

# Healthcare practitioners' attitudes toward patient safety in hospital settings in Jeddah, Kingdom of Saudi Arabia

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## Abstract

**Purpose** – Patient safety focuses on minimizing risks that might occur to patients during provision of healthcare. The purpose of this study was to explore healthcare practitioners' attitudes towards patient safety inside different hospital settings in Jeddah, Kingdom of Saudi Arabia.

**Design/methodology/approach** – A descriptive, cross-sectional study was conducted on a sample of healthcare practitioners in main hospitals in Jeddah. Two main hospitals (one governmental and one private) were selected from each region of Jeddah (east, west, north and south), with a total number of eight out of thirty hospitals. Data were collected through the Attitudes to Patient Safety Questionnaire III that was distributed online.



The questionnaire used a 5-point scale. Descriptive statistics were used. Comparisons were made by independent *t*-test and ANOVA. The statistical significance level was set at  $p < 0.05$ .

**Findings** – The study included 341 healthcare practitioners of different sexes and specialties in eight major governmental and private hospitals in Jeddah. “Working hours as error cause” subscale had the highest mean score ( $4.03 \pm 0.89$ ), while “Professional incompetence as error cause” had the lowest mean score ( $3.49 \pm 0.97$ ). The total questionnaire had a moderate average score ( $3.74 \pm 0.63$ ). Weak correlations between the average score of the questionnaire and sex, occupation and workplace were found ( $-0.119$ ,  $-0.018$  and  $-0.088$ , respectively).

**Practical implications** – Hospitals need to develop targeted interventions, including continuing professional development programs, to enhance patient safety culture and practices. Moreover, patient safety training is required at the undergraduate education level, which necessitates health professions education institutions to give more attention to patient safety education in their curricula.

**Originality/value** – The study contributed to the existing literature on patient safety culture in hospital settings in Jeddah, Saudi Arabia. The insights generated by the study can inform targeted interventions to enhance patient safety culture in hospitals and improve patient outcomes.

**Keywords** Patient safety, Hospital settings, Medical errors, Healthcare practitioners

**Paper type** Research paper

## Introduction

According to the World Health Organization (WHO), millions of patients suffer injuries or die because of unsafe and poor-quality healthcare every year. This is especially notable in low- and middle-income countries, where millions of adverse events occur in their hospitals (WHO, 2021).

Safety was defined by Kohn, Corrigan, and Donaldson (2000), as “the freedom of accidental injury”. Moreover, the WHO reported that patient safety, as a healthcare discipline, aims to prevent and reduce risks, errors and harm that occur to patients during provision of healthcare (World Health Organization, 2016).

A fundamental principle of patient safety is continuous correction based on spreading the culture of safety in healthcare settings and on learning from errors and adverse events (Jha, 2018). For continuous and sustainable safety, major health organizations, such as the WHO, the National Patient Safety Foundation (NPSF), the Joint Commission International (JCI) and the Institute for Healthcare Improvement (IHI), encourage healthcare organizations to develop safety cultures that are effective (Nieva & Sorra, 2003; Elmontsri, Almashrafi, Banarsee, & Majeed, 2017).

Patient safety culture inside hospitals is always important and critical for any healthcare practitioner. During the past few decades, tremendous efforts have been made to reduce medical errors and to promote patient safety. However, the usual difficulty encountered has always been changing the organizational environment and inducing the culture of safety (Leape & Berwick, 2005).

Among the most important components of safety culture is the way of thinking of physicians, nurses and paramedical staff about medical errors. Studies have shown that this component can be boosted by suitable undergraduate education in health professions schools (Aron & Headrick, 2002; Walton & Elliott, 2006). Inclusion of instruction on patient safety in undergraduate health professions curricula, in addition to proper assessment of such instruction, is highly recommended (Ahmed, Adam, & Abd Al-Moniem, 2011).

