Assessment of patient safety culture in Saudi Arabian hospitals

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ABSTRACT

Context Healthcare organisations in Saudi Arabia are striving to improve patient safety and quality of care through implementation of safety systems and creating a culture of safety.

Objective The purpose of this study to evaluate the extent to which the culture supports patient safety at Saudi hospitals.

Data Collection A survey questionnaire was distributed hospital-wide in 13 general hospitals in Riyadh city, Saudi Arabia, to 223 health professionals including nurses, technicians, managers and medical staff.

Measurement The Hospital Survey on Patient Safety Culture questionnaire was used to identify dimensions of patient safety culture.

Results Overall Patient Safety Grade was rated as excellent or very good by 60% of respondents, acceptable by 33% and failing or poor by 7%. More than half of respondents thought that managers overlook safety problems that happen over and over. Areas of strength for most hospitals were organisational learning/continuous improvement, teamwork within units, feedback and communication about errors. Areas with potential for improvement for most hospitals were under-reporting of events, non-punitive response to error, staffing, teamwork across hospital units.

Conclusion Leadership is a critical element to the effectiveness of patient safety initiatives. Response to errors is an important determinant of safety culture in healthcare organisations. In order for healthcare organisations to create a culture of safety and improvement, they must eliminate fear of blame and create a climate of open communication and continuous learning.

INTRODUCTION

Organisational culture is an important determinant of patient safety in healthcare organisations.[1–8] Research efforts in various countries have focussed on assessment safety culture.[1–13] Dimensions of safety culture have been linked to several healthcare outcomes such as medication errors, nurse back injuries, urinary tract infections, patient satisfaction, patients' perceptions of nurse responsiveness and nurse satisfaction.[9]

Safety problems are believed to arise from safety violations and unintentional errors and mistakes.[10] Studies show that the majority of errors and adverse events more accurately stem from a complex chain of events that jointly contribute to the cause rather than human errors.[11 12] Efforts to minimise these injuries have led to the patient safety movement, and the generally accepted definition of patient safety is the prevention and reduction of adverse outcomes or injuries stemming from the processes of health care.[13]

Culture and climate are often used interchangeably and may represent different approaches to measurement of the same phenomenon. Organisational culture definitions are multiple and varied but generally characterise culture as the shared values, norms and tacit assumptions of members within an organisation, while others include more tangible characteristics such as social practices and capacities in the definition.[14] Safety climate is defined as shared perceptions regarding the events, practices and procedures as well as the kind of behaviour that gets rewarded, supported and expected in a particular organisational setting.[15]

Characteristics of a strong and proactive safety culture are generally thought to include: leadership commitment to learning from errors, documenting and improving patient safety, encouraging and practicing teamwork, identification of potential hazards, using systems for reporting and analysing adverse events and perceiving workers as key players in improving safety rather than causing errors.[16] Safety culture is also characterised by systemic data collection and reporting,[17] blame-free environment, leadership involvement[18] and a focus on systems.[19]

Researchers have identified four factors from the literature that characterise a safety culture: (1) recognition of the risk of error in the organisation's activities, (2) blame-free environment for reporting, (3) collaboration across the organisation and (4) organisational resources for safety.[20] An overall safety climate that encompasses the development of effective safety practices and encourages adherence to these practices as well as continuous learning from errors provides that basis for safer performance.[9]

In Saudi Arabia, in response to the rising problem of medical errors and increasing media attention and public pressure, health organisations have been actively pursuing efforts to improve quality and safety of healthcare services. Several initiatives have been implemented to improve safety mainly through establishing standards and initiating accreditation schemes. Despite the rising emphasis on patient safety, little is known about safety culture in Saudi hospitals, and few attempts have been made to evaluate the extent to which safety is a strategic priority or that organisational culture supports patient safety. Thus, the purpose of this study is to evaluate the extent to which organisation culture supports patient safety in Saudi hospitals and the extent to which safety is a strategic priority. The ultimate objective of the study is

to identify opportunities for improvement and to establish baseline for assessing future improvement efforts.

