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Orjinal Araştırma Makalesi/ Original Paper

The Relationship Between Medical Errors which Commonly Seen in Pediatric Wards with the Mood and Job Motivation of Nurses

Pediatri Kliniklerinde Sık Görülen Medikal Hatalar ile Hemşirelerin Ruh Hali ve İş Motivasyonu Arasındaki İlişki

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ÖZET

Amaç: Bu çalışmada pediatri kliniklerinde sık karşılaşılan tıbbi hataların belirlenmesi ve saptanan hataların hemşireler üzerindeki etkilerinin incelenmesi amaçlanmıştır.

Materyal ve Metot: Pediatri kliniklerinde hemşirelerin yaptığı tıbbi hataları tespit etmek ve önlemek için nitel, araştırıcı, tanımlayıcı ve bağlamsal bir çalışmadır. Çalışmamız Ekim 2019- Ocak tarihleri arasında gönüllü olarak Aksaray Eğitim ve Araştırma Hastanesi çocuk yoğun bakım, yenidoğan yoğun bakım, çocuk servisi, çocuk acil, çocuk cerrahisi hizmetlerinde çalışan hemşirelerin katılımıyla tek merkez ve 74 katılımcı ile prospektif bir çalışma olarak yapılması planlandı**.**

Bulgular: Belirlenen tedaviyi tam zamanından uygulayamama hatası katılımcıların anket puanlarına göre kıyas edildiğinde, anket puanı>61 olan grupta % 13,5 (n = 5) olan oran, < anket puanı<61 olan grupta % 39,5 (n = 15) (p = 0,013) olarak saptandı. Lojistik regresyon analizi ile <25 yaş grubunda hastalara yazılı sıra olmadan uygulanan tıbbi tedavilerin diğer gruplara göre anlamlı olarak 2.382 kat arttığını bulduk (Nagelkerke R kare: 0.289; p = 0.041).

Sonuç: Çalışmamızın bir sonucu olarak, hemşirelerin pediatri kliniklerinde yaptıkları tıbbi hataların çoğu, mesleki kariyeri erken başlamak ve daha az mesleki deneyimden kaynaklanmaktadır. Hemşirelerin gece nöbeti ve dönüşümlü olarak çalışma tarzlarında klinik adaptasyonları ve motivasyonları azalır, hata yapma olasılıkları artar.

Anahtar Kelimeler: Tıbbi Hata, Pediatri Hemşireliği, İş Motivasyonu, Hasta Güvenliği.

ABSTRACT

Aim: In this study, it was aimed to determine the common medical erros in pediatrics clinics and to examine the effects of the causes found on nurses.

Material and Methods: The research design used is a qualitative, investigative, descriptive and contextual design to identify and prevent the occurrence of medical errors that nurses make in the pediatric clinics. Our study is planned to be done a single center, with the participation of nurses working in pediatric intensive care, neonatal intensive care, child service, child emergency, pediatric surgery services of Aksaray Training and Research Hospital on a voluntary basis between October 2019- January 2020. It was planned to be done as a prospective study with 74 participants in total.

Results: As the group with a survey score> 61 is compared to the group with a score of <61, the rate of nurses who who could not perform the current treatment at the specified treatment times was 13.5% (n = 5) in the group with a survey score of> 61, and 39.5% (n = 15) in the group with survey score of <61 (p = 0.013). We found that the performed medical treatments to patients without a written order in the group of <25 years was increased significantly 2,382 times higher than the others groups with logistic regression analysis (Nagelkerke R square: 0.289; p = 0.041).

Conclusion: As a result of our study, most of the medical errors that nurses make in pediatrics clinics are due to starting working early career and less professional experience. In nurses' night-duty and alternatally working styles, their clinical adaptation and motivations decreases and the possibility of making mistakes increases.

