Original Article

Determination of Attitudes of Nurses in Medical Errors and Related Factors

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Abstract

Aim: The study was conducted in definitive type, in order to determine the attitudes of nurses in medical errors and related factors.

Methodology: For the collection of research data, the scales "Nurse Description Form"and"Scale of Attitudes towards Medical Errors" were used. Ethical approval was granted from the ethics committee of the hospital where study was conducted and from thw Public Hospitals Union Secretary. Data were collected from a sample of 151 nurses working in an education and research hospital and who volunteered to participate in the research. All the participants were informed about the research and data collection tools before application and agreed to participate in the study.

Results: The total scale point mean value was found to be 3.56 ± 0.47. For the "Medical Error Perception" subscale the mean value was found to be 3.38±0.73, for the "Approach to Medical Error" subscale the mean value was found to be 3.63±0.64, while for the "Medical Error Reasons" subscale the mean value was 3.66±0.60.

Conclusions: At the end of the research, major part of nurse's attitudes in medical errors were found positive and it was determined that they are highly aware of the reasons of medical errors and importance of medical error notifications.

Keywords: attitude, medical error, nurse

Introduction

Nurses take place in protection and development of individual, family and society health; during illness, they take action in all efforts in order to provide wellbeing. (WHO 2002) During all these medical service durations, medical error concept comes out with different reasons and it becomes big and important problem for nurses likewise health professionals. In recent years, it was asserted that medical errors numbers are increasing in nursing applications(Miller 2011). Joint Commission on Accreditation of Healthcare Organizations (JCAHO) defines medical error concept as " *inapplicable and unethical behavior of professional who offers medical service, as a result of inadequate and negligent actions, patient suffer"*. (Catalano 2006) According to two reports that Institute of Medicine published; every year, in USA, 98.000 individuals die because of the medical errors, and in Germany, 100.000 medical errors happen every year and as a result of these errors, 25.000 individuals die. (Ozata & Altunkan 2010)According to a study that Emsley (2001) conducted, every year in UK

40.000, 5.000 to 10.000 people in Canada, die as a result of medical errors. In the past 4 years, there has been an 18 % (270/327) increase in the specific allegations against nurse practitioners. Data from the American Association of Colleges of Nursing (AACN) shows that there has been a 28% increase in the number of nurse practitioners graduating from 2007 to 2010. (Miller 2011)

Complaints related to medical errors are evaluated at Supreme Council of Health, in the council, between 1931-2004 years, approximately 10 thousand cases were investigated and approximately in the half of the cases, health personnel was found less or more faulty. (Temel 2005) In addition, between 1993-1998 years, it was found that in the 1015 faulty application cases which came to Supreme Council of Health, 59 of them was related to nurse and midwives(Cebeci et al. 2012). In another data belong to Turkey, related to emergency services between 2000 and 2004, there were 112 facts that consists medical application errors and has taken views from Supreme Council of Health and in these facts, 55 of them was decided as medical application error. In a study that conducted by Ozata and Altunkan (2010), it was determined that percentage of medical errors of health personnel was 6.2 % and witnessing percentage of their friend's errors was 10.4 %. (Ozata & Altunkan 2010)

Inside the healthcare workers, nurses creates a major part and often, they come across medical error risk as a result of reasons, such as variety and numerosity of dependent and independent functions and continuity of interaction with patient. (Cebeci et al. 2012) In another study which was conducted by Aiken and friends (2002), an important relationship between patient deaths and nursing applications was determined. (Aiken et al. 2001) Mostly seen errors that come across in nursing services in terms of patient safety are; medical errors related to diagnosis and treatment, drug errors, hospital infections, fallings, insufficient observation, communication problems and errors related to material usage. (Holdsworth et al. 2007; Asti & Acaroglu 2000; Miller 2011) In the study of Miller that consists last 4 years and examined data up to 2010 and gathered from National Practitioner Data Bank, results; approximately 44 % of the cases (212/501) center around diagnosis, treatment, and medication- related incidents. Again in the study of Miller, it was stated that approximately 20 % of the medical errors resulted with the death of the patient. (Miller 2011)