METHODS

Study setting

Sixteen public and private hospitals that have a quality and patient safety initiatives were selected for the study. The selected hospitals were included in the study to represent the variety of public and private hospitals in Riyadh, including military, academic, specialist and Ministry of Health hospitals. Nine public and four private hospitals agreed to participate in the study as three of the selected hospitals did not respond to our request.

Data collection

The sample includes several professional categories working in clinical areas. A total of 2580 questionnaires were sent to participating hospitals. In each of the selected hospitals, depending on the hospital size, 50–100 copies of the questionnaire were sent to a liaison staff member, usually the quality director, along with instruction on distribution and collection of survey instrument. For logistical reasons, a combination of stratified and convenience sampling was used. To ensure representation of professional staff categories, certain hospital departments were always selected for inclusion in the study, including nursing, medical and clinical support services. A formal letter from the research team, along with an official permission form from the hospital director, was sent to the department head to encourage staff to participate in the study. Several phone reminders were made to the liaison officer and/or to the hospital department heads. Once completed, all surveys were collected and picked up from the liaison officer. A total of 1224 surveys were returned over a 6-month period, giving an overall response rate of 47.4%. Given the nature of the healthcare environment in Saudi Arabia and the lack of enthusiasm on behalf of healthcare workers to participate in research of this sort, this response rate is considered acceptable.

Background characteristics of the study participants are shown on table 1. A variety of healthcare professionals have responded to the survey, mainly nurses (60%), physicians (8.3%) and technicians (7.6%). The majority of respondents (82.4%) worked in public hospitals; most (30%) had 1–5 years of professional experience. Most respondents (45%) had worked <5 years in the current hospital, and many (49%) had worked <5 years in current work unit. The participants had worked in a variety of hospital units, mainly in intensive care (9.6%), surgical (14.5%) and medical units (15.7%).

Table 1 Background characteristics of study respondents

Variable		Frequency	%
Hospital type	Public	1008	82.4
	Private	214	17.5
Position	Nurse	735	60
	Physician/physician in training	101	8.3
	Pharmacist	37	3
	Dietician	5	0.4
	Unit assistant/clerk/secretary	33	2.7
	Respiratory therapist	20	1.6
	Physical, occupational or speech therapist	18	1.5
	Technician (eg, EKG, lab, radiology)	93	7.6
	Administration/management	34	2.8
	Other; please specify:	77	6.3
Primary work area/unit	Many different hospital units	64	5.2
	Medicine (non-surgical)	118	9.6
	Surgery	177	14.5
	Obstetrics	50	4.1
	Paediatrics	89	7.3
	Emergency department	20	1.6
	Intensive care unit (any type)	192	15.7
	Psychiatry/mental health	1	0.1
	Rehabilitation	45	3.7
	Pharmacy	39	3.2
	Laboratory	54	4.4
	Radiology	34	2.8
	Anaesthesiology	36	2.9
	Other	182	14.9
Professional experience (years)	<1	107	8.7
	1–5	380	31
	6–10	279	22.8
	11–15	201	16.4
	16–20	107	8.7
	21 or more	118	9.6
Hospital experience (years)	<1	249	20.3
	1–5	536	43.8
	6–10	247	20.2
	11–15	107	8.7
	16–20	42	3.4
	21 or more	20	1.6
Work unit experience (years)	<1	255	20.8
	1–5	604	49.3
	6–10	204	16.7
	11–15	84	6.9
	16–20	33	2.8
	21 or more	14	1.2
Working hours per week	<20 h	26	2.1
	20–39 h	62	5.1
	40–59 h	901	73.6
	60–79 h	165	13.5
	80 h or more	32	2.6

