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RESEARCH ARTICLE

NURSES' PERCEPTIONS OF TEAMWORK CLIMATE IN HOSPITAL: THE IMPACT ON PATIENT SAFETY CLIMATE

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ABSTRACT

Safety climate and teamwork are two variables that might be considered as satisfying factors and might affect retention levels as well as patients' and nurses' outcomes. Understanding such concepts will help in designing economic interventions to retain more professional and expert nurses, and in preventing extra costs for recruitment and orientation of new nurses. The aim of this study was to examine the relationships between safety climate and teamwork as perceived by Shebien El-Kom hospitals' nurses.

Design: This study demonstrates a non-experimental, descriptive co-relational design.

Setting: The study was conducted at two hospitals, namely Shebien El-Kom University Hospital and Shebien El-Kom Teaching Hospital, in Menoufiya Governorate, Egypt.

Subjects: A convenience sample of 140 nurses was taken from the two hospitals. It consisted of all nurses available at the time of the study.

Tool: One tool was used to collect the necessary data: the study's questionnaire consists of three parts: Socio demographic data, safety climate scale, and teamwork scale.

Results: Indicates that the highest percentages of nurses (92.2%) who had high level of team work climate had high level of safety climate. Conversely, the highest percentages of nurses (81.8%) who had moderate level of team work climate had moderate level of safety climate. They were highly statistically significant, strong positive correlation between nurses' overall perception level of safety climate from one side and their overall perception level of team work climate ($r = 0.492$, $p<0.001$).

Conclusion: This study concluded that teamwork climate has an effect on patient safety climate among nurses.

Recommendations: Developing strategies that create a culture of safety and teamwork climate to improve nurses satisfaction and retention as well as patient outcomes in hospitals, nurse educators should increase the involvement of the concepts of safety climate and teamwork in nursing curricula for improving nurses appreciation of collaboration and team spirit, further studies are needed for examining the relationships between perception of nurses working in critical care units and perception of nurses working in general wards in two dimensions. And further in-depth exploration in this issue is recommended to study an effect teamwork climate on patient safety climate from the perspective of nurses, head nurses and physicians in selected hospitals.

INTRODUCTION

Understanding work environmental factors that need improvement such as safety and teamwork climates could help in maintaining a satisfying hospital environment and, as a result, might retain the qualified nurses and enhance their intent to stay levels (**Kotzer *et al.*, 2006**). Patient safety climate (PSC) is an important work environment factor determining patient safety and quality of care in healthcare organizations (**Dietmar Ausserhofer *et al.*, 2013**). Safety climate is important for the occupational health status, and is vital for the staff satisfaction levels and the quality of care the customers receive (**MacPhee *et al.*, 2009**).

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Healthcare organizations have started to consider safety climate as a vital issue in the success of the organization, and there is a major interest in measuring the attitude and perception of healthcare providers toward safety climate (**Sexton *et al.*, 2006**). Safety climate has a significant impact on safety practices inside the hospitals, which directly might affect the quality and patient safety levels, and patients' safety is a core value of healthcare service (**Singer *et al.*, 2003**). Teamwork among healthcare providers is important for quality of patient care and nurses' satisfaction (**Estryn-Béhar *et al.*, 2007**). Previous studies have demonstrated that teamwork is a critical element in assuring patient safety and quality of care (**Beatrice J. Kalisch and Kyung Hee Lee, 2010**). Team performance is important in emergency situations. A rescue team must assemble quickly, communicate clearly and collaborate

effectively to avoid needless morbidity or mortality (**Simpson K. Failure to rescue 2005**). Effective team performance is demonstrated in a willingness of team members to work together toward a common goal such as improving patient safety culture and creating an environment free from medical errors. In addition, effective teamwork depends on effective communications with the team, along with adequate organizational resources and support. Overall, teamwork requires a shared acknowledgement of each team member's roles and abilities (**Baker *et al.*, 2005**). Organization that is teamwork and development oriented are better aligned for quality improvement and safe climate (**Seren and Baykal, 2007; Speroff *et al.*, 2010**).