In addition to international studies that evaluate patient safety culture in healthcare settings (Muller & Ornstein, 2007), there are few studies from the Middle East. Such studies were conducted in the Kingdom of Saudi Arabia (6 studies), Egypt (4 studies), Jordan (3 studies), Oman (2 studies), Kuwait (1 study), Lebanon (1 study) and Palestine (1 study). Of the 18 studies, 16 were conducted among hospital staff, while 2 were performed in primary care settings (Elmontsri *et al.*, 2017).

Among the six studies that were conducted to assess patient safety culture in the Kingdom of Saudi Arabia, a study was conducted in Riyadh to assess patient safety culture

among healthcare providers in major hospitals. It found that 60% of respondents rated the overall patient safety culture as excellent or very good, 33% rated it as acceptable and 7% rated it as poor. The study also identified areas of strength such as organizational learning, continuous improvement, teamwork, feedback and communication about mistakes (Alahmadi, 2010).

Additionally, two more studies were conducted to assess healthcare providers' attitudes towards patient safety in emergency departments of two governmental hospitals in Riyadh. The first study found that safety attitudes were not very positive and were correlated with the number of reported errors (Alzahrani, Jones, & Abdel-Latif, 2018). It suggested that patient safety training interventions and management support could improve safety attitudes and performance among healthcare providers. The second study identified factors that could either hinder or facilitate patient safety climate attitudes, such as the availability of patient safety resources, teamwork, communication and incident reporting (Alzahrani, Jones, & Abdel-Latif, 2019).

To contribute to the pressing global health demands, the Kingdom of Saudi Arabia has established a patient safety initiative to promote safety among healthcare practitioners and set priority for Patient Safety Research (Jeddah Declaration On Patient Safety, 2018; Saudi Statistical Yearbook, 2018). In line with this initiative, our study aimed to explore the healthcare practitioners' attitudes toward patient safety inside different governmental and private hospital settings in the city of Jeddah, Kingdom of Saudi Arabia.

## Methods

### *Study design*

This is a descriptive, cross-sectional study that explored the attitude of healthcare practitioners toward patient safety inside different hospital settings in the city of Jeddah, Saudi Arabia.

### *Sample*

Based on the governmental statistics of the healthcare practitioners in the city of Jeddah (Jeddah Declaration On Patient Safety, 2018; Saudi Statistical Yearbook, 2018), the minimum sample size was determined using G\*Power Software (Faul, Erdfelder, Lang, & Buchner, 2007) for  $\alpha = 0.05$ ,  $\beta = 0.95$ , effect size of 0.3, and degree of freedom = 5] to increase the precision of the study. The estimated minimum sample size was calculated as 280, however 341 participants completed the questionnaire. The study employed a clustered sampling technique to select the hospitals to include in the study, where the city of Jeddah was divided into four regions: East Jeddah, West Jeddah, North Jeddah and South Jeddah, and then two main hospitals (one governmental and one private) in each region were randomly identified and approached, with a total of 8 main hospitals out of thirty. Non-probability convenience sampling was then employed to recruit respondents from the selected hospitals.

Inclusion criteria of the study participants included being a healthcare practitioner aged between 25 and 60 years, working in hospital settings for at least 12 weeks prior to the data collection and regularly working for at least 20 hours per week inside the hospital setting.

### *Data collection*

Data was collected through the Attitude to Patients Safety Questionnaire-III [APSQ-III] developed and validated by Carruthers, Lawton, Sandars, Howe, and Perry (2009). The questionnaire was used in its original English format. The questionnaire was transformed

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into an online format using Google Forms and shared with the participants through the social relations offices of such hospitals.

The questionnaire consists of 26 statements covering nine key patient safety subscales: “Patient safety training received” (3 statements), “Error reporting confidence” (3 statements), “Working hours as an error cause” (3 statements), “Error inevitability” (3 statements), “Professional incompetence as an error cause” (4 statements), “Disclosure responsibility” (3 statements), “Team functioning” (2 statements), “Patient involvement in reducing error” (2 statements) and “Importance of patient safety in the curriculum” (3 statements). The first and last subscales are concerned with learning of patient safety in undergraduate health professions education programs. Responses to each statement were rated on a 5-point Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Six statements (11, 14–17, 25) were reverse scored, according to the instrument.