Measurement

The Patient Hospital Survey on Patient Safety Culture[21] was reviewed by a panel of healthcare professionals and academicians in Saudi Arabia and was found appropriate for assessment of organisational factors affecting patient safety in Saudi Arabia. The survey was distributed hospital-wide in 13 general hospitals. The survey includes 42 items that measure 12 dimensions of patient safety culture: communication openness, feedback and communication about errors, frequency of events reported, handoffs and transitions, management support for patient safety, non-punitive response to error, organisational learning—continuous improvement, overall perceptions of patient safety, staffing, supervisor/manager expectations and actions promoting safety, teamwork across units and teamwork within units. The questionnaire was kept in its original language (English), as English is the main language of communication in Saudi hospitals. Scores were expressed as the percentage of positive answers towards patient safety for each dimension.

Analysis of data

To allow aggregation of the different survey questions, the *"Average Positive Response* to each question was compared. We also examined the frequency of neutral responses, as these might also imply a lack of safety culture. Neutral responses were neutral on questions using a 5-point Likert Scale, uncertain on questions offering yes, uncertain or no responses, and sometimes on

Table 2 Overall perceptions of safety

	Strongly disagree/ disagree	Neither	Strongly agree/ agree	Average positive response
Overall perceptions of safety				
Patient safety is never sacrificed to get more work done.	19	18	63	63
Our procedures and systems are good at preventing errors from happening.	13	17	70	70
It is just by chance that more serious mistakes do not happen around here. (R)	50	18	32	50
We have patient safety problems in this unit. (R)	37	19	43	37
Total score	5	36	59	

questions using a 5-point frequency scale. Measuring the positive response to survey questions enabled us to meet our principal objectives—to measure attitudes towards safety culture. Findings establish a baseline for future benchmarking and identify opportunities for improvement in participating hospitals.

Table 3 Patient safety culture composites

Patient safety culture composite	Strongly disagree/ disagree	Neither	Strongly agree/ agree	Average % positive response
Non-punitive response to errors	37	41	22	22
Staffing	15	59	27	27
Teamwork across hospital units	3	31	66	50
Overall perceptions of safety	5	36	59	59
Communication openness	8	32	60	60
Hospital handoffs & transitions	8	31	61	61
Frequency of events reported	12	25	63	63
Supervisor, manager expectations and actions promoting patient safety	2	28	70	70
Hospital management support to patient safety	4	22	74	74
Feedback and communication about errors	5	18	77	77
Team work within units	5	12	84	84
Organisational learning/continuous improvement	3	10	87	87

Regression analysis procedure is used to gain a better understanding of the strength of the association between overall patient safety score and several independent variables (patient safety culture components): organisational learning/continuous

