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The Relationship Between Medication Administration Errors and Professıonal Attitudes Of Pediatric Nurses

Pediatri Hemşirelerinin İlaç Uygulama Hataları ile Mesleki Profesyonel Tutumları Arasındaki İlişki

Emine UZUNTARLA[1]
Orcid: 0000-0002-6167-0409

Esra TURAL BÜYÜK[2]
Orcid:0000-0001-8855-8460

[1] Ondokuz Mayıs Üniversitesi Sağlık Bilimleri Fakültesi, Hemşirelik Bölümü, Kurupelit Kampüsü, 55200 Atakum, Samsun, Türkiye.

[2] Ondokuz Mayıs Üniversitesi Sağlık Bilimleri Fakültesi, Çocuk Sağlığı Hemşireliği Bölümü, Kurupelit Kampüsü, 55200 Atakum, Samsun, Türkiye.

Sorumlu Yazar (Corresponding Author):
Esra TURAL BÜYÜK
esratural55@gmail.com

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Keywords:
Pediatric nurses; medication errors; professionalism.

Anahtar Sözcükler:
Pediatri hemşireleri; ilaç hataları; mesleki profesyonellik.

ABSTRACT

Objective: This study was carried out to determine the relationship between medication administration errors and professional attitudes of the pediatric nurses.

Methods: The study was conducted with 115 pediatric nurses who were working in three hospitals located in a city between 11th January 2020 and 5th January 2021. This was a descriptive and correlational study. A Personal Information Form, Questionnaire for Medication Administration Errors among Pediatric Nurses, Tendency to Medical ErrorTendency Scale (Medication and Transfusion Applications subscale)and the Inventory of Professional Attitude at Occupation were used to collect data.

Results: While 34% of the pediatric nursesindicated that they experienced medication administration errors, 52% of them declared that they observed medication administration errors among their colleagues. The nurses also stated the most common medication administration error they experienced (36.5%) and observed (24.8%) was improper dose. It was also determined that the tendency of participants to medication administration errors was low (85.44±5.26) and their professional attitudes were high (140.32±11.33). The tendency of nurses to medication administration errors was determined to differ significantly based on their age, marital status, duration of professional experience, duration of experience in the current clinic and status of satisfaction with the current clinic ($p<0.05$). It was also determined that the professional attitudes of the participants were significantly correlated with age, education level, professional experience, duration of experience in the current clinic and status of satisfaction with the current clinic($p<0.05$). A positive, significant and moderate level of correlation was determined between nurses' tendency to make medication administration errors and their professional attitudes ($p<0.000$; $r=0.535$).

Conclusion: As a result of this study, a significant correlation was found between nurses' tendency to medication administration errors and their professional attitudes; and their tendency to make such errors decreased as their professional attitudes increased.

ÖZ

Amaç: Bu çalışma, pediatri hemşirelerinin ilaç uygulama hataları ile mesleki tutumları arasındaki ilişkiyi belirlemek amacıyla yapılmıştır

Yöntem: Araştırma 11 Ocak 2020-5 Ocak 2021 tarihleri arasında bir şehirde bulunan üç hastanede görev yapan 115 pediatri hemşiresi ile gerçekleştirilmiştir. Tanımlayıcı ve ilişki arayıcı bir çalışmadır. Verilerin toplanmasında Kişisel Bilgi Formu, Pediatri Hemşirelerinin Karşılaştığı İlaç Uygulama Hatalarına İlişkin Soru Formu, Tıbbi Hataya Eğilim Ölçeği (İlaç Transfüzyon Uygulamaları Alt Bölümü) ve Meslekte Profesyonel Tutum Envanteri kullanılmıştır.

