuş and Yıldırım, 2016; Dougherty and Larson 2010; Işık Andsoy, Kar, & Öztürk, 2014; Özata, 2013), in this study, the relationship between nurses' collaboration and nurses' medical error tendency was examined.

2. METHOD

2.1. Purpose of the Research

This study was carried out with the aim of examining nurses' tendency to make medical errors and collaboration between nurses.

2.2. Type of Research

This research was conducted in a descriptive type.

2.3. Research Population and Sample

The population of the study includes all nurses working in a university hospital in Ankara (N = 550). The sample of the study consists of 270 nurses who actively work in a university hospital in Ankara and accept

the research. In the power analysis performed for the sample (0.05 significance level, 95% confidence interval), the power of the research was determined to be 0.99 (n = 270, r = 0.34).

2.4. Data Collection Tools and Data Collection

Research data were collected between February and May 2018, following the ethics committee approval in January 2018. Research data were collected by the researchers after obtaining the verbal consent of the nurses. Research tools; consist of three sections as The Descriptive Data Form, Nurse-Nurse Collaboration Scale and Medical Error Tendency Scale.

Descriptive Data Form

The introductory data form questions were created for the purpose of the research. The Data Form consists of a total of fourteen questions, two open-ended (situations and outcome of encountering medical errors) and twelve multiple-choice questions (age, gender, education level, duration of study, study type, etc.)

Nurse-Nurse Collaboration Scale

Nurse-Nurse Coollaboration Scale; It was developed by Dougherty and Larson (2010), and the Turkish adaptation of the scale was made by Çelik Durmuş and Yıldırım (2016). The Turkish form of the scale consists of 26 items and five dimensions (problem solving, communication, process sharing, coordination, professionalism). Cronbach alpha coefficient of the Turkish adaptation of the scale is 0.93. In this research, the cronbach alpha values; problem solving 0.85, communication 0.76, process sharing 0.85, coordination 0.79, professionalism 0.93, and general collaboration 0.95. Scale assessment varies between 1 and 4 for each item. The evaluation is expressed as 1 = totally disagree, 2 = disagree, 3 = agree, 4 = completely disagree. Collaboration among nurses is determined by collecting and averaging items in each dimension separately. The cut-off point of the scale is 2.5, and it has been stated that as it approaches one, collaboration between nurses decreases, and as it approaches four, collaboration among nurses increases.

Medical Error Tendency Scalein Nursing

The *Medical Error Tendency Scale in Nursing* was developed by Özata and Altunkan in 2010, and consists of five sub-dimensions and 49 items: drug and transfusion applications, prevention of infections, patient monitoring and material-device safety, prevention of falls and communication. The scale has a cronbach alpha coefficient of 0.95. In this research, the cronbach alpha values; drug and transfusion applications were 0.92, hospital infections 0.88, patient monitoring and material safety 0.84, falls 0.85, communication 0.82, and general medical error 0.96. In the evaluation, a five-point Likert type answer was used as 1 = never, 2 = very rare, 3 = occasionally, 4 = generally, 5 = always. It is assumed that as the total score obtained from the scale increases, the nurses' tendency to medical error decreases and they do their jobs with more care and attention.

2.5. Data Analysis

The data were analyzed with SPSS for Windows 17 package program. Number, percentage, mean, standard deviation and Spearman correlation analysis were used to analyze the data.

2.6. Ethical Aspect of the Research

The ethical permission of the study was given by XXX University Clinical Research Ethics Committee in January 2018 (Decision number: 2018-KAEK-189). The hospital leave was made with the approval of the ethics committee in person to the institution. Scale permission was obtained from the owner of the scale by mail.

3. FINDINGS

Demographic Characteristics of Nurses

As seen in Table 1, 31.8% of the nurses are 26-32 years old, 91.1% are female, 75.9% are married, 63.7% are undergraduate and 93.3% are subject to 657 (4 / a) permanent staff. they are working. The weekly average working time of 48.1% of the nurses is 40-44 hours, 31.5% care for 0-5 patients daily, 39.6% are satisfied with the profession and 33.7% work in intensive care / emergency / operating room clinics. 56.7% of the nurses work in shifts, 76.7% of them have not made a medical error before, and 57.4% have never encountered a medical error.

