



## Perceived Patient Safety Culture among Healthcare Providers in Southern Jordanian Hospitals during COVID-19 Pandemic

Asma Alamsidin RN MSN<sup>1</sup>; Mohammad Alyahya PhD<sup>2</sup>; Mohammad Suliman RN PhD<sup>3\*</sup>;  
Nihaya Al-Sheyab RN PhD<sup>4</sup>; Mohammed ALBashtawy RN PhD<sup>5</sup>

<sup>1</sup> Department of Health Management and Policy, Jordan University of Science and Technology, Irbid, Jordan.

<sup>2</sup> Professor, Department of Health Management and Policy, Jordan University of Science and Technology, Irbid, Jordan.

<sup>3</sup> Associate Professor, Department of Community and Mental Health Nursing, Al-alBayt University, Al-Mafraq, Jordan.

\* Corresponding Author. Email: Mbarahemah@aabu.edu.jo

<sup>4</sup> Professor, Department of Allied Medical Sciences, Jordan University of Science and Technology, Irbid, Jordan.

<sup>5</sup> Professor, Department of Community and Mental Health Nursing, Al-alBayt University, Al-Mafraq, Jordan.

### ARTICLE INFO

#### Article History:

Received: December 11, 2022

Accepted: February 24, 2023

### ABSTRACT

**Background:** The first step towards creating safe circumstances for patient care is to conduct thorough and ongoing assessments of the safety culture in the healthcare sector. **Purpose:** The purpose of this study was to assess healthcare professionals' perceived culture of patient safety during the 2019 corona virus disease (COVID-19) outbreak in southern Jordanian hospitals. **Methods:** A descriptive, cross-sectional research of healthcare professionals (physicians, nurses and their administrators) was carried out. An Arabic translation of the Hospital Survey of Patient Safety Culture (HSPSC) questionnaire was used to collect information from 531 healthcare providers between July and November 2021 in four hospitals in Southern Jordan. **Results:** Nurses perceived 'staffing' as the highest dimension of the twelve dimensions of safety culture. However, they perceived 'reporting patient safety events' as the lowest dimension. The results show that healthcare providers perceived the twelve dimensions of patient safety culture as weakness areas that need improvement. The number of patient safety events reported by respondents in public hospitals was significantly ( $p < 0.05$ ) higher than the number of those reported by respondents in private ones ( $2.4 \pm 0.71$  vs.  $2.8 \pm 0.98$ , respectively). **Conclusions:** Hospitals in southern Jordan need to improve their patient safety culture procedures as well as patient safety aspects, such as personnel, handoffs and reporting-related components. **Implications for Nursing:** Hospital policies need to be adopted in a way that enhances a blame-free culture and an organized safety education program for all healthcare providers, especially new staff. Healthcare providers should be motivated to work as a team through a more reasonable allocation of authority and commission of work.

**Keywords:** Patient safety, Safety culture, Southern Jordan, COVID-19 pandemic.

### What does this paper add?

1. Nurses perceived "staffing" as the highest dimension of the twelve dimensions of safety culture. However, they perceived "reporting patient safety events" as the lowest dimension.
2. Healthcare providers in southern Jordanian hospitals

- perceived the twelve dimensions of patient safety culture as weakness areas that need improvement.
3. The number of patient safety events reported by respondents in public hospitals was significantly higher than the number of those reported by respondents in private ones.

4. There was a significantly higher rating of patient safety in units from private hospitals compared to those from public hospitals.

## Introduction

Following the 1999 report *"To Err Is Human"* by the Institute of Medicine (IOM), the importance of patient safety in healthcare organizations has increased due to concerns about providing high-quality care with few untoward incidents. Of the 170,000 and 251,000 annual deaths, medical errors are reported as the third major cause of death in the US (Institute of Medicine, 2000; Makary and Daniel, 2016). Every healthcare institution has placed a strong emphasis on the idea of 'safety culture', as it aids in the early identification and avoidance of mistakes (Halligan and Zecevic, 2011). In order to improve a safe environment, healthcare institutions frequently examine their safety culture (Nieva and Sorra, 2003; Flin, 2007).

