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Workforce Perceptions of Hospital Safety Culture at One Governmental Hospital in Alexandria

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Abstract: Background: Safety culture is increasingly recognized as an important strategy to improve patient safety. **Objectives:** The present study aimed at assessing workforce perception of hospital safety culture at Shark El Madina hospital and to identify differences in perception of safety culture dimensions among different professional categories at the study hospital. **Methods**: The study utilized a self administered questionnaire titled "Patient Safety Climate in Health Care Organizations" (PSCHO) which is composed of 38 items. A total of 186 completed questionnaires were collected distributed among 64 physicians, 74 nurses and 48 technicians. The mean score of items and dimensions were calculated as well as the percent problematic response (PPR) which is the fraction of survey participants who answered in ways that are inconsistent with an optimal safety culture. **Results:** The study revealed that the overall PPR was 46.9%, being highest among nurses (53.1%) %), followed by physicians (44.3%) and lowest among technicians (39.5%). Nurses had higher percentage of PPR than other professional groups in 8 dimensions. The 3 dimensions which had the lowest mean scores among the three professional categories were fear of blame followed by unit recognition and support for safety followed by organizational resources for patient safety. Nurses showed lower mean scores in five out of nine safety culture dimensions. **Conclusion and Recommendations:** Patient safety culture among health care workers at Shark El Madina hospital is relatively negative. There are differences among professional categories with nurses showing more negative view of safety culture dimensions. It is recommended to establish safety cultural change through education and training of staff, encouragement of no blame environment and provision of resources for patient safety.

INTRODUCTION

The health care industry attempts to cure patients while avoiding problems and negative outcomes resulting from the processes of care.(1) However the fact remains that patients are harmed every day in every country across the globe in the course of receiving health care.(2) Estimates show that in developed countries as many as one in 10 patients is harmed while receiving hospital care. In developing

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countries, the probability of patients being harmed in hospitals is higher than in industrialized nations.[3] In recent years safety culture is increasingly recognized as an important strategy and perhaps a necessary precursor to improving the widespread deficits in patient safety.[4] So promoting a culture of safety has become one of the pillars of the patient safety movement.[5] The Institute of Medicine in the USA suggests that the biggest challenge to moving towards a safer healthcare system is changing the patient safety culture from one in which people are blamed for errors to one in which errors are treated as opportunities to improve the system and prevent harm.[6]

Culture represents the values, beliefs, and behaviors that are shared by members of a group.[7] There are three major types of intersecting cultures. First, national culture represents the shared components of nationality, including norms, attitudes, and values. Second, professional culture defines the norms, attitudes, values and practices associated with being a pilot, doctor or nurse. Third, an organizational culture which is a concept often used to describe shared corporate values that affect and influence members' attitudes and behaviors. Safety culture is a sub facet of organizational culture.[8] Although there is no firm consensus on the definition of safety culture, safety culture of an organization refers to the collective beliefs and perceptions of workers regarding the organization and safety of their workplace operations.[9]

Safety culture assessment tools are useful for measuring organizational conditions that lead to adverse events and patient harm, and for developing and evaluating safety improvement interventions in healthcare organizations.[10] Although a number of tools are available to measure safety culture, each instrument has unique domains of culture.[11] A review study conducted in U.S.A in 2010 organized the properties of safety culture

addressed by many studies into seven subcultures which are leadership commitment to safety, teamwork, evidence-based patient care, open communication about safety issues, learning from mistakes, fairness, and patient centered patient care.[12]

Safety culture assessment tools can focus on the assessment of safety culture within particular work areas, such as the operating room (OR) or the assessment of safety culture in the whole hospital. Another important characteristic of safety culture assessment tools is whether they take a managerial or staff perspective, or combine elements of both. [10] An example of a management self-assessment tool focused on patient safety is Strategies for Leadership Survey (SLS). On the other hand, the Safety Attitudes Questionnaire (SAQ) is an assessment tool that focuses on staff perceptions and attitudes.[10, 13] As safety culture assessment is viewed as the starting point from which action planning begins and patient safety changes emerge,[10] the aim of the present study is to assess workforce perception of hospital safety culture at Shark El Madina hospital and to identify differences in perception of safety culture dimensions among different professional categories at the study hospital.

Methodology

The study was conducted at Shark El Madina hospital in Alexandria in February 2010. The hospital is 276-bed hospital affiliated to the General Secretariat of the Specialized Medical Centers of the Ministry of Health. The study design is descriptive using cross-sectional approach. All health care workers at Shark El Madina hospital were included in the study. Following exclusion of those who were not available during the period of study, staff members who did not accept to participate in the study and those hired for less than one year, the total number who participated in the study was 350 (150 physician, 120 nurses, 75 technicians). A total of 231

questionnaires were returned (response rate = 66.0%). After excluding incomplete questionnaire (45 questionnaire), 186 completed questionnaires were included in the study. Respondents were distributed as follows 64 physicians, 74 nurses and 48 technicians.