Keywords: Medical Error, Pediatric Nursing, Job Motivation, Patient Safety

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INTRODUCTION

Patient safety is an important social issue in health care systems around the world. Today, medical errors which constitute an important risk for patient safety have become a multidimensional problem that raises ethical-legal problems related to accidents and deaths (Mileder, 2017). Although there are different definitions of medical errors in the literature; The Joint Commission of Accreditation in Healthcare Organizations defined the medical error as "harm to the patient as a result of an appropriate and unethical behavior of a healthcare professional and inadequate and negligent conduct in professional practices (JCAHO, 2006).

Preventing medical errors is one of the basic practices in ensuring patient safety and in all stages of health service system. It is stated in the studies that the errors are repeated and the patients are damaged due to these preventable errors (WHO, 2017). It is inevitable to identify all these errors without causing serious effects on human health, to prevent the repetition of errors by using notification systems and to produce solutions (Szymusiak et al., 2018).

Health institutions are different environments for pediatric patients than they are used to and they keep them from their daily lives and roles for a certain period of time (Szymusiak et al., 2018). Compared to adults, they face much more serious consequences when exposed to medical errors or damage due to physical, cognitive, emotional and anatomical deficiencies (Hicks et al., 2006). Serious mistakes can be made in drug administrations in pediatric patients. Failure to adjust the drug dose according to body weight, miscalculation of the drug account in mg/g, the need for dilution of the drug, the lack of fully mature physiological response mechanisms, the duration of administration of IV drugs and the possibility of side effects of drugs are common medical errors (Sears et al., 2013).

Today, many studies are carried out to minimize errors, which are seen in pediatrics clinics, originating from healthcare professionals. Job satisfaction is an important part of the life of nurses, which can affect patient safety, nursing morale and encouragement, productivity and quality of care through increased sense of responsibility and commitment. Job satisfaction and happiness of pediatric nurses will cause them to behave more attentively and carefully in their attitudes towards patients and thus reduce the possibility of making mistakes (Rodwell and Demir, 2012).

In this study, it was aimed to determine the common medical errors in pediatrics clinics and to examine the effects of the causes found on nurses.

MATERIAL and METHODS

Study Designs

The research design used is a qualitative, investigative, descriptive and contextual design to identify and prevent the occurrence of medical errors that nurses make in the pediatric clinics. Our study is planned to be done a single center, with the participation of nurses working in pediatric intensive care, neonatal intensive care, child service, child emergency, and pediatric surgery services of Aksaray Training and Research Hospital on a voluntary basis between October 2019- January 2020. It was planned to be done as a prospective study with 74 participants in total.

The nurses who gained experience at least 3 months in pediatric clinics (pediatric health and diseases service, pediatric emergency, pediatric intensive care, newborn pediatric service, neonatal intensive care, pediatric surgery service) and who transferred from pediatrics clinics to other clinics in the past 3 months, were included in the study. Nurses with less than 6 months of nursing experience and working in pediatrics clinics but transferred to other clinics for more than 4 months were excluded from the study.

In order to increase the participation and correctness of the answers given, the surveys were distributed in a closed box, and the nurses were asked not to indicate signature or name. In addition, nurses were

made to feel safe in participating in the study by putting the questionnaires they answered in the closed box.

Measures

The survey planned for the participants included in the study consisted of 3 parts. In the first part, demographic information of the participants such as age, nursing and pediatric nursing experience, educational status, working styles, were questioned. In the second part, the Minneseto job satisfaction survey was applied to the participants. Job satisfaction and working conditions of working nurses were examined in detail. Minnesota job satisfaction survey was used in the study and scoring was made according to the answers given in this questionnaire consisting of 20 questions (1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neither Satisfied nor Dissatisfied, 4 = I Satisfied, 5 = Very Satisfied). The Minnesota job satisfaction survey included questions about factors such as working conditions, wages, working environment, the possibility of self-improvement, and factors affecting job adaptation. As a result of the survey, it was planned to get the highest, lowest and average scores.