Patient safety should be taken into account in medical facilities at every conceivable level, especially during pandemics. During the recent COVID-19 pandemic, healthcare workers are the most impacted people worldwide. They seem to have different patient-safety cultures worldwide depending on their workplace (Shaw et al., 2020; Huang et al., 2021).

Jordanian nurses thought that patient safety needed improvement and was not adequate (Suliman, 2015). Some of the factors that are affected by the idea of patient safety fall under the general heading of 'patient safety culture.' Patient safety culture is defined as 'a product of individual and group values, attitudes, perceptions, competencies and patterns of behavior that determine the commitment to and the style and proficiency of an organization's health and safety management'. In a Jordanian hospital, Mansour and Sharour (2021) found a weak correlation between nurses' age, personal weariness and turnover intentions and their perceived patient safety culture. Teamwork within units, feedback and communication regarding errors and organizational education-continual improvement were rated as three strengths of the patient safety culture in Jordan (Malak et al., 2022). Routine safety culture assessments were suggested to give hospital managers crucial information on the areas that require change to support patient safety culture. Patient safety culture was described as 'moderate' by nurses. Hence, the perceptions of patient safety culture among

nurses in Jordan need to be improved (Malak et al., 2022). Similarly, Mrayyan (2022) found that non-punitive responses to mistakes and unit cohesion were influential points in patient safety culture. It seems that the healthcare system in Jordan has faced several difficulties as a result of the COVID-19 outbreak, which has drawn researchers' attention to the possible effects of the pandemic on patient safety culture. Studies on patient safety in Jordanian hospitals during the COVID-19 pandemic, particularly in southern Jordanian hospitals, are limited.

## Significance of the Study

To date, there is no well-organized assessment of the impact of COVID-19 pandemic on patient safety. In addition to its impact on patients, COVID-19 has also placed a significant burden on healthcare systems, with serious consequences for the way in which healthcare services are delivered. Severe changes in care delivery models have been observed during COVID-19 pandemic due to mandatory restrictions and global concerns over the disease. The changes resulting from this pandemic included increased workloads, relocation of routine services and a requirement to treat patients with this unknown disease (World Health Organization, 2020).

Working under these tough conditions will affect employees' ability to provide safe and effective care. One way to gain insight into the status of patient safety is by assessing safety culture and frequent incident reporting. Incident reporting is an essential feature of safety culture (Lawati et al., 2018). Reporting an error or an adverse event is not just about measuring damage at the organizational level. It will recognize differences in care delivery, improve learning and demonstrate employees' willingness to reinforce quality concerns.

The COVID-19 outbreak in Jordan has created great challenges to the healthcare system, which sparked our focused attention on the potential impact of the pandemic on patient safety culture. Therefore, this study aims to provide a general assessment of the effect of COVID-19 pandemic on patient safety incident reports and medical errors in terms of patient safety at hospitals in southern Jordan.

The study tried to answer the following questions:

- 1- What are nurses' perceptions of patient safety culture among healthcare providers in southern Jordanian hospitals during the period of the spread

of COVID-19 pandemic?

- 2- What are the differences in the twelve campsites of patient safety culture across the different hospital types, professions and working areas?

## **Methods**

### **Design**

A descriptive, cross-sectional survey was conducted from July until the end of November 2021.

### **Study Setting**

Southern Jordan consists of four governorates (Al-Karak, Al-Tafileh, Ma'an and Aqaba), where there are four governmental hospitals, four private hospitals, three military hospitals and several specialized medical clinics. The area of southern Jordan has an appropriate number of healthcare service providers. Further, we chose the southern Jordanian hospitals, because there had been little comparable studies conducted in this setting. Convenient sampling approach was used in both public and private hospitals. In the southern Jordanian healthcare system, three public hospitals and one private hospital were chosen. The research sample was drawn from healthcare providers (physicians, nurses and administrators) at each chosen institution using a convenience sampling method.

### **Study Sample**

The accessible population included healthcare providers who were working in the four selected hospitals. According to Cohen's power primer, at a level of significance of 0.05 and a power of 0.80, the minimum sample size was 107 participants (Cohen, 1992). However, to make the study more representative, the researchers chose 600 healthcare professionals. A sample of 531 healthcare professionals completed and returned the survey (response rate = 88.5%).

