

Disclosing Medical Errors in Tertiary Hospitals in Saudi Arabia : Cross-Sectional Questionnaire Study

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Abstract – Background: Saudi Arabia's healthcare system has been steadily growing over the last few decades. Though the Saudi MOH publicizes an annual report of medical errors (MEs) in the kingdom; there is scarce empirical data on the physicians' attitudes to disclose them. **Objectives** This study aimed to describe the physician's attitudes and practices of disclosing MEs in the main tertiary hospitals in Saudi Arabia. **Methods** This is a cross-sectional, self-administered questionnaire survey study. The physicians working in the tertiary hospitals with the biggest bed-capacity were invited to complete an anonymous questionnaire, addressing demographic characteristics, as well as the respondents' involvement in medical errors, and attitudes towards disclosing them. **Results** One hundred and seventeen physicians completed the questionnaire. About one quarter of respondents were personally involved in an incident of ME or malpractice (28; 23.9%), while two thirds (70; 59.8%) have witnessed at least one incident. Seven respondents (6%) were willing to disclose incidents of their own MEs or malpractice. The main factor that would make them disclose the ME was the seriousness of the error (60; 42.7%), followed by if the patient or one of his/her relatives discovered it (26; 22.2%). **Discussion** The findings of this study, especially the lack of willingness to disclose the MEs were discussed in reference to relevant literature. The main reasons could be related to the legalistic and mostly punitive approach to MEs. **Conclusion** We suggested a 3-steps approach to improve disclosure of ME: 1) change the institutional culture, 2) education and training, and 3) clear guidelines within a disclosure-friendly environment.

Keywords – Medical, Errors, Tertiary, Hospitals, Questionnaire Study.

I. INTRODUCTION

Though 15 years have passed since the ground-breaking report "To Err is Human" by Koln et al., (2000) was published 1; the literature on medical errors (MEs), medical negligence, and malpractice and how to disclose them has been growing in many aspects. These aspects included the views of medical scholars and practitioners, defence lawyers, ethicists, and communication scholars 2. Among which, we will focus only on the issues related to definition, taxonomy, and disclosure. This will be done to the extent needed to present the findings of this particular study. It was not a purpose of this study to present a review of literature on MEs that has been done elsewhere 3-5.

Definitions and Taxonomy of MEs

There have been different approaches to the definition of MEs; hence the differences in reporting and managing them. For example, Reason (1990) defined it as "the failure of a planned action to be completed as intended (an error of execution) or the use of a wrong plan to achieve an aim (an error of planning)" 6, either due to individual reasons or reasons related to the working conditions 7. This was the working definition we used in this study for ME. He has argued that errors occur from the convergence of multiple and complex contributing factors, while Leape (1994) defined it as "an unintended act (either of omission or commission) or one that does not achieve its intended outcome" 8.

Grober and Bohnen suggested that there is "lack of standardized nomenclature and the use of multiple and overlapping definitions of medical error" 9. They have also proposed what they called "an outcome-and process-dependent definition of medical error", which is "an act of omission or commission in planning or execution that contributes or could contribute to an unintended result" 9.

In this study we used the IOM definition of Adverse Event (AE) as working definition for this study, which is "an injury caused by medical management rather than the underlying condition of the patient" 1.

There is some evidence that healthcare providers are very sensitive to the legal standard of care, and correctly setting the standard of care is one of the greatest challenges faced by the healthcare system. Thus, standard setting in conjunction with medical liability has potential to improve medical treatment 10.

Coxon and Rees (2015) suggested that there are "two main types of error in general practice are diagnostic and prescribing errors." 11, and estimated that "costs of £1–2.5 billion incurred by the NHS as a result of preventable adverse events." 11.

The National Patient Safety Agency (NPSA) in the UK has suggested "Seven steps to patient safety in general practice describes the key steps for a general practice to take to avoid harming the patients they care for." 12.

"The purpose of the International Classification for Patient Safety is to enable categorization of patient safety information using standardized sets of concepts with agreed definitions, preferred terms and the relationships between them being based on an explicit domain ontology (e.g., patient safety). The ICPS is designed to be a genuine

convergence of international perceptions of the main issues related to patient safety” 13.

Feijter et al., suggested that “Incident reporting systems (IRS) do not capture all incidents in hospitals and should be combined with complementary information about diagnostic error and delayed treatment from patient complaints and retrospective chart review.” 14.

Most of the literature on MEs originated from the US, and to a lesser extent from other European countries, including the UK 2,12. However, there has been some studies from other regions of the world, like China 15, Nigeria 16,17, and Oman 18.

Examples of Impact of MEs

The literature shows that the MEs are globally common and expanding. For example, in the US, the widely cited report “To Err Is Human: Building a Safer Health System (2000)” estimated that between 44,000 and 98,000 Americans die each year as a result of MEs¹. These estimates were made by the extrapolation of the results of two large national studies^{19,20}. Recently, James (2013) estimated that the American patients who died prematurely in association with preventable harm is more than 400,000 per year ²¹. Moreover, Bond et al., (2001) suggested that each hospital (included in their study) experienced a medication error every 22.7 hours (every 19.73 admissions) ^{22,23}.

Van Den Bos (2011) estimated that “the annual cost of measurable MEs that harm patients was \$17.1 billion in 2008” ²⁴. These figures and others suggest that MEs are common and have considerable impact.