Participants were asked to answer common medical errors such as performed medical treatments to patients without a written order, could not follow-up vital signs of patients at the specified time due to intensity of work, made the mistake of measuring the medicine from the wrong dose, could not perform the current treatment at the specified treatment times, improper preparation of a medicine due to drug name similarity, preparation of precession medicine without double control, performed a subcutaneous vaccine / treatment accidentally intramuscularly as yes or no. In the third part, the demographic information of the nurses was questioned. Participants were asked about age, nursing and pediatrics nursing experience, working styles, education levels and earnings that they could play as a risk factor in medical error.

When the positive Minnesota score of job satisfaction was evaluated as 61 or higher (95% CI = 54%-78.6%), we found 68.3% sensitivity and 86.8% specificity according to the ROC curve analysis result in 42 nurses. We accepted the cut-off value as 61.

Ethics

After the necessary explanations and procedures related to the research were explained to the participants, written informed consent was obtained from all participants after the study procedures had been fully explained. This study has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki). This survey was approved by ethical committee of Aksaray University (Number: 2020/01-10). The participants were assured that their engagement was voluntary and that anonymity, privacy, and confidentiality of the data were guaranteed. Furthermore, they were informed about the purpose and the method of the study before signing a written informed consent. The questionnaires were distributed to eligible participants at the Pediatrics' clinic of Aksaray Education and Research hospital, and respondents were asked to complete and return them in the same time.

Statistical Analysis

IBM SPSS Statistics 22.0 program was used for the statistical analysis. Normal distribution was evaluated by Shapiro-Wilk test. Descriptive statistics (mean, standard deviation, median, frequency, and ratio) were used to assess the data. The Pearson chi-square, binary logistic regression analyses test was used for the comparison of data. A value of $p < 0.05$ was considered statistically significant.

RESULTS

aged <25 years, 22 nurse aged 25-32 years, 24 nurses aged 32-39 years, and 20 nurses aged> 40 years participated in the study. The lowest score in the Minneseto job satisfaction survey in our study was 33; the highest was found to be 93. The mean score was found as 60.79.

49 nurses with> 10 years of experience in the nursing profession and 4 nurse with <3 years of experience participated in the study. There were 4 nurse with <3 years of experience in the pediatric nursing profession, 11 nurses between 3-6 years, 10 nurses between 6-9 years, and 49 nurses with> 10 years of experience in the pediatric nursing profession. 73% of those who participated in the study were satisfied to work in pediatric nursing.

There were 20 nurses (27%) who performed medical treatments to patients without a written order. The preparation of precesion medicine without double control was made by 21 (28.4%) nurses. The proportion of those who could not follow-up vital signs of patients at the specified time due to intensity of work was 18.9% (n = 14). The number of nurses who performed a subcutaneous vaccine / treatment accidentally intramuscularly was 12 (16.2%). The rate of those who made the mistake of measuring the medicine from the wrong dose was 12.2% (n=9).

We compared to experience in the nursing profession and nurses who could not follow-up vital signs of patients at the specified time due to their intensity of work: We found that 14 nurses in total made mistake. In with <3 years experience 75% (n = 3) of 4 nurses, 27.3% of 11 nurses between 3-6 years (n = 3), 10% (n = 1) of 10 nurses between 6-9 years and 14.3% (n = 7) of 49 nurses over> 10 years of nursing experience were revealed (p = 0.019).

When we compared the professional nursing experience of 20 nurses and who could not perform the current treatment at the specified treatment times, 1 (25%) of 4 nurses with <3 years experience, 4 out of 11 nurses (36.4%) between 3-6 years, 1 out of 10 nurses between 6-9 years (10%) and 14 out of 49 (> 28.6%) nurses >10 years experience could not perform the treatment at the specified time (p=0.567) (Table 1).