Bulgular: Pediatri hemşirelerinin34%'ü ilaç uygulama hatası yaşadığını belirtirken, 52%'si meslektaşları arasında ilaç uygulama hatası gözlemlediğini belirtmiştir. Hemşireler ayrıca en sık yaşadıkları (36.5%) ve gözlemledikleri ilaç uygulama hatasını (24.8%) uygunsuz doz olarak belirtmişlerdir. Ayrıca katılımcıların ilaç uygulama hatalarına eğilimlerinin düşük (85.44±5.26) ve mesleki tutumlarının yüksek (140.32±11.33) olduğu belirlenmiştir. Hemşirelerin ilaç uygulama hatalarına eğilimlerinin yaşlarına, medeni durumlarına, mesleki deneyim sürelerine, mevcut klinikte kalma sürelerine ve mevcut klinikten memnuniyet durumlarına göre anlamlı düzeyde farklılaştığı belirlenmiştir ($p<0.05$). Ayrıca katılımcıların mesleki tutumlarının yaş, eğitim düzeyi, mesleki deneyim, mevcut klinikteki deneyim süresi ve mevcut klinikten memnuniyet durumu ile anlamlı düzeyde ilişkili olduğu belirlenmiştir ($p<0.05$). Hemşirelerin ilaç uygulama hatası yapma eğilimleri ile mesleki tutumları arasında pozitif, anlamlı ve orta düzeyde bir ilişki olduğu saptanmıştır ($p<0.000$; $r=0.535$).

Sonuç: Çalışma sonucunda, pediatri hemşirelerinin ilaç uygulama hata eğilimleri ile mesleki profesyonel tutumları arasında anlamlı bir ilişki olduğu, hemşirelerin mesleki profesyonel tutumları arttıkça, ilaç uygulama hata eğilimlerinin azaldığı belirlenmiştir.

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INTRODUCTION

Medication administration errors have an important placeamong medical errors because they cause morbidity and mortality, threaten patient safety and are so common (Semiz Aydin, Akin and Isil, 2017; Shaikh and Cohen, 2020; Ustuner Top and Cam, 2016). National Coordinating Council for Medication Error Reporting and Prevention described medication administration errors as a "preventable event that may cause patient harm or improper medication use while it is under the control of healthcare professional/expert, patient or the consumer" (NCC MERP, 2020). According to Medication AdministrationError Statistics, 7.000-9.000 individuals lose their lives due to these errors in the United States of America each year (The Medical Score, 2020). In Turkey, medication administration errors were detected as the third most common medical error type according to Safety Reporting System; and 5.092 individuals were found to report medication administration errors (GRS™, 2017).

Medication administration errors are much more dangerous, especially for children; they are among the preventable causes of death in a pediatric group of patients (Aseeri, Banasser, Baduhduh, Baksh and Ghalibi, 2020; Baser and Manav, 2018; Gerceker, Didisen, Bolisik ve Basbakkal, 2015; Shaikh and Cohen, 2020). Likelihood to be exposed to medication administration errors and to get damage from these errors is three times more than adults among the children due to reasons such as the differences in their growth and development and their physiological and psychological traits different than the adults (Gerceker et al., 2015; Tural Buyuk, Gudek, Guney, Yildirim and Akkoca, 2014). Besides, most drugs are not formulated for children and they are prepared for children in weight-based pediatric doses; thus, these increase the likelihood of medication administration errors (Nydert, Kumlien, Norman and Lindemalm, 2020). In many previous studies, medication administration errors were determined to be higher in the pediatric group (Aseeri et al., 2020; Baser and Manav, 2018; Gerceker et al., 2015; Nydert et al., 2020). Medication administration errors have been observed to be in the first place among the professional errors of nurses (Baser and Manav, 2018; Rizalar, Buyuk, Sahin, As and Uzunkaya, 2016).

Professionalism is the expertise, knowledge, skills, attitude and behavior style required for an individual to fulfill the roles and responsibilities of occupation and to practice the profession (Tarhan, Kılıc and Yildiz, 2016). The nurses who constitute an important part of healthcare service should have a professional attitude in their efforts to protect, promote and improve the health of the individual, family and society. A professional nurse is an individual who complies with the ethical rules within the workplace, who can make independent decisions, who follow technological and scientific developments, who develops her/himself professionally and who provides quality nursing care (Can and Hisar, 2019; Yelekci and Kutlu, 2020; Zengin, Yayan, Yildirim, Akin, Avsar and Mamis, 2018). The professional identity of the nurses directly affects their professional practices (Dundar, Ozsoy and Toptas, 2019; Erturk and Ozmen, 2018). All these data have suggested that there might be a relationship between medication administration errors and professionalism in nursing. Therefore, this study was carried out to determine the relationship between medication administration errors among pediatric nurses and their professional attitudes.