Significance of the study

Research on teamwork across industries is extensive but, within healthcare and nursing, is much more limited (**Owens *et al.*, 2001; Beatrice J. Kalisch and Kyung Hee Lee, 2010**). Safety climate and teamwork are two variables that might be considered as satisfying factors and might affect retention levels as well as patients' and nurses' outcomes. Understanding such concepts will help in designing economic interventions to retain more professional and expert nurses, and in preventing extra costs for recruitment and orientation of new nurses (**Nedd, 2006**). So, our study focuses on examining the relationship between teamwork climate and patient safety climate as perceived by nurses. The study is important because when nursing teamwork and patient safety are concerned; the costs of error will be decreased and productivity will be increased "the quality of care will be high".

Aim of the study

This study examined the relationship between safety climate and teamwork as perceived by Shebien El-Kom hospitals' nurses. The following research questions were developed to conduct this study:

- What are the levels of teamwork and safety climate as perceived by Shebien El-Kom hospitals nurses?
- Are there differences in levels of teamwork and safety climate as perceived by Shebien El-Kom hospitals nurses in regard to their profile (age, education ...)?
- What is the impact of teamwork orientation on patient safety climate as perceived by Shebien El-Kom hospitals nurses?

MATERIAL AND METHODS

Design

This study demonstrates a non-experimental, descriptive, co-relational design.

Study variables

Dependent variable: Patient safety climate
Independent variable: Teamwork climate

Setting

The study was conducted at two hospitals, namely University Hospital and Shebien El-Kom Teaching Hospital, in Menoufiya Governorate, Egypt. It was carried out at high-risk areas in the previous two hospitals, namely the emergency department, the operating room, intensive care unit, premature unit, kidney dialysis unit, and burn unit.

Subjects

A convenience sample was taken from the aforementioned units of the two hospitals. It consisted of all nurses available at the time of the study. Their total number was 140 nurses. They have all fulfilled the eligibility criterion of a working experience of not less than one year in the study settings.

Tools

In order to fulfill the aim of the study, one tool was used for data collection and consists of three parts:-.

Part I

First part was developed by the researcher to collect data related to personal identification and demographic characteristics of the study subjects such as hospital name, work department, age, nursing qualification, years of experience in nursing, and years of experience in current unit.

Part II

Patient safety climate questionnaire sheet was developed by (**Sexton *et al.*, 2006**), modified by the researcher based on literature review. It consists of (13 questions) using a (3-point) Likert scale. Participants could answer (1) meaning disagree, (2) meaning neutral, and (3) meaning agree. Total score was ranged from (13 – 39). Negative items were reversely coded before the actual calculation that for Q4, Q9, andQ10. Score ranged from (13 to 23) low level nurses' responses to patient safety climate, from (24 to 27) moderate level and from (28 to 39) high level nurses' responses to patient safety climate.

Part III

Teamwork questionnaire sheet was developed by (**Sexton *et al.*, 2006; Sexton *et al.*, 2006**), and modified by the researcher based on literature review. It consists of (14 questions) using a (3-point) Likert scale. Participants could answer (1) meaning disagree, (2) meaning neutral and (3) meaning agree. Total score was ranged from (14 – 42). Negative items were reversely coded before the actual calculation that for Q2, andQ6. Score ranged from (14 to 25) low level nurses' responses to teamwork climate, from (26 to 29) moderate level and from (30 to 42) high level nurses' responses to teamwork climate.

METHODS

- An official letter clarifying the purpose of the study was obtained letters from the faculty of nursing clarifying the aim of the study to the two hospitals directors to conduct the study and collect the necessary data.
- The tools were revised for content validity by 5 experts in the related field.

- The tool was tested for reliability and validity using Cronbach's coefficient alpha (0.91). The tools were clear, comprehensive, and applicable.
- The data was collected from 1/7/2012 to 30/8/2012.
- Consent was obtained from the participants. The researcher explained to nurses the objectives of the study orally, informed confidentiality and anonymity being assured.
- A pilot study was carried out with 5 nurses from each hospital who not included in the present study. It was done to test the clarity of the study tools. The necessary modification was done. The average time needed to complete the questionnaires (Part II) ranged between (5-10) minutes and questionnaire (Part III) ranged between (5-10 minutes).

Statistical analysis

Analysis was performed using SPSS, version 16.0.

