

## Staff Nurses` Perception of Inter-Professional Collaboration versus Patient Safety Climate

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### Abstract

**Background:** Effective collaboration between staff nurses as a professional is associated with patient safety and quality of care. **The aim:** to examine staff nurses` perception of inter-professional collaboration versus patient safety climate. **Design:** A descriptive correlation research design was used. **Setting:** The study will be conducted at Banha fever Hospital, affiliated to Ministry of Health, in Banha, Qalubya. **Sample:** convenience sample consisted of 170 staff nurses. **Tools:** two questionnaire were used; **Tool I: Inter-professional Collaboration questionnaire:** consists of two parts; **(part 1):** socio-demographic characteristic :and **(part 2): Inter-professional Collaboration questionnaire** to examine perception of inter-professional collaboration among staff nurses. **Tool II: Patient safety climate questionnaire** to examine perception of patient safety climate among staff nurses. **Results:** the staff nurses had a neutral level of collaborative perception; the total level of inter professional collaboration among staff nurses` perception was higher (91.2). Also nurses had neutral perception regard patient safety climate. Nurses had higher percent regard patient safety climate (71.8). **Conclusion:** there was significant correlation between inter professional collaboration versus patient safety climate among staff nurses`. **Recommendations:** conduct in service program and workshop about collaborative team work and patient safety climate perception among staff nurses` and development of an inter-professional collaborative environment to increase nurses` performance as well as improve patient safety climate.

**Key Words:** Staff nurses, Inter professional collaboration (Ipc), Patients safety climate

### Introduction

Collaboration in health care is complementary roles and cooperatively work, sharing responsibility among health care professionals for problem solving and making decisions to formulate and carry out patient care plans .The collaboration between inter professional is associated to patient safety. nurse performs various tasks employing several tools and technologies with persons within a certain physical environment and under specific organizational conditions. (Adams et al., 2016).

So the collaboration between inter professional increases team members` awareness of each other`s knowledge and skills leading to continued decision making improvement improve patient care and

create satisfying work roles. Inter professional collaborative behaviors is a process of interaction between professional during the delivery of patient care through using open communication, working cooperatively, sharing responsibility for managing conflict, solving problem, and performing joint decision-making (Rotenstein, 2018).

The nurse manager creating a work environment in which inter professional collaboration is the expected norm. The nurse manager should clarify collaboration vision, practices as a role model for collaboration, and inspires others to achieve this goal. In addition, the nurse manager manipulates the environmental resources and facilitates .Therefore successful collaboration depending on; all team

members should have clear idea about what to be achieved and team members should be working to meet the same goals or objectives for service users and patients. Each team member should have self confidence to share knowledge and information and mutual respect is given for each opinion to provide efficient, effective and safe patient care.. (*Higns, 2020*).

Many hospitals are developing error management systems to face the rising numbers of healthcare errors and adverse events , patient safety defined as the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of healthcare .Many modern health care systems, have all engaged in national safety initiatives, such as creating patient safety agencies, implementing adverse event reporting and defining safety related performance indicators, in attempts to design and improve safer healthcare systems (*Frazier , et al., 2014*).

Safety climate as a “summary of molar perceptions that employees share about their work environment” It provides a “snapshot” of the perceptions held by healthcare workers about the visible features of safety culture at a given point in time defined it “as the surface features of the underlying safety culture.” It “assesses workforce perceptions of procedures and behaviors in their work environment that indicate the priority given to safety relative to other organizational goals”. In comparison to safety culture, safety climate consists of attitudes and perceptions but does not cover values, competencies and behavior. Also, it differs from safety culture in that it is specific to one point in time and location (*Kaczur, 2017*).

Patient safety climate refers to the shared perceptions of healthcare professionals on particular aspects within the organization’s culture in relation to patient care and patient safety The aim of patient safety climate is to avoid adverse outcomes or reduce possible harm to patients, resulting from the process of healthcare delivery.

There are many factors can shape and support nurses’ perceptions of safety climate such as interdisciplinary, interdepartmental, peer, and supervisory communication Therefore, healthcare professionals should continually modify their collaborative processes to make the patient safety climate more efficient and improve patient outcomes.Effective inter professional collaboration is therefore important to enhance and support the patient safety climate (*Chaparro, et al., 2017*).

The goal of safety climate is to continuously seek ways to minimize patient harm which may result from the processes of healthcare delivery. This goal mirrors a dynamic, conscious culture of safety in which actions are taken towards reducing harm or risk to the patient. Safety climate is a critical component of responsible healthcare delivery in organization and identify opportunities for improvement of service (*Khan, 2016*).

Another important aspect of the implementation process is the role that supervisors play in shaping interventions. The social interaction between supervisors and their employees determines the impact of an intervention, as supervisors influence the way their employees perceive an intervention and whether or not they decide to participate in the intervention activities. This makes supervisors powerful actors in the implementation process: they can either ‘make or break’ an intervention (*Nielsen, 2017*).

Supervisors are responsible for day-to-day intervention implementation, their influence on intervention outcomes should not be underestimated. The supervisor plays an important role in our multifaceted safety climate intervention, not only because they are the ones to show an increase in commitment to safety, but also because they influence employees’ choice to participate in intervention activities aimed at increasing senior management priority for safety and group norms and behavior. We therefore expect that the effectiveness of our multifaceted safety climate intervention is

related to supervisors' attitudes and actions towards the intervention (*Bronkhorst, 2018*).

