

Original Article

What Do Parents Think of Medical Errors?

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Correspondence: Ilknur Bektas, Dokuz Eylul University, Faculty of Nursing, Department of Pediatric Nursing, Inciralti, Izmir, Turkey E-mail: ilknurbektas23@gmail.com**Abstract****Background:** In its reports on “medical errors” and “patient safety and health care quality”, the Institute of Medicine dealt with two significant problems in health care environments.**Objective or Aims:** The purpose of study is to identify the views of parents with children aged three to six years old concerning medical errors.**Methodology:** The sample was comprised of 301 parents. 9.3% of parent encountered a medical error. The data for the study were collected through “the Descriptive Form for Parents” and “The Parents’ Perceptions of Medical Errors Form.” The scenarios for the study were prepared in reference to the medical errors on which the Third Specialized Board of the Council of Forensic Science had expressed an opinion and to other scenarios whose validity had already been tested in other similar studies.**Results:** Case 1 was viewed as an example of a medical error by 91.7% of the parents. Out of these parents, 77.9% considered it as a severe/serious error. As for Case 2, 95% of the participants viewed it as an example of a medical error.**Conclusions:** Parents who considered a case as an example of a medical error were more likely to desire disclosure and reporting.**Keywords:** Medical errors; parents; perceptions.**Introduction**

In its reports on “medical errors” and “patient safety and health care quality”, the Institute of Medicine dealt with two significant problems in health care environments. According to the reports, 98.000 people die of medical errors in the USA every year (IOM, 1999).

It is essential to ensure patient safety in health care systems, which are becoming increasingly complicated and equipped with technological devices. Individuals are under greater threat in such health care systems. Accordingly, greater and greater importance is attached to patient safety (Cirpi et al., 2009; Gokdogan and Yorgun, 2010; Hakverdioglu Yont, 2011).

The Physician Insurers Association reported that there were 214226 reports of medical errors in the USA between 1985 and 2005, and 2.97% of these reports were pediatric cases (as cited in Carroll et al., 2006). The rate of medical errors

among discharged children was discovered to range from 1.81% to 2.96% in the USA (Slomin, LaFleur, Ahmed and Joseph, 2003). In Turkey, a total of 1458 files were submitted to the High Council of Health between 2000 and 2006, and 378 of them (25%) were pediatric cases (Ozkaya, 2008). All these suggest that children constitute an important group to be taken into consideration in terms of medical errors and patient safety both in Turkey and other nations.

Programs on patient safety in health care services often neglect the patient perspective. This is in sharp contrast to the fact that active roles of patients in health care services should be recognized and supported. The reason for this is that patients play a key role in achieving accurate diagnosis, deciding on the treatment, choosing a safe and experienced service provider, providing and monitoring accurate treatment, identifying negative occurrences, and taking necessary actions. The “To Err is Human” report by the

Institute of Medicine (IOM, 1999) suggests that patients should be acknowledged as active participants of medical care processes and a member of the health care team (IOM, 1999). The identification of parental views of medical errors will hopefully be useful for ensuring cooperation with patients, something that we have to do, and enabling patients, who are often neglected, to participate in the process.

Methodology

Population and sample

The study was designed as a descriptive and cross-sectional one. The sample was comprised of 301 parents whose children attended four different kindergartens run by the District Directorate for National Education. Sample size was calculated according to pilot study. By the pilot study, the sample size needed was at least 84 student/parent for power analysis with a Type II error 0.20 and 0.01 level of significance.

Instruments

The data for the study were collected through “the Descriptive Form for Parents” and “The Parents’ Perceptions of Medical Errors Form.” The former was focused on identifying certain socio-demographics for the participants, namely age, occupation, social security, number of children, previous hospitalization record, and previous medical error record). The latter was composed in reference to the literature in order to reveal parents’ views of medical errors. The form contained two cases, which were followed by 14 questions. It was translated from English to Turkish by two language experts, and the Turkish version of the form was revised by the researchers.

Before it was finalized, the Turkish version was submitted to a Turkish language expert. To make the form more reliable, the Turkish version was submitted to another language expert, who had never seen the form previously, to be translated again.

The scenarios for the study were prepared in reference to the medical errors on which the Third Specialized Board of the Council of Forensic Science had expressed an opinion and to other scenarios whose validity had already been tested in other similar studies. The level of severity was not specified by the researchers; instead, the participants were presented with cases that might involve medical errors so as to

identify whether they considered them as medical errors and how severe they thought they were.