Proportions were used for categorical variables. Number and percentage distribution were used to determine the highest responses. Chi-square test ($\chi 2$): was used to study association between two or more qualitative variables. Pearson correlation (r): is a test used to measure the association between two quantitative variables. Level of significance was set as P-value <0.05 and highly significant at P- value <0.001

RESULTS

Table (1) Revealed socio-demographic characteristics of the studied nurses, where the main age of studied nurses were (31.2±8.7and 28.8±10.5) in University Hospital and Teaching Hospital respectively. The highest percentages (76.4%) of studied nurses were married. The majority (40.7%) of studied nurses were diploma nursing and 33.6% of them were bachelor degree. The least percentage (25.7 %) of them was technical institutes. The highest percentage (38.6% and 42.1%) of studied nurses had more than 10 years of experience in profession and in the current unit respectively.

Table (2) Descriptive statistics showed that the total mean of safety climate as perceived by nurses was 30.70±2.71. The highest percentage of safety climate items was (81%) related to answered agree regarding the item "receiving appropriate feedback about performance" In addition the lowest percentage of safety climate items was (49%) related to answered agree regarding the item "the levels of staffing in this area are sufficient to handle the number of patients."

Table (3) Descriptive statistics showed that the total mean of teamwork climate as perceived by nurses was 35.6±3.75. The highest percentage of teamwork climate items was (89%) related to answered agree regarding the item "know the first name of all the staff I worked with during my last shift."

Table 1. Demographic characteristics of studied nurses in university and teaching hospitals

Nurse characteristics	University Hospital (n=66)		Teaching Hospital (n=74)		Total (n=140)	
	No.	%	No.	%	No.	%
Age (years)						
18-29	32	48.5	46	62.2	78	55.7
30-39	17	25.8	15	20.3	32	22.9
40-49	17	25.8	7	9.5	24	17.1
≥50	0	0.0	6	8.1	6	4.3
Range	27(19-46)		38(18-56)			
Mean±SD	31.2±8.7		28.8±10.5			
Marital status						
Single	9	13.6	24	32.4	33	23.6
Married	57	86.4	50	67.6	107	76.4
Qualification						
Diploma	19	28.8	38	51.4	57	40.7
Technical Institute	16	24.2	20	27.0	36	25.7
Bachelor	31	47.0	16	21.6	47	33.6
Total experience (yrs):						
<5	17	25.8	21	28.4	38	27.1
5-10	13	19.7	25	33.8	38	27.1
10+	9	13.6	6	8.1	15	10.7
	12	18.2	7	9.5	19	13.6
Range	0	0.0	9	12.2	9	6.4
Mean±SD	15	22.7	6	8.1	21	15.0
	17	25.8	19	25.7	36	25.7
	20	30.3	30	40.5	50	35.7
	29	43.9	25	33.8	54	38.6
	20(1-21)		23(1-24)			
	7.1±5.7		9.4±5.4			
Age (years)						
18-29	13	19.7	24	32.4	37	26.4
30-39	16	24.2	28	37.8	44	31.4
40-49	37	56.1	22	29.7	59	42.1
≥50						
Range	18(1-19)		19(1-20)			
Mean±SD	5.3±4.8		8.1±5.2			

Table 2. Nurses responses percent to safety climate items

	Items	Disagree%	Neutral %	Agree%
1	The levels of staffing where I work are sufficient to handle the number of patients	42%	9%	49%
2	I would feel safe being treated as a patient in this service	25%	13%	62%
3	I am encouraged by my colleagues to report any patient safety concerns I may have	26%	8%	66%
4	Staff frequently disregard rules or guidelines (e.g. hand-washing, treatment protocols/clinical pathways, sterile field, etc) that are established for the area where I work	44%	23%	33%
5	The culture where I work makes it easy to learn from the errors of others	4%	20%	76%
6	I receive appropriate feedback about my performance	10%	9%	81%
7	Medical errors are handled appropriately here	19%	9%	72%
8	I know the proper channels to which I should direct questions regarding patient safety	16%	14%	70%
9	Where I work, it is difficult to discuss errors	56%	20%	24%
10	Hospital management does not knowingly compromise the safety of patients	72%	12%	16%
11	This organization is doing more for patient safety now than it did one year ago	14%	20%	66%
12	Leadership is driving us to be a safety centered organization	12%	19%	69%
13	My suggestions about safety would be acted upon if I expressed them to management	16%	19%	65%
	Total mean Score of safety climate			
	Range		13(24-37)	
	Mean±SD		30.70±2.71	