Background

If nurses do not have the necessary competence on necessary information and ability for the protection of human health and life, medical errors become inevitable. In addition to these, reasons such as numerically inadequacy of nurses in the working environment, hard working conditions, sleeplessness, tiredness, lack of attention, undetermined job definition, unstable working hours, inappropriate physical conditions, having a great number of patients that take care, trigger medical errors. (Akalin 2005; Ballard 2003; Cebeci et al. 2012; Bilazer et al. 2008)

Besides all the negative results, different conducted researches show the importance of nursing services in terms of patient safety. In a conducted study, it was determined that nurses can prevent the errors which are originated from doctors and pharmacists, before patients suffer, in a rate of 86 %. (World Health Professions Alliance 2002) Smits and friends (2010), states that medical errors can be prevented by human factor with a rate of 61%. In the light of this information, it is seen that medical errors mainly consist of preventable errors. (Smits et al. 2010) On the other hand, it is stated that most of the medical errors are not perceived as errors by healthcare workers, and they are condemned by their co-workers as a result of error, accepting the error in the community, and concerns related to errors that will be in the registration file, and because of these reasons, reporting rates are lacking. In order to increase reporting, firstly, it is important to evaluate the attitudes of personnel related to medical errors and it has been thought that determining the attitudes is a beneficial strategy in order to increase reporting. (Gulec & Seren-Intepeler 2013) In this context, in order to lower medical error rates, establish trust between nurse and patient and increase the trust to therapy institutions, determination of attitudes of nurses in medical errors carries a big importance. Based on all these informations, purpose of this study is the determination of attitudes of nurses in medical errors and related factors that can be affect this.

Methods

This research, conducted in definitive and analytical design. Research conducted between January 2016 and June 2016, with nurses who

work in an education and research hospital. Research universe consist total 449 nurses that work in the related hospital. Sample of research was created by 151 (73%) nurses who volunteered for the research. In research data collection, "Nurse Description Form" which was developed by researchers and "Scale of Attitudes towards Medical Errors" (SAME) which was developed by Gulec and Seren-Intepeler (2013) were used. Data was gathered by researches with face-to-face technique.

Data Collection Tools

Nurse Description Form: In this form,6 open 6 closed total 12 questions take place related to individual characteristics of nurses that may affect the medical attitudes of nurses (gender, age, education level etc.) professional characteristics (working time and clinics etc.) and training status related to medical error and encountering with medical error situation.

Scale of Attitudes towards Medical Errors (SAME): Scale of Attitudes towards Medical Errors that developed by Gulec and Seren-Intepeler (2013); consists of three subscales as to be cognitive, emotional and behavioral. Scale developed in order to determine doctor and nurse attitudes, 1. Subscale "Medical Error Perception" consists of two items, 2. Subscale "Medical Error Approach" consists of seven items and 3. Subscale "Medical Error Reasons" consists of seven items. SAME is in type of five point likert scale. Cronbach Alpha reliability coefficient of scale s 0,75. Two item in the scale (10. and 13. Item) rated as reverse. While scale is evaluated, point average which nurses give to the items are calculated and attitudes of nurses related to medical errors are evaluated. Break point of the scale determined as 3. Medical error attitudes of healthcare workers who take points under 3 are evaluated as negative and medical error attitudes of healthcare workers who take points 3 and above evaluated as positive. Negative attitude; means workers' awareness of medical errors and error reportage is low, positive attitude; shows workers' awareness of medical errors and error reportage is high. (Gulec & Seren-Intepeler 2013)

Evaluation of Data

Analyze of gathered data was done in "SPSS for Windows 22.0" software package program. In the evaluation of data, number, percentage, average, Spearman Correlation Analysis, Kruskal Wallis and Bonferroni Correction Mann-Whitney U tests were used. Significance level in the study was determined as p<0.05.