Data Collection Tool and Technique

The present study utilized the self administered questionnaire titled “Patient Safety Climate in Health Care Organizations” (PSCHO). The tool was developed by the Center for Health Policy and Center for Primary Care and Outcomes Research in USA in 2003.[14,15] The questionnaire is composed of two parts. The first one is composed of 38 closed ended questions that measure nine dimensions of safety culture. The responses were measured on a 5-point Likert scale and ranged from (1) "Strongly Disagree" to (5) "Strongly Agree”. A reverse scoring was devised for 11 questions (questions 10,13,15,21,25,26,28,29, 31,34,36) due to their negative wording where (1) reflects "Strongly Agree" and (5) indicates "Strongly Disagree". A study conducted in 2007 to validate PSCHO found that item number 16 (“It is hard for doctors or nurses to hide serious mistakes”) exhibited no loadings above 0.30 on any factor, and its content appeared already to be adequately represented by the other items and therefore Q16 was dropped from further analyses.[14] The same strategy was followed in the present study, where statement 16 was collected but was not reported in the analysis. The nine dimensions are grouped into 4 constructs as follow:

A. Organizational factors

1. Senior managers ' engagement: 7 questions (Q5, Q8, Q19, Q11, Q17, Q4,Q6)
2. Organizational resources: 3 questions (Q1, Q30, Q29)
3. Overall emphasis on safety: 3 questions

(Q38, Q22, Q28)

B. Work unit factors

4. Unit safety norms: 7 questions (Q2, Q3, Q7, Q9, Q12, Q27, Q32)
5. Unit recognition and support for safety: 4 questions (Q35, Q14, Q37, Q24)

C. Individual factors

6. Fear of shame: 5 questions (Q10, Q13, Q15, Q21, Q36)
7. Fear of blame: 2 questions (Q26, Q3)
8. Learning and self awareness of safety risks: 3 questions (Q23,Q18, Q20)

D. Report-type questions about the actual incidence of unsafe care

9. Provision of unsafe care: 3 questions (Q25, Q33, Q34)

The second part of the survey tool contains demographic and professional characteristics of participants including age, gender, specialty, scientific degree, years of work in specialty, years of work in the hospital, attendance to previous training concerning patient safety, number of training sessions and its duration if the participant got any training about patient safety. Six questions were added to the second part of the questionnaire that cover attendance of patient safety training and detailed professional characteristics of participants. The questionnaire was translated into Arabic and back-translated into English (reversed translation technique)[16,17] by the researchers and two professional Arabic/English bilingual translators. (Appendix I)

A pilot study was carried out on randomly selected 30 personnel of different categories to assess the clarity of the statements of the questionnaire after translation and the time required to complete the questionnaire. The questionnaire took from 10-15 minutes to be completed. No modifications were performed to the questionnaire. Participants were approached through the hospital administration and the purpose of the questionnaire was thoroughly explained to each participant. Anonymity and confidentiality of participants' information were assured

through omitting participant's name. Participant withdrawal right was guaranteed.

Statistical Analysis

Calculation of mean scores: The mean score of each item was calculated by summing the scores given to each item then dividing by the number of respondents to each item. The mean dimension score was calculated by estimating the average of mean scores of the items constituting the dimension.

Calculation of percent problematic response (PPR):

To identify institutional weaknesses and opportunities for improvement, studies had focused on the inverse of a high safety culture by measuring the percent of "problematic" response (PPR) (the fraction of survey participants who answered in ways that are inconsistent with an optimal safety culture). High PPR suggests low safety culture and vice versa.[18,19] Similar approach was followed in the present study and response to each question was defined as positive response or problematic response as follows:

- Positive responses is considered when the response is strongly agree / agree for positively worded questions and strongly disagree / disagree for negatively worded questions .
- Problematic response is considered when the response is strongly disagree / disagree for positively warded questions and strongly agree / agree for negatively worded questions.
- Neutral response which is neither agree nor disagree was considered as problematic response with respect to the safety culture according to the studies[1,15] which suggest that neutral responses implies a lack of safety culture.
- To calculate PPR for each question, the number of problematic responses (including the neutral response) were counted and divided by the number of

respondents of each professional category. To calculate the PPR for each dimension the total number of problematic responses for all questions was counted and divided by the number of items constituting the dimension then divided by the number of respondents in each professional category. The average PPR for the 37 questions in the survey was calculated as a summary statistic and referred to as overall percentage problematic response.