### *Data analysis*

Data was analyzed using IBM SPSS v.25. Descriptive statistics were used, and data were presented in the form of means and standard deviations. Demographic data was presented as frequencies and percentages. Comparisons of responses were made by independent samples *t*-test. Analysis of variance (ANOVA) was used for comparing more than two groups. Pearson’s correlation test was used to explore correlations between dependent and independent variables. The level of significance was set at  $p < 0.05$ .

### *Ethical approval*

Ethical approval was obtained from the ISNC Research and Ethics Committee (REF No: H-10-03062021) in accordance with the Declaration of Helsinki for human studies ([World Medical Association Declaration of Helsinki, 2008](#)). Participants were informed about the purpose of the study and were given the right to decline to participate in the study for any reason. Ethical conduct was maintained during data collection and throughout the research process. Data was kept confidential, and the survey form was anonymous. A written approval was sought from the authors of the [APSQ-III] tool.

## **Results**

The study employed an online version of the Attitude to Patients Safety Questionnaire-III (APSQ-III). The online questionnaire was forwarded to 1052 healthcare practitioners in eight main hospitals in the four regions of the city of Jeddah, Saudi Arabia, but only 341 of them responded ( $n = 341$ ; response rate = 32.4%). The reliability study of the collected data revealed high internal consistency (Cronbach’s alpha = 0.862).

The respondents were from both governmental (88.3%) and private (11.7%) hospitals. Males were more than two-thirds of the study sample (68.3%). Half of the participants were physicians (50.7%), while the other half consisted of nurses, paramedics, and other healthcare workers like physiotherapists, pharmacists . . . etc. ([Table 1](#)).

The mean scores for individual questionnaire statements were not high, except for a few statements; the statement “*The number of hours doctors work increases the likelihood of making medical errors*” had the highest mean score ( $4.11 \pm 1.26$ ), while the statement “*It is not necessary to report errors which do not result in adverse outcomes for the patient*” had the lowest mean score ( $3.20 \pm 1.63$ ). Among the nine subscales of the questionnaire, “Working hours as error cause” subscale had the highest mean score ( $4.03 \pm 0.89$ ), while the subscale “Professional incompetence as error cause” had the lowest mean score ( $3.49 \pm 0.97$ ). Moderate mean scores were given to the statements representing the subscale “Patient safety training received,” while higher mean scores were given to the subscale “Importance of patient safety

**Table 1.**  
Demographic profile of  
the study  
population ( $n = 341$ )

Demographics	Number	Percentage
<i>Sex</i>		
Males	233	68.3%
Females	108	31.7%
<i>Occupation</i>		
Physicians	173	50.7%
Nurses	102	29.9%
Paramedics	33	9.7%
Others*	33	9.7%
<i>Workplace</i>		
Governmental	301	88.3%
Private	40	11.7%
<i>Total</i>	<i>341</i>	<i>100%</i>

**Note(s):** \* Physiotherapists, pharmacists . . . etc  
**Source(s):** Table by authors

in the curriculum.” The total questionnaire had a moderate average score of  $(3.74 \pm 0.63)$  as shown in [Table 2](#).

[Table 3](#) shows a weak correlation between the average score of the questionnaire and sex, occupation, and workplace. The correlation is statistically significant only with sex ( $p < 0.05$ ), while it is statistically insignificant ( $p > 0.05$ ) with occupation and workplace.

Mean scores of the responses of male and female participants were compared through independent samples *t*-test ([Table 4](#)). Results revealed a statistically significant difference ( $p < 0.05$ ) between the average responses of male and female participants regarding two of the nine subscales (“Error inevitability” and “Professional incompetence as error cause”), in addition to the average mean score of the whole questionnaire. In general, the mean scores for all the subscales and the whole questionnaire were higher for male than female participants.