Table 4 Responses to survey items

	Strongly disagree/ disagree	Neither	Strongly agree/agree	Average positive response
	Never/rarely	Some-times	Most of the time /always	
Important patient care information is often lost during shift changes. (R)	19	20	62	19
Shift changes are problematic for patients in this hospital. (R)	19	29	53	19
It is often unpleasant to work with staff from other hospital units. (R)	20	30	50	20
Staff are afraid to ask questions when something does not seem right. (R)	22	37	42	22
Whenever pressure builds up, my supervisor/manager wants us to work faster, even if it means taking shortcuts. (R)	23	21	56	23
Things "fall between the cracks" when transferring patients from one unit to another. (R)	26	29	45	26
We use more agency/temporary staff than is best for patient care. (R)	27	22	50	27
Hospital units do not coordinate well with each other. (R)	27	26	47	27
My supervisor/manager overlooks patient safety problems that happen over and over. (R)	29	15	55	29
Hospital management seems interested in patient safety only after an adverse event happens. (R)	31	18	51	31
Staff feel free to question the decisions or actions of those with more authority.	28	40	33	33
We have enough staff to handle the workload.	48	16	35	35
Problems often occur in the exchange of information across hospital units. (R)	35	34	31	35
When an event is reported, it feels like the person is being written up, not the problem. (R)	46	27	27	46
Staff feel like their mistakes are held against them. (R)	49	27	24	49
We are given feedback about changes put into place based on event reports.	13	34	54	54
We work in "crisis mode" trying to do too much, too quickly. (R)	57	22	21	57
There is good cooperation among hospital units that need to work together.	18	25	58	58
Staff will freely speak up if they see something that may negatively affect patient care.	13	29	58	58
Mistakes have led to positive changes here.	12	23	65	65
We are informed about errors that happen in this unit.	11	24	66	66
In this unit, people treat each other with respect.	16	18	67	67
Staff in this unit work longer hours than is best for patient care. (R)	67	16	17	67
Hospital units work well together to provide the best care for patients.	11	19	70	70
In this unit, we discuss ways to prevent errors from happening again.	10	20	70	70
My supervisor/manager says a good word when he/she sees a job done according to established patient safety procedures.	14	15	71	71
Hospital management provides a work climate that promotes patient safety.	12	18	71	71
Staff worry that mistakes they make are kept in their personnel file. (R)	72	16	12	72
My supervisor/manager seriously considers staff suggestions for improving patient safety.	10	17	73	73
The actions of hospital management show that patient safety is a top priority.	14	12	74	74
When a lot of work needs to be done quickly, we work together as a team to get the work done.	13	12	75	75
After we make changes to improve patient safety, we evaluate their effectiveness.	8	16	76	76
People support one another in this unit.	11	13	76	76
We are actively doing things to improve patient safety.	6	8	86	86

Table 5 Number of events reported

	No of event reports	1 to 2	3 to 5	6 to 10	11 to 20	21 or more
Number of events reported	43	30	17	6	2	2

improvement, non-punitive response to error, staffing, hospital handoffs and transitions, management role, communication and feedback, and teamwork.

For purpose of the regression analysis, two patient safety culture components were combined to create new variables as follows:

- Management role: manager expectations and actions promoting patient safety, and hospital management support to patient safety
- Communication and feedback: communication openness and feedback about errors
- Teamwork: teamwork across and within hospital units.

RESULTS

Overall Patient Safety Grade was rated as excellent or very good by 60% of respondents, acceptable by 33% and failing or poor by 7%. Overall perceptions of safety were assessed by four questionnaire items as shown in table 2. The participants have generally thought that patient safety is never sacrificed to get more work done (63%) and that their procedures and systems are good at preventing errors from happening (70%). On the other hand, about one third of the respondents thought that it is just by chance that more serious mistakes do not happen in their hospitals. Additionally, 43% of the respondents indicated that they have patient safety problems in their units.

Positive responses to patient safety culture components have ranged from 22% to 87% (table 3). Areas of strength for most hospitals were organisational learning/continuous improvement (87%), teamwork within units (84%) and feedback and communication about errors (77%). Areas with potential for improvement are under-reporting of events (43% reported no events over the past 12 months), non-punitive response to error (22%), staffing (22%) and teamwork across hospital units (27%).

Responses to survey items are shown on table 4. Although these results provide an insight on specific aspects of patient safety culture, they are not necessarily significant on their own and need to be considered in light of the main components of the safety culture presented in table 3. Positive response to individual items ranged from 19% to 86%. There are more positive than negative responses to individual survey items.

As shown in table 5, 43% indicated that they have not reported any events in the past year and 30% had reported only one or two events. When asked on the frequency of reporting potentially harmful events on patients, even when no harm to the patient have actually occurred, most responded positively; however, a substantial percentage of these events are never or rarely reported (table 6).

Results of the regression analysis as shown on (table 7) indicate that several variables contribute to overall patient safety score: organisational learning/continuous improvement, management role, communication and feedback about errors, and teamwork. Other factors examined were not shown to be predictors of patient safety, including non-punitive response to error, staffing, and hospital handoffs and transitions. The model explained 32% of the variance in overall patient safety as measured by the adjusted R^2.