Quantitative data is presented in the form of mean and standard deviation or median and inter quartile range according to the normality of the variables. Qualitative data is presented as frequency and percentage. Chi-square test was used to assess the association of categorical variables. For quantitative normally distributed data, one-way analysis of variance (ANOVA) was used to test for the significant difference between the mean scores of the different professional categories. Gabriel's test was used for multiple comparison procedures between different groups for significant ANOVA because of the unequal size of different professional categories. Kruskal Wallis test was used to compare the duration of work in the hospital and years of specialization among the three professional categories because of non-normality.[20] The cut off value for statistical significance was set as 0.05. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 16.[21]

Results

Table 1 shows that females represented 75.8% of respondents; being highest among nursing staff (98.6%). The age group of 18 to 35 years had the highest frequency among nurses (63.5%) while the age group 36 to 45 years had the

Table 1: Distribution of professional categories participating at Shark El Madina hospital according to age, gender and professional characteristics

Characteristic	Physicians n= 64		Nursing n= 74		Technicians n= 48		Total		p value
	No	%	No	%		No	%	No	
Gender									
Male	31	48.4	1	1.4	13	27.1	45	24.2	<0.001*
Female	33	51.6	73	98.6	35	72.9	141	75.8	
Age (years)									
18-35	15	23.5	47	63.5	14	29.2	76	40.8	<0.001*
36-45	19	29.7	13	27.7	15	31.9	47	25.3	
46-55	19	29.7	11	26.2	12	28.6	42	22.6	
56-65	11	17.2	3	4.1	7	14.6	21	11.3	
Scientific degree									
Undergraduate diploma	0	0.0	45	60.8	36	75.0	81	43.6	<0.001*
Bachelor	11	17.2	29	39.2	9	18.8	49	26.3	
Postgraduate diploma	12	18.8	0	0.0	2	4.2	14	7.5	
Master and Doctoral	41	64.0	0	0	1	2.0	42	22.6	
Training in patient safety									
Yes	8	12.5	15	20.3	7	14.6	30	16.1	0.44
No	56	87.5	59	79.7	41	85.4	156	83.9	
Duration of work in hospital (years)									
Median	17.0		11.0		20.0		13.0		0.001*
IQR	15.0		10.0		18.0		14.0		
Years of specialization (years)									
Median	14.0		10.5		17.5		15.0		0.003*
IQR	13.0		10.0		13.0		16.0		

* = Significant, IQR=Inter quartile range

highest frequency among both physicians and technicians (29.7% and 31.9%, respectively). The majority of nurses and technicians held an undergraduate diploma (60.8% and 75.0%, respectively) while the majority of physicians (64.0%) held master or doctoral degree. Only 16.1% of respondents attended training about patient safety, being lowest among physicians (12.5%). The median duration of working in the study hospital was 13 years (IQR = 14), being highest among technicians

(median = 20.0 years). The median duration of specialization was 15 years, being highest among technicians (median =17.5 years). Training in patient safety was the only demographic and professional characteristic that showed no statistically significant difference between the three professional groups.

Figure 1 shows the mean score of the nine dimensions constituting the safety culture scale at Shark El Madina hospital. The mean scores of the nine dimensions ranges between 2.64 to 3.74. Fear of blame showed the lowest mean score 2.64, followed by unit recognition and support for safety (2.94). On the other hand, fear of shame had the highest mean score 3.74.

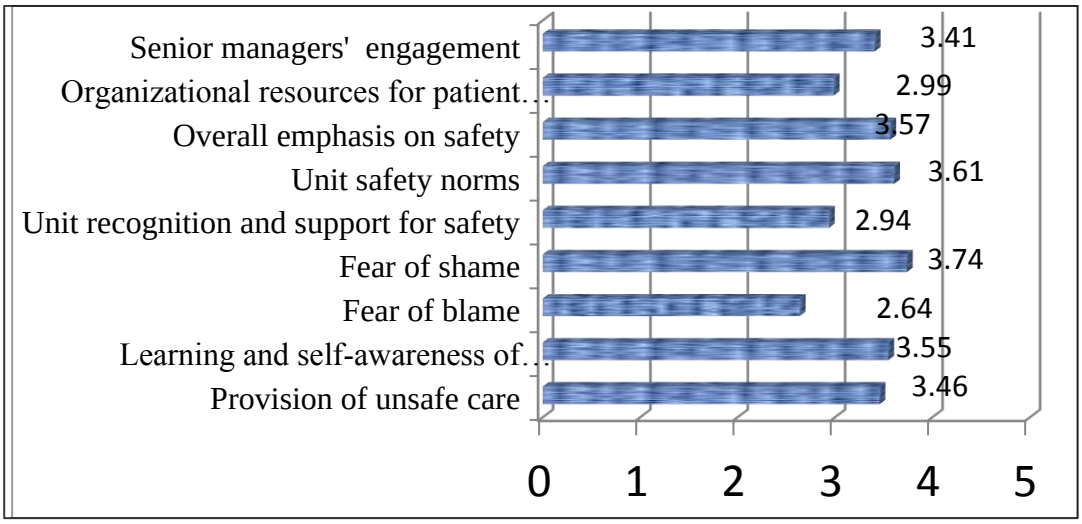

Figure 1: Mean score of the nine dimensions of safety culture scale at Shark El Madina hospital