Research questions

1) What is the level of medication administration errors among pediatric nurses?

2) Do professional and personal characteristics of the pediatric nurses affect the level of their medication administration errors?

3) What is the level of professionalism in occupation among pediatric nurses?

4) Do professional and personal characteristics of pediatric nurses affect their professional attitudes?

5) Is there a relationship between medication administration errors and professional attitudes of pediatric nurses?

METHODS

Research Design

This was a descriptive and correlational study.

Population and Sample

The study was carried out with pediatric nurses who were working in a university hospital located in Ordu province in the northern region of Turkey and in two public hospitals located in two districts of this city between 11th January 2020 and 5th January 2021. The universe was composed of 120 nurses and the sample consisted of 115 nurses who were working in the pediatric clinics outside the outpatient clinic, operating room and emergency service. The researchenrollment rate was found to be 96%.

Data Collection

The subject, content and purpose of the study was told to the pediatric nurses and participation in the survey was based on voluntary. Besides, participation was completed as face-to-face and within nearly 10-15 minutes in line with the COVID-19 pandemic process (in compliance with mask, distance and hygiene rules).

Data Collection Tools

Personal Information Form, Questionnaire for Medication Administration Errors among Pediatric Nurses, Tendency to Medical Error in Nursing Scale (Medication and Transfusion Applications subscale) and the Inventory of Professional Attitude at Occupation were used to collect data in the study.

Personal information form: This form was prepared by the researcher at the end of literature review (Ersun et al., 2013; Guvenc, 2013; Odabasoglu, 2013) and it was composed of 11 questions including sociodemographic (age, sex, marital status, education level) and professional characteristics of the participants (duration of professional experience, duration of experience in the current clinic, current unit, working pattern, weekly working hours, number of patients given daily care, state of satisfaction with the clinic).

Questionnaire for medication administration errors among pediatric nurses: This questionnaire was prepared by the researcher in line with literature review (Ersun et al., 2013; Guvenc, 2013; Odabasoglu, 2013) and consisted of 14 questions including information about medication administration errors experienced by the nurses during their work life.

Tendency to Medical Error in Nursing Scale (Medication and Transfusion Applications Subscale): This scale was developed by Musa Ozata and Handan Altunkan in 2009 in order to measure nurses' tendency to medical errors; and its validity and reliability study was also conducted (Ozata and Altunkan, 2010). The scale is composed of a total of 49 questions where the activities of the nurses while providing healthcare service are given underfive subscales including "Medication and Transfusion applications", "Hospital Infections", "Patient Follow-up and Material Safety", "Falls" and "Communication". Cronbach Alpha reliability coefficient of the scale is α=0.95. The author of the original scale declared that each subscale could be addressed separately; only "Medication and Transfusion Applications" subscale including 18 questions was used in this study. Cronbach Alpha reliability coefficient of this subscale is α=0.89. Each statement in this Likert-type scale was scored from 1 to 5. The scores given were as 1 for "never", 2 for "rarely", 3 for "sometimes", 4 for "usually" and 5 for "always". The increase in the scores is interpreted as there is a decrease in their tendency to medication administration errors. In this study, the Cronbach alpha coefficient of "Medication and Transfusion Applications" of the scale was found as α=0.87.

Inventory of Professional Attitude at Occupation (IPAO): This inventory was developed by Nulufer Erbil and Aslihan Bakir in 2006 in order to create a culture-specific standard measurement tool evaluating the professional attitudes of nurses and midwives in their occupation.; and its validity and reliability study was also conducted (Erbil and Bakir, 2009). This is a one-dimensional inventory with questions including attitude in subjects such as professional education and development, interpersonal relations and approach to problems. It is composed of 33 items. Each statement in this Likert-type scale is scored between 1 and 5. The responses given for each score include "does not apply to me at all" for '1', "does not apply to me" for '2', "I am undecided" for '3', "slightly applies to me" for '4' and "entirely applies to me" for '5'. The total score of the inventory indicates a professional attitude score at occupation. As the score taken from the inventory increases, professionalism level is also interpreted as increased. Cronbach Alpha reliability coefficient is α=0.89. In this study, the Cronbach Alpha value was found as α=0.88.