Table 3. Nurses responses percent to teamwork climate items

	Items	Disagree %	Neutral %	Agree %
1	Nurse input is well received where I work.	14%	10%	76%
2	Where I work, it is difficult to speak up if I perceive a problem with patient care	72%	12%	16%
3	Decision making where I work uses input from relevant staff	9%	7%	84%
4	The doctors and nurses here work together as a well coordinated team	27%	9%	64%
5	Disagreements where I work are resolved appropriately (i.e. not who is right, but what is best for the patient)	18%	8%	74%
6	I am frequently unable to express disagreement with the senior clinical staff here	76%	6%	18%
7	It is easy for staff here to ask questions when there is something that they do not understand	16%	7%	77%
8	I have the support I need from other staff to care for patients	12%	8%	80%
9	I know the first and last names of all the staff I worked with during my last shift/period of work	6%	5%	89%
10	Important issues are well communicated at shift changes/between periods of work	13%	6%	81%
11	Briefing staff on handovers between shifts/periods of work (i.e. to plan for possible contingencies) is important for patient safety.	8%	11%	81%
12	Briefings are common where I work	10%	11%	79%
13	I am satisfied with the quality of collaboration that I experience with staff physicians where I work	21%	28%	51%
14	I am satisfied with the quality of collaboration that I experience with nurses where I work	4%	8%	88%
	Total mean Score of teamwork climate			
	Range		16 (26-42)	
	Mean±SD		35.6±3.75	

Table 4. Frequency Distribution of the studied sample according to their levels of safety climate and team work climate (no = 140)

Items	Frequency	Percent
▪ Safety climate level:		
High safety climate	121	86.4
Moderate safety climate	19	13.6
▪ Team work climate level:		
High teamwork climate	129	92.1
Moderate teamwork climate	11	7.9

Table 5. Comparison between nurses' teamwork, and safety climate levels

Total Safety climate level	Total Teamwork level				X^2 test	P value
	Moderate (no=11)		High (no=129)			
	No	%	No	%		
Moderate	9	81.8	10	7.8		
High	2	18.2	119	92.2	47.71	<0.001*

(*) statistically significant at p<0.05

Table 6. Comparison between levels of safety climate regarding demographic characteristics

Personal characteristics	Safety climate level				X^2 test	P value
	Moderate (no=19)		High (no=121)			
	No	%	No	%		
Age (years)						
18-29	10	52.6	68	56.2		
30-39	4	21.1	28	23.1	0.31	0.96
40-49	4	21.1	20	16.5		
≥50	1	4.1	5	4.1		
Marital status						
Single	5	26.3	28	23.1	0.09	0.76
Married	14	73.7	93	76.9		
Qualification						
Diploma	10	52.6	47	38.8		
Technical Institute	4	21.1	32	26.4	1.29	0.52
Bachelor	5	26.3	42	34.7		
Name of hospital						
University	4	21.1	62	51.2	6.01	0.01*
Teaching	15	78.9	59	48.8		
Department						
Intensive care unit	11	57.9	27	22.3		
Operating room unit	4	21.1	34	28.1		
Premature unit	1	5.3	14	11.6	11.89	0.04*
Emergency unit	0	0.0	19	15.7		
Burn unit	1	5.3	8	6.6		
Kidney dialysis unit	2	10.5	19	15.7		
Total experience (yrs):						
<5	0	0.0	36	29.8		
5-10	9	47.4	41	33.9	7.62	0.02*
10+	10	52.6	44	36.3		
Experience in current unit yrs):						
<5						
5-10	2	10.5	35	28.9	6.46	0.04*
10+	4	21.1	40	33.1		
	13	68.4	46	38.0		

(*)Significant difference at p<0.05

Table 7. Comparison between levels of teamwork climate regarding demographic characteristics