Table 2: Mean score of responses to each statement constituting the organizational factors of safety culture scale in Shark El Madina hospital

Dimension/statements	Mean score	
	Item	Dimension
Senior managers` engagement		3.41±0.77
Patient safety decisions are made at the proper level by the most qualified people	3.66±1.05	
Senior management provides a climate that promotes patient safety	3.40±1.17	
Reporting a patient safety problem will not result in negative repercussions for the person reporting it	3.50±1.10	
Senior management has a clear picture of the risk associated with patient care	3.60±1.10	
Senior management has a good idea of the kinds of mistakes that actually occur in this facility	3.17±1.18	
Good communication flow exists up the chain of command regarding patient safety issues	3.20±1.04	
Senior management considers patient safety when program changes are discussed	3.34±1.07	
Organizational resources for patient safety		2.99±0.78
I am provided with adequate resources (personnel, budget, and equipment) to provide safe patient care	3.29±1.37	
Loss of experienced personnel has negatively affected my ability to provide high quality patient care **§**	2.11±1.14	
I have enough time to complete patient care tasks safely	3.58±1.14	
Overall emphasis on safety		3.57±0.85
Compared to other facilities in the area, this facility cares more about the quality of patient care it provides	3.43±1.16	
I am asked to cut corners to get the job done **§**	3.67±1.25	
Overall, the level of patient safety at this facility is improving	3.62±1.09	

§ = reverse worded statement

Among dimensions constituting organizational factors, the dimension "organizational resources for patient safety" had the lowest mean score (2.99±0.77) (Table 2). This dimension is composed of three items, one of which is reversely scored statement (effect of loss of experienced personnel). This statement showed the lowest value among all values constituting organizational factors with a mean score of 2.11±1.14. The dimension "overall emphasis on safety" had the highest score (3.57±0.85). This dimension is composed of three statements one of

which is reversely scored “I am asked to cut corners to get the job done”. This statement showed the highest score among all value constituting organizational factors (3.67±1.25).

Table 3 shows that unit recognition and support for safety had a lower mean dimension score than unit safety norms, being 2.94 and 3.61 respectively. Out of the 7 statements that constitute unit safety norms, peer pressure to discourage unsafe patient care had the highest mean score (3.98± 0.84) while willingness to report unsafe patient care had the lowest mean score (3.18 ±1.27). Out of the 4 statements that constitute unit recognition and support for safety, being rewarded for quick action to identify mistakes had the lowest score (2.41±1.16) while provision of training on teamwork had the highest score (3.22±1.18). Both dimensions do not include any reversely scored item.

Out of 3 dimensions measuring individual factors of safety culture construct, fear of shame had the highest mean score(3.74±0.64) while fear of blame had the lowest mean score (2.64±0.89) as shown in Table 4. Learning and self awareness of safety risks had a mean dimension score of 3.56±0.62 and showed variability of the mean score among its 3 statements. The statement concerning the adverse effect of personal problems on performance showed the lowest mean score (2.82±1.24) while the statement concerning learning from others’ mistakes had the highest mean score (4.03±0.80). Reporting actual incidence of unsafe care had a mean score of 3.46±0.78 with items mean score ranging between 3.16 and 3.83.

Professional categories showed comparable mean score of the nine safety culture dimensions as shown in table 5. The 3 dimensions which had the lowest mean scores were similar in the 3 professional categories. The lowest mean score for physicians, nurses and technicians was fear of blame (2.65, 2.64,

Table 3: Mean score of responses to each statement constituting work unit factors of safety culture scale in Shark El Madina hospital

Dimension/statements	Mean score	
	Item	Dimension
Unit safety norms		3.61±0.64
My unit emphasizes patient safety procedures and goals to new hires in their first six months of work	3.80±1.18	
In my unit, disregarding policy and procedures is rare	3.30±1.28	
In my unit, anyone who intentionally violates standard procedures or safety rules is swiftly corrected	3.76±1.03	
My unit takes the time to identify and assess risks to patients	3.51±1.10	
My unit does a good job managing risks to ensure patient safety	3.77±1.05	
Individuals in my unit are willing to report behavior which is unsafe for patient care	3.18±1.27	
In my unit, there is significant peer pressure to discourage unsafe patient care	3.98±0.84	
Unit recognition and support for safety		2.94±0.87
My unit recognizes individual safety achievement through rewards and incentives	2.70±1.38	
My unit follows a specific process to review performance against defined training goals	3.45±1.16	
I am rewarded for taking quick action to identify a serious mistake	2.41±1.16	
My unit provides training on teamwork in order to improve patient care performance and safety	3.22±1.18	

2.61, respectively) followed by unit recognition and support for safety (2.78, 2.98, 3.08, respectively) followed by organizational resources for patient safety (2.86, 3.03, 3.10, respectively). The highest mean dimension score for both nurses and technicians was fear of shame (3.64 and 3.85, respectively). The highest mean dimension score for physician was learning and self awareness of safety risks (3.73±0.59). There was no statistically significant difference between the overall safety score among the three professional groups (p=0.06). With the exception of learning and self awareness of safety risks, there was no statistically significant difference among the three groups for remaining 8 dimensions of safety culture.