Data Analysis

SPSS 26.0 statistical package program was used to analyze data in this study. Kolmogorov-Smirnov test was performed to assess the normality assumption of data. Number, percentage, mean, standard deviation and median were used in descriptive statistics; and Mann Whitney U test, Kruskal-Wallis test, Dunnett's test and LSD post hoc test was used to analyze data with the nonhomogenous distribution. Pearson Correlation analysis was used to determine the correlation between the scales. The significance level was considered 0.05 for all comparisons.

Ethical Considerations

This study was approved by Ondokuz Mayıs University Social and Human Sciences Ethics Commission (Numbered: 2020/377 on 23 July 2020). It was got verbally and written permissionfrom relevant hospitalsand Ordu Provincial Health Management for this study can be conducted. Before the launch of the research, nurses were informed about the subject and the objectives of the research. Personal information remained confidential and was only used for the research data. Verbal and written permission was obtained from the nurses who volunteered to participate in the research. All participants voluntarily agreed to participate in the study, which was carried out in accordance with the Helsinki Declaration Principles. It gotpermission to use was taken from the authors of the original scales for this study.

RESULTS

Out of 115 pediatric nursesparticipating in the study, 60% were aged between 19-30 years old, 90.4% were women, 53% were single, and 77.4% had an education level as undergraduate. The duration of professional experience was 1-10 years among 70.4% of the nurses and 80.9% of them had an experience in their current clinics around 1-5 years. Of the nurses, 54.8% worked in the pediatric service, 86.1%worked both night and day shifts, 36.5% worked 40 to 48 hours a week and 29.6% cared for 1-5 patients a day. When satisfied with the current clinic was examined, it was found that 74.8% were satisfied and 25.2% were dissatisfied(Table 1). The pediatric nurses who 80% of themindicated that they had training in medication administration and 60% of them stated to have this training during nursing education. Out of all participants, 34% reported makingmedication administration errors and 36.5% reported administeringimproperdoses as the most common error. Of pediatric nurses,52% were found to observe medication administration errors among their colleagues and the most common error type wasthe improper dose at a ratio of 24.8% (Table 2).

Table 1. Some Personal and Professional Characteristics of Pediatric Nurses (n:115)

		n	%
Age	19-30	69	60.0
	31-40	24	20.9
	41 years and older	22	19.1
Sex	Female	104	90.4
	Male	11	9.6
Marital status	Single	61	53.0
	Married	54	47.0
Education Level	Highschool/Associate degree	15	13.0
	Undergraduate	89	77.4
	Master degree	11	9.6
Duration of professional experience	1-10 years	81	70.4
	11-20 years	14	12.2
	21 years and more	20	17.4
Duration of experience in the current clinic	1-5 years	93	80.9
	6-10 years	8	7.0
	11-15 years	10	8.7
	16-20 years	4	3.4
Current pediatric unit	Pediatric Service	63	54.8
	Pediatric Emergency Service	33	28.7
	Neonatal Intensive Care	12	10.4
	Pediatric Intensive Care	7	6.1
Working pattern	Day	16	13.9
	Mixed (day+night)	99	86.1
The number of patients given care per day	1-5 patients	34	29.6
	6-10 patients	21	18.2
	11-15 patients	18	15.6
	16-20 patients	11	9.6
	21 patients and more	31	27.0
Status of satisfaction with the current clinic	Satisfied	86	74.8
	Dissatisfied	29	25.2

The total mean score of pediatric nurses from the medication and transfusion applications subscale was found as 85.44±5.26; their tendency to medication administration errors was found to be low. Their mean score in the inventory of professional attitude at occupation was found to be 140.32±11.33 andthus their professional attitudes at occupation were determined to be high (Table 3).