Hannawa et al., have suggested that there is a need for coordinated research agenda related to the disclosure of ME²

“The ideal practitioner–patient relationship is characterized by trust, cooperation and shared decision-making²⁵. While this relationship may be harmed by a ME, full disclosure subsequent to an error may help to mitigate that harm ^{3,26-29}. Scholars in medicine, ethics, law, and communication largely agree on the need for error disclosure, but their perspectives on the timing and content of effective disclosures vary. Furthermore, experts are divided whether errors which did not result in harm should be disclosed to patients^{30,31}. Most practitioners do not disclose errors to their patients, particularly when their actions caused harm³²<http://www.sciencedirect.com/science/article/pii/S073839911300219X-bib005533>.

Saudi Arabia: Demographics, healthcare, and Medical errors Saudi Arabia occupies a total area of around 2,000,000 square kilometres, with a population of about 30 million; 10 million of which are non-Saudis³⁴. The Saudi healthcare system has significantly expanded during the last few decades. For example, in 1970, there were 74 hospitals with 9,039 beds; by 2005, there were 350 hospitals with nearly 48,000 beds³⁵. In 2011, the Saudi ministry of health (MOH)’s budget reached 6.9% of the national budget, and the per capita expenditure on health reached USD 375\$ ³⁶. In 2015, the budget allocated for the MOH exceeded 62 billion Saudi riyals (about USD 16.6 billion) ³⁷. Most of the hospitals are affiliated to the MOH (270; 59.6%), followed by the private sector (141;

31.1%), and the other governmental sectors, like the military hospitals (42; 9.3%). The number of physicians working in the MOH hospitals is almost 40,000; mostly males (71%), and non-Saudi nationals (70%).³⁵

In the Saudi Arabia, the MOH publishes reports on the reported cases of MEs annually. For example, in 2013, the number of ME allegations in the previous year was 2,413 cases against 1,759 doctors and 1,954 other health practitioners; out of whom 1,237 were convicted ³⁸. These official numbers were also supported by the findings of though these annual reports shed some light on the magnitude of the problem in the Saudi healthcare system; they are not enough to explain the situation. Moreover, the literature related to MEs in Saudi Arabia is scarce. It focused on the prevalence and management of MEs, than the aspects related to disclosure.

For example, AlJarallah and AlRowaiss have examined the pattern of MEs and litigation against doctors in Saudi Arabia by “reviewing the lawsuits against healthcare professionals by analysing records of the cases dealt with by the Medico legal Committees (MLC) in various provinces in Saudi Arabia”. They concluded that “the process of litigations and documentation need to be improved” and recommended more studies ³⁹.

Khoja et al., have studied the medication errors, in specific, in primary care in Riyadh city. They analysed all medication prescriptions from 5 public and 5 private primary health care clinics using Neville et al. classification of prescription errors⁴⁰. In addition, Dibbi and colleagues have conducted a smaller scale study of the causes and outcome of medication errors in hospitalized patients in one hospital in the city of Makkah ⁴¹. However, another study by Alsafi and colleagues reported on the physician’s attitudes toward reporting MEs but was done in one tertiary hospital in Riyadh ⁴². They concluded that physicians “... are likely to disclose errors made by a colleague only if the error resulted in a severe damage to the patient, and as such, MEs go underreported for a variety of reasons”. Moreover, Hammami and colleagues have studied the Saudi public preference and perceptions towards the disclosure of near miss ME and who should disclose it ⁴³. They concluded that “most respondents preferred to be informed of ME and by at-fault physician, and 44 one third of respondents preferred to be informed of near-miss ME...”.

In this study, we aim to help in filling some of this gap in knowledge about the disclosure of MEs in Saudi Arabia. The objective of the study is to describe the physician’s attitudes and practices of disclosing MEs in the main tertiary hospitals in Saudi Arabia.

II. METHODS

This was a self-administered questionnaire, cross-sectional study. Both the public and private tertiary hospitals in Saudi Arabia were listed from the MOH website (<http://www.moh.gov.sa/Sectors/Hospitals/Pages/default.aspx>), cross-checked with the 2014 annual statistical book ³⁵ and then the hospital with the highest bed capacity in each of the eastern, western, northern, and

central regions was chosen.

All physicians in the selected tertiary hospitals were invited to complete an anonymous survey questionnaire either online (Error! Hyperlink reference not valid.) or via email sent to the corresponding author. The questionnaire was composed of three main sections: knowledge, attitude, and practice of physicians towards MEs. The target physicians were requested to fill the questionnaire and return within two weeks. Returned questionnaires were validated for accuracy, contradiction and missing data. Data were analysed using descriptive and score techniques whenever appropriate.

III. ETHICAL CONSIDERATIONS

The study was conducted in accordance with the ethical principles contained in the Declaration of Helsinki and after approval of the Research Ethics Committee of the King Fahd Medical city (KFMC). The study was implemented in the period from November 2013 to March 2014. All respondents gave consent, as a condition for the online questionnaire to proceed, while those sent their responses by email attached their signatures to the consents. Contribution to this study was completely voluntary. No identifiable data was requested, including the respondent's name. Respondents were allowed to discontinue answering the questions at any point of time.