### **Significant of the study:**

During the daily round in Benha fever hospital, the researcher noticed that staff nurses suffer from lack of the interaction between healthcare professionalism lack of concept of team work which and lead to increased workload and burnout, job dissatisfaction, and lack of effective communication among health care professionals in health care organization which may be impacts on patient safety and patient health outcomes which had impact on patient length stay, Morbidity and mortality rate.

Inter professional collaboration, is the practice of approaching pt. care from a team- based perspective. Inter- professional collaboration refer to interacting between professionalism, sharing ideas about patient care and working to gather to maintain continuity of care, when team members from different disciplines work jointly, it's easier to form amore comprehensive view of patient care also, introducing inter. Professional collaboration with in health care organization may be leads to work collaboratively to provide high quality patientcare.

So, this study will be hold to examine the nurses, perception of inter professional calibration versus patient safety climate.

### **Aim of the study**

The aim of this study is to examine staff nurses' perception of inter-professional collaboration versus patient safety climate.

### **Research question**

Is there a relationship between inter\_ professional collaboration versus patient safety climate regard to staff nurses' perception?

### **Subject and Methods**

### **I. Technical Design**

This design involved research design, settings, subjects of the study, and tools of data collection.

### **Research design**

A descriptive correlational design was utilized for conducting the study.

### **Study setting**

The study was conducted at Banha fever Hospital, affiliated to Ministry of Health, in Banha, Qalubya.

### **Study subjects**

The subjects of this study consisted of staff nurses available during data collection period who were working at study setting. A sample of (170) staff nurses out of (280) from all departments.

### **Tools Of Data Collection :**

The data in this study were collected by using two tools :-

Inter-professional collaboration questionnaire and patient safety questionnaire.

### **• First tool:- Inter-professional Collaboration questionnaire:**

This questionnaire was used to examine perception of inter-professional collaboration among staff nurses developed by (*Amour 2005*), it consisted of two parts:

### **❖ First part : socio-demographic characteristic :**

This part designed to collected data about socio demographic characteristic of study subjects including : age, gender, nursing qualification, experience years, job position, material status, residence, income, department, attended courses for inter\_ professional collaboration and patient safety climate

### **❖ Second Part : inter-professional collaboration questionnaire :-**

It consisted of (17) items, it was divided into two domains

**❖ Scoring system :**

Inter-professional collaboration: The responses from “strongly agree” to “strongly disagree” were scored from 5 to 1, respectively. Reverse scoring was used for negatively stated items, so that a higher score indicates higher level of collaboration. Totals of each of the two dimension and the total scale were calculated, and the sums of scores were converted into percent scores. For the categorical analysis of each dimension as well as for the total scale, a score of 60% or higher was considered as high, while a lower score was considered low.

**• Second tool :-Patient Safety Climate questionnaire:-**

This questionnaire was used to examine perception of patient safety climate among staff nurses developed by (Singer, 2012) modified by the researchers & ascertained for its validity and reliability. Consists (41 items). Divided into three main dimensions

**❖ Scoring system :**

Perception of patient safety: The responses from “strongly agree” to “strongly disagree” were scored from 5 to 1, respectively. Reverse scoring was used for negatively stated items, so that a higher score indicates higher level of perception. Totals of each of the three dimensions and their sub-dimensions were calculated, and the sums of scores were converted into percent scores. For the categorical analysis of each dimensions and sub-dimension as well as for the total scale, a score of 60% or higher was considered as high, while a lower score was considered low.

**II. Operational Design:**

The operational design for this study included three phases namely: preparatory phase, pilot study and field work.

**Preparatory phase:**

This phase started from July till September 2019. During this phase reviewed the previous and current available related literature to be acquainted with the subject. Also local and international related literature and knowledge aspects of the study using books, articles. Magazines and internet to modify tools for data

collection. The tools of the study were valid tools.

**B-Pilot study:**

Pilot study was conducted at October 2019 It was done on 28 staff nurses represented 10% of the main study subjects and before starting fieldwork and data collection. A pilot study was done for testing the clarity of questionnaire sheets, and their relevance to study. It also helped to estimate the time needed to complete the data collection forms. It took around 15-30 minutes to fill in the sheets. Those pilot study respondents were excluded in the main study sample because no modification was done.

**C-Field work:**

The field work of the study extended through two menthes. Data collection was carried out in the period from the beginning of November 2019 and was completed by the end of December 2019. After securing the official approval for conducting the study, the researcher met the nursing director of the hospital to determine the suitable time for data collection and seek their support. The researcher introduced her self to staff nurses 'in their work unites, the researcher collected data two days per week; from 10.00am to 2.00pm. The researcher distributed the tools to participants and asked them to fill after clarifying the aim of the study and its implication. Date was collected during work days through using the study tool by the researcher; clarifications were given whenever it was needed with reassurance about confidentiality of any obtained information. The researcher collected data from staff nurses'. Each week the researcher collected about 30-40 questionnaire sheets from study subjects. Whenever the nurse has not completed sheets the researcher left it another day. Sometimes the nurse lost the sheet; she was given another one until the completed sheet collected from every departments. The researcher checked each filled questionnaire to ensure its completeness.

**Ethical consideration:**

Prior to the actual work of research study, ethical approval was obtained from

the Scientific Research Ethical Committee of the Faculty of Nursing at Ain Shams University. In addition, an official letter was obtained from Dean of the Faculty of Nursing, Ain Shams University to the head of each department. The letter included the aim of the study and proposed benefits to obtain their permission and cooperation for collecting data. The subjects were informed about their right to withdraw at any time without giving any reason and that the collected data will