Table 1.Demographic Characteristics of Nurses(n = 270)

Variables		n	%
Age	19-25	32	11.9
	26-32	**86**	**31.8**
	33-39	74	27.4
	40 and above	78	28.9
Sex	**Female**	**246**	**91.1**
	Male	24	8.9
Marital status	**Married**	**205**	**75.9**
	Single	65	24.1
Education level	Health vocational high school	26	9.6
	Associate degree	45	16.7
	Bachelor degree	**172**	**63.7**
	Graduate	27	10.0
Staff status	**4/a staff**	**252**	**93.3**
	4/b contracted	18	6.7
Average working time per week (hour)	**40-44**	**130**	**48.1**
	45-49	60	22.2
	50-54	38	14.1
	55 and above	42	15.6
Average number of patients per day	**0-5**	**85**	**31.5**
	6-10	47	17.4
	11-15	35	13.0
	16-20	48	17.8
	21 and above	55	20.4
Professional satisfaction level	Not satisfied	105	38.9
	Indecisive	58	21.5
	Satisfied	**107**	**39.6**
Clinic she served	Internal Medicine / Chest / Nephrology / Urology	36	13.3
	Surgery / Orthopedics / Gynecology / Plastic and reconstructive	67	24.8
	Child / Newborn	30	11.1
	Emergency / Operating Room / Intensive Care	**91**	**33.7**
	Other *	46	17.0
Way of working	**In shift**	**153**	**56.7**
	Continuous day time	67	24.8
	Continuous night	11	4.1
	24h seizures method	16	5.9
	Other **	23	8.5
Previous medical error	Yes	63	23.3
	No	**207**	**76.7**
Previously encountered medical errors-me status	Yes	115	42.6
	No	**155**	**57.4**

Other *: Refers to psychiatry, dialysis, cardiovascular, neurology, physical therapy, etc. clinics.
Other **: Refers to employees working both in shifts and on shifts, and those working both night and 24 hours.

3.1. Findings Related to Nurse-Nurse Collaboration and Tendency to Make Medical Errors

As seen in Table 2, nurses were found to be 2.98 ± 0.71 in problem solving, 2.85 ± 0.60 in communication, 2.93 ± 0.58 in process sharing, 3.01 ± 0.62 in coordination, 3.05 ± 0.62 in professionalism, and $2.98 \pm$ in general collaboration.0.55 points, 4.76 ± 0.33 points from the drug and transfusion sub-dimension, 4.71 ± 0.38 from the hospital infections sub-dimension, 4.57 ± 0.46 points from the patient monitoring and material safety sub-dimension, 4.62 ± 0.52 points from the falls sub-dimension, 4.72 ± 0.44 points in the communication sub-dimension and general medical error tendency.They got 4.69 ± 0.34 points from the total.

Table 2.Distribution of the scores of the participants from the Medical ErrorsScale, Nurse - Nurse Collaboration Scale and its sub-dimensions (n = 270)

Scale and subdimensions	Avr.	Ss.	Min.	Max.
Problem solving	2.98	0.71	1.00	4.33
Communication	2.85	0.60	1.20	4.00
Process sharing	2.93	0.58	1.00	4.00
Coordination	3.01	0.62	1.00	4.00

Professionalism	3.05	0.62	1.00	4.00
General collaboration	2.98	0.55	1.08	4.00
Medication and transfusion applications	4.76	0.33	2.94	5.00
Hospital infections	4.71	0.38	3.00	5.00
Patient monitoring and material safety	4.57	0.46	2.89	5.00
Falls	4.62	0.52	1.80	5.00
Communication	4.72	0.44	2.20	5.00
General medical error tendency	4.69	0.34	3.00	5.00

3.2. The Relationship Between Medical Errors Scale and Its Sub-Dimensions and the Nurse-Nurse Collaboration Scale and Its Sub-Dimensions