Personal characteristics	Teamwork climate level				X^2 test	P value
	Moderate (no=11)		High (no=129)			
	No	%	No	%		
Age (years)						
18-29	5	45.5	73	56.6		
30-39	3	27.3	29	22.5	2.35	0.89
40-49	2	18.1	22	17.1		
≥50	1	9.1	5	3.9		
Marital status						
Single	3	27.3	30	23.3	0.55	0.76
Married	8	72.7	99	76.7		
Qualification						
Diploma	5	45.5	52	40.3		
Technical Institute	4	36.4	32	24.8	2.91	0.57
Bachelor	2	18.1	45	34.9		
Name of hospital						
University	1	9.1	65	50.4	10.59	0.009*
Teaching	10	90.9	64	49.6		
Department						
Intensive care unit	3	27.3	35	27.1		
Operating room unit	2	18.2	36	27.9		
Premature unit	2	18.2	13	10.1	9.12	0.52
Emergency unit	1	9.1	18	14.0		
Burn unit	1	9.1	8	6.2		
Kidney dialysis unit	2	18.2	19	14.7		
Total experience (yrs):						
<5	0	0.0	36	27.9		
5-10	2	18.2	48	37.2	10.08	0.04*
10+	9	81.8	45	34.9		
Experience in current unit yrs):						
<5						
5-10	0	0.0	37	28.7		
10+	1	9.1	43	33.3	11.84	0.02*
	10	90.9	49	38.0		

(*)Significant difference at p<0.05

Table 8. Pearson correlation between total safety climate level score and total team work climate level score

Parameters	Total safety climate level score	
	r	P value
Total team work climate level score	0.492	<0.001**

(**)Correlation is significant at the 0.01 level.

In addition the lowest percentage of teamwork climate items was (51% and 64%) respectively related to answered agree regarding the item "satisfied with the quality of collaboration with staff physicians," and " doctors and nurses work together as coordinated team"

Table (4) shows staff nurses' perception level of safety climate. The highest percentage of staff nurses had a high perception level of job safety climate (86.4%). Regarding staff nurses' perception level of team work climate, the highest percentage of staff nurses had a high perception level of team work climate (92.1%).

Table (5) indicates that the highest percentages of nurses (92.2%) who had high level of team work climate had high level of safety climate. Conversely, the highest percentages of nurses (81.8%) who had moderate level of team work climate had moderate level of safety climate. They were highly statistically significant, p<0.001.

Table (6) presents that there were statistical significant differences between nurses' perception level of patient safety climate and most of their socio-demographic characteristics. Where, the highest percentages of nurses who were working at University Hospital, who were working in intensive care unit, had total years of experience more than 10 years and those also those who had more than 10 years of experience in current unit representing 78.9%, 57.9, 52.6%, and 68.4% respectively, had highly statistically significant moderate perception of Safety climate level than other categories of nurses groups (X^2=6.01, p= 0.01; X^2=11.89, p= 0.04; X^2=7.62, p= 0.02; and X^2=6.46, p= 0.04) respectively.

Table (7) demonstrates that the highest percentage of nurses who were working at Teaching Hospital, had total years of experience more than 10 years and those also those who had more than 10 years of experience in current unit representing 90.9%, 81.8%, and 90.9% respectively, had highly statistically significant moderate perception level of team work climate than other categories of nurses groups (X^2=10.59, p= 0.009; X^2=10.08, p= 0.04; and X^2=11.84, p= 0.02) respectively.

Table (8) points to statistical significant strong positive correlation between nurses' overall perception level of safety climate from one side and their overall perception level of team work climate (r = 0.492 , p<0.001).

DISCUSSION

In recent years, the issues of patient safety have become important topics in health policy and healthcare practice in several countries. Rapid change in healthcare has mandated greater attention to safety, which is essential to the efficient, competent delivery of quality care (**Nieva and Sorra, 2003**).

The Institute of Medicine (**IOM, 2004**), reported that leaders and managers committed to promote a safety culture at all levels of the organization and empowers employees to be helpful and observant of potential problems that need to be addressed. The present study assessed the relationship between nurses' perception of teamwork and patient safety climates. One hundred and forty respondents participated in the study. The results of this study are consistent with the idea that patient safety outcomes are associated with the teamwork characteristics within which nurses' practice. The teamwork environment has been linked to patient safety outcomes through previous research studies (**Laschinger and Leiter, 2006; Friese *et al.*, 2008; Aiken *et al.*, 2012; El-Hosany and Araef, 2012**). The first and most important result in the present study was that the majority of nurses perceived both high level of safety and teamwork climate. This finding is reassuring because teamwork behaviors are crucial for providing optimal and safe patient care especially in specialty units. One explanation of this finding could be attributed to the fact that strong multidisciplinary teams in specialty units is central to improving patient safety where in these units nurses are more experienced and skillful to think critically and to make decisions related to the safety environment. This can achieved through utilization of resources and participation in conferences and meetings about safety culture.