### **Instrumentation**

The Hospital Survey of Patient Safety Culture (HSPSC) questionnaire was used in this study. Researchers working for the Agency of Health Care Quality (AHRQ) under a contract created the HSPSC questionnaire (Mardon et al., 2010). It was created to examine how hospital staff perceive patient safety culture and gauge their perceptions of significant patient safety-related cultural characteristics in their workplaces (Mardon et al., 2010). By providing a snapshot of the

safety culture at a particular time point, Waterson et al. (2019) confirmed the importance of this survey in evaluating patient safety culture.

The HSPSC questionnaire includes a total of forty-four questions, the first two questions were designed to specify the specialty with working area, while the remaining forty questionnaire items were on a five-point Likert scale. In addition to the twelve dimensions, the respondents were asked to provide an overall grade on patient safety for their working area/unit and to indicate the number of events they reported over the past twelve months. This survey was created to assess twelve dimensions of patient safety culture, with three or four items per dimension. Seven dimensions were used to assess safety culture at the unit level, including: 1) Communication openness; 2) Communication about the error; 3) Organizational continuous improvement; 4) Supervisors'/managers' expectations and actions promoting safety; 5) Non-punitive response to error; 6) Teamwork; and 7) Staffing, while two dimensions assess safety culture at the hospital level, including 8) Handoffs and transitions; and 9) Management support for patient safety. Also, four outcome measures are included in the tool: two multiple items, 10) Overall perceptions of patient safety; and 11) Frequency of event reporting, as well as two additional single items, 12) patient safety degree and number of events reported. Some items concerning background demographic information are included.

The internal consistency coefficients for this tool ranged from 0.40 to 0.83. Seven out of the twelve variables met the standard dependability of 0.70. With the exception of the staffing subscale, the tool was tested to be valid (Blegen et al., 2009).

The survey was translated into Arabic by the authors with support from a linguistic expert and then back-translated to ensure that the meaning of the survey was not changed. The translated versions were then checked for face and content validity by a group of experts, including healthcare professionals in Jordan. The Arabic-translated version showed good face and content validity.

### **Reliability Analysis**

The average internal consistency of nine dimensions was 0.749. Three dimensions had an internal consistency that was questionable, with a Cronbach's alpha of less than 0.70. Cronbach's alpha was 0.630 for

handoffs and information exchange, 0.635 for teamwork and 0.614 for organizational education - continual improvement. However, the Cronbach's alpha score for communication about mistaken items was the greatest (0.870). The other five dimensions, which ranged in quality from 0.734 to 0.797, were all good. As a result, the complete body of data was accepted, because all adopted dimensions had a satisfactory Cronbach's alpha.

### **Data-collection Procedure**

Healthcare professionals who met the inclusion criteria of having worked for at least six months were asked to participate in the survey. Healthcare professionals who often deal with patients, such as doctors and nurses, as well as administrators, managers, or supervisors at hospitals were invited to take part in the survey. The administrations of the chosen hospitals were visited by a member of the research team who had approval from the local Institutional Review Board (IRB) and the Ministry of Health. The researchers began gathering data with assistance from the human resources' division after receiving consent from the official manager. Before filling out the questionnaire, participants were required to sign an informed consent form. However, they were advised to get in touch with the lead researcher if they had any inquiries about the study. The study was carried out from July to the end of November 2021. The participants had been given a self-reported survey (HSPSC) using a paper-based distribution method. According to the quantity and job categorization of the personnel in a given department, a set of questionnaire forms was given out to them. They were requested to thoroughly read and complete the questionnaire during their free time. After two days, the completed questionnaire forms were collected and at the same time, unanswered questions were given to workers who joined their colleagues. This process was repeated until all necessary questions had been answered.

### **Ethical Considerations**

The Institutional Review Board (IRB) at JUST as well as the Jordanian Ministry of Health (MOH) provided their approval for this study's ethical conduct. Participants have been made aware that taking part is completely optional and that all information acquired will be kept private. No name or any other identification of the participants was asked for, in order to maintain

anonymity and confidentiality. All data was stored in the chief investigator's office in a locked cabinet and handled with utmost secrecy.