Mean scores of the responses of participants from governmental and private hospitals were compared through independent samples *t*-test ([Table 5](#)). Results revealed no statistically significant difference ( $p > 0.05$ ) between the average responses of participants from governmental and private hospitals in any of the nine subscales, although participants from governmental hospitals had higher mean scores than those from private hospitals in most of the subscales.

ANOVA test revealed a statistically significant difference ( $p < 0.05$ ) between the mean scores of participants from the different occupations regarding the two subscales that address the causes of medical errors (“Working hours as error cause” and “Professional incompetence as error cause”), as shown in [Table 6](#).

## Discussion

This descriptive cross-sectional study was conducted to explore the attitude of healthcare practitioners towards patient safety in different hospitals in Jeddah City, Saudi Arabia. A validated online questionnaire about Attitude to Patients Safety Questionnaire-III (APSQ-III) was used to collect the healthcare practitioners’ responses regarding their attitudes towards patient safety. The tool assesses the health professionals’ agreement against 26 items that are categorized under 9 attitude subscales. The study participants were 341 healthcare practitioners. The majority of respondents were males. Half of them were physicians. The vast majority of the respondents work in governmental hospitals.

S	Statement	Mean ( $\pm$ SD)	Min – Max
<i>Patient safety training received</i>		3.62 ( $\pm$ 1.04)	
1	My training is preparing me to understand the causes of medical errors	3.61 ( $\pm$ 1.47)	1 – 5
2	I have a good understanding of patient safety issues as a result of my undergraduate medical training	3.57 ( $\pm$ 1.39)	1 – 5
3	My training is preparing me to prevent medical errors	3.68 ( $\pm$ 1.48)	1 – 5
<i>Error reporting confidence</i>		3.81 ( $\pm$ 0.94)	
4	I would feel comfortable reporting any errors I had made, no matter how serious the outcome had been for the patient	3.80 ( $\pm$ 1.41)	1 – 5
5	I would feel comfortable reporting any errors other people had made, no matter how serious the outcome had been for the patient	3.72 ( $\pm$ 1.27)	1 – 5
6	I am confident I could talk openly to my supervisor about an error I had made if it had resulted in potential or actual harm to my patient	3.91 ( $\pm$ 1.29)	1 – 5
<i>Working hours as error cause</i>		4.03 ( $\pm$ 0.89)	
7	Shorter shifts for doctors will reduce medical errors	4.01 ( $\pm$ 1.38)	1 – 5
8	By not taking regular breaks during shifts doctors are at an increased risk of making errors	3.97 ( $\pm$ 1.22)	1 – 5
9	The number of hours doctors work increases the likelihood of making medical errors	4.11 ( $\pm$ 1.26)	1 – 5
<i>Error inevitability</i>		3.62 ( $\pm$ 0.91)	
10	Even the most experienced and competent doctors make errors	3.85 ( $\pm$ 1.45)	1 – 5
11	A true professional does not make mistakes or errors (R)	3.22 ( $\pm$ 1.49)	1 – 5
12	Human error is inevitable	3.79 ( $\pm$ 1.37)	1 – 5
<i>Professional incompetence as error cause</i>		3.49 ( $\pm$ 0.97)	
13	Most medical errors result from careless nurses	3.30 ( $\pm$ 1.57)	1 – 5
14	If people paid more attention at work, medical errors would be avoided (R)	3.85 ( $\pm$ 1.27)	1 – 5
15	Most medical errors result from careless doctors (R)	3.39 ( $\pm$ 1.49)	1 – 5
16	Medical errors are a sign of incompetence (R)	3.44 ( $\pm$ 1.45)	1 – 5
<i>Disclosure responsibility</i>		3.55 ( $\pm$ 0.95)	
17	It is not necessary to report errors which do not result in adverse outcomes for the patient (R)	3.20 ( $\pm$ 1.63)	1 – 5
18	Doctors have a responsibility to disclose errors to patients only if they result in patient harm	3.42 ( $\pm$ 1.45)	1 – 5
19	All medical errors should be reported	4.04 ( $\pm$ 1.31)	1 – 5
<i>Team functioning</i>		3.98 ( $\pm$ 1.03)	
20	Better multi-disciplinary teamwork will reduce medical errors	3.98 ( $\pm$ 1.40)	1 – 5
21	Teaching teamwork skills will reduce medical errors	3.99 ( $\pm$ 1.25)	1 – 5
<i>Patient involvement in reducing error</i>		3.93 ( $\pm$ 0.96)	
22	Patients have an important role in preventing medical errors	3.84 ( $\pm$ 1.34)	1 – 5
23	Encouraging patients to be more involved in their care can help to reduce the risk of medical errors occurring	4.02 ( $\pm$ 1.16)	1 – 5
<i>Importance of patient safety in the curriculum</i>		3.84 ( $\pm$ 0.82)	
24	Teaching students about patient safety should be an important priority in medical students training	4.05 ( $\pm$ 1.29)	1 – 5
25	Patient safety issues cannot be taught and can only be learned by clinical experience when qualified (R)	3.46 ( $\pm$ 1.40)	1 – 5
26	Learning about patient safety issues before I qualify will enable me to become a more effective doctor	4.03 ( $\pm$ 1.25)	1 – 5
<i>Average Questionnaire Score</i>		3.74 ( $\pm$ 0.63)	