Expert judgment was received before the form that contained the cases and relevant questions was administered to the participants. The content validity of the form was assessed by eight experts. According to Lawshe’s table, minimum fit criterion is 0.78 for eight reviewers.

The instrument had a content validity ratio (CVR) of 0.91, a value higher than the one specified in Lawshe’s table, which suggested that there was advanced fit among the experts (Alpar, 2010; Sencan, 2005).

Pilot Test

The form was administered to 20 randomly chosen parents, who were from the schools included in the present study but not in its sample. Positive feedback by these parents suggested that the form could be administered to the sample.

The Parents’ Perceptions of Medical Errors Form

The form contained two scenarios and 14 questions. The first three questions were as to whether the participants viewed the case as a medical error, how severe they thought the medical error was, and by whom they would like to be informed about the error. The remaining questions were grouped under three headings, namely disclosure, reporting, and legal actions.

Each question could be answered by one of the three following options: I agree (3), neutral (2), and I disagree (1). Cronbach’s alpha values were 0.79 and 0.86 for the first and second scenarios respectively.

Ethics

The permission for the study was granted by the Scientific Ethics Committee. In addition, written consent was obtained from the Provincial Directorate for National Education while verbal consent was obtained from school principals and parents.

Statistical Analysis

The data were analyzed through percentages, Mann-Whitney U test, Kruskal Wallis Analysis, Mann-Whitney U test with Bonferroni correction, independent samples t-test with Bonferroni correction, and Multiple Regression analysis.

Results

Slightly more than half of the participants (52.4%) reported that medical errors were mostly committed by physicians, 20.8% by nurses, 5.6% by both physicians and nurses, and 21.2% by other members of health care staff.

As for the cause of the medical error, 9.7% of the participants noted that medical errors resulted from the inadequate number of nurses, 15.9% from exhaustion and stress caused by long working hours, 21.6% from communication disorders, 13.6% from lack of team work, 15.9% from the complicated nature of health care services, and 23.3% from the inability of physicians to allocate enough time to patients.

More than a quarter of the participants (27.2%) reported that parents should file a lawsuit against the member of the health care staff responsible for the medical error whereas 19.6% of them said that the health care institution should be taken to the court. Another 10% believed that other actions should be taken. Whereas 35.2% of the participants believed that those subject to the medical error should file a lawsuit against both the member of the health care staff and the health

care institution, 2.3% of them noted that they should not only file a lawsuit against the member of the health care staff and the health care institution but also take other actions.

As for what patients could do in terms of safety, 5.6% of the parents reported that patients could absolutely protect themselves against medical errors while 36.2% thought that they could slightly protect themselves against such errors. In addition, 17.9% of the participants believed that parents could protect themselves against medical errors. Whereas 31.9% of the participants reported that parents could not protect themselves against medical errors, 8.3% of them believed that parents could definitely not protect themselves.

Twenty-nine percent of the parents reported that they much relied on their own knowledge and awareness to get protected from medical errors whereas 67.4% reported their slight reliance on their knowledge and awareness in this respect. On the other hand, 10.6% of them did not rely on their own knowledge and awareness to get protected against medical errors.

Findings on Case 1

Table 1. The Results of the Multiple Regression Analysis of the Variables in the Parents' Viewing Case 1 as an Example of a Medical Error

	B	Standard Error	Standard Beta (β)	t	p
Constant	0.963	0.384		2.509	0.017
Parental Role	0.294	0.093	0.575	3.178	0.003
Age	0.018	0.005	0.539	3.600	0.001
Educational Status	0.030	0.032	0.149	0.949	0.349
Occupational Status	0.135	0.072	0.323	1.863	0.071
Social Security	0.060	0.078	0.111	0.770	0.446
Number of Children	0.016	0.052	0.042	0.304	0.763
Length of Hospitalization for Child	0.032	0.038	0.140	0.852	0.400
Number of Times of Hospitalization	0.013	0.042	0.050	0.318	0.753
Type of Hospital	0.003	0.037	0.014	0.092	0.927
Previous Medical Error Record	0.078	0.097	0.108	0.810	0.423

R=0.661 R²=0.437 F= 2.540 p= 0.017 DW Coefficient= 2.5 (1.5-2.5)

While 91.7% of the participants viewed the scenario in Case 1 as an example of a medical error, the remaining 8.3% did not. Whereas the mean score of the former group in the desire for disclosure was 14.33 ± 1.17 , the latter group had a mean score of 13.08 ± 3.26 . The discrepancy between the former and latter groups in their mean scores was not statistically significant ($p=0.079$). As for the desire for reporting, the mean score of the former group was 5.91 ± 0.44 whereas the latter group had a mean score of 5.28 ± 1.48 . The discrepancy between the former and latter groups in terms of their mean scores in the desire for reporting was statistically highly significant ($p=0.000$). Regarding the desire for legal actions, the mean score of the former group was 12.70 ± 2.01 whereas the latter group had a mean score of 10.12 ± 3.16 . The discrepancy between the former and latter groups in terms of their mean scores in the desire for reporting was statistically highly significant ($p=0.000$).