### **Data Management and Analysis**

The HSPSC questionnaire's variables were initially coded and entered in the Statistical Package for Social Sciences (SPSS), version 23 (IBM Corp, Chicago), then divided into 42 variables related to patient safety culture and 4 background variables. There were forty-four data variables in total. To analyze the data, all test variables were coded and entered in an SPSS computer file (dataset) according to the level of measurement. The data was verified and cleaned to avoid errors that could significantly affect the results' analysis and interpretation. Also, the data was checked for outliers. Using descriptive data, the patient safety culture during the COVID-19 pandemic was described. A test of normality of the dimensions' data demonstrated that the data was not normally distributed. Thus, non-parametric tests were used to verify differences by using the Mann-Whitney test and the Kolmogorov-Smirnov test. All the data was significant ( $P < 0.05$ ), meaning that the normality test "failed".

## **Results**

### **Study Sample Characteristics**

The total study sample was 531 medical workers. Most of the respondents were working at public hospitals (84.9%), the majority were nurses (60.1%), followed by physicians (34.8%). They were working at several levels and areas of the hospital; patient care units constituted the highest percentage of working areas (53.9%), followed by medical-surgical units (22.8%). (Table 1).

### **The Mean Scores for the Twelve HSPSC Questionnaire Dimensions**

Table 2 demonstrates the nurses' perceptions of patient safety culture among healthcare providers in southern Jordanian hospitals during the period of the COVID-19 pandemic. The results show that the highest average positive response was for 'staffing' (47.1%) and the lowest averages were for 'reporting of patient safety events' (32.8%) and 'frequency of event reports' (31.7%). According to the Agency of Health Care Quality (AHRQ) criteria, all patient safety dimensions that have positive responses below 50% are considered

weakness areas. Thus, our results show that the healthcare providers perceived the twelve dimensions of

patient safety culture as weakness areas that need improvement.

**Table 1. Participants' characteristics**

<b>Variables</b>	<b>N</b>	<b>(%)</b>
<b>Hospital</b>		
<i>Private</i>	80	(15.1)
<i>Public</i>	451	(84.9)
<b>Total</b>	531	(100.0)
<b>Profession</b>		
<i>Nurses</i>	319	(60.1)
<i>Physicians</i>	185	(34.8)
<i>Administrators (supervisors, managers)</i>	27	(5.1)
<b>Total</b>	531	(100.0)
<b>Working Area</b>		
<i>Multiple Units and Services</i>	83	(15.6)
<i>Medical or Surgical Units</i>	121	(22.8)
<i>Patient Care Units</i>	286	(53.9)
<i>Administration/Management</i>	41	(7.7)
<b>Total</b>	531	(100.0)

**Table 2. Means and standard deviations of the twelve dimensions of hospital survey on the patient safety culture (N=531)**

<b>Dimensions</b>	<b>Mean (SD)</b>	<b>Negative responses</b>	<b>Neutral responses</b>	<b>Positive responses</b>
The supervisor's/manager's expectations and actions in promoting patient safety	2.94 (.536)	30.1%	30.2%	39.7%
Organizational education-continual improvement	3.21 (.629)	25.7%	29.1%	45.2%
Teamwork within units	3.15 (.671)	28.4%	27.9%	43.8%
Communication openness	3.18 (.638)	28.0%	29.8%	42.2%
Feedback and communication about error	3.26 (.998)	23.9%	32.5%	43.6%
Non-punitive response to the error	3.01 (.656)	30.0%	29.1%	40.9%
Staffing	2.94 (.534)	28.0%	33.8%	47.1%
Hospital management support for patient safety	3.04 (.582)	28.7%	31.3%	40.0%
Reporting patient safety events	3.00 (1.006)	33.6%	33.6%	32.8%
Hospital handoffs and transitions	3.04 (.658)	35.0%	29.9%	35.2%
The overall perception of safety	2.97 (1.015)	29.5%	38.0%	32.5%
Frequency of events reported	2.75 (.956)	33.6%	34.7%	31.7%

**Differences in HSPSC Mean Scores**

Table 3 demonstrates the differences in the twelve dimensions of patient safety culture across the different hospital types, professions and working areas. Non-parametric tests were used to verify the differences between public and private hospitals. The authors used the Mann-Whitney Test and the Kruskal-Wallis Test. In particular, we explored the dimensions of the questionnaire according to three dependent variables:

hospital type, profession and working area. We highlighted the significantly affected dimensions regarding patient safety culture.