**Note(s):** R: Reverse scored  
**Source(s):** Table by authors

**Table 2.**  
Healthcare practitioners' responses to the attitude to patients safety questionnaire (n = 341)

In the current study, respondents strongly perceived that the working hours are the main cause of medical errors and hence strongly affects patient safety, as “Working hours as error cause” had the highest mean score among all subscales. Our finding is congruent with the

findings of another study that showed that long work hours lead to short sleep duration and sleep disturbances, which is significantly associated with an increased risk of medical error and possible harm to the patients, especially in workloads of more than 40 hours per week and long overtime shifts of more than 12.5 hours per shift (Rogers, Hwang, Scott, Aiken, & Dinges, 2004). Multiple other studies supported the link between working hours and fatigue-related errors that could harm patients (Caruso, 2014; Brasaita, Kaunonen, Martinkenas, & Suominen, 2016).

**Table 3.**  
Correlation between the average questionnaire score and independent variables

		Sex	Occupation	Workplace
Average Score	Pearson Correlation	-0.119	-0.018	-0.088
	Sig. (2-tailed)	0.028*	0.737	0.105

**Note(s):** \* Statistically significant  
**Source(s):** Table by authors

**Table 4.**  
Male versus female participants' responses to the questionnaire subscales

Questionnaire subscales	Males ( <i>n</i> = 233) Mean (±SD)	Females ( <i>n</i> = 108) Mean (±SD)	t	Sig
Patient safety training received	3.67 (±1.04)	3.52 (±1.03)	1.17	0.244
Error reporting confidence	3.86 (±0.96)	3.71 (±0.91)	1.38	0.168
Working hours as error cause	4.07 (±0.87)	3.93 (±0.91)	1.41	0.160
Error inevitability	3.70 (±0.84)	3.45 (±1.02)	2.23	0.027*
Professional incompetence as error cause	3.59 (±0.97)	3.30 (±0.95)	2.54	0.012*
Disclosure responsibility	3.57 (±0.97)	3.51 (±0.91)	0.55	0.581
Team functioning	4.01 (±1.04)	3.93 (±0.99)	0.71	0.479
Patient involvement in reducing error	4.00 (±0.99)	3.80 (±0.85)	1.74	0.083
Importance of patient safety in the curriculum	3.87 (±0.82)	3.79 (±0.83)	0.82	0.415
Average Questionnaire Score	3.79 (±0.62)	3.63 (±0.63)	2.21	0.028*