IV. RESULTS

A. Demographic and Professional Characteristics of Respondents

In total, the selected hospitals, we identified 119 physicians; all were invited to participate; 117 (98.3%) accepted, and hence were included in the study. The participants were mostly males (96; 82.1%), and MDs (52; 44.4%). Half of the respondents were affiliated to the MoH (52; 46.4%) and about one third to military hospitals (35; 31.3%). Table 1 and table 2 outline the personal and professional characteristics of the participants, respectively.

B. Committing or Witnessing Incidents of ME or Malpractice

About one quarter of the respondents indicated they were personally involved in an incident of ME or malpractice (28; 23.9%), while two thirds (70; 59.8%) have witnessed at least one incident. The most taken reaction to the witnessed incidents was to talk to the person who allegedly committed the error (44; 37.6%), followed by 'doing nothing' (22; 18.8%). More than two thirds of the respondents were aware of their institutions' policy or guidelines to report medial errors (73; 62.4%). Table 3 outlines the respondents' exposure to medical errors (or malpractice) during their clinical practice.

C. Attitudes Towards Disclosing own Medical Errors

Seven respondents (6%) were willing to disclose incidents of their own MEs or malpractice, 42 (35.9%) would not disclose them, while the rest 68 (58.1%) did not

answer.

Among those willing to disclose their MEs, two thirds (6/8; 75%) were males, half of them (4/8; 50%) were consultants, slightly more than two thirds (5/8; 62.5%) of them practiced outside KSA, and 87.5% of them (7/8) were trained in ethics. Table 4 highlights the attitudes of the respondents towards the disclosure of incidents of oneself MEs or incidents of malpractice.

D. Factors Affecting the Decision to Disclose Medical Error

Most of the respondents (60; 42.7%) considered the seriousness of the error, in particularly if it is life-threatening as the main factor that would make them disclose it to the patients, followed by if the patient or one of his/her relatives discovered it (26; 22.2%), other colleagues discovered it (9; 8%), instructed by the supervisor to disclose (9; 8%), and the full consciousness of the patient (6; 5%). Two thirds of the female doctors (10/16; 62.5%) expressed their willingness to disclose the error, compared to about half of the male doctors (50/96; 52.1%).

The willingness to disclose ME incidents was equal among those who practiced outside KSA and those who did not (30; 25.6% each). Those with training in ethics were more willing to disclose MEs among all the choices of factors that clinicians would consider to disclose them (Table 5). For example, 66.1% (39/59) of those who chose that they would disclose MEs were trained in ethics, compared to 33.9% (20/59). Table 5 outlines the factors that the respondents would consider to disclose MEs to patients.

V. DISCUSSION

A. General Points

In terms of gender representations, as acknowledged later in the limitations; the sample would not be considered representative of the clinicians working in Saudi Arabia. Female physicians represent 29% of the physicians working in Saudi Arabia³⁵, while they were represented by only 13.7%. Most of the respondents were affiliated to public hospitals, mainly MOH and the military, (44.4% and 29.9%, respectively). This could explain the variety in age groups, where 93 (79.5%) of the respondents were between 26 and 50 years old, and the qualifications where unspecialized MBBS holders represented 22.2%. Additionally, fellows, registrars, residents, and interns represented more than one third (34.2%) of the respondents. Such a variety would have not been possible if only private hospitals were targeted, as they usually hire older, well-qualified, and specialized consultants, or experienced GPs. Two thirds of the respondents (60%) have less than 10 years of experience in their practice. Arguably, this variety of respondents could render the findings of this study more representative to the reality of practice, at least within the public hospitals. Moreover, this is important to understand their attitude towards disclosure of MEs.

B. Committing or Witnessing MEs

The voluntary self-declaration of being involved in

incidents of ME or malpractice is expected to show different figures than those discovered through review of records or hospital systems. As most of the Saudi hospitals lack formal and consistent system of reporting MEs; I was not possible to assert how our finding (23.9%) compares to the overall picture in Saudi Arabia. Nevertheless, this percentage seems consistent with findings of other studies conducted elsewhere. For example, Oyeboode conducted a systematic review of and estimated that there are 5.3 medication errors/100 prescriptions⁴⁵ and that of Lewis et al who systematically reviewed 65 studies and concluded that prescribing errors are common, affecting about 50% of hospital admissions.⁴⁶ but higher than what Zwaan et al found after conducting a structured review study of 7926 patient records, and identified 744 (9.8%) adverse events (AEs)⁴⁷.

Two thirds (70; 59.8%) have witnessed at least one incident of ME or malpractice done by a colleague. The most taken reaction to the witnessed incidents was to talk to the person who allegedly committed the error (44; 37.6%). More than two thirds of the respondents were aware of their institutions' policy or guidelines to report medial errors (73; 62.4%); only one fifth (20.5%) reported the incident to the hospital authorities. This could be interpreted in two ways. First, this could reflect transparent collegial conversations among colleagues, which made talking to the person the preferred choice. Second, it could be interpreted, especially when other findings are considered, as reluctance to be in any contact with the system to avoid dealing with the aftermath of such reporting of ME. Moreover, there could have been lack of certainty about whether an incident occurred in the first place. This could explain why 23 (19.7%), and 19 (16.2%) of the respondents were not 'not sure' if they were involved in or witnessed an incident of ME, respectively.