The number of patient safety events reported by respondents in public hospitals was significantly ( $p<0.05$ ) higher than the number of those reported by respondents in private ones ( $2.4\pm0.71$  vs.  $2.8\pm0.98$ , respectively). The other outcome was the rating of the unit/work area for patient safety. There was a

significantly ( $p < 0.05$ ) higher rating of patient safety in units from private hospitals ( $3.2 \pm 0.87$ ) compared to units from public hospitals ( $2.9 \pm 1.03$ ). The staffing and workplace score was higher ( $p < 0.05$ ) in public hospitals than in private hospitals. Similarly, response to error, handoffs and information exchange scores were higher ( $p < 0.05$ ) in public hospitals than in private ones. Only hospital management support for patient safety score

was higher ( $p < 0.05$ ) in private hospitals than in public ones. Scores for teamwork, organizational education continual improvement, supervisor, manager or clinical support for patient safety, communication about error, communication openness and reporting patient safety events were all similar between public and private hospitals (Table 3).

**Table 3. Differences in HSPSC mean scores**

	Private		Public		Nurses		physicians		Administrators		Multiple units and Services		Medical/Surgical Units		Patient Care Units		Administration / Management		
	Mean	SD	Mean	SD	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)		
Number of patient safety events	2.4	0.71	2.8	-0.98	2.7	-0.99	2.9	-0.87	2.6	-1.08	2.6	-0.84	2.9	-0.86	2.8	-0.96	2.4	0.71	<0.001 **, **
<b>Sig p-value HSPSC Dimensions:</b>																			
Staffing and Workplace	2.6	-0.48	3	-0.52	2.9	-0.56	2.9	-0.48	3.1	-0.49	3.1	-0.5	2.9	-0.55	2.9	-0.53	2.6	-0.48	<0.001 *
Organizational Education-Continual Improvement	3.2	-0.61	3.2	-0.63	3.2	-0.67	3.2	-0.58	3.3	-0.48	3.4	-0.79	3.3	-0.61	3.1	-0.57	3.2	-0.61	.001 **
Response to error	2.7	-0.59	3.1	-0.65	3	-0.68	3	-0.63	2.9	-0.43	3.2	-0.85	3	-0.61	3	-0.62	2.7	-0.59	<0.001 *
Reporting patient safety events	3.1	0.47	3.2	0.66	3	1	2.9	1.03	3.5	0.8	2.9	1.19	2.9	0.94	3.1	0.99	3.1	0.09	0.017**
Communication about Error	3.3	-1.04	3.2	-0.99	3.2	-0.96	3.2	-1.05	3.9	-0.86	3.4	-1.27	3.3	-0.75	3.2	-1.01	3.3	-1.04	0.022**
Communication openness	3.2	.47	3.2	.66	3.2	.65	3.2	.62	3.4	.54	3.4	(.89)	3.1	(.61)	3.1	(.55)	3.3	(.58)	.004 **
Hospital Management Support	3.3	-0.43	3	-0.6	3	-0.57	3	-0.61	3.5	-0.35	3	-0.8	3	-0.48	3	-0.55	3.3	-0.43	<0.001 **, **
Handoffs and Information Exchange	2.8	-0.78	3.1	-0.63	3	-0.68	3	-0.63	3.2	-0.57	3.2	-0.75	3.1	-0.64	3	-0.63	2.8	-0.78	0.014**
																			.001 **, **
																			0.05**

**Discussion**

Medical associations must comprehend how healthcare professionals see patient safety during the COVID-19 pandemic, in order to change hospital culture and advance patient safety. As a result, the authors of this study sought to assess and ascertain the scope and makeup of the patient safety culture in southern Jordanian hospitals during the COVID-19 pandemic.

The findings revealed that ‘staffing’ perceived the highest rating among the twelve dimensions of safety culture. This result is not compatible with studies on Saudi hospitals (Alahmadi, 2010), Japanese hospitals (Fujita et al., 2013) and Lebanese hospitals (El-Jardali et al., 2010). US hospitals showed better scores on this dimension (Mardon et al., 2010) and were more compatible with our findings. Impaired healthcare provider staffing is a major challenge to the healthcare

system (Al-Hussami et al., 2014). The studied area represented good staffing in the working area, which is promising for the application of the concept of general safety and patient safety in southern Jordanian hospitals.