Ethical Aspect of Research

Research was conducted in accordance with Helsinki Declaration principles. In order to conduct to study, written permission was taken from the ethics committee of the hospital where study was conducted and Public Hospital Union Secretary which the hospital subjected to. Participants who create the sample of research were informed about research and data collection tools before application and received approvals.

Limitations of Research

In this study, any sample method was not used and research findings cannot be generalized to whole universe since total sample could not reach. In addition, another limitation of this study is the dependence of self-statements of nurses who join the research. As a result, findings are limited with the answers of nurses who were taken the research scope.

Results

The mean age of the participants 35.04±7.85 and 86.8 % of them are women. 53.6% of nurses are university graduates, 26.5% serves as nurse 6-10 years and 59.6% are work in internal diseases. 80.1% of nurses is on duty in the clinics that they work and 68.9% do work more than 40 hours in a week and weekly working average of nurses determined as 51.18±7.89 hours. 62.3% of nurses stated that they received training related to medical error applications, 51% stated that they received the training in service. A 13.9%of nurses stated that they encountered with a medical error application, 4.6% of them said this application was "Wrong Dose of Medication".

Total mean value of the answers of the nurses in the SAME scale was found as 3.56±0.47 (Table 1). The vast majority (92.7%) of the participants answers mean value was found 3 points and above in the SAME scale. When the scale mean scores were evaluated according to the gender, female nurses answers   mean value was 3.59±0.43 in the SAME scale, and male nurses was found as 3.39±0.67. The average difference between them was not   statistically important (p>0.05).

Table 1. SAME Total and Subscale Point Averages (n=151)

Attitude Scale in Medical Errors Subscales	Item Count	Mean	Sd
Medical Error Perception	2	3.38	0.73
Approach to Medical Error	7	3.63	0.64
Medical Error Reasons	7	3.66	0.60
Scale Total	16	3.56	0.47

Table 2. Total Point Averages Related Items Form SAME Subscales   (n=151)

Medical Error Perception	N	Min	Max	Mean	Sd
Individual who makes the medical error is innocent.	151	1.00	5.00	2.93	1,04
When a medical error reported, it is understandable	151	1.00	5.00	3.84	,90
Approach to Medical Errors	N	Min.	Max	Mean	Sd
Medical errors and reasons must be discussed openly.	151	1.00	5,00	4.21	.97
I support the report of all errors I made.	151	1.00	5.00	3.90	1.07
I abstain from reporting all medical errors I made.	151	1.00	5.00	3.53	1.03
Institute managers must demonstrate an approach that supports learning from mistakes.	150	1.00	5.00	4.03	1.04
Commited medical errors and their causes should be discussed among executives..	151	1.00	5.00	4.10	.98
If the medical error was prevented before it happen, there is no need to report it.	151	1.00	5.00	2.88	1.18
Committed medical errors must be explained to patient/patient relatives.	151	1.00	5.00	2.80	1.02
Medical Error Reasons	N	Min	Max	Mean	Sd
Medical errors are caused by the lack of communication the person who made the error.	151	1.00	5.00	2.90	.97
Medical errors result from system failure.	151	1.00	5.00	3.39	1.02
Medical errors are caused by lack of knowledge of the person who makes mistakes	151	1.00	5.00	3.19	1.00
High number of care taking patients increases the medical error number.	151	1.00	5.00	4.22	1.05
Long daily working hours increases the medical errors.	151	1.00	5.00	4.25	.94
Commited many medical errors are actually avoidable due to circumstances.	151	1.00	5.00	3.69	1.00
Reportage of Medical errors increases the patient safety.	151	1.00	5.00	3.83	1.09

Table 3. Comparison of SAME Total Point Averages With Respect to Clinics They Work