Table 4: Mean score of responses to each statement constituting individual factors and reporting of unsafe care constructs of safety culture scale in Shark El Madina hospital

Dimension/statements	Mean score	
	Item	Dimension
Individual Factors		
Fear of shame		3.74±0.64
Asking for help is a sign of incompetence **§**	4.01±0.96	
If I make a mistake that has significant consequences and nobody notices, I do not tell anyone about it **§**	3.98±0.98	
Telling others about my mistakes is embarrassing **§**	3.44±1.18	
I will suffer negative consequences if I report a patient safety problem	3.33±1.15	
I have made significant errors in my work that I attribute to my own fatigue **§**	3.95±0.93	
Fear of blame		2.64±0.89
If people find out that I made a mistake, I will be disciplined	2.44±1.03	
Clinicians who make serious mistakes are usually punished	2.84±1.23	
Learning and self awareness of safety risks		3.56±0.62
I am less effective at work when I am fatigued	3.83±0.97	
Personal problems can adversely affect my performance	2.82±1.24	
I have learned how to do my own job better by learning about mistakes made by my coworkers	4.03±0.80	
Reporting Actual Incidence of Unsafe Care		
Provision of unsafe care		3.46±0.78
In the last year, I have witnessed a coworker do something that appeared to me to be unsafe for the patient **§**	3.39±1.18	
I have never witnessed a coworker do something that appeared to me to be unsafe patient care	3.16±1.11	
In the last year, I have done something that was not safe for the patient. **§**	3.83±1.07	

§ = reverse worded statement

Table 5: Mean score and standard deviation of responses to safety culture scale by professional categories at Shark El Madina hospital

Dimension	Physicians	Nurses	Technicians	Total	Statistical significance	
					F test	F test
Senior managers' engagement	3.31±0.79	3.37±0.58	3.59±0.96	3.41±0.77	2.03	0.13
Organizational resources for patient safety	2.86±0.68	3.03±0.76	3.10±0.93	2.99±0.78	1.51	0.22
Overall emphasis on safety	3.61±0.85	3.50±0.73	3.61±1.03	3.57±0.85	0.39	0.68
Unit safety norms	3.62±0.64	3.53±0.54	3.72±0.78	3.61±0.64	1.22	0.30
Unit recognition and support for safety	2.78±0.84	2.98±0.77	3.08±1.04	2.94±0.87	1.77	0.17
Fear of shame	3.77±0.55	3.64±0.73	3.85±0.59	3.74±0.64	1.65	0.19
Fear of blame	2.65±0.90	2.64±0.81	2.61±1.00	2.64±0.89	0.30	0.97
Learning and self-awareness of safety risks	3.73±0.59	3.34±0.56	3.65±0.66	3.55±0.62	8.12	<0.001*
Provision of unsafe care	3.50±0.86	3.32±0.72	3.61±74	3.46±0.78	2.18	0.12
Overall mean score	3.38±0.44	3.33±0.33	3.51±0.55	3.39±0.44	2.84	0.06

* = Significant

Post Hoc test (Gabriel test) for the significant dimension “learning and self-awareness of safety risk”, nurses versus physicians p=0.001*, nurses versus technicians p =0.015*, physicians versus technicians p = 0.887

The overall percentage of problematic responses was 46.9%, being highest among nurses (53.1%), followed by physicians (44.3%) and lowest among technicians (39.5%) as shown in table 6. There is statistically significant difference between the overall PPR among the three professional categories. Fear of blame showed the highest PPR among the 3 professional categories (77.7%), being highest among nurses followed by physicians followed by technicians (79.7%, 77.3%, 75.0%, respectively). Unit recognition and support for safety showed the second highest PPR among physicians and nurses, being 66.8% and 61.8%, respectively. Organizational resources for patient safety showed the second highest

PPR among technicians (53.4%). With the exception of fear of blame and organizational resources for patient safety, the remaining dimensions showed statistically significant differences among the three professional categories

Table 6: Average percentage problematic responses (PPR) to safety culture dimensions for professional categories at Shark El Madina hospital