C. Attitudes Towards Disclosure of Medical Errors

There was a clear difference between those who expressed their willingness to disclose one's ME incidents (7; 6%) compared to those answered the factors that they would make them disclose them (60; 42.7%). Probably, this could be interpreted as the difference between what persons believe to be right and what would be done in reality. This is not a unique finding. Ghalandarpoorattar et al conducted a study that involved 53 surgeons and residents of surgery, and found that "although most physicians indicated they would disclose errors in minor and major scenarios, only 16.7% (n=48) had disclosed their last MEs to their patients"⁴⁸. Hobgood et al., showed that only 28% of residents had disclosed their most significant error with the patients or the patients' family⁴⁹. This gap was attributed by many authors to the clinicians' fear of a malpractice lawsuit, losing patients' trust, and emotional reactions of the patients and their relatives^{42,48}, thus physicians may approach error disclosure with considerably more fear, anxiety, and shame⁵⁰⁻⁵².

The main factors that would make them disclose their MEs were the seriousness of the error, in particularly if it is life-threatening (60; 42.7%), and if the patient or one of his/her relatives discovered it (26; 22.2%). The request by

a senior or if the error was discovered by another colleague did not seem to be main factors (9; 7.7% each). These factors are consistent with findings from other studies. Ibrahim et al conducted a study that involved 123 surgical trainees, and found that the factors that would stop them from disclosing MEs included fear from assault by patient family (51; 80.9%), and "if the patient is unaware that the error happened,"³⁰ (47.6%).⁵³ Ghalandarpoorattar et al found that participants were less likely to disclose minor (39.6%; 21/53) than major (49.1%; 29/53) MEs.⁴⁸ Everett et al., found that out of the 636 residents included in their study, 74.7% of them would disclose the error if it was serious enough to result in a malpractice suit and many residents (40.9%) would not reveal a near miss event because they believe it has no impact on patient health⁵⁴.

Among the 60 respondents who mentioned what factors would make them disclose their MEs; Two thirds of the female doctors (10/16; 62.5%), compared to about half of the male doctors (50/96; 52.1%). The willingness to disclose ME incidents was equal among those who practiced outside KSA and those who did not (30; 25.6% each). Those with training in ethics were more willing 66.1% (39/59) to disclose MEs among all the choices of factors that clinicians would consider to disclose them.

Sage suggested the three domains that comprise the medical malpractice system were: clinical care, dispute resolution, and liability insurance⁵⁵.

VI. A WAY FORWARD

The findings of this study along with other recent studies^{15,18,56,57} indicate that there are common barriers to the disclosure of MEs. In the rest of the article, we will try to address the main barriers and suggest a way forward to overcome them.

A. Swift Shift from Legalism to Communication

Currently, the Saudi Arabia, as explained by AlJarallah and AlRowaiss has three types of committees that deal with medical litigations, namely the Primary Investigation Committees, Medical Violation Committees, and the Medical Jurisprudence Committees.³⁹

Though there is no evidence on whether this structure managed to reduce the MEs; the literature otherwise suggests that reliance on complex legal approaches to MEs was not definitive in reducing them^{58,59}.

We recommend more reliance on more communication both inter-professionally among colleagues, as well as improved communication between the care-givers and the patients and their families. Research suggests that the majority of patients who experience a ME desire three principal outcomes: an apology, an explanation, and a commitment to future error prevention⁶⁰. To achieve a communication that fulfils these outcomes, proper preparation is needed as explained in the next subheadings.

B. Education and Training

The literature established quite clearly the importance of provider-patient communication for the proper disclosure of MEs^{59,61-63}. This level of efficient communication

needs two levels of parallel educational approaches. First, it is mandatory to ensure that the ability of the undergraduate and the postgraduate medical trainees to deal with incidents of MEs, including their honest and transparent disclosure. Second, on-going training on communication should always be made available for the practicing clinicians, who may have forgotten or have only studied communication skills to pass the exams.

Training should always be supported by clear, adequate and culturally-oriented guidance, as described below.

C. Guidelines and Disclosure-Friendly Working Environments

Guidelines are not the only answer for all the problems related to the clinical practice. Sometimes they fail to humanize the healthcare mantra. Thus, we suggest developing guidelines that are part of more comprehensive disclosure-friendly management system. This would encourage the practitioners to voluntarily approach 'the system' rather than running away and avoiding it. For this to happen, there is a need for a "conceptual leap to collective accountability". We are aligned with Bell et al.,⁶⁴ that "institutions need to prioritize team training, develop robust, non-punitive reporting systems". This should indeed be implemented within a fair system that has the efficient ways that compensate patients who were harmed in accordance with the Kingdom's Islamic legal heritage.

VII. CONCLUSION

In conclusion, this questionnaire, cross-sectional study that included 117 physicians practicing in the biggest Saudi tertiary hospitals was among the first studies to study physicians' exposure to and disclosure of medical errors. Though most of the participants have either witnessed or was involved in a medical error, and aware of their institutions policies on its disclosure; the percentage that were willing to disclose it was significantly low. Factors that they may play a role in the decision to disclose included the seriousness of the error, and whether the patient (or his/her relatives) became aware of it. We suggested three possible interventions improve disclosure of MEs: change in the institutional culture from legalism to communication, education and training, and clear guidelines within a disclosure-friendly environment.