Further, the dimensions of ‘reporting patient safety events’ and ‘frequency of event report’ had the lowest values out of the twelve dimensions and needed quick refinement; this result was inconsistent with studies from the United States (Blegen et al., 2009; Mardon et al., 2010), but it was similar to the results of El-Jardali et al.’s (2014) study, which took place in Saudi Arabia and was also compatible with other studies (Hellings et al., 2007; Hamdan and Saleem, 2013). In Jordan, this result can be linked to ‘the blame culture’ of safety, which can be described by concentrating on individuals rather than on systems in handling errors. The professionals who make errors are blamed by the hospital administration and by their colleagues. The

priority of punishment in managing errors makes hospital policies weak in the face of preventing future errors and improving patient safety (Nieva and Sorra, 2003). By analogy, creating a culture in hospitals that supports presenting errors and informing them would enhance patient safety and provide integrated and high-quality health care while avoiding mistakes in the future (Blignaut et al., 2014).

The existence of a reporting system had a significant role in improving patient safety (Kohn et al., 1999), as it worked on detecting errors before they occurred, thus preventing their occurrence. Pronovost et al. (2008) were interested in event reporting systems and aimed to enhance the value of reporting systems *via* the design of specialized web-based patient safety reporting systems. The AHRQ noticed the power of reporting systems in improving patients' safety and included this concept in many areas of patient safety, like the tool used in the study. When an incident occurs in a healthcare institution, it has to comprehend what happened and why and explore methods to reduce the chance of its recurrence (Vincent, 2003). Patient safety reporting systems generally will discover what happened and search for its root causes to explain why the incident occurred and what preventive plans can be developed and implemented (Woods et al., 2017). In addition, the private hospital in the sample had a lower number of reporting systems; this may be due to traditional financial thoughts and their power in providing care, as well as the fact that healthcare providers may be terrified of reporting errors, which may negatively affect their promotions (Akinleye et al., 2019). It is important to recall that in this study, the authors demonstrated only one private hospital in the southern Jordanian region, which may put limitations on representing the results in the whole region.

Moreover, the study participants perceived 'organizational education-continual improvement' and 'teamwork within units' as being more positive compared to other dimensions of safety culture. The tendency for these dimensions to have the highest scores of positive responses among all dimensions of hospital safety culture is apparent (Blegen et al., 2009). An interesting area in Jordanian hospital safety culture was 'organizational education-continual improvement' This dimension received a low score compared to its scores in other research findings (Hamdan and Saleem, 2013; Nieva et al., 2003). Jordan currently requires all

healthcare facilities to be accredited. Many Jordanian hospitals have improved their performance since the establishment of the Health Care Accreditation Council (HCAC) that was founded in 2007, in order to fulfill the standards, set by the HCAC. Hence, Jordanian hospitals must improve their management systems to increase patient safety in order to comply with accreditation and quality improvement criteria (Longo et al., 2007).

In addition, the current study investigated four outcome variables of hospital safety culture as perceived by the sample from southern Jordanian hospitals. These variables included 'overall perception of patient safety', 'frequency of events reported', 'patient safety rating' and 'number of events reported.' The 'overall perception of patient safety' and 'the number of events reported' had the lowest values among all dimensions, which was similar to the result found by Hamdan and Saleem (2013). Moreover, because the reporting mechanism was similar to the outcomes observed in Palestinian (Hamdan and Saleem, 2013) and Taiwanese hospitals, it might pose a challenge to Jordan's culture of hospital safety (Fujita et al., 2013). Despite the fact that the study participants indicated how many incidents had occurred during the previous year, this information cannot be verified because of recall bias. However, it appears that the southern Jordanian healthcare professionals were dissatisfied with how they saw the hospital safety culture. These results imply that the sample had a number of safety issues that needed to be resolved.

### **Implications for Nursing**

The definition of safety culture should be clarified by healthcare institution decision-makers to enable all staff to follow it. This might be carried out through specialized training programs and lectures. The useless reporting methods and the cautious replies to errors, which were previously displayed in the results, are two of the most troubling problems. The private hospital in southern Jordan has identified reporting inaccuracies as a potential risk to patient safety. By promoting a blame-free environment, the management can improve the idea of reporting errors. Building a reference office (with particular duties and rules) that is specific to patient safety culture and climate is crucial in every healthcare facility. Hospital policies need to be developed and/or adapted to encourage a blame-free environment and a planned education program for all managers and

healthcare professionals, especially for new employees. Through a more sensible distribution of authority and the commission of work, staff members will be encouraged to collaborate. Finally, using public acknowledgements and certificates, teams should be rewarded for successes related to patient safety measures.