While 6 (66.7%) of 9 nurses who made the mistake of measuring the medicine from the wrong dose were <3 years in pediatric nursing experience; this rate was 11.1% (n = 1) in nurses with 6-9 years pediatric nursing experience (p = 0.044). It was found that 7 of 20 (35%) nurses, who performed medical treatments to patients without a written order, <3 years pediatric nursing professional experience, 9 (45%) between 3-6 years, 3 (15%) between 6-9 years and 1 (5%) had 10-year pediatric nursing experience (p = 0.021) (Table 2).

When 3 nurses, who the improper preparation of a medicine due to drug name similarity, were examined with the manner of nurses working: it was found that 1 of 33 nurses (33.3%) in worked as a night duty system and 2 of 5 nurses (66.6%) in worked as a rotationally system (night duty-day), made mistake that improper preparation of a medicine (p = 0.001). A total of 21 people who made medical error of the precesion medicine without double control, 8 (38.1%) of them worked only during the day without night duty, 9 (42.9%) worked as night duty, and 4 (19%) worked rotationally nursing staff (p = 0.027) (Table 2).

Table 1. The relationship between age, nursing experience and medical error

Medical Errors	**Age**				**Nursing Experience**				**P value**	
	<25 old	25-32 old	32-39 old	>40 old	<3 year	3-6 year	6-9 year	>10 year	P_1*	P_2*
	N=8	N=22	N=24	N=20	N=4	N=11	N=10	N=49		
Performed medical treatments to patients without a written order										
Yes	5 (25%)	6 (30%)	7 (35%)	2 (10%)	2 (10%)	4 (20%)	6 (30%)	8 (40%)		
No	3 (5.6%)	16 (29.6%)	17 (31.5%)	18 (33%)	2 (3.7%)	7 (13%)	4 (7.4%)	41 (75.9%)	**0.044**	**0.019**
Could not perform the current treatment at the specified treatment times										
Yes	3 (15%)	7 (35%)	8 (40%)	2 (10%)	1 (5%)	4 (20%)	1 (5%)	14 (70%)		
No	5 (9.3%)	15 (27.8%)	16 (29.6%)	18 (33.3%)	3 (5.6%)	7 (13%)	9 (16.7%)	35 (64.8%)	0.248	0.567
Performed a wrong route treatment that should be taken as an infusion										
Yes	2 (33.3%)	3 (50%)	1 (16.7%)	0 (0%)	0 (0%)	2 (33.3%)	0 (%0%)	4 (66.7%)		
No	16 (8.8%)	19 (27.9%)	23 (33.8%)	20 (29.4%)	4 (5.9%)	9 (13.2%)	10 (14.7%)	45 (66.2%)	0.101	0.435
Performed a subcutaneous vaccine/treatment accidentally intramuscularly										
Yes	2 (16.7%)	5 (41.7%)	3 (25%)	2 (16.7%)	2(16.7%)	3 (25%)	1 (8.3%)	6 (50%)		
No	6 (9.7%)	17 (27.4%)	21 (33.9%)	18 (29%)	2 (3.2%)	8 (12.9%)	9 (14.5%)	43 (69.4%)	0.582	0.158
Improper preparation of a medicine due to drug name similarity										
Yes	3 (100%)	0 (0%)	0 (0%)	0 (0%)	3 (100%)	0 (0%)	0 (0%)	0 (0%)		
No	5 (7%)	22 (31%)	24 (33.8%)	20 (28.2%)	1 (1.4%)	11(15.5%)	10 (14.1%)	49 (69%)	**0.001**	**0.001**
Made the mistake of measuring the medicine from the wrong dose										
Yes	3 (33.3%)	2 (22.2%)	1 (11.1%)	3 (33.3%)	2(22.2%)	0 (0%)	1 (11.1%)	6 (66.7%)		
No	5 (7.7%)	20 (30.8%)	23 (35.4%)	17 (26.2%)	2 (3.1%)	11(16.9%)	9 (13.8%)	43 (66.2%)	0.086	**0.074**
Preparation of precesion medicine without double control										
Yes	6 (28.6%)	3 (14.3%)	7 (33.3%)	5 (23.8%)	4 (19%)	3 (14.3%)	2 (9.3%)	12 (57.1%)		
No	2 (3.8%)	19 (35.8%)	17 (32.1%)	15 (28.3%)	0 (0%)	8 (15.1%)	8 (15.1%)	37 (69.8%)	**0.012**	**0.013**
Could not inform differences of vital signs to the doctor at the first moment										
Yes	2 (20%)	4 (40%)	4 (40%)	0 (0%)	2 (20%)	2 (20%)	1 (10%)	4 (50%)		
No	6 (9.4%)	18 (28.1%)	20 (31.3%)	20 (31.3%)	2 (3.1%)	9 (14.1%)	9 (14.1%)	44 (68.8%)	0.200	0.149
Could not follow-up vital signs of patients at the specified time due to intensity of work was										
Yes	3 (21.4%)	4 (28.6%)	5 (35.7%)	2 (14.3%)	3(21.4%)	3 (21.4%)	1 (7.1%)	7 (50%)		
No	5 (8.3%)	18 (30%)	19 (31.7%)	18 (30%)	1 (1.7%)	8 (13.3%)	9 (15.8%)	42 (70%)	0.407	**0.019**