Results regarding teamwork also received the highest positive responses by nurses suggesting that these are the areas of strength and might reflect the evidence of effective team collaboration in the study hospitals. These findings were supported by (**Singer *et al.*, 2009**), they identified that strengthening critical care teams involves structuring formal, informal communications and team building activities that focus on safety. Results regarding teamwork climate level at university hospital were higher than teaching hospital. Also teaching hospital has moderate level of teamwork climate level that due to university hospital environment is providing a model of collaboration and teamwork. This finding is supported by (**Ahmed *et al.*, 2011**). Also in agreement with these present study findings *(JCAHO)* (**Joint Commission on Accreditation of Healthcare Organizations, 2010**), has reported that effective collaboration and teamwork is essential in providing safe and effective hospital care. Meanwhile, the lowest percentage of teamwork climate items was (51% and 64%) respectively related to answered agree regarding the item "satisfied with the quality of collaboration with staff physicians," and " doctors and nurses work together as coordinated team". These findings were supported by (**Makary *et al.*, 2006; Thomas *et al.*, 2003**), which have shown that nurses are often dissatisfied with the quality of communication and collaboration with physicians. (**Davenport *et al.*, 2007; Wheelan *et al.*, 2003**), have claimed that higher ratings of collaboration and teamwork have been associated with better patient outcomes in observational studies. Also (**Martin *et al.*,**

2010), suggest good inter professional relations and communication among RNs and physicians, essential for high levels of patient safety and quality of care.

Regarding nurses perception level of safety climate, the present study has revealed highest positive responses by nurses for safety climate level suggesting that high level in nurses' perception might reflect to nurses spent more time in contacting and communicating with patients, so they had more opportunity to deal with patient safety issues. This result is constant with (**Ahmed *et al.*, 2011**), who found that nurses perceive patient's safety culture more positively, and (**Nie *et al.*, 2013**), show that amongst the health care workers surveyed in China there was a positive attitude towards the patient safety culture within their organizations.

Moreover, this might be demonstrated by (**Carmel *et al.*, 2006; Moore, 2004**), who found that nurses are committed professionals in a unique position to improve patient safety because of their proximity to the patient and their critical role in healthcare delivery. This position gives nurses the needed insight to identify and address errors as the most highly ethical and honest group of professionals. Thus, nurses and the nursing profession play a distinctive role to advocate for patient safety and contribute to the overall efforts to reform healthcare promoting positive change that will ultimately benefit patients. On the same line (**Sexton *et al.*, 2006**), had reported that healthcare organizations have started to consider safety climate as a vital issue in the success of the organization, and there is a major interest in measuring the attitude and perception of healthcare providers toward safety climate. Safety climate has a significant impact on safety practices inside the hospitals, which directly might affect the quality and patient safety levels (**Singer *et al.*, 2003**).

Concerning levels of safety climate regarding demographic characteristics, the present study reported that the highest percentages of nurses have high safety climate level who were working at university hospital was higher than who were working at teaching hospital also the highest percentages of nurses have moderate level of safety climate level at teaching hospital, and who were working in operating room unit and who had 10 years of experience in current unit have high level of safety, and intensive care unit have moderate level of safety, highly statistically significant moderate perception of Safety climate level than other categories of nurses groups. This finding is supported by (**Ahmed *et al.*, 2011**), who concluded that, highest percentage of nurses working in critical care units perceived supervisor/ manager expectations and actions promoting safety culture dimension more positively than those working in general wards did. These results may be attributed to that, the critical care units' work which needs more supervision and compliance to safety standards because of the critical condition of patients. As well, this finding could be due to that, the environment of a critical area necessitates the supervision to be stronger and harder than in the general units.