Construct/ Dimension	Percent Problematic Responses				
	Physicians	Nursing	Technicians	Total	p value
Organizational factors					
Senior managers' engagement	50.0	57.7	39.3	50.3	<0.001*
Organizational resources for patient safety	58.3	60.8	53.4	58.1	0.38
Overall emphasis on safety	42.2	49.8	34.0	43.4	0.01*
Work unit factors					
Unit safety norms	33.0	47.5	32.4	38.6	<0.001*
Unit recognition and support for safety	66.8	61.8	52.6	61.0	0.01
Individual factors					
Fear of shame	27.5	40.3	22.9	31.4	<0.001*
Fear of blame	77.3	79.7	75.0	77.7	0.68
Learning and self awareness of safety risks	27.1	51.8	35.4	39.1	<0.001*
Report type questions					
Provision of unsafe care	39.6	52.3	38.9	44.4	0.01*
Overall percent problematic responses	44.3	53.1	39.5	46.9	<0.001*

* = significant

Discussion

Creation of culture of safety is widely considered to be the most effective and sustainable strategy for improving patient safety. The Joint Commission included an annual assessment of safety culture in its 2007 Patient Safety goals.[22] The present study assessed the current patient safety culture among health care workers at Shark El Madina hospital using PSCHO (Patient Safety Climate in Healthcare Organizations) survey tool that consists of 38 items.[14,15] Two measures were used to

assess patient safety culture at the study hospital, mean score of items and dimensions and percent problematic response (PPR). PPR is an inverse indicator of safety culture rather than positive or average response because High Reliability Organizations (HROs) theory suggests that the presence of a minority of personnel that does not promote safety may increase risk in a complex organization and undermine organizational performance over time.[18]

The present study revealed an average overall mean score of 3.39±0.44 which was statistically insignificant among the three professional categories. Moreover, the overall percentage problematic response was almost 50% (46.9%) (Table 6). This overall percentage is much higher than found in a survey conducted in 2004-2005 that assessed safety culture in 92 US hospitals using PSCHO survey tool which reported an overall average of 17.1%.[18] A study conducted to assess physicians' and managers' views on medical errors and safety culture at general hospitals in Alexandria in 2007 reported a low percentage of physicians' opinion regarding the fulfillment of safety culture dimensions ranging between 48.3% and 59.3%.[23] This indicates that our results are comparable to other studies conducted in Egypt which is lower than reported in other developed countries. This indicates the need to improve patient safety culture at Egyptian hospitals.

The present study showed that PPR was significantly higher among nurse than other professional categories. This result coincides with findings of other studies conducted in USA which showed highest PPR among nurses.[15,18] Concerning the mean dimension scores, nursing staff showed a relatively negative view of safety culture dimensions than other professional categories in five out of nine safety culture dimensions while physicians showed a relatively negative view of safety culture

dimensions than other professional categories in three out of nine dimensions of safety culture. Concerning the PPR, nurses had higher percentage of PPR than other professional groups in 8 dimensions (Table 6). A study conducted in California, USA[15] found that safety culture perception differs significantly by job categories within individual hospitals and clinicians; particularly nurses gave more problematic responses than non clinicians. Other studies[18,24] reported that leadership and non-clinical personnel have a more positive view of safety within the organization than do the front-line and clinical personnel. One of the factors that may have affected the low PPR among nurses in the present study is nursing education. It was found that the majority of nurses (60.8%) hold undergraduate diplomas (Table 1) which may lack proper education about patient safety. This indicates the need to draw attention towards nursing staff when providing future improvement efforts for safety culture.

The present study revealed that fear of blame showed the lowest mean score (2.63±0.89) and the highest PPR (77.7%) (Figure 1 and Tables 3,5,6). Moreover, this dimension ranked lowest among the three professional categories regarding its mean score and its PPR. There was no statistically significant difference among the three professional categories with regard to fear of blame. This indicates that fear of blame is a major barrier to patient safety culture among all professional categories at the study hospital. A study conducted in USA[18] reported fear of blame as the dimensions with the highest PPR (31.7%). Another study conducted among physicians at 15 hospital at California in USA, revealed that only 28 % believed that they would be disciplined if a mistake they made was discovered.[15] A study conducted in 2007 in Egypt that assessed patient safety concepts at 35 primary health centers in three governorates, which

found that the culture was of a penalizing nature with suppressed error reporting, lack of proper communication, and feedback failure.[25] Another study conducted in 3 hospitals in Alexandria showed that physicians reported very low positive response to the dimension "no punitive response error".[23] This indicates that although fear of blame was found to be a leading barrier to patient safety culture in a number of studies conducted in developed countries, response to error is more punitive at the study hospital and other local settings in Egypt.

The dimension unit recognition and support for safety efforts showed the second lowest mean score (2.94±0.87) and the second highest PPR (61.0%). This dimension ranked third highest PPR dimension in a study conducted in USA.[18] However, the present study showed much higher PPR than reported in that study (28.4%) which indicates the importance of this dimension at the study hospital. The high PPR of this dimension can be attributed to the fact that the physicians and nurses are more indulged in the difficult and risky clinical tasks that need recognition and rewarding when done in perfect safe manner. It is recommended to promote rewards and incentives for safe practices in order to establish a strong safety culture.