### Limitations and Strengths

The globe has been dealing with a pandemic (COVID-19) at the time the data was collected, which is said to have been the main challenge, because medical institutions were wary of studies pertaining to medical fields, especially the appraisal thereof. Despite the numerous instances where the AHRQ tool was used in relevant studies, the data was gathered *via* a self-report survey, which may be biased, because some concepts were misunderstood. Another drawback was the location; southern Jordan is a remote region with few resources, services and medical facilities. There are only a few private hospitals there and their restricted access

prevented the researchers from gathering data. Despite this, the setting was thought to be a strength given the scarcity of studies on topics similar to this one there. Also, the instrument items are strongly correlated with patient safety. The researchers in this study demonstrated the efficacy of management in promoting a patient safety culture as well as the limitations of some ideas that influence how patients perceive their safety culture. The study also demonstrated the need to maintain certain behaviors, such as teamwork, open communication and discussion regarding mistakes.

### Funding or Sources of Financial Support

No institutional support, non-commercial grants, commercial support and support or has been received for this study.

### Conflict of Interest

No conflict of interest is to be declared by the authors.

## REFERENCES

- Akinleye, D.D., McNutt, L.A., Lazariu, V., & McLaughlin, C.C. (2019). Correlation between hospital finances and quality and safety of patient care. *PLoS One*, *14* (8), 219-124.
- Alahmadi, H.A. (2010). Assessment of patient safety culture in Saudi Arabian hospitals. *Quality and Safety in Health Care*, *19* (5), 1-5.
- Al-Hussami, M., Darawad, M., Saleh, A., & Hayajneh, F.A. (2014). Predicting nurses' turnover intentions by demographic characteristics, perception of health and quality of work attitudes. *International Journal of Nursing Practice*, *20* (1), 79-88.
- Blegen, M.A., Gearhart, S., O'Brien, R., Sehgal, N.L., & Alldredge, B.K. (2009). AHRQ's hospital survey on patient safety culture: Psychometric analyses. *Journal of Patient Safety*, 139-144.
- Blignaut, A.J., Coetzee, S.K., & Klopper, H.C. (2014). Nurse qualifications and perceptions of patient safety and quality of care in South Africa. *Nursing & Health Sciences*, *16* (2), 224-231.
- Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychol. Bull.*, *112*, 1155-1159.
- El-Jardali, F., Jaafar, M., Dimassi, H., Jamal, D., & Hamdan, R. (2010). The current state of patient safety culture in Lebanese hospitals: A study at baseline. *International Journal for Quality in Health Care*, *22* (5), 386-395.
- El-Jardali, F., Sheikh, F., Garcia, N. A., Jamal, D., & Abdo, A. (2014). Patient safety culture in a large teaching hospital in Riyadh: Baseline assessment, comparative analysis and opportunities for improvement. *BMC Health Services Research*, *14* (1), 1-15.
- Flin, R. (2007). Measuring safety culture in healthcare: A case for accurate diagnosis. *Safety Science*, *45* (6), 653-667.
- Fujita, S., Seto, K., Ito, S., Wu, Y., Huang, C.C., & Hasegawa, T. (2013). The characteristics of patient safety culture in Japan, Taiwan and the United States. *BMC Health Services Research*, *13* (1), 1-10.
- Halligan, M., & Zecevic, A. (2011). Safety culture in healthcare: A review of concepts, dimensions, measures and progress. *BMJ Quality & Safety*, *20* (4), 338-343.
- Hamdan, M., & Saleem, A.A.O. (2013). Assessment of patient safety culture in Palestinian public hospitals.