The tendencies of pediatric nurses to medication administration errors were found to be significantly different based on their age, marital status, duration of professional experience, duration of work in the pediatric units and status of satisfaction with the current clinic ($p<0.05$). According to a post hoc test conducted to find the cause of

these differences, it was observed that nurses who were aged 41 years and older, who were married, who had a professional experience of 21 years and more, who had a clinical experience of 6-10 years in the field of pediatrics and who were satisfied with the current clinic had a significantly lower tendency to experience medication administration errors. Professional attitudes of the participants at occupation were found to be significantly different based on their age, education level, duration of professional experience, duration of work in the pediatric units and their states of satisfaction with the current clinic ($p<0.05$). Post hoc analysis revealed that nurses, who were aged 41 years and older, who had an undergraduate and graduate degree, whose professional experience was 21 years and more, who had a clinical experience of 6-10 years and 16-20 years and who were satisfied with the current clinic had higher professional attitudes (Table 4).

A positive, significant and moderate level correlation was found between pediatric nurses' tendency to make medication administration errors and their professional attitudes at occupation ($p<0.000$, $r=0.535$). Professional attitudes at occupation scores of the nurses increased as their scores from medication and transfusion applications increased (Table 5).

Table 2. Some Characteristics and Experiences of Pediatric Nurses regarding Medication Administration Errors

		n	**%**
Status of having training about medication administration	Yes	92	80
	No	23	20
Form of training for medication administration*	During nursing education	75	60.0
	Clinical in-service training	33	26.0
	Following scientific publications and developments	12	9.4
	Attending individual training/course	6	4.6
Status of the nurse to make a medication administration error	Yes	38	34
	No	77	66
Status of nurses to observe a medication administration error among their colleagues	Yes	60	52
	No	52	48
The most common medication administration error experienced by the nurses*	Improper dose	20	36.5
	Wrong time	8	14.5
	Omission	7	12.7
	Continuing to apply stopped treatment	6	10.9
The most common medication administration error observed by the nurses among their colleagues *	Improper dose	33	24.8
	Wrong medication	20	15.0
	Omission	17	12.8
	Wrong patient	17	12.8
	Continuing to apply stopped treatment	12	9.0
	Wrong administration form	10	7.5

*More than one option was indicated.

Table 3. Descriptive Statistics of the Nurses regarding Tendency to Medical Error in Nursing Scale (Medication and Transfusion Applications) and the Inventory of Professional Attitude at Occupation

	$\overline{X}$	**Sd**	**Min**	**Max**
Tendency to Medical Error in Nursing ScaleMedication and Transfusion Applications	85.44	5.26	66.00	90.00
Inventory of Professional Attitude at Occupation	140.32	11.33	97.00	158.00

$\overline{X}$: Mean, Sd: Standard deviation, Min.: Minimum, Max.: Maximum

Table 4. The Distribution of the Mean Scores of Nurses from Tendency to Medical Error in Nursing Scale and the Inventory of Professional Attitude at Occupation Based on Some Characteristics of Their

	Tendency to Medical Error Medication and Transfusion Applications		**Inventory of Professional Attitude at Occupation**	
Age				
19-30	84.521±5.505(a)	H=9.530	133.188±12.065(a)	H=7.435
31-40	85.750±5.635(ab)	p=0.009**	133.188±12.065	p=0.024*
41 years and older	88.000±2.777(b)		140.545±5.637(b)	
Marital status				
Single	84.541±5.714	U=1282.500	133.868±12.294	U=1401.500
Married	86.463±4.542	P=0.039*	137.370±9.314	P=0.169
Education Level				
High school/ Associate degree	84.000±6.199	H=2.526	127.400±8.390(a)	H=15.229
Undergraduate	85.640±5.330	p=0.283	136.123±11.129(b)	p=0.000**
Master degree	85.818±2.892		141.636±8.369(b)	
Duration of professional experience				
1-10 years	84.679±5.678(a)	H=8.337	133.975±11.890(a)	H=6.717
11-20 years	86.000±4.367(ab)	p=0.015*	136.142±10.479(ab)	p=0.035*
21 years and more	88.150±2.641(b)		141.300±4.669(b)	
Status of satisfaction with the current clinic				
Satisfied	86.348±4.348	U=819.500	137.011±9.856	U=905.500
Dissatisfied	82.758±6.738	p=0.005**	131.069±13.357	p=0.028*

a-b: There is no difference between the groups with same letter. *U: Mann Whitney U test, **KW:Kruskal Wallis H testi