**Note(s):** \* Statistically significant  
**Source(s):** Table by authors

**Table 5.**  
Responses of participants from governmental versus private healthcare workplace settings (*n* = 341)

Questionnaire subscales	Governmental workplace ( <i>n</i> = 301) Mean (±SD)	Private workplace ( <i>n</i> = 40) Mean (±SD)	t	Sig
Patient safety training received	3.62 (±1.05)	3.62 (±0.95)	0.03	0.979
Error reporting confidence	3.83 (±0.95)	3.63 (±0.89)	1.26	0.207
Working hours as error cause	4.06 (±0.89)	3.78 (±0.76)	1.87	0.063
Error inevitability	3.65 (±0.91)	3.41 (±0.89)	1.56	0.119
Professional incompetence as error cause	3.52 (±0.97)	3.40 (±0.93)	0.83	0.231
Disclosure responsibility	3.57 (±0.96)	3.41 (±0.93)	0.97	0.332
Team functioning	4.00 (±1.02)	3.95 (±1.07)	0.22	0.825
Patient involvement in reducing error	3.92 (±0.97)	3.96 (±0.85)	0.24	0.809
Importance of patient safety in the curriculum	3.86 (±0.83)	3.73 (±0.78)	0.90	0.368
Average Questionnaire Score	3.76 (±0.63)	3.59 (±0.61)	1.63	0.105

**Note(s):** \* Statistically significant  
**Source(s):** Table by authors



Total questionnaire and subscales	Physicians ( <i>n</i> = 173)	Nurses ( <i>n</i> = 102)	Paramedics ( <i>n</i> = 33)	Others ( <i>n</i> = 33)	F	Sig
Patient safety training received	3.56 (±1.07)	3.70 (±1.00)	3.71 (±0.74)	3.63 (±1.22)	0.48	0.698
Error reporting confidence	3.79 (±1.00)	3.83 (±0.86)	3.79 (±0.82)	3.89 (±1.10)	0.12	0.947
Working hours as error cause	4.18 (±0.84)	3.84 (±0.94)	3.73 (±0.81)	4.14 (±0.91)	4.76	0.003*
Error inevitability	3.64 (±0.86)	3.64 (±0.88)	3.78 (±0.96)	3.29 (±1.14)	1.85	0.138
Professional incompetence as error cause	3.41 (±0.95)	3.69 (±0.92)	3.89 (±0.79)	2.95 (±1.10)	7.53	0.000*
Disclosure responsibility	3.48 (±1.00)	3.64 (±0.90)	3.71 (±0.87)	3.55 (±0.94)	0.92	0.432
Team functioning	4.06 (±1.06)	3.82 (±0.98)	3.88 (±0.95)	4.20 (±1.02)	1.80	0.147
Patient involvement in reducing error	3.98 (±0.91)	3.86 (±1.00)	3.67 (±1.00)	4.14 (±1.01)	1.68	0.170
Importance of patient safety in the curriculum	3.86 (±0.79)	3.84 (±0.86)	3.83 (±0.88)	3.77 (±0.85)	0.11	0.952
Average Questionnaire Score	3.74 (±0.61)	3.75 (±0.62)	3.78 (±0.67)	3.66 (±0.74)	0.23	0.877

**Note(s):** \* Statistically significant

**Source(s):** Table by authors

**Table 6.**  
Analysis of variance (ANOVA) among the responses of participants of different occupations (*n* = 341)

However, two other studies that were conducted among medical students in Saudi Arabia and Pakistan revealed that “Team functioning” had the highest mean scores (Kamran, Bari, Khan, & Al-Eraky, 2018; Alshahrani *et al.*, 2021). This can be explained by the difference of the population among the studies as medical students might not be aware of the magnitude of longer work hours on performance when compared to practicing health professionals. On the other hand, our findings are consistent with Brasaite *et al.* (2016) who reported that those who received either undergraduate training on patient safety or continuing education about the same topics have similar positive attitude towards patients’ safety except for the teamwork climate in the practitioners’ group.