*: P_1: Age-medical error

*: P_2: Nursing professional experience - medical error

As the group with a survey score> 61 is compared to the group with a score of <61, the rate of nurses who could not perform the current treatment at the specified treatment times was 13.5% (n = 5) in the group with a survey score of> 61, and 39.5% (n = 15) in the group with survey score of <61 (p = 0.013). When the relationship between nurses who could not follow-up vital signs of patients at the specified time due to the intensity of work and survey score was examined: it was revealed as 42.9% (n = 6) in the group with a score of> 61 and 57.1% (n = 8) in the group with a score of <61 (p = 0.63). (Table 2).

As the relationship between the gender of the participants included in the study and nurses who could not perform the current treatment at the specified treatment times: It was found that 15 (75%) of 65 women in the study and 5 (9%) of 9 men could not perform the current treatment at the specified treatment times (p = 0.04). As we appraise that the relationship between gender and who could not inform differences of vital signs to the doctor at the first moment were detected: It was found to be statistically significant that 9 of 65 women (9.2%) and 4 of 9 men (44.4%), could not inform differences of vital signs to the doctor at the first moment (p = 0.004) (Table 2).

When we evaluate the risk of who performed medical treatments to patients without a written order (age, professional experience, child nursing period, working style, school and total score) with logistic regression analysis: We found that the performed medical treatments to patients without a written order in the group of <25 years was increased significantly 2,382 times higher than the others groups (Nagelkerke R square: 0.289; p = 0.041). We also used the logistic regression analysis to medical error that who could not perform the treatment at the specified time (age, professional experience, pediatric nursing period, working style, school and total score) and we found that the group with survey score of <61 increased the probability of making 2,465 times more mistakes than the group with a survey score of> 61 (Nagelkerke R square: 0,272; p=0,24). Meanwhile medical error of the preparation of precesion medicine without double control was evaluated with logistic regression analysis: It was found that in the group with total survey score> 61, 2.291 times compared to the group with survey score <61, and those whose working only fixed day without night duty decreased making mistakes significantly compared to other working groups by 3.707 times (Nagelkerke R square:0.489, p = 0.031; 0.046).