Organizational resources for patient safety showed low mean score (2.99±0.78) and high PPR (58.1%). This dimension was not found to have low mean score or high PPR in other studies which utilized the same tool.[15,18] This might be attributed to the relatively insufficient resources of governmental hospitals in Egypt as compared to US hospitals or it may be attributed to the very low score (2.11±1.14) of one of the reversely scored statements that constitute the dimension "Loss of experienced personnel has negatively affected my ability to provide high quality patient care" (Table 2). It was reported that

reverse-scored items may reduce the validity of questionnaire responses and in fact may introduce systematic error to the scale.[26]

The present study revealed inadequate training of staff on patient safety issues as only 16.1% received training. Physicians had the lowest percentage of training on patient safety (Table 1). Studies reported a statistically significant increase in the number of reported errors and decline of the severity of incidents following the implementation of training programs.[27,28] This indicates the need to provide in-service training on patient safety to all professional categories at the study hospital.

The present study showed a few limitations including a relatively low (55.3%) response rate of physicians. However, literature indicated that physicians have long been recognized as a professional group from which it is difficult to obtain high responses. In addition, the study did not include the hospital managerial personnel who have been found in other research[19,23] to differ significantly from clinical staff.

Conclusion and recommendations

Based on the results of the present study it may be concluded that patient safety culture among health care workers at Shark El Madina hospital is relatively negative. Nurses show more negative view of safety culture dimensions. Areas with potential for improvement include fear of blame, unit recognition and support for safety efforts and organizational resources of patient safety.

Based on the results of the present study it is recommended to:

1. Provide education and training to healthcare workers especially nurses on patient safety issues.
2. Encouraging no blame work environment through establishment of non punitive system for reporting errors and events

3. Provide resources for patient safety such as access to evidence based guidelines, safety assessment tools, training material, research funds ..etc.,

4. Conduct safety culture surveys annually to tackle changes in safety culture over time.

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Appendix (1)

PATIENT SAFETY CLIMATE IN HEALTHCARE ORGANIZATIONS

استمارة استبيان اراء العاملين في المجال الصحى عن ثقافة الامان بالمستشفيات

هذه الاسئلة تتعلق بسلامة وأمان المرضى فيما يختص بالقسم الذى تعمل به

"*أمان المريض*": هو تجنب حدوث ضرر للمريض ناتج عن عملية الرعاية الصحية وليس المرض الاصلى للمريض

"*الخطأ الطبى*" هو أى خطأ فى تقديم الرعاية الطبية،من جانب أى من مقدمى الرعاية الطبية،بغض النظر عن النتيجة.

سرية البيانات الخاصه بالمشاركين بالدراسه مكفولة تماما ،فالاستبيان مصمم بطريقة لا تتيح التعرف علي شخصيتك ولن يطلع على بياناتك سوى الباحث الرئيسي حيث أن البيانات الخاصه بكم سوف تكون خاصه بالبحث العلمي وغير قابله للتداول في المستشفى أو أى جهة تتبعها .

إلى أى مدى توافق على ما يلى (سجل إجابة واحدة بأستخدام المقياس التالى بوضع علامة √ أمام الاختيار الذى يعبر عن رأيك)

مطلوب الاجابة على جميع النقاط .

		موافق تماما	موافق	محايد	غير موافق	غير موافق اطلاقا
.1	يتم إمدادى بالموارد المناسبة(أفراد/ميزانية/معدات) لتقديم رعاية طبية آمنة للمرضى					
.2	فى قسمى يتم عمل توعية للعاملين الجدد عن إجراءات و أهداف سلامة المرضى فى الأشهر الستة الأولى من التعيين					
.3	عدم الألتزام بالقواعد والإجراءات المنظمة لسلامة المرضى نادرا مايحدث فى القسم الذى أعمل به					
.4	القرارات المتعلقة بسلامة المرضى تتم بواسطة الشخص المؤهل لذلك بغض النظر عن موقعه الوظيفى فى المستشفى					
.5	تقوم إدارة المستشفى بتوفيرمناخ يشجع سلامة المرضى					
.6	الإبلاغ عن مشكلة متعلقة بسلامة المرضى لا ينتج عنه عواقب سلبية على الشخص المبلغ					
.7	فى القسم الذى أعمل به ، أى شخص يخالف عمدا القواعد والإجراءات المنظمة لسلامة المرضى يتم تصحيح خطاؤه فى الحال					
.8	إدارة المستشفى لديها صورة واضحة عن المخاطر التى قد يتعرض لها المريض أثناء تقديم العناية الطبية له					
.9	القسم الذى أعمل به يأخذ الوقت الكافى لتحديد و تقييم المخاطر للمرضى					
.10	طلب المساعدة من الآخرين يعتبر علامة على عدم الكفاءة					
.11	إدارة المستشفى لديها فكرة جيدة عن أنواع الأخطاء التى تحدث فعليا بالمستشفى					
.12	القسم الذى أعمل به يقوم بعمل جيد فيإدارة المخاطر لضمان					