Clinic	N	*Average*	SD		
Internal Diseases	90	3.64	0.47	χ^2=7.05	*p=0.029**
Intense Care Unit	29	3.53	0.44		
Emergency Service	32	3.37	0.48		

Table 4. Comparison of SAME Subscale Total Point Averages With Respect to Clinics They Work

Subscale	U*	*p*	*BonferoniCorre ction MWU***
Medical Error Perception	1012.00	0.009	p<0.016
Approach to Medical Error	1098.00	0.045	p>0.016
Medical Error Reasons	1090.50	0.041	p>0.016

Between nurses' age, gender, education level, serving time in the occupation, weekly working hours variables and total point averages from SAME subscale, any meaningful relationship could not find (p>0.05). When the relationship between clinics that they work and SAME subscales total mean value investigated, statistically important difference was found (p<0.05). This difference originates from nurses who work for internal diseases and emergency services (Table 4).

Discussion

Medical errors form the basis of patient safety. Because of this reason, according to our study, which was conducted in order to determine attitudes of nurses in medical errors and related factors, and findings, it was determined that age average of nurses is 35.04±7.85 and 86,8% of them are women, in addition, 53.6% of nurses are university graduates. 26.5% of nurses' work between 5 to 10 years as nurse, 60.9% of the nurses work in internal diseases clinics. 80.1% of nurses take duty in the clinics where they work and 68.2% work more than 40 hours in a week, and weekly working hours average was found as 51.18±7.89 hours.

International Labor Organization (ILO), stated that nurses should not exceed "normal working hours daily 8, weekly 40 hours". According to the 657 numbered state personnel law, state personnel's weekly working time determined as 40 hours but according to 2368 numbered Healthcare Personnel Compensation and Working Principles law, weekly working hours of nurses is 45 hours in a week. (Anon 1977; Health 1980; TC Ministry of Health 1983) Our research findings show that despite the legal regulations, nurses work more than their weekly working hours. As reasons create errors there are factors that create the environment that forms error. Knowing the factors that affects the formation of errors might help these factors to be sent away from the. (Demir Dikmen et al. 2014) It is known that overworking and shift work cause sleep disorder, tiredness, distractibility, stress, exhaustion, reduction of social relationships, less job satisfaction, performance decrease, motivation loss, disruption in patient care. (Wilson 2002; Persson & Martensson 2006; Cebeci et al. 2012) In the study which Ozata and Altunkan (2010) conducted on drug errors; at the beginning of medical errors, high work load, off duty works that nurses have to do, stress and exhaustion comes first and it shows parallelism with this thought. (Ozata & Altunkan 2010) In the study that Cebeci and friends (2012) conducted, they also observed that working more than 8 daily working hours and doing more communication mistakes rate are related. (Cebeci et al. 2012)

A 62.3% of the nurses stated that they took training related to medical errors, 51% said they have taken this training in the scope of inservice education program. However, in our study, it was seen that receiving education does not affect the

medical error attitudes of nurses. Karaca and Arslan (2014), in their study, stated that three-quarters of nurses received training on patient safety subject, and trainees said they found the training adequate. (Karaca & Arslan 2014) Studies show that nurses join a variety of education programs in the scope of institution's patient and quality safety. Although, again results show that training programs may increase the information related to subject, it can be stay insufficient to develop behaviors especially like attitude. Because of this reason, nurses must take active role in the inservice training and quality safety programs in the institutions that they work, also, they must present strategic solutions related to change the information to behavior. With this reason, importance of manager and trainer role must increase and with reaching more nurses, in order to prevent medical errors, they must take role in the strengthening of ability and information of nurses.