Table 2. The relationship between gender, survey score, pediatric nursing experience, working style, and medical error

	Pediatric Nursing Experience				Working Style			Survey Score		Gender		P			
Medical Errors	<3 year	3-6 year	6-9 year	>10 year	Night Duty	Day Fixed	Rotational	<61	≥61	Female	Male	**P_1***	**P_2***	**P_3***	**P_4***
	N=23	N=28	N=4	N=19	N=33	N=36	N=5	N=38	N=36	N=65	N=9				
Performed medical treatments to patients without a written order															
Yes	7 (35%)	9 (45%)	3 (15%)	1 (5%)	7 (35%)	11 (55%)	2 (10%)	13 (65%)	7 (35%)	16 (80%)	4 (20%)	**0.021**	0.543	0.153	0.209
No	16 (29.6%)	19 (32.1%)	1 (1.9%)	18 (33.3%)	26 (48.3%)	25 (46.3%)	3 (5.3%)	25 (46.3%)	29 (53.7%)	49 (90.7%)	5 (9.3%)				
Could not perform the current treatment at the specified treatment times	6 (30%)	11 (55%)	1 (5%)	2 (10%)	7 (35%)	13 (20%)	0 (0%)	15 (75%)	5 (75%)	15 (75%)	5 (25%)	0.189	0.567	**0.013**	**0.040**
Yes	17 (31.5%)	17(31.5%)	3 (5.6%)	17 (31.5%)	26 (48.1%)	23 (13%)	5 (9.3%)	23 (42.6%)	31 (57.4%)	50 (92.6%)	4 (7.4%)				
No															
Performed a wrong route treatment that should be taken as an infusion	2 (33.3%)	4 (66.7%)	0 (16.7%)	0 (0%)	2 (33.3%)	4 (66.7%)	0 (0%)	4 (66.7%)	2 (33.3%)	5 (83.3%)	1 (16.7%)	0.324	0.588	0.434	0.725
Yes	22 (30.9%)	24 (35.3%)	4 (5.9%)	19 (27.9%)	31 (45.6%)	32 (47.1%)	5 (7.4%)	34 (50%)	34 (50%)	60 (88.2%)	8 (11.8%)				
No															
Performed a subcutaneous vaccine / treatment accidentally intramuscularly	6 (50%)	4 (33.3%)	1 (8.3%)	1 (8.3%)	6 (50%)	5 (41.7%)	1 (8.3%)	10 (83.3%)	2 (16.7%)	9 (75%)	3 (25%)	0.304	0.865	**0.015**	0.137
Yes	17 (27.4%)	24 (38.7%)	3 (4.8%)	18 (29%)	27 (43.5%)	31 (50%)	4 (6.5%)	28 (45.2%)	34 (54.8%)	56 (90.3%)	6 (9.7%)				
No															
Improper preparation of a medicine due to drug name similarity															
Yes	3 (100%)	0 (0%)	0 (0%)	0 (0%)	1 (33.3%)	0 (0%)	2 (66.7%)	3 (100%)	0 (0%)	3 (100%)	0 (0%)	0.074	**0.001**	0.085	0.511
No	20 (28.2%)	28 (39.4%)	4 (5.6%)	19 (26.8%)	32 (45.1%)	36 (50.7%)	3 (4.2%)	35 (49.3%)	36 (53.7%)	62 (87.3%)	9 (12.7%)				