The results of the regression analysis indicated that the variables involved in the study were

($R^2=0.437$) in an intermediately significant interaction with viewing Case 1 as an example of a medical error ($F= 2.540$, $p= 0.017$). These variables could account for only 43.7% of viewing Case 1 as an example of a medical error. According to the standardized regression coefficient (β), the independent variables had an influence on viewing Case 1 as an example of a medical error in the following order of importance: the parental role of the respondent (i.e. mother or father), the age of the respondent, the occupational status of the respondent, the educational status of the respondent, the length of hospitalization for the child, social security, previous medical error record for the parent, the number of times of hospitalization, the number of children, and the type of hospital. On the other hand, the results of the t-test demonstrated that the parental role of the respondent (i.e. mother or father) ($p=0.003$) and the age of the respondent ($p=0.001$) had a significant influence on viewing Case 1 as an example of a medical error.

Table 2. The Results of the Multiple Regression Analysis of the Variables in Parents' Viewing Case 2 as an Example of a Medical Error

	B	Standard Error	Standard Beta (β)	t	p
Constant	0.519	0.431		1.205	0.236
Parental Role (i.e. mother or father)	0.006	0.104	0.011	0.057	0.955
Age	0.003	0.006	0.088	0.524	0.604
Educational Status	0.042	0.035	0.210	1.193	0.241
Occupational Status	0.086	0.081	0.206	1.057	0.298
Social Security	0.038	0.088	0.069	0.429	0.671
Number of Children	0.046	0.058	0.122	0.789	0.435
Length of Hospitalization for Child	0.05	.043	0.231	1.253	0.218
Number of Times of Hospitalization	0.051	0.047	0.192	1.085	0.285
Type of Hospital	0.058	0.041	0.243	1.421	0.164
Previous Medical Error Record	0.014	0.109	0.020	0.131	0.896

$R=0.539$ $R^2=0.29$ $F= 1.337$ $p= 0.245$ DW Coefficient= 1.913 (1.5-2.5)

Findings on Case 2

While 95% of the participants viewed the scenario in Case 2 as an example of a medical error, 3.7% did not. The remaining 1.3% left the

question unanswered. Whereas the mean score of the former group in the desire for disclosure was 14.54 ± 1.08 , the latter group had a mean score of 13.27 ± 3.03 . The discrepancy between the former and latter groups in their mean scores was

statistically significant ($p=0.019$). As for the desire for reporting, the mean score of the former group was 5.92 ± 0.49 whereas the latter group had a mean score of 5.36 ± 1.28 . The discrepancy between the former and latter groups in terms of their mean scores in the desire for reporting was statistically highly significant ($p=0.000$). As for the desire for legal actions, the mean score of the former group was 13.45 ± 1.82 whereas the latter group had a mean score of 12.00 ± 3.77 . The discrepancy between the former and latter groups in terms of their mean scores in the desire for legal actions was not statistically significant ($p=0.316$).

The results of the regression analysis indicated that the variables involved in the study were ($R^2=0.29$) in a low and insignificant interaction with viewing Case 2 as an example of a medical error ($F= 1.337$, $p= 0.245$). These variables could account for only 29% of viewing Case 2 as an example of a medical error. According to the standardized regression coefficient (β), the independent variables had an influence on viewing Case 2 as an example of a medical error in the following order of importance: the type of hospital, the length of hospitalization for the child, the educational status of the respondent, the occupational status of the respondent, the number of times of hospitalization, the number of children, the age of the respondent, social security, previous medical error record for the parent, and the parental role of the respondent (i.e. mother or father). On the other hand, the results of the t-test demonstrated that none of the variables had a significant influence on viewing Case 2 as an example of a medical error.

Discussion

In the present study, only a small percentage of the parents (9.3%) reported encountering medical errors in the clinic. When compared to other similar studies (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010), the ratio is smaller, which might be attributed to the fact that the sample for the present study was from outside hospitals and that the parents stayed at hospitals for a relatively shorter time.