Table 3. Relationship between Medical Errors Tendency Scale and sub-dimension scores with Nurse-Nurse Collaboration Scale and sub-dimension scores

		Drug and transfusion applications	Hospital infections	Patient monitoring and material safety	Falls	Communication	General medical error tendency
Problem solving	r	0.20	0.19	0.22	0.31	0.17	0.24
	p	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Communication	r	0.20	0.19	0.24	0.26	0.16	0.25
	p	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Process sharing	r	0.30	0.20	0.28	0.35	0.27	0.33
	p	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Coordination	r	0.36	0.32	0.33	0.39	0.35	0.40
	p	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
Professionalism	r	0.26	0.25	0.29	0.33	0.28	0.33
	P	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**
General collaboration	r	0.29	0.26	0.30	0.35	0.28	0.34
	p	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

As seen in Table 3, there is a statistically weak, positive and significant relationship between problem-solving, communication, process sharing, coordination, professionalism and general collaboration scores and drug and transfusion applications, hospital infections, patient monitorıng and material safety, falls, communication and GMMTS (General Medical Errors Tendency Scale) scores (p <0.05) As the general collaboration increases, hospital infections, communication, drug and transfusion applications, patient monitoring and material safety, mistakes made for falls decrease, respectively.

4. DISCUSSION

This study was conducted as a descriptive study in order to examine the nurses' tendency to make medical errors in collaboration between nurses. The study was applied to 270 nurses working in a university hospital. The focus of patient safety in healthcare services is patient harm. The main indicator of patient safety is medical errors. While ensuring patient safety, it is stated that collaboration between nurses will have a positive effect on reducing the rates of medical errors (AACN, 2005; Dougherty & Larson, 2010; ICN, 2018). In our study, the effect of collaboration between nurses on medical error tendency of nurses was examined.

In this study, it was found that nurses' overall collaboration was at a good level, professionalism and coordination sub-dimension was high, but communication dimension was low. Similarly, in the study conducted by Çelik Durmuş and her colleagues. (2018), it was determined that nurses received the highest score average in the professionalism and coordination sub-dimension. Again, in this study, similar to our study, it was determined that the general level of collaboration between nurses was at a good level. In the study, the fact that nurses got the most points from the professionalism dimension suggests that they are competent in evaluating all opportunities for collaboration between them. It can be explained as the fact that nurses' communication is lower than other dimensions of collaboration, they do not have enough time to communicate with other colleagues in the team due to their intense work and most of their time for patients.

It was found that nurses in this study have a low tendency for medical errors. Nurses tend to have the highest patient monitoring and material safety, and the least to medical error in drug and transfusion practices. Similarly, in the study conducted by Öztürk and Özata (2013), it is stated that the tendency for medical error is at least in drug and transfusion applications, and most in falls with patient monitoring and material safety. Again, Demir Dikmen and col. (2013), İşçi (2015) and Küçükoğlu et al., (2016) state that nurses are least

prone to medical errors in drug and transfusion practices. Like every medical error, medication errors are also important as they can result in death, and it is stated that the medication errors are mostly caused by the practitioner (Philips et al., 2001). It is stated that nurses' frequent medication errors in practice is due to their low level of knowledge (Akgün, 2014, Leape et al., 1994). It is thought that the nurses in this study have a high level of knowledge in this respect and have sufficient awareness about drugs. However, it was found that the nurses in the study were more prone to medical errors in patient monitoring and material safety (Table 2). In the study conducted by Işık Andsoy and colleagues. (2014), similar to our research, it is stated that nurses show the most tendency to make medical errors in patient monitoring and material safety. In medical error cases, it has been stated that insufficient monitoring of the patient causes major problems (Aştı and Acaroğlu, 2000). It was stated that the maintenance and use of materials and devices increase the effectiveness of the diagnosis-treatment process positively (Odacıoğlu, 2013). Again, WHO (2005a) draws attention to the importance of this issue by stating that patients suffer damage as a result of not using medical equipment adequately and safely. The nurses in the study are thought to be competent in medicine and transfusion due to their high education level. It is thought that they do not show the same care in patient monitoring and medical equipment control because they do not have enough information about the materials because they work patient-oriented, and because of the high number of patients, they do not have time to observe every patient sufficiently.