Table 5. The Correlation Between Tendency to Medical Error and Professional Attitudes of Pediatric Nurses

			Inventory of Professional Attitude at Occupation
Tendency to Medical Error (Medication and Transfusion Applications)	Pearson Correlation Analysis	r	**0.535***
		p	**0.000****

r=0.00-0.25 very weak, r=0.26-0.49 weak, r=0.50-0.69 moderate, r=0.70-0.89 high, r=0.90-1.00 very high

DISCUSSION

Medication administration errors are especially much more dangerous for children; and are among the preventable causes of death in a pediatric group of patients (Gerceker et al., 2015; Shaikh, 2020). Nurses have especially a very important function in recognizing and preventing errors that occur or may occur during the process of medication administration in pediatric patient groups (Baser and Manav, 2018; Tuncay, Sahin, Akca and Arikan, 2021). The professional identity of pediatric nurses is known to positively contribute to the quality of healthcare and the safety of patients by directly affecting their professional practices (Erturk and Ozmen, 2018; Isci and Altuntas, 2019). Within this context, it was studied the relationship between medication administration errors among pediatric nurses and their professional attitudes.

In the study, of the pediatric nurses34%were found to experience a medication administration error and 52% were found to observe that their colleagues madesuch an error. In the previous studies, medication administration error rates of the nurses were determined to be between 25-49% and the error rates that they observed among their

colleagues were between 36-66% (Baser and Manav, 2018; Gerceker et al., 2015; Ustuner Top and Cam, 2016). Alsoin some other studies, all nurses were found to make or observe medication administration errors (Tural Buyuk et al., 2014; Uzuntarla and Tural Buyuk, 2021). When the results of this study and the other relevant ones were compared, these differences in the rates of errors were considered to be derived from the institutional factors such as colleague and manager response following medication error reporting and recording and reporting features for medication errors and also occupational characteristics of the nurses.

In this study, the most commonly experienced and observed medication administration errors were reported to be improper dose (36.5%) and wrong time (14.5%). Similarly, the most common errors were found to be wrong dose and wrong medication in some studies conducted with pediatric nurse groups (Aseeri et al., 2020; Baser and Manav, 2018; Gerceker et al., 2015; Nydert et al., 2020). In the studies examining medication administration errors among the nurses working outside the field of pediatrics, most of the errors were observed as wrong prescription, wrong patient, wrong medication, incorrect route of administration, wrong medication form and improper dose (Aslan, 2020; Aygin, Yaman and Bitirim, 2020; Cakmak, Konca and Teles, 2018; Tarhan et al., 2016; Uzuntarla and Tural Buyuk, 2021).

In the current study, the tendency of pediatric nurses to medication administration errors was found to be low. Similarly, such errors were reported to be low among the nurses working in the field of pediatrics and others (Baser and Manav, 2018; Demir and Yildirim, 2014; Sivrikaya and Kara, 2019).

In the study, it was also determined that the tendency of the participants to medication administration errors decreased as their age, professional experience and satisfaction with the current clinic increased. Moreover, married nurses were observed to have a decreased tendency to medication administration errors. In the study by Ustuner Top and Cam (2016) conducted with nurses working in various fields, it was found that error rates decreased with the increase in age and professional experience. Again, in some other studies, nurses who loved their occupation were less likely to make medication administration errors (Baser and Manav, 2018; Sivrikaya and Kara, 2019). Acquiring professional experience and satisfaction with the working unit makes nurses have more knowledge about medication administration and procedures and this is considered to provide them a high motivation in occupation and thus, might decrease their tendency to make medication administration errors.

In this study, the professional attitudes of the pediatric nurses were observed to be high; and this attitude was also reported to be high in similar studies in the literature (Caki and Sonmez, 2020; Erturk and Ozmen, 2018; Karadas, Kaynak, Duran, and Ergun, 2018; Senol and Ugurlu, 2019; Sorucuoglu and Tufekci, 2015; Tarhan et al., 2016).