Regarding the relation between safety climate level and nurses' qualification, the present study results have not statistically significant. The findings of this study didn't support the associations in previous literature between higher nurse education levels and improved patient safety outcomes (**Estabrooks *et al.*, 2005; Bruyneel *et al.*, 2009**). And supported by (**El-Hosany and Araef, 2012**), who found the majority of the nurses (81.7%) included in their study had educational attainment of Baccalaureate degree. This result might be due to the highest percentage of nurses in teaching Hospital are diploma nurses and also they usually have limited resources when compared to university hospital where the highest percentage of nurses are bachelor degree nurses and have more access to resources. So teaching hospital specialty units' nurses are not well prepared both with education and resources to strongly support safety principles and so their engagement in the appropriate behaviors is not enough.

Regarding the relation between patient safety climate level and nurses' age, the present study results have not statistically significant. The findings of this study didn't agree with (**Hassan and Ahmed, 2012**), who stated that there were statistically significant differences between nurse's age, qualification and patient safety level. Worth mentioning (**Kitch, 2005**), identified that perception of safety culture dimensions among nurses were differ significantly in accordance with age group and level of education. It is interesting to notice that ICU nurses and those who had 10 years of experience in current unit tended to have significantly moderate perception of safety climate. This result could be attributed to the fact that, nature of work environment of ICU, where care for patients crosses many disciplines with high patient mortality itself may lead to personnel burnout and stress. Many nurses worry about reporting near-miss events to reporting systems for fear of consequences from colleagues who are working with them for more than 10 years. Moreover they fear from punishment from senior management if they report for near- miss events (**Abdou and Saber, 2011**).

Concerning levels of teamwork climate regarding demographic characteristics, the present study reported that the highest percentages of nurses who were working at Teaching Hospital and who had total years of experience more than 10 years had highly statistically significant moderate perception of team work climate level than other categories of nurses groups. Again, this result might be attributed to the highest percentage of nurses in teaching hospital are diploma nurses when compared to university hospital where the highest percentage of nurses are bachelor degree nurses. So nurses in Shebin El-kom Hospital are less equipped with the strategies for building effective team. Regarding the relation between teamwork climate level and nurses' area or units of work, the present study results have not statistically significant. The findings of this study didn't agreement with (**Guise and Sigel, 2008**), emphasized that good team work is essential for the delivery of effective and efficient care in any clinical setting. Also (**Nathanson *et al.*, 2011**), reported that amount of collaborative teamwork that occurs in the ICU between nurses and junior doctors were inadequate.

The present study has pointed to highly statistical significant positive correlation between nurses' overall perception of team work climate and their overall perception of safety climate ($r = 0.492$, $p<0.001$). This result is similar to (Li and Ai-Tzu, 2013), who reported that teamwork climate is the most important

determinant for patient safety attitudes among nurses. And also (**Raeda *et al.*, 2012**), showed that there was a strong positive correlation between safety climate and teamwork; (r = .841, p < .01). Also (**El-Hosany and Araef, 2012**), reported that patient safety is showing significant positive correlations with teamwork characteristics, specifically at ward and unit level. (**Molloy, Patricia 2012**), has also added that nurses reported higher patient safety grades associated with better perceptions of teamwork, management support, communication. Also this finding is in total agreement with (**Beatrice *et al.*, 2010**), who demonstrated that teamwork is a critical element in assuring patient safety and quality of care.

Conclusion

This study concluded that the studied sample had a high teamwork climate level and there was a strong positive correlation between patient safety climate level scores and teamwork climate level scores. There was statistical significant differences was found between nurses' perception level of patient safety climate and their hospital, department, total years of experience, and their years of experience in current unit. Also, There was statistical significant differences was found between nurses' perception level of teamwork climate and their hospital, total years of experience, and their years of experience in current unit. Finally, teamwork climate has an effect on patient safety climate as perceived by nurses.

Recommendations

The study recommended the following

- Developing strategies that create a culture of safety and teamwork climate to improve nurses' satisfaction and retention as well as patient outcomes in hospitals.
- Nurse educators should increase the involvement of the concepts of safety climate and teamwork in nursing curricula for improving nurses' appreciation of collaboration and team spirit.
- Further studies are needed to examine the relationships between perception of nurses working in critical care units and Perception of nurses working in general wards in two dimensions.
- Further in-depth exploration in this issue is recommended to study the effect of teamwork climate on patient safety climate from the perspective of nurses, head nurses and physicians in selected hospitals
- Further studies are needed for testing the influence of safe work environment on nurses' performance and productivity.

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