When the general collaboration level of nurses in this study increased, respectively; hospital infections, communication, drug and transfusion applications, patient monitoring and material safety, mistakes made for falls are decreasing (Table 3). Since nursing is a collaborative profession, it is expected to reduce mortality and morbidity rates in patient care with a coordinated work plan and professional communication process. It is stated that coordination, decision making and communication are helpful resources in the development and professionalization of nursing. Acting in coordination and collaboration in making decisions will provide full professionalism. While providing professionalism, it is stated that effective communication and problem solving skills in nurses also contribute to collaboration (Aiken et al.,, 2013; Aydemir Gedük, 2018). In the light of this information and the result of our study, it is concluded that the collaboration of nurses in the patient care process may prevent possible errors. The low but positive relationship of each of the problem solving, communication, process sharing, coordination and professionalism required for the collaboration process with the medical error tendency proves that the medical error tendencies will decrease with the collaboration between nurses. In the study, it is thought that nurses provide a safer and higher quality care for the patient and exhibit a full professionalism in addition to relieving their work in collaboration.

5. CONCLUSION

According to the results of the research; It was found that collaboration between nurses was high in professionalism and coordination dimensions while low in communication dimension. Considering the tendency of nurses to make medical errors, it was determined that they have the highest tendency towards medical errors in patient monitoring and material safety, and the least in drug and transfusion practices. As the collaboration between nurses increases, errors related to hospital infections, communication, drug and transfusion applications, patient monitoring and material safety and patient falls decrease, respectively.

In line with these results; To provide training that enhances collaboration and communication between nurses, to increase awareness of medical errors among nurses, to provide in-service trainings to reduce errors in drug administration, and to ensure that nurses can report medical errors safely by creating a non-punitive environment, and to provide personal and professional training related to the tendency to make medical errors. factors and nurses' attitudes towards medical errors should be improved.

6. RELEVANCE TO CLINICAL PRACTICE

Coollaboration between nurses significantly reduces the tendency of nurses to make medical errors. This study emphasizes the importance of teamwork and effective communication among nurses on patient safety. "Collaboration between nurses" is not emphasized enough in the international literature. It should be underlined that nurses work as an important team, that the rates of medical errors can be significantly reduced with effective communication and coollaboration among themselves, and as a result, positive patient outcomes can be achieved. In this context, we think that first of all, nurse managers in hospitals should take the coollaboration between nurses seriously and when they focus on this issue, they will go a long way in nursing services. We look forward to carrying out such a study in other countries and sharing it with the literature.

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CONFLICTS OF INTEREST

The authors declare that they have no conflict of interests.

REFERENCES

Abaan, S., ve Altıntoprak, A. (2005). Hemşirelerde problem çözme becerileri: Öz değerlendirme sonuçlarının analizi. Hemşirelik Yüksekokulu Dergisi, 62-76.

Aiken, L.H., Sloane, M.D., Bruyneel, L., Heede, K.V., and Sermeus, W. (2013). Nurses' reports of working conditions and hospital quality of care in 12 countries in Europe [Avrupa'daki 12 ülkede çalışma koşulları ve hastane bakım kalitesi hemşire raporları]. International Journal of Nursing Studie, 50, 143-153.

Akgün, S. (2014). Hasta güvenliği, beklenmeyen ciddi tıbbi hatalar -sentinel olaylar- sentinel events in healthcare. Sağlık Akademisyenleri Dergisi, 1(2), 75-82.