Variables	N (%)
Age Groups	
< 20	2 (1.7)
20 – 25	7 (6.0)
26 – 30	25 (21.4)
31 – 35	25 (21.4)
36 – 40	17 (14.5)
41 – 45	15 (12.8)
46 – 50	11 (9.4)
51 – 55	10 (8.5)
56– 60	5 (4.3)
Sex	
Male	96 (82.1)

Female	16 (13.7)
No answer	5 (4.3)
Highest academic qualification	
MBBS	26 (22.2)
Masters	11 (9.4)
MD	52 (44.4)
PhD	16 (13.7)
Other	6 (5.1)
Missing	6 (5.1)

APPENDIX

TABLE 1 -PROFESSIONAL PROFILE OF PARTICIPANTS (N=117)

Institutional affiliation	
MoH Hospitals	52 (44.4)
Military	35 (29.9)
Private	12 (10.3)
Others	13 (11.1)
Missing	5 (4.3)
Clinical Specialty	
Neurology	2 (1.7)
Anaesthesiology	5 (4.3)
Obstetrics & Gynaecology	5 (4.3)
Surgery	5 (4.3)
Ophthalmology	14 (12.0)
Emergency Medicine	3 (2.6)
Orthopaedic Surgery	28 (23.9)
Family Medicine	16 (13.7)
Internal Medicine	20 (17.1)
Paediatrics	11 (9.4)
Physical Medicine & rehabilitation	2 (1.7)
Others	3 (2.6)
Missing	3 (2.6)
Job Title	
Consultant	37 (31.6)
Specialist	22 (18.8)
Fellow	10 (8.5)
Registrar	6 (5.1)
Resident	18 (15.4)
Intern	6 (5.1)
GP	4 (3.4)
Missing	14 (12.0)
Years of clinical practice	
1 – 4	32 (27.4)
5 – 9	37 (31.6)
10 – 14	19 (16.2)
15 – 19	11 (9.4)
20 – 24	11 (9.4)
25 – 29	3 (2.6)
30 – 34	2 (1.7)

Missing	2 (1.7)
Practice outside Saudi Arabia	
Yes	59 (50.4)
No	58 (49.6)

Trained in Ethics	
Yes	73 (62.4)
No	44 (37.6)
Abbreviations: MoH, Ministry of Health; GP, General Practitioner	

TABLE 1 -PREVIOUS EXPERIENCE IN WITNESSING OF OR INVOLVED IN INCIDENTS OF ME AND AWARENESS OF REPORTING POLICIES (N=117)

Answer	Personal involvement in an incidence of ME or malpractice (%)	Witnessed an incident of ME or malpractice (%)	Reaction when witnessed the ME done (%)		Awareness of institutional policy or guidelines in your institution on how to disclose and report ME (%)
Yes	28 (23.9%)	70 (59.8%)	1. Did Nothing	22 (18.8%)	73 (62.4%)
No	66 (56.4%)	20 (17.1%)	2. Talked to colleague only	44 (37.6%)	28 (23.9%)
Not sure	23 (19.7%)	19 (16.2%)	3. Reported to senior only	0 (0.0%)	16 (13.7%)
	117 (100.0%)	109 (93.2%)	4. Reported to hospital management only	17 (14.5%)	117 100.0%
			2 & 3	4 (3.4%)	
			3 & 4	7 (6.0%)	
			Missing	23 (19.7%)	

TABLE 1 -RESPONDENTS' ATTITUDE TOWARDS DISCLOSING THEIR MEs (N=117)

Feature	Will disclose (%)	Will not disclose (%)	Missing
Gender			
Male	6 (5.1%)	36 (30.8%)	
Female	1 (0.9%)	6 (5.1%)	
subtotal	7 (6.0%)	42 (35.9%)	68 (58.1%)
Academic qualification			
MBBS	1 (0.9%)	9 (7.7%)	
Master	0 (0.0%)	6 (5.1%)	
MD	3 (2.6%)	13 (11.1%)	
Ph. D.	1 (0.9%)	11 (9.4%)	
Others	1 (0.9%)	3 (2.6%)	
subtotal	6 (5.1%)	42 (35.9%)	69 (59.0%)
Institutional affiliation			
Public (MoH)	1 (0.9%)	20 (17.1%)	
Military	5 (4.3%)	13 (11.1%)	
Private	2 (1.7%)	1 (0.9%)	
Others	0 (0.0%)	7 (6.0%)	
subtotal	8 (6.8%)	41 (35.0%)	68 (58.1%)
Job Title			
Consultant	4 (3.4%)	14 (12.0%)	
Specialist	1 (0.9%)	9 (7.7%)	
Fellow	1 (0.9%)	4 (3.4%)	
Registrar	0 (0.0%)	3 (2.6%)	
Resident	0 (0.0%)	5 (4.3%)	
Intern	1 (0.9%)	2 (1.7%)	
GP	1 (0.9%)	1 (0.9%)	
subtotal	8 (6.8%)	38 (32.5%)	72 (61.5%)
Practiced outside KSA			
Yes	5 (4.3%)	25 (21.4%)	
No	3 (2.6%)	10 (8.5%)	
subtotal	8 (6.8%)	35 (29.9%)	74 (63.2%)