The professional attitudes of the nurses with undergraduate and graduate degrees were also reported to be high in the current study. In the study by Erturk and Ozmen (2018), the professional attitudes of the nurses with a master's or Ph.D. degree were found to be high. In the study by Yelekci and Kutlu (2020), nurses with a graduate degree were shown to have higher professional behaviors inoccupations. In the other relevant studies, education was found to affect professional attitude (Can and Hisar, 2019; Erturk and Ozmen, 2018; Isci and Altuntas, 2019; Tanaka, Yonemitsu and Kawamoto, 2014; Yang and Li, 2016; Zenginet al., 2018). These results were found to be compliant with our findings, suggesting that the duration and characteristics of the education taken by the nurses at nursing school are effective in the acquisition of professionalism inthe occupation.

In the study, the professional attitudes of the pediatric nurses were found to be affected positively as their age, duration of professional experience and duration of experience in the current clinic increased. Similarly, many studies have reported an enhanced professional attitude as the age and duration of professional experience increased (Caki and Sonmez, 2020; Can and Hisar 2019; Erturk and Ozmen, 2018; Sabanciogullari and Dogan, 2014; Senol and Ugurlu 2019; Tanaka et al., 2014; Zengin et al., 2018). Some other studies have reported different results. In their study, Yelekci and Kutlu (2020) found that the professionalism of the nurses with an experience of ten years or less was higher. In the study by Senol and Ugurlu (2019), it was determined that nurses with professional experience of less than one year had higher professional attitudes. The difference among these results is considered to be associated with the variability in personal, occupational and institutional factors among the nurses.

In the current study, the professional attitudes of the pediatric nurses who were satisfied with the current clinic were found to be higher. It was also determined that nurses, who were satisfied with their occupation, who willingly chose the occupation and who did not think about quitting their jobs, had higher professional attitudes (Erturk and Ozmen, 2018; Karadas et al., 2018; Senol and Ugurlu, 2019; Tarhan et al., 2016; Zengin et al., 2018). These results can be interpreted as that satisfaction with the current clinic might positively affect professionalism by providing high motivation and job satisfaction.

It was also determined in the study thatthe professional attitudes of the pediatric nurses enhanced as their tendency to make medication administration errors decreased. This suggests that their professional attitudes may

affect their tendency to medication administration errors, which is an important part of patient safety, by providing to introduce safe and qualified care.

Limitations

The conduction of the study in a single region, lack of including private hospitals, interpretation of the results based on nurses' statements and the possibility that face-to-face collection of data may cause bias in the answers were the limitations of the study.

CONCLUSION

It was determined that most of the pediatric nurses included in the study experienced and/or observed medication administration errors and the most commonly experienced and/or observed medication administration errors were improper doses and wrong time. As a result of the study, it was seen that tendency of nurses to medication administration errors was low, and the factors such as age, marital status, duration of professional experience, duration of experience in the current unit and status of satisfaction with the current clinic affected their tendency to make medication administration errors. Professional attitude at occupation was found to be high among the nurses and it was determined to be affected by age, education level, duration of professional experience, duration of experience in the current unit and status of satisfaction with the current clinic. It was also observed thatthe professional attitude of pediatric nurses at occupation increased as their tendency to make medication administration errors decreased.

In line with the quality management processes of the hospitals, nursesshould be provided to follow the procedures for patient and medication safety more carefully. It is recommended to find key solutions for the reasons by conducting detailed studies investigating the causes of medication administration errors in order to prevent and minimize these errors. Nurses' commitment to the institution should be encouraged with activities such as rewarding the nurses with higher professional experience and performance, and they should be provided to be role models for the junior nurses. In addition, nurses should be ensured to recognize their professional job description, rights, laws and regulations in order to promote professionalism intheir occupation.

Authors contributions:

Conception and design: E.T.B., E.U.G. Data collection: E.U.G. Data analysis and interpretation: E.T.B., E.U.G. Writing manuscript: E.T.B., E.U.G. Critical review: E.T.B., E.U.G.

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