According to the parents, medical errors were mostly committed by physicians (52.4%), nurses (20.8%), and other health care staff (21.2%) respectively. Ozkaya (2008) reported that nearly half of the files submitted to the Third Specialized Board of the Council of Forensic Science were about medical errors committed by

physicians and that nurses were responsible for only 6.7% of these errors. The reason for the discrepancy might be that the public views physicians as the person with sole responsibility for treatment and nurses as only the implementer of commands given by physicians.

The participants attributed medical errors to different causes, namely the inadequate number of nurses (9.7%), exhaustion and stress caused by long working hours (15.9%), communication disorders (21.6%), lack of team work (13.6%), the complicated nature of health care services (15.9%), and the inability of physicians to allocate enough time to patients (23.3%). The finding is quite similar to those of other similar studies (Hogbood et al., 2005; Mazor et al., 2010; and Matlow et al., 2010).

Almost all of the parents (96%) believed that parents/patients should be informed about and apologized for medical errors. Similarly, studies in the literature have revealed that parents are of the opinion that they should be informed about and apologized for medical errors (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010).

The great majority of the participants in the present study stressed that in case of medical errors parents should file a lawsuit against both the person committing the error and the institution, and they demanded that institutions should take legal actions. The finding is supported by the 10% increase in the number of lawsuits against nurses in recent years (Zincirci, 2010).

More than half of the parents (56.5%) believed that parents were also responsible for preventing medical errors. A review of literature suggests parents think that parents, along with children, are also responsible for the prevention of medical errors (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010).

In the present study, 89.3% of the parents relied on their own knowledge and awareness to prevent medical errors. Similarly, Clarke et al. (2005) concluded from their study that parents believe they can prevent medical errors by being careful with the treatment of their children. Likewise, the IOM (2003) stresses that involvement of patients and their friends/relatives in treatment and care is a significant step in the prevention of medical errors.

Case 1 and Case 2 were considered as an example of a medical error by 91.7% and 95% of the participants respectively. Actually, both cases were an example of a medical error, though at different levels of severity, and almost all of the participants viewed the cases as an example of a medical error. The finding is similar to that of Hobgood et al. (2005), who observed that 99% of parents accurately viewed the scenarios they were presented with as examples of medical errors. The finding of the present study suggests that parents are knowledgeable about medical errors, though at varying degrees; therefore, a significant decrease is likely to be achieved in the number of medical errors if parents are informed about and enabled to participate in the treatment and care of their children, as recommended by the IOM (2003).

The results of the regression analysis indicated that the variables involved in the study were ($R^2=0.437$) in an intermediately significant interaction with viewing Case 1 as an example of a medical error ($F= 2.540$, $p= 0.017$). These variables could account for only 43.7% of viewing Case 1 as an example of a medical error. According to the standardized regression coefficient (β), the independent variables had an influence on viewing Case 1 as an example of a medical error in the following order of importance: the parental role of the respondent (i.e. mother or father), the age of the respondent, the occupational status of the respondent, the educational status of the respondent, the length of hospitalization for the child, social security, previous medical error record for the parent, the number of times of hospitalization, the number of children, and the type of hospital. On the other hand, the results of the t-test demonstrated that only the parental role of the respondent (i.e. mother or father) ($p=0.003$) and the age of the respondent ($p=0.001$) had a significant influence on viewing Case 1 as an example of a medical error. As for Case 2, the results of the regression analysis indicated that the variables involved in the study were ($R^2=0.29$) in a low and insignificant interaction with viewing Case 2 as an example of a medical error ($F= 1.337$, $p= 0.245$) (Table 2). These variables could account for only 29% of viewing Case 2 as an example of a medical error. On the other hand, the results of the t-test demonstrated that none of the variables had a significant influence on viewing Case 2 as an example of a medical error. Several studies have found, unlike the present study, that the

parental role and age of the parent do not affect the way medical errors are perceived (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010). The reason for the contradiction between the findings might be that it is often mothers who are responsible for child care in the Turkish culture and fathers exhibit an insufficient level of interest in their children. For both of the cases, the parents had considerably high scores in the desire for disclosure, legal actions, and reporting. Likewise, it is reported in the literature that parents have a high desire especially for disclosure, punishment for the person or institution committing the error, and reporting with the purpose of preventing the error from being committed again (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010).

Whereas there was not a significant difference ($p=0.079$) in the mean scores concerning the desire for disclosure between the parents who viewed Case 1 as an example of a medical error and those who did not, there was a significant difference ($p=0.019$) in this respect between the parents who viewed Case 2 as an example of a medical error and those who did not. In similar other studies, parents who considered a case as not an example of a medical error or an example of a slight medical error were observed to tend to have lower levels of desire for disclosure whereas those who considered a case as an example of a medical error had higher levels of desire for disclosure (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010).