Made the mistake of measuring the medicine from the wrong														.	
dose	6 (66.7%)	2 (22.2%)	1 (11.1%)	0 (0%)	4 (44.4%)	4 (44.4%)	1 (11.1%)	6 (66.7%)	3 (33.3%)	8 (88.9%)	1 (11.1%)	**0.044**	0.850	0.327	0.918
Yes	17 (26.2%)	26 (40%)	3 (4.6%)	19 (29.2%)	29 (44.6%)	32 (49.2%)	4 (6.2%)	32 (49.2%)	33 (50.8%)	57 (87.7%)	8 (12.3%)				
No															
Preparation of precesion medicine without double control															
Yes	8 (38.1%)	8 (38.1%)	2 (9.5%)	3 (14.3%)	9 (42.9%)	8 (38.1%)	4 (19%)	15 (71.4%)	6 (28.6%)	16 (76.2%)	5 (23.8%)	0.413	**0.028**	**0.030**	0.054
No	15 (28.1%)	20 (37.1%)	2 (3.8%)	16 (30.2%)	24 (45.3%)	28 (52.8%)	1 (9.1%)	23 (43.4%)	30 (56.6%)	49 (92.5%)	4 (7.5%)				
Could not inform differences of vital signs to the doctor at the															
first moment															
Yes	5 (50%)	5 (50%)	0 (0%)	0 (0%)	2 (20%)	7 (70%)	1 (10%)	6 (60%)	4 (40%)	6 (60%)	4 (40%)	0.146	0.243	0.556	**0.04**
No	18 (28.1%)	23 (35.9%)	4 (6.3%)	19 (29.7%)	31 (48.4%)	29 (45.3%)	4 (6.3%)	32 (50%)	32 (50%)	59 (92.2%)	5 (7.8%)				
Could not follow-up vital signs of patients at the specified time															
due to intensity of work was															
Yes	7 (50%)	4 (28.6%)	1 (7.1%)	2 (14.3%)	6 (42.9%)	7 (50%)	1 (7.1%)	6 (57.1%)	6 (42.9%)	10 (71.4%)	4 (28.6%)	0.341	0.989	0.630	**0.037**
No	16 (26.7%)	24 (40%)	3 (5%)	17 (28.7%)	27 (45%)	29 (48.3%)	4 (6.7%)	32 (50%)	30 (50%)	55 (91.7%)	5 (8.3%)				

*: P_1: Pediatric nursing experience- medical error

*: P_2: Working Style- medical error

*: P_3: Survey Score- medical error

*: P_4: Gender- medical error

DISCUSSIONS

One of the most important quality indicators in healthcare system is the principle of ensuring patient safety and not harming the patient (Keefer et al., 2016). Problems that develop due to medical errors in the world and in our country, which can be prevented, cause a wide spectrum of complications, from allergic reactions on patients to death. Nurses who spend the most time together with the patients are a bridge between the doctor and the patient, a good observer, and a healthcare worker (Fowler, 2019) who quickly respond and solves to problems. It is very important to detect and prevent medical errors caused by nurses playing a key role in management and treatment of pediatric patient.

Unver et al. (2012) emphasized that professional experience is very important in his study and showed that experienced nurses made less mistakes compared to new graduated nurses with less professional experience (Unver et al., 2012). In our study, we found that nurses who could not follow-up vital signs of patients at the specified time due to their intensity of work was higher in 75% (n = 3) of the nurses with <3 years of experience in the nursing profession than the other groups (p = 0.019). In pediatrics clinics that require closer follow-up than adult clinics, it is concluded that nurses with more experience can use time better, based on the workload of nurses and the difficulties of preparing treatment. Accordingly, we think that providing necessary training for nurses working in pediatric nursing will accelerate the personal development of nurses and facilitate their clinical adaptation.

Drug administration errors have been widely studied in clinics worldwide and some precautions have been developed to reduce these errors. Especially in preparation of a medicine important factors such as right patient, right dose, right medicine and establishment of double control system were emphasized (Izadpanah et al., 2018). In the first place of the mistakes during the preparation of the medicine is wrong drug application due to the similarity of the name. The relationship between the improper preparation of a medicine due to drug name similarity and age factor was analyzed in our study and the fact that all of 3 people who made the wrong medicine preparation error were <25 years of age (p=0.001) shows us that the young and low-experienced nurses working in pediatrics clinics increase the probability of making mistakes. In addition, 6 of 21 nurses (28.3%) who made the mistake of preparing precesion medicines without double control can be considered as an important factor resulting from the lack of clinical experience.

Pediatric drug calculations are very sensitive and the calculations are important since they vary according to the patient's current age, weight and clinical condition (Dangi and Devi, 2019). The calculations of medicines that are used in the form of fractions, especially in gr / mg / mcq style, are an issue that requires attention and experience. While 6 (66.7%) of 9 nurses, who made the mistake of measuring the medicine from the wrong dose, had <3 years of professional experience (p = 0.044). This result shows us that young and inexperienced nurses should have double control during the preparation of medicines in pediatrics clinics and that nurses with more clinical experience should receive training on this subject.