American Association of Critical-Care Nurses (AACN). (2005). AACN standarts for establishing and sustaining healthy work environments: A journey to excellence [Sağlık çalışma ortamları kurmak ve sürdürmek için AACN standartları: Mükemmellik yolculuğu]. American Journal of Critical Care, 14(3), 187-197

Apker, J., Propp, M.K., Zabava Ford, S.W., and Hofmeister, N. (2006). Collaboration, credibility, compassion, and coordination: Professinal nurse communication skill sets in health care team interactions [İşbirliği, güvenilirlik, şefkat ve koordinasyon: Sağlık ekibi ilişkilerinde profesyonel hemşire iletişim becerisi setleri]. Journal of Professional Nursing, 22(3), 180-189.

Aştı, T. ve Acaroğlu, R. (2000). Hemşirelikte sık karşılaşılan hatalı uygulamalar. Cumhuriyet Üniversitesi Hemşirelik Yüksekokulu Dergisi, 4(2), 22-27.

Avcı, K., ve Aktan, T. (2015). Bir sistem sorunu olarak tıbbi hatalar ve hasta güvenliği. Düzce Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi, 5(2), 48-54.

Aydemir Gedük, E. (2018). Hemşirelik mesleğinin gelişen rolleri. Journal of Health Science and Profession 5(2), 253-258.

Çelik Durmuş, S. (2018). Tıbbi Hatalar: Nedenleri ve çözüm önerileri. Social Sciences Studies Journal. 4(23), 4388-4396.

Çelik Durmuş, S. ve Yıldırım, A. (2016). Adaptation to Turkish of nurse-nurse collaboration scale [Hemşire-hemşire işbirliği ölçeği türkçe uyarlaması]. Journal of Human Sciences, 13(2), 3521-3528.

Çelik Durmuş, S. ve Yıldırım, A. (2018). Hemşireler arası işbirliği. Sağlık ve Hemşirelik Yönetimi Dergisi, 5(3). 210-216.

Demir Dikmen, Y., Yorgun, S., ve Yeşilçam, N. (2014). Hemşirelerin tıbbi hatalara eğilimlerinin belirlenmesi. Hacettepe Üniversitesi Hemşirelik Fakültesi Dergisi, 44-56.

Dougherty, B.M. and Larson, E.L. (2005). Review of instruments measuring nurse- physician collaboration [Hemşire-doktor işbirliğini ölçen araçların incelenmesi]. JONA, 35(5), 244-253

Dougherty, B.M. and Larson, E.L. (2010). The nurse-nurse collaboration scale [Hemşire-hemşire işbirliği ölçeği]. The Journal of Nursing Administration, 40(1), 17-25.

Ekici, E. (2013). Sağlık bakım hizmetinin yönetimi (2. Baskı). Ankara: Sim Matbaası. 150-251.

Henneman, E., Lee, J.L., and Cohen, J. (1995). Collaboration: A concept analysis [İşbirliği: Kavram analizi]. Journal of Advanced Nursing, 21. 103-109.

International Council of Nurses [ICN- Uluslararası Hemşireler Birliği]. (2018). Patient safety global ministerial summit 2018 International Council of Nurses statement. Erişim tarihi: 23.12.2018. https://www.icn.ch/person-centred-care/patient-safety.

Institute of Medicine (IOM). (1999). To err is human: Building a safer health system [Err insandır: Daha güvenli bir sağlık sistemi kurmak]. Washington, DC: National Academy Pres. 18-19

Işık Andsoy, I., Kar G., ve Öztürk, Ö. (2014). Hemşirelerin tıbbi hata eğilimlerine yönelik bir çalışma. Sağlık Bilimleri ve Meslekleri Dergisi, 1(1), 17-27.

İşçi, N. (2015). Hastanede çalışan hemşirelerin mesleki profesyonellik düzeyinin tıbbi hata yapma eğilimleri üzerine etkisi. (Yüksek lisans tezi). Atatürk Üniversitesi. Erzurum.

Küçükoğlu, S., Ası Karakaş, S., ve Çelebioğlu, A. (2016). Hemşirelerin Tıbbi Hata Yapma Eğilimleri ve Etkileyen Faktörler. Uluslararası Hakemli Hemşirelik Araştırmaları Dergisi, September/ October/ November/ December Summer Autumn, 8, 88-102.