	سلامة المرضى					
13.	إذا قمت بعمل خطأ ترتب عليه عواقب كبيرة ولم يلحظه أحد لا أخبر أى شخص عن هذا الخطأ					
		موافق تماما	موافق	محايد	غير موافق	غير موافق اطلاقا
14.	القسم الذى أعمل به يقدر الانجازات الفردية لسلامة المرضى عن طريق المكافأت و الحوافز					
15.	إخبار الاخرين عن اخطائى امر محرج					
16.	من الصعب على الاطباء أو الممرضين فى هذه المستشفى اخفاء الاخطاء الجسيمة					
17.	انتقال المعلومات المتعلقة بشأن قضايا سلامة المرضى من اقسام المستشفى الى ادارة المستشفى يتم بصورة جيدة					
18.	أكون أقل فعالية فى العمل عندما أكون مرهقا					
19.	ادارة المستشفى تأخذ فى الاعتبار سلامة المرضى عند مناقشة أى تغيرات تخص نظام المستشفى					
20.	المشاكل الشخصية يمكن أن تؤثر سلبا على أدائى					
21.	سوف أعانى من عواقب سيئة اذا ابلغت عن مشكلة تتعلق بسلامة المرضى					
22.	بالمقارنة مع غيرها من المستشفيات فى المنطقة, تهتم هذه المستشفى بتقديم رعاية طبية عالية الجودة لمرضاها					
23.	لقد تعلمت كيفية القيام بالعمل الخاص بى على نحو أفضل عن طريق التعلم من الاخطاء التى ارتكبت من قبل زملائى					
24.	القسم الذى اعمل به يتبع عملية محددة لمراجعة الاداء فى ضوء الأهداف المحددة للتدريب على سلامة المرضى					
25.	فى العام الماضى؛ شاهدت زميلا فى العمل يفعل شيئا غير أمن لأحد المرضى					
26.	إذا أكتشف الناس|ننى أرتكبت خطا سوف أعاقب					
27.	الأفراد فى القسم الذى اعمل به لديهم الرغبة لتقرير السلوك الغير أمن لرعاية المرضى					
28.	يطلب منى اتباع أساليب ملتوية لانجاز بعض الاعمال					
29.	فقدان اعضاء الفريق الطبى(اطباء- ممرضين- فنيين- الخ) ذوى الخبرة يؤثر سلبا فى قدرتى على تقديم رعاية عالية الجودة للمرضى					
30.	لدى الوقت الكافى لانجاز مهام رعاية المرضى بطريقة امنة					
31.	عادة يتم معاقبة الاطباء اللذين يرتكبون اخطاء خطيرة اثناء عملهم بالمستشفى					
32.	المفاهيم السائدة بين زملاء العمل فى قسمى تسهل تقديم رعاية أمنة للمرضى					
33.	لم أشاهد قط (أبدا) زميل فى العمل يقوم بتقديم رعاية غير أمنة للمرضى					
		موافق تماما	موافق	محايد	غير موافق	غير موافق اطلاقا
34.	فى العام الماضى؛ قمت بعمل شئ ماغيرأمن بالنسبة لأحد المرضى					
35.	لقد كوفئت على اتخاذ اجراءات سريعة لتحديد خطأ جسيم					
36.	لقد ارتكبت بعض الاخطاءالكبيرة فى عملى و ذلك بسبب تعرضى للارهاق					

37.	القسم الذى اعمل به يوفر تدريب على العمل الجماعى من أجل تحسين الاداء والسلامة في رعاية المرضى					
38.	بصفة عامة مستوى سلامة وأمان المرضى فى هذه المستشفى فى تحسن					

القسم الثانى:(يرجى استكمال البيانات الشخصية الاتية):-

المرحلة السنية:	( )25-18	( )35-26	( )45-36	( )55-46	( )65-56	( )أكبر من 65
الوظيفة (اختيارى):						
النوع	( )ذكر		( ) أنثى			

التخصص:	عددسنوات الخبرة فى التخصص:( )
مكان العمل(القسم الذى تعمل به):	عددالسنوات التى عملت بها فى المستشفى: ( )
المؤهل الدراسى:	
اعلى درجة علمية حاصل عليها: ( )بكالوريوس ( ) دبلوم ( ) ماجستير ( ) زمالة ( ) دكتوراة	
هل حصلت على أى دورات تدريبية خاصة بسلامة و أمان المرضى ( ) نعم ( ) لا	
فى حالة حصولك على دورات تدريبية خاصة بسلامة و أمان المرضى: ا- أذكر عددها ومدة كل منها - - ---------- ب- ما هو تاريخ أخر دورة تدريبية حصلت عليها :	

شكرا على استكمال الاستبيان-----وقتك ومشاركتك لهم كل التقدير