The overall attitude of participants was less positive in most subscales which is in partial agreement with Al-Mugheed *et al.* (2022). However, the least attitude score was found to be with the necessity of reporting errors when no adverse outcomes happen. This result is consistent with the findings of Muller and Ornstein (2007) and might be explained by the link between patient safety attitude and the fear of accusations of malpractice or losing license.

Responses of male and female participants in regard to the subscales of “Error inevitability” and “Professional incompetence as error cause” showed a statistically significant difference. Similar findings were reported by other studies (Almaramhy, Al-Shobaili, El-Hadary, & Dandash, 2011; Kiesewetter *et al.*, 2014). This may be explained by a male preference of specialties that carry higher chance of error occurrence and that require high degree of professional competence, like surgical and other interventional specialties, which makes them believe that medical errors are inevitable and seek all possible ways of improving professional competence to avoid them. Female trainees in another study by Muller and Ornstein (2007) were more likely to feel guilty and angry at themselves and were afraid of losing confidence if they made an error.

There were no statistically significant differences between healthcare practitioners from governmental and private hospitals in any of the questionnaire subscales. This is in congruence with the findings of a study conducted by Chegini, Janati, Afkhami, Behjat, and



Shariful Islam (2020), where they found no statistically significant difference between the participants of the study who were affiliated public and private hospitals.

Among the subscales that received an average mean score from the study participants was “Disclosure responsibility,” although there was high agreement among them that all medical errors should be reported. This is consistent with the findings of Carruthers *et al.* (2009) and Hammami, Attalah, and Al Qadire (2010) who reported that the responsibility of disclosing medical errors poses a big dilemma in health settings in Saudi Arabia. This might be caused by the fear of taking responsibility of the errors or the bad consequences on own job stability.

The study participants provided average mean scores that reflected their attitude towards “Patient safety training received” and the effect of that training in their understanding of causes and patient safety related practices. This finding might reflect that the training on patient safety in the undergraduate years or later on might not be perceived as effective by study participants. These findings support the assumptions that healthcare practitioners must be well-trained on patient safety, which is also supported by Carruthers *et al.* (2009) and Almaramhy *et al.* (2011), who reported the necessity of teaching patient safety in medical schools and continuous professional development of healthcare practitioners. Participants in another study conducted in Saudi Arabia had high attitude score towards the importance of training and learning on patient safety. In the meantime, they were not satisfied with undergraduate training on patient safety (Al-Khaldi, 2013). These findings are supported by the responses given to the subscale “Importance of patient safety in the curriculum” in the current study, as most of the participants believe that undergraduate training on patient safety should be a priority and that proper training in patient safety must be a prerequisite for qualifying medical practitioners.

Based on this study, we believe that hospitals need to develop targeted interventions, including continuing professional development programs, to enhance patient safety culture and practices. Moreover, patient safety training is required at the undergraduate education level, which necessitates health professions education institutions to give more attention to patient safety education in their curricula.

The strengths of this study include using a valid, reliable well-known tool, recruiting participants from different health professions, and focusing on both governmental and private sectors hospitals. The reliability score of responses to the current study was high which adds to its credibility. However, this study has some limitations. First, we used an online questionnaire which might have affected the credibility of the collected data. Second, although the study employed cluster sampling to choose the hospitals to be studied, it employed non-probability convenience sampling to recruit the respondents from each hospital. Third, the data might not reflect the actual behavior of the respondents, being based on a self-reported questionnaire.

### Conclusion

Attitudes of healthcare practitioners toward patient safety were acceptable in almost all the examined subscales despite the differences in occupation or workplace. Participants considered work hours as a significant cause of patient safety-related errors. They perceived that more training is required at the level of both undergraduate education and continuing professional development.

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