Trained in Ethics			
Yes	7 (6.0%)	28 (23.9%)	
No	1 (0.9%)	13 (11.1%)	
subtotal	8 (6.8%)	41 (35.0%)	68 (58.1%)

TABLE 1 FACTORS AFFECTING THE DECISION TO DISCLOSE MEDICAL ERROR TO PATIENTS (N=117)

Respondents' features (N = 117)	Error is serious or life threatening error (%)	Patient is fully conscious (%)	Supervisor's request (%)	Error discovered by patient &/or relative(s) (%)	Discovered by colleague(s) (%)
Gender					
Male	50 (42.7%)	5 (4.3%)	8 (6.8%)	13 (11.1%)	8 (6.8%)
Female	10 (8.5%)	1 (0.9%)	1 (0.9%)	13 (11.1%)	1 (0.9%)
Subtotal	60 (51.3%)	6 (5.1%)	9 (7.7%)	26 (22.2%)	9 (7.7%)
Academic qualification					
MBBS	12 (10.3%)	1 (0.9%)	0 (0.0%)	3 (2.6%)	0 (0.0%)
Master	3 (2.6%)	1 (0.9%)	2 (1.7%)	2 (1.7%)	2 (1.7%)
MD	33 (28.2%)	3 (2.6%)	2 (1.7%)	4 (3.4%)	2 (1.7%)
Ph. D.	8 (6.8%)	1 (0.9%)	2 (1.7%)	1 (0.9%)	2 (1.7%)
Others	4 (3.4%)	0 (0.0%)	2 (1.7%)	2 (1.7%)	2 (1.7%)
Subtotal	60 (51.3%)	6 (5.1%)	8 (6.8%)	12 (10.3%)	9 (7.7%)
Institutional affiliation					
Gov. (MoH)	30 (25.6%)	2 (1.7%)	2 (1.7%)	3 (2.6%)	2 (1.7%)
Military	14 (12.0%)	1 (0.9%)	6 (5.1%)	8 (6.8%)	6 (5.1%)
Private	6 (5.1%)	3 (2.6%)	1 (0.9%)	1 (0.9%)	1 (0.9%)
Others	9 (7.7%)	0 (0.0%)	0 (0.0%)	1 (0.9%)	0 (0.0%)
Subtotal	59 (50.4%)	6 (5.1%)	9 (7.7%)	13 (11.1%)	9 (7.7%)
Job Title					
Consultant	12 (10.3%)	3 (2.6%)	3 (2.6%)	2 (1.7%)	3 (2.6%)
Specialist	8 (6.8%)	1 (0.9%)	2 (1.7%)	2 (1.7%)	2 (1.7%)
Fellow	8 (6.8%)	0 (0.0%)	1 (0.9%)	1 (0.9%)	1 (0.9%)
Registrar	5 (4.3%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Resident	10 (8.5%)	0 (0.0%)	2 (1.7%)	3 (2.6%)	2 (1.7%)
Intern	2 (1.7%)	1 (0.9%)	0 (0.0%)	1 (0.9%)	0 (0.0%)
GP	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Subtotal	46 (39.3%)	5 (4.3%)	8 (6.8%)	9 (7.7%)	8 (6.8%)
Practice Outside KSA					
Yes	30 (25.6%)	4 (3.4%)	5 (4.3%)	7 (6.0%)	5 (4.3%)
No	30 (25.6%)	2 (1.7%)	4 (3.4%)	6 (5.1%)	4 (3.4%)
Subtotal	60 (51.3%)	6 (5.1%)	9 (7.7%)	13 (11.1%)	9 (7.7%)
Trained in Ethics					
Trained	39 (33.3%)	5 (4.3%)	7 (6.0%)	11 (9.4%)	7 (6.0%)
Not trained	20 (17.1%)	1 (0.9%)	2 (1.7%)	2 (1.7%)	2 (1.7%)
Subtotal	59 (50.4%)	6 (5.1%)	9 (7.7%)	13 (11.1%)	9 (7.7%)