It is important to arrange the manner of working in professional life to include lifestyle and social interaction so that one can work efficiently and happily (Marcus et al., 2010). Although the working styles of our nurses working in our country vary according to the hospital and conditions they work in, it is mostly in the form of fixed daytime, night duty and rotationaly system. Dehghan et al. (2013) stated in his study that night-time duty method is a determining factor in drug administration errors (Dehghan et al., 2013). They reported that, since working at night without sleep increases the likelihood of making mistakes, a more than 40 minutes sleep at night shift

significantly improves the cognitive and psychomotor performance of nurses (Smith et al., 2006). In our study, we found that out of 3 people who the improper preparation of a medicine due to drug name similarity, 1 nurse worked at night duty, and the other 2 worked rotationally (p = 0.001). The result we found is similar to other studies, and we thought that the main reason for finding that this rate increased more in rotationally working groups was due to the devopeled to the fatigue and job dissatisfaction.

It shows that nurses have made an important contribution to the perceptions of age, experience and role in recent studies on patient safety and patient-centered care assessment. Besides having a higher age and more experience, having a management position has been shown that Korean nurses have higher patient safety competence (Hwang, 2015). In addition to the experience of nurses working in the clinic, its determinative role in the clinic should be increased. When the risk factors (age, professional experience, child nursing period, working style, school graduation and total score) that increase the performed medical treatments to patients without a written order were analyzed with logistic regression analysis, the finding that the rate of making errors increased by 2.38 times in the group <25 years old (Nagelkerke R square: 0,289; p = 0,041) is similar to the literature.

The first priority of the medical applications to be performed to the patient is to ensure the safety of the patient. While providing this safety, it should be applied after many procedures such as the preparation of the drug at the appropriate and correct dose and time, the drug's expiration date, the perform to the right patient. Highly precision drugs such as cardiac and anticonvulsant drugs should be made more carefully to the patient with the double control system. When medical error of the preparation of precesion medicine without double control was evaluated with logistic regression analysis: It was found that in the group with total survey score> 61, 2.291 times compared to the group with survey score <61, and those whose working only fixed day without night duty decreased making mistakes significantly compared to other working groups by 3.707 times (Nagelkerke R square:0.489, p=0.031; 0.046). We found that the nurses' dissatisfaction with the work environment and their demorilation affect their work and are still more prone to making mistakes. In addition, we found that the matter of working affects the adaptation of nurses to the clinic and their colleagues due to their changing work, thus increasing the probability of making mistakes. Similar to the result in our study, the study conducted by Wright and Khatri (2015) showed that the psychological / behavioral responses of the nurses were in a positive relationship with medical error (Wright and Khatri, 2015).

Limitations

This study had a few limitations. One of the limiting factors in the study was that the study was single-centered and male nurse participation was low. One of our disadvantages in our study was that our study was single-centered and we haven't many pediatric minor clinics.

Therefore, it was impossible to investigate the pure and complete effects of the above variables on the occurrence of medical errors. Selecting the study areas with maximum variance may increase the possibility of extensive research on the effects of the above variables on the occurrence of medical error events.

Conclusions

In conclusion, most of the medical errors that nurses make in pediatrics clinics are due to starting working early career and less professional experience. In nurses' night-duty and rotationaly working styles, their clinical adaptation and motivations decreases and the possibility of making mistakes increases. Therefore, rest periods should be added to teams working in this matter and heavy working conditions that may lead to burnout syndrome should not be created. A special training program and adaptation process should be implemented in the relevant units of the hospitals for nurses who will start working in pediatrics clinics. Another important factor that will reduce medical errors should be arranged

so that the heavy workload of nurses is reduced and working conditions can make them feel happy and comfortable.

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Conflicts of Interest

The authors declare no conflict of interest

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