Just as there was not a significant difference ($p=0.000$) in the mean scores concerning the desire for reporting between the parents who viewed Case 1 as an example of a medical error and those who did not, there was not a significant difference ($p=0.000$) in this respect between the parents who viewed Case 2 as an example of a medical error (5.92 ± 0.49) and those who did not. Similarly, Hobgood et al. (2005), Mazor et al. (2010) and Matlow et al. (2010) observed that parents who considered a case as an example of a medical error had a higher level of desire for reporting.

Whereas there was a statistically highly significant difference ($p=0.000$) in the mean scores concerning the desire for legal actions in case of medical errors between the parents who viewed Case 1 as an example of a medical error and those who did not, there was not a statistically significant difference ($p=0.316$) in

this respect between the parents who viewed Case 2 as an example of a medical error and those who did not. Likewise, other similar studies in the literature have found that parents who view a case as an example of a medical error tend to have higher levels of desire for legal actions (Hobgood et al., 2005; Mazor et al., 2010; Matlow et al., 2010). In other words, the finding on Case 2 is different from those in the literature. The discrepancy might be owing to two reasons. Firstly, there were a small number of parents who did not consider the case as an example of a medical error. Secondly, even those parents who did not consider the case as an example of a medical error might have thought that legal actions should be taken in case of medical errors.

Conclusion and implications

Half of parents hold physicians responsible for medical errors, and almost all of them are of the opinion that patients should be informed about and apologized for medical errors. The great majority of parents accurately view cases as examples of medical errors. Considering that the present study is the first in Turkey to attempt to measure parents' perceptions of medical errors, it is recommended that the study should be replicated in different regions and on different samples. In addition, further studies could attempt to replicate the present study on parents staying at hospitals so that factors in parents' perceptions of medical errors can be fully identified.

References

- Alpar R. (2010). Applied Statistics and Validity-Reliability. First Edition, Detay Publishing, Ankara.
- Altindis S. (2009). The Role of the Patient in Testing Patient Safety. <http://www.sdplatform.com> Publishing Date 08.06.2009, Access Date March 2012.
- Carroll EA. & Buddenbaum JL. (2007). Malpractice Claims Involving Pediatricians: Epidemiology and Etiology. *Pediatrics*, 120:10-17
- Clarke JN. & Fletcher P. (2005). Parents as advocates: stories of surplus suffering when a child is diagnosed and treated for cancer. *Soc Work Health Care*, 39:107-127.
- Cirpi F., Merih YD. & Kocabay MY. (2009). Identification of Nursing Practices for Patient Safety and Nurses' Views of Such Practices. *Maltepe University Journal of Nursing Science and Art*, 2 (3): 26-34.
- Gokdogan F. & Yorgun S. (2010). Patient Safety and Nurses in Health Services. *Journal of Anatolia Nursing and Health Sciences*, 13(2): 53-59.
- Hakverdi YG. (2011). Patient Safety Culture. *Journal of Ege University School of Nursing*, 27(1): 77-82.
- Harris L. (1997). Public opinion of patient safety issues. National Patient Safety Foundation.
- Hobgood C., Tamayo-Sarver JH., Elms A. & Weiner B. (2005). Parental preferences for error disclosure, reporting, and legal action after medical error in the care of their children. *Pediatrics*, 116:1276-1286.
- IOM (1999). Institute of Medicine: To Err is Human: Building a Safer Health System.
- IOM (2003). (Institute of Medicine). IOM: Patient safety: achieving a new standard for care. Washington, DC: National Academies Press, Washington.
- Matlow AG., Moody L., Laxer R., Stevens P., Goia C. & Friedman, JN. (2010). Disclosure of medical error to parents and pediatric patients: assessment of parents' attitudes and influencing factors. *Arch Dis Child*, 95(4):286-90
- Mazor KM., Goff SL., Dodd KS., Velten SJ. & Walsh, KE. (2010). Parents' perceptions of medical errors. *J Patient Saf.*, 6: 102-107.
- Ozkaya N. (2008). Between 2002-2006 by the Council of Forensic Medicine 3rd Specialization Reported Opinions Pediatric Malpractice Claims Involving Investigation and Identification of Decision. Istanbul University Institute of Forensic Medicine, Department of Social Sciences Degree Thesis, Istanbul.
- Slomin AD., LaFleur BJ., Ahmed W. & Joseph JG. (2003). Hospital-Reported Medical Errors in Children. *Pediatrics*. 111(1), 617-621.