DISCUSSION

Results indicate that despite the widespread view that management actions indicate that patient safety is a top priority, management interest is often only triggered after an adverse event occurs. This is consistent with findings by previous research that confirm that most attempts to improve safety in healthcare are reactive in nature; however, efforts to proactively identify and eliminate hazards have the potential to significantly improve safety.[22]

Our results confirm findings by other researchers regarding the importance of effective leadership in building a strong and proactive safety culture and commitment to learning from errors, and encouraging and practicing teamwork.[16] Researchers emphasised that leadership should view errors as an opportunity for learning and workers as heroes improving safety rather than as villains committing errors.[16]

Our findings are also consistent with other studies regarding under-reporting of errors, even when actual harm occurs but especially when no harm occurs and the incident is a close call or near miss.[23–25] Edmondson, 1996 has pointed out that lower detected error rates occurred in units with less open climates.[7] The Institute of Medicine suggested that healthcare organisations work towards enhancing safety culture, moving from a culture in which errors are viewed as personal failures to one in which errors are viewed as opportunities for improvement.[13] The Institute of Medicine asserts, "Although almost all accidents result from human error …errors are usually induced by faulty systems that set people up to fail,"[13] p.169.

Patient safety improvement requires system changes, including addressing difficult challenges such as eradicating the prevalent culture of blaming individual workers for errors. Errors in healthcare that jeopardise patient safety can be tied to hidden failures deeply rooted in the structure and function of systems.

Table 6 Frequency of events reported

	Never/ rarely	Sometimes	Most of the time / always	Average positive response
When a mistake is made but is caught and corrected before affecting the patient, how often is this reported?	22	23	56	56
When a mistake is made but has no potential to harm the patient, how often is this reported?	24	27	50	50
When a mistake is made that could harm the patient but does not, how often is this reported?	17	18	65	65
Total score	12	25	63	63

Table 7 Regression analysis for the determinants of overall patient safety score

	SE	Standardised coefficients β	t-test	Statistical significance
(Constant)	0.204		2.016	0.044
Organisational learning/ continuous improvement	0.035	0.128	3.748	000
Non-punitive response to error	0.029	−0.051	−1.663	0.097
Staffing	0.033	−0.013	−0.415	0.678
Hospital handoffs and transitions	0.034	0.039	1.198	0.231
Management role	0.049	0.216	5.535	000
Communication openness and feedback about errors	0.037	0.215	6.068	000
Teamwork	0.048	0.160	4.415	000

Adjusted R^2=0.319, R=0.57, F=58.128, p=0.000.

Focussing blame on individuals overlooks system weakness and discourages reporting of errors. Blame culture neglects valuable information on errors and, therefore, limits the ability to analyse them and, most importantly, prevent them from happening again.

The study has few limitations. First, the data from all 13 hospitals were merged in our analysis despite the fact that these institutions are variable in terms of size, complexity and focus on patient safety. Another limitation is the potential for bias in the sampling frame due to the lack of random selection. Despite these limitations and due to the lack of research in this area, the study provides important information and sheds light on several critical patient safety issues in Saudi Arabian hospitals.

CONCLUSION

This study provides an overall assessment of perceptions of safety among hospital staff in public and private institutions in Saudi Arabia. Results point out increased attention to patient safety and ongoing improvement efforts. However, results also highlight that safety culture is yet to be fully developed, as there are several areas for improvement including error reporting, response to errors, communication, leadership and teamwork across hospital units. Building safety culture requires eliminating three destructive elements in organisations: blame, fear and silence regarding errors. Error reporting should not be viewed as an end in itself but rather as a means of learning from mistakes and as the first step towards elimination of harm and improvement of patient safety. Efforts to develop and implement effective strategies to promote patient safety culture in Saudi Arabian hospitals are limited by leadership capacity to establish a climate of open communication and organisational learning.

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Competing interests None.

Ethics approval This study was conducted with the approval of the participating hospitals.

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