REFERENCES

- [1] Kohn LT, Corrigan JM, Donaldson MS. To Err Is Human: Building a Safer Health System. Vol 627: National Academies Press; 2000.
- [2] Hannawa AF, Beckman H, Mazor KM, Paul N, Ramsey JV. Building bridges: future directions for medical error disclosure research. Patient Education and counseling. 2013;92(3):319-327.
- [3] Mazor KM, Simon SR, Gurwitz JH. Communicating with patients about medical errors: a review of the literature. Archives of internal medicine. 2004;164(15):1690-1697.
- [4] BRADY A, MALONE A, Fleming S. A literature review of the individual and systems factors that contribute to medication errors in nursing practice. Journal of nursing management. 2009;17(6):679-697.
- [5] Sammer CE, Lykens K, Singh KP, Mains DA, Lackan NA. What is patient safety culture? A review of the literature. Journal of Nursing Scholarship. 2010;42(2):156-165.
- [6] Reason JT. Human Error. 1990.
- [7] Reason J. Human error: models and management. BMJ. 2000;320(7237):768-770.
- [8] Leape LL, Bates DW, Cullen DJ, et al. Systems analysis of adverse drug events. ADE Prevention Study Group. JAMA. 1995;274(1):35-43.
- [9] Grober ED, Bohnen JM. Defining medical error. Canadian Journal of Surgery. 2005;48(1):39.
- [10] Avraham R, Schanzenbach MM. Medical Malpractice Reform. Oxford Handbook of Law and Economics (Oxford Univ. Press, Forthcoming). 2015.
- [11] Coxon J, Rees J. Avoiding medical errors in general practice. Trends in Urology & Men's Health. 2015;6(4):13-17.
- [12] (NPSA) NPSA. Seven steps to patient safety in general practice. London, UK: NHS; July 2009 2009.
- [13] (WHO) WHO. Conceptual Framework for the International Classification for Patient Safety (Version 1.1). World Health Organization; January 2009 2009. WHO/IER/PSP/2010.2.
- [14] de Feijter JM, de Grave WS, Muijtens AM, Scherpbier AJJA, Koopmans RP. A Comprehensive Overview of Medical Error in Hospitals Using Incident-Reporting Systems, Patient Complaints and Chart Review of Inpatient Deaths. PLoS ONE. 2012;7(2):e31125.
- [15] Gao L, Zuo X, Xu H, Gao X, Chen Y, Cecilia C. Disclosure of medical errors to patients in China. Bulletin of World Health Organization. 2015.
- [16] Ajayi IO, Olumide EA, Oyediran O. Patient satisfaction with the services provided at a general outpatients' clinic, Ibadan, Oyo State, Nigeria. Afr J Med Med Sci. 2005;34(2):133-140.
- [17] Ushie B, Salami K, Jegede A, Oyetunde M. Patients' knowledge and perceived reactions to medical errors in a tertiary health facility in Nigeria. African health sciences. 2013;13(3):820-828.
- [18] Norrish MI. Disclosure of Medical Errors in Oman: Public preferences and perceptions of current practice. Sultan Qaboos University medical journal. 2015;15(2):e283.
- [19] Leape LL, Brennan TA, Laird N, et al. The nature of adverse events in hospitalized patients: results of the Harvard Medical Practice Study II. New England journal of medicine. 1991;324(6):377-384.
- [20] Thomas EJ, Studdert DM, Burstin HR, et al. Incidence and types of adverse events and negligent care in Utah and Colorado. Medical care. 2000;38(3):261-271.
- [21] Jones JW, McCullough LB. Transgression confession: Ethics of medical error disclosure. Journal of vascular surgery. 2013;58(6):1697-1699.
- [22] Bond C, Raehl CL, Franke T. Medication errors in United States hospitals. Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy. 2001;21(9):1023-1036.
- [23] James JT. A new, evidence-based estimate of patient harms associated with hospital care. Journal of patient safety. 2013;9(3):122-128.
- [24] Van Den Bos J, Rustagi K, Gray T, Halford M, Ziemkiewicz E, Shreve J. The \$17.1 billion problem: the annual cost of measurable medical errors. Health Affairs. 2011;30(4):596-603.
- [25] Allan A, McKillop D. The health implications of apologizing after an adverse event. International Journal for Quality in Health Care. 2010;22(2):126-131.
- [26] Hannawa AF. "Explicitly implicit": examining the importance of physician nonverbal involvement during error disclosures. Swiss Med Wkly. 2012;142:w13576.
- [27] Hannawa AF. Disclosing medical errors to patients: Effects of nonverbal involvement. Patient education and counseling. 2014;94(3):310-313.
- [28] Mazor KM, Simon SR, Yood RA, et al. Health plan members' views about disclosure of medical errors. Annals of Internal Medicine. 2004;140(6):409-418.
- [29] Mazor KM, Reed GW, Yood RA, Fischer MA, Baril J, Gurwitz JH. Disclosure of medical errors: what factors influence how patients respond? Journal of general internal medicine. 2006;21(7):704-710.
- [30] Gallagher TH, Studdert D, Levinson W. Disclosing harmful medical errors to patients. New England Journal of Medicine. 2007;356(26):2713-2719.
- [31] Jeffs L, Berta W, Lingard L, Baker GR. Learning from near misses: from quick fixes to closing off the Swiss-cheese holes. BMJ quality & safety. 2012;bmjqs-2011-000256.
- [32] Iedema R, Sorensen R, Manias E, et al. Patients' and family members' experiences of open disclosure following adverse events. International Journal for Quality in Health Care. 2008;20(6):421-432.
- [33] Varjavand N, Bachegowda LS, Gracely E, Novack DH. Changes in intern attitudes toward medical error and disclosure. Medical education. 2012;46(7):668-677.
- [34] Ministry of H. Health Statistical Year Book. Riyadh: Ministry of Health, Saudi Arabia; 2010.
- [35] (CDSI) SACDoSI. Annual Statistical Yearbook (1436 A.H. - 2014 AD). Riyadh, Saudi Arabia: Central Department of Statistics and Information; 2014 2014.
- [36] Arabia) MoHS. Health Statistical Year Book. Riyadh: Ministry of Health, Saudi Arabia; 2010.
- [37] Health SMO. Statistics and Indicators -About the Ministry's Budget. Saudi Ministry of Health;2015.
- [38] Naif A-H. Conviction of 1237 doctors and practitioners of "medical errors" and "Obstetrics" in the foreground by 39%. Al-madina. 09/04/, 2014.
- [39] AlJarallah JS, AlRowaiss N. The pattern of medical errors and litigation against doctors in Saudi Arabia. Journal of Family & Community Medicine. 2013;20(2):98-105.
- [40] Qureshi N, Neyaz Y, Khoja T, Magzoub M, Haycox A, Walley T. Physicians' medication prescribing in primary care in Riyadh city, Saudi Arabia. Literature review, part 3: prescribing errors. 2011.
- [41] Dibbi HM, Al-Abrashy HF, Hussain WA, Fatani MI, Karima TM. Causes and outcome of medication errors in hospitalized patients. Saudi medical journal. 2006;27(10):1489-1492.
- [42] Alsafi E, Bahroon SA, Tamim H, Al-Jahdali HH, Alzahrani S, Al Sayyari A. Physicians' Attitudes Toward Reporting Medical Errors-An Observational Study at a General Hospital in Saudi Arabia. Journal of Patient Safety. 2011;7(3):144-147.
- [43] Hammami M, Attalah S, Al Qadire M. Which medical error to disclose to patients and by whom? Public preference and perceptions of norm and current practice. BMC Medical Ethics. 2010;11(1):17.
- [44] Paasche KI. Sissoko's La Genese and Africa's Hope for Peace. Procedia -Social and Behavioral Sciences. 2015;192:506-515.
- [45] Oyebo F. Clinical Errors and Medical Negligence. Medical Principles and Practice. 2013;22(4):323-333.
- [46] Lewis PJ, Dornan T, Taylor D, Tully MP, Wass V, Ashcroft DM. Prevalence, incidence and nature of prescribing errors in hospital inpatients. Drug safety. 2009;32(5):379-389.
- [47] Zwaan L, de Bruijne M, Wagner C, et al. Patient record review of the incidence, consequences, and causes of diagnostic adverse events. Archives of Internal Medicine. 2010;170(12):1015-1021.
- [48] Ghalandarpoorattar SM, Kaviani A, Asghari F. Medical error disclosure: the gap between attitude and practice. Postgraduate medical journal. 2012;88(1037):130-133.
- [49] Hobgood C, Hevia A, Tamayo-Sarver JH, Weiner B, Riviello R. The influence of the causes and contexts of medical errors on emergency medicine residents' responses to their errors: an exploration. Academic Medicine. 2005;80(8):758-764.
- [50] Gunderman RB, Burdick EJ. Error and opportunity. American Journal of Roentgenology. 2007;188(4):901-903.