- International Journal for Quality in Health Care*, 25 (2), 167-175.
- Hellings, J., Schrooten, W., Klazinga, N., & Vleugels, A. (2007). Challenging patient safety culture: Survey results. *International Journal of Health Care Quality Assurance*, 20 (7), 620-632. <https://doi.org/10.1108/09526860710822752>
- Huang, C.H., Wang, Y., Wu, H.H., & Yii-Ching, L. (2021). Assessment of patient safety culture during COVID-19: A cross-sectional study in a tertiary a-level hospital in China. *TQM Journal*. <https://doi.search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/resource/en/covidwho-1393625>.
- Institute of Medicine (US) Committee on Quality of Health Care in America, Kohn, L. T., Corrigan, J. M., & Donaldson, M. S. (Eds.). (2000). *To err is human: Building a safer health system*. National Academies Press (US).
- Kohn, L.T., Corrigan, J.M., & Donaldson, M.S. (Eds.). (1999). *To err is human: Building a safer health system*. Committee on Quality of Health Care in America. Institute of Medicine.
- Lawati, M.H.A., Dennis, S., Short, S.D., & Abdulhadi, N.N. (2018). Patient safety and safety culture in primary health care: A systematic review. *BMC Family Practice*, 19 (1), 1-12.
- Longo, D.R., Hewett, J.E., Ge, B., Schubert, S., & Kiely, R.G. (2007). Hospital patient safety: Characteristics of best-performing hospitals. *Journal of Healthcare Management*, 52 (3), 188.
- Makary, M.A., & Daniel, M. (2016). Medical error—the third leading cause of death in the US. *BMJ*, 353.
- Malak, M. Z., Salouk, J., Al-Shawawreh, R., Al-Kamiseh, H., & Ayed, A. (2022). Perceptions of patient safety culture among emergency room nurses in Jordanian accredited hospitals. *Journal of Nursing Management*.
- Mansour, H., & Sharour, L.A. (2021). Results of survey on perception of patient safety culture among emergency nurses in Jordan: Influence of burnout, job satisfaction, turnover intention and workload. *Journal of Healthcare Quality Research*, 36 (6), 370-377.
- Mardon, R.E., Khanna, K., Sorra, J., Dyer, N., & Famolaro, T. (2010). Exploring relationships between hospital patient safety culture and adverse events. *Journal of Patient Safety*, 6 (4), 226-232.
- Mrayyan, M.T. (2022). Predictors and outcomes of patient safety culture: A cross-sectional comparative study. *BMJ Open Quality*, 11 (3), e001889.
- Nieva, V.F., & Sorra, J. (2003). Safety culture assessment: A tool for improving patient safety in healthcare organizations. *BMJ Quality & Safety*, 12 (suppl. 2), ii17-ii23.
- Pronovost, P.J., Morlock, L.L., Sexton, J.B., Miller, M.R., Holzmueller, C.G., Thompson, D.A., Lubomski, L.H., & Wu, A.W. (2008). Improving the value of patient safety reporting systems. *Advances in Patient Safety: New Directions and Alternative Approaches (Vol. 1: Assessment)*. AHRQ Publication No. 08-0034-1. Rockville: Agency for Healthcare Research and Quality. [http://www.seguridadelpaciente.es/contenidos/castellano/Volumen\\_1\\_Assessment.pdf](http://www.seguridadelpaciente.es/contenidos/castellano/Volumen_1_Assessment.pdf).
- Shaw, A., Flott, K., Fontana, G., Durkin, M., & Darzi, A. (2020). No patient safety without health worker safety. *The Lancet*, 396 (10262), 1541-1543.
- Suliman, M.M. (2015). *Nurses' perceptions of patient safety culture in public hospitals in Jordan*. Case Western Reserve University.
- Vincent, C. (2003). Understanding and responding to adverse events. *N. Engl. J. Med.*, 348 (11), 1051-1056.
- Waterson, P., Carman, E.M., Manser, T., & Hammer, A. (2019). Hospital survey on patient safety culture (HSPSC): A systematic review of the psychometric properties of 62 international studies. *BMJ Open*, 9 (9), e026896.
- Woods, D.D., Dekker, S., Cook, R., Johannesen, L., & Sarter, N. (2017). *Behind human error*. London, UK.
- World Health Organization. (2020). *Rational use of personal protective equipment for corona virus disease (COVID-19) and considerations during severe shortages: Interim guidance*. 6 April 2020 (No. WHO/2019-nCov/IPC\_PPE\_use/2020.3).