Total mean value that nurses got from SAME scale was found as 3.56±0.47 and 92,7% of nurses SAME total point average was 3 and above. This result shows that attitudes of nurses related to medical errors are positive. This result can be an outcome of the continuity of quality works in the hospital where the study was conducted and inservice trainings oriented at patient safety and medical errors. Also in the literature, in the subjects related medical error reasons and reporting, it has been thought that nurses are in the true attitude and it shows parallelism with the conducted studies. (Ozata & Altunkan 2010; Mayo & Duncan 2004; Nath & Marcus 2006; Hicks et al. 2008; Parshuram et al. 2008)

Scale total mean value according to gender were found in female nurses 3.59±0.43 and in male nurses 3.39±0.67. When the scale's total mean value was examined according to gender, it was determined that female nurses' attitudes were in a more positive way. This result can be explained by having more female nurses than male nurses, in addition, it has been thought that male nurses are more unsuccessful at being aware of medical errors and importance of reporting medical errors. The Kucukaca and Ozer's (2016) study findings also show parallelism with our study findings (Ozer 2016). When we consider scale total point averages with respect to nurses' education levels, it is seen that high school, pre-bachelors, bachelors and masters education level nurses got very close points. Because of this

reason, there is no meaningful difference between education level of nurses and scale total point averages. It can be explained with the fact that 11.3% of nurses that form our research sample are high school graduates. Because in our country, there are significant differences exist in the nursing education curriculum at vocational high schools and universities.

SAME total mean value with respect to the clinics that nurses work, showed statistically meaningful difference. Medical error attitude scale total mean value of nurses who work in internal diseases clinic was found higher than the nurses who work in intense care units and emergency services, and it was seen that their attitudes are more positive. Aygin and Atasoy (2002), in their study on surgical nurses, stated that many of the surgical nurses did not have the adequate information about premedication drugs and side effects. (Aygin & Atasoy 2002) In a retrospective study that Ertem and friends conducted (2009), they stated that medical error come out in the highest rate (43.6%) in operating room surgical section. (Ertem et al. 2009) Again in the study of Dikmen and friends (2014); in comparison with other clinics, medical errors in operating room and emergency care units were found higher than other clinics (19). This results show consistence with our study results. (Demir Dikmen et al. 2014; Ertem et al. 2009; Aygin & Atasoy 2002)

SAME all subscale total mean value of nurses answers were all above 3 and this result shows that nurses' attitudes are related to subscales are positive and they have high awareness of medical error perception, approach to medical errors, medical error reasons. (Ozer 2016) In the answers of nurses related to "Medical Error Perception" subscale, the highest point average is belong to "When a medical error was reported, it is understandable" item. Workers carry concerns about condemning by co-workers, accepting the mistake in the society and mistake may process in their registration file. (Wolf et al. 2000) Because of this reason, also in our study, for this item, it is seen that nurses are highly sensitive for this item. In the answers of nurses that gave for "Approach to Medical Errors" subscale, the highest point belongs to "Medical errors and reasons must be discussed with workers openly" item. This result shows that nurses have expectations especially from managers in the correct evaluation of medical errors. Non clear definition of medical error and a lack of

management support affect the reporting of medical errors negatively (Gulec & Seren-Intepeler 2013). Study results which examine nurses' attitudes related to reporting in order to define the factors that may cause drug errors and prevent drug errors show that nurses show the right attitude related to error reasons and reporting. (Ozata & Altunkan 2010; Hicks et al. 2008; Parshuram et al. 2008)

In the answers of nurses that give to "Medical Error Reasons" subscale, the highest point was belong to "Daily long working hours increases medical errors" item. When the literature examined, it was stated that long working hours is an important factor. (Akalin 2005; Ballard 2003; Bilazer et al. 2008)

Conclusion

In the result of our study, it was determined that attitudes of volunteered nurses in medical errors are positive and nurses have high awareness of medical error reasons and importance error reports. According to this study result, it has seen that in the scope of quality works in hospitals, inservice trainings related to medical errors repetition with certain periods and reviews are important. Moreover, at the end our study, it is suggested that wide-ranging studies must be done and with more nurse groups and clinic and especially observation based behavior evaluations can be done.

The Institution at which the work was performed: Izmir Bozyaka Education and Research Hospital, Izmir, Turkey

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