Leape, L.L., Bates, D.W., Cullen, D.J., Cooper, J., Demonaco, H.J., Gallivan, T., Hallisey, R., Ives, J., Laird, N., Laffel, G., Nemeskal, R., Petersan, L.A., Porter, K., Servi, D., Shea, B.F., Small, S.D., Sweitzer, B.J., Thompson, T., and Vliet, M.V. (1994). System analysis of adverse drug events [Olumsuz ilaç olaylarının sistem analizi]. JAMA, 274(1), 35-43.

Lemetti, T., Stolt, M., Rickard, N., and Suhonen, R. (2015). Collaboration between hospital and primary care nurses: a literature review [Hastane ve birinci basamak hemşireleri arasındaki işbirliği: Bir literatür taraması]. International Nursing Review, 62, 248–266.

Odacıoğlu, Y. (2013). "Tesis Güvenliği". Sur, H. ve Palteki, T. (Ed.). Hastane Yönetimi (179-186). İstanbul: Nobel Matbaacılık.

Özata, M. ve Altunkan, H. (2010). "Hemşirelikte tıbbi hataya eğilim ölçeğinin geliştirilmesi, geçerlilik ve güvenilirlik analizinin yapılması". H. Kırılmaz (Ed.). II.Uluslararası Sağlıkta Performans ve Kalite Kongresi Bildiriler Kitabı, Nisan 2010, (ss. 415), Antalya: Baydan Ofset.

Özata, M. (2013). Hemşirelerin tıbbi hata yapmaya eğilimlerinin ve hasta bakımında gösterdikleri özenin belirlenmesi. Selçuk Üniversitesi Sosyal Bilimler Meslek Yüksekokulu Dergisi, 21(3), 417-430.

Öztürk, Y.E. ve Özata, M. (2013). Hemşirelerde örgütsel vatandaşlık davranışı ile tıbbi hataya eğilim arasındaki ilişkinin araştırılması. Süleyman Demirel Üniversitesi İktisadi ve İdari Bilimler Fakültesi Dergisi, 18(3). 365-381.

Phillips, J., Beam, S., Brinker, A., Holquist, C., Honig, P., Lee, L.Y., and Pamer, C., (2001). Retrospective analysis of mortalities associated with medication errors [İlaç hatalarıyla ilişkili mortalitelerin retrospektif analizi]. American Journal of Health System Pharmacy, 58(19), 1835-1841.

Pronovost, P., Weast, B., Schwarz, M., Wyskiel, M.R., Prow, D., Milanovich, N.S., Berenholtz, S., Dorman, T., and Lipsett, P. (2003). Medication reconciliation: A practical tool to reduce the risk of medication errors [İlaç mutabakatı: İlaç hatası riskini azaltmak için pratik bir araç]. Journal of Critical Care, 18(4). 201-205.

Rice, D., Kotti, G., and Beninati, W. (2008). Clinical review: Critical care transport and austere critical care. Critical Care, 12(2),1-8.

Swıckard, S., Swıckard, W., Reimer, A., Lindell D., and Winkelman, C. (2014). Adaptation of the AACN synergy model for patient care to critical care transport [AACN sinerji modelinin hasta bakımı için kritik bakım aktarımcılığına uyarlanması]. American Association of Critical-Care Nurses, 34(1), 16-28.

The Joint Commission (JCI). (2018). Summary data of sentinel events reviewed by the Joint Commission. Erişim tarihi: 01.21.2019. https://www.jointcommission.org.

Wolf, Z.R. and Hughes, R.G. (2008). Error reporting and disclosure [Hata raporlama ve açıklama]. Patient safety and quality: an evidence-based handbook for nurses, 35(2), 355-356.

World Health Organization (WHO- Dünya Sağlık Örgütü). (2005a). World alliance for patient safety, who draft guidelines for adverse event reporting and learning systems [Dünya hasta güvenliği için ittifak, Dünya Sağlık Örgütü olumsuz olay raporlama ve öğrenme sistemleri]. Geneva, Switzerland. 7-58.