- [51] Ptacek J, McIntosh EG. Physician challenges in communicating bad news. Journal of behavioral medicine. 2009;32(4):380-387.
- [52] Brown SD, Lehman CD, Truog RD, Browning DM, Gallagher TH. Stepping Out Further from the Shadows: Disclosure of Harmful Radiologic Errors to Patients. Radiology. 2012;262(2):381-386.
- [53] Ibrahim A, Aminu M, Delia I, Edaigbini S, Mai A, Asuku M. Disclosure of errors and adverse events in surgery: A cross-sectional survey of attitudes and experiences of surgical trainees in Nigeria. Journal of Clinical Sciences. 2014;11(2):47.
- [54] Everett JP, Walters CA, Stottlemeyer DL, Knight CA, Oppenberg AA, Orr RD. To lie or not to lie: resident physician attitudes about the use of deception in clinical practice. Journal of Medical Ethics. 2011;37(6):333-338.
- [55] Sage WM. Medical malpractice reform: when is it about money? Why is it about time? JAMA. 2014;312(20):2103-2105.
- [56] McLennan SR, Engel-Glatzer S, Meyer AH, Schwappach DL, Scheidegger DH, Elger BS. Disclosing and reporting medical errors: cross-sectional survey of swissanaesthesiologists. Eur J Anaesthesiol. 2015;32:1-6.
- [57] Giardino AP. Disclosing an Adverse Event or Medical Error. Communicating with Pediatric Patients and their Families: the Texas Children's Hospital Guide for Physicians, Nurses and other Healthcare Professionals. 2015:194.
- [58] Allen TC. Error Management: Legal and Regulatory Responsibilities. Error Reduction and Prevention in Surgical Pathology: Springer; 2015:209-220.
- [59] Wittich CM, Burkle CM, Lanier WL. Medication Errors: An Overview for Clinicians. Mayo Clinic Proceedings. 2014;89(8):1116-1125.
- [60] Hickson GB, Federspiel CF, Pichert JW, Miller CS, Gauld-Jaeger J, Bost P. Patient complaints and malpractice risk. JAMA. 2002;287(22):2951-2957.
- [61] Nazione S, Pace K. An Experimental Study of Medical Error Explanations: Do Apology, Empathy, Corrective Action, and Compensation Alter Intentions and Attitudes? Journal of health communication. 2015(ahead-of-print):1-11.
- [62] Schinasi DA, Kolaitis IN, Nadel F. Difficult Conversations in the Emergency Department: Spotlight on the Disclosure of Medical Errors. Clinical Pediatric Emergency Medicine. 2015;16(2):90-95.
- [63] Levinson W, Hudak P, Tricco AC. A systematic review of surgeon-patient communication: Strengths and opportunities for improvement. Patient Education and Counseling. 2013;93(1):3-17.
- [64] Bell SK, Delbanco T, Anderson-Shaw L, McDonald TB, Gallagher TH. Accountability for medical error: Moving beyond blame to advocacy. Chest. 2011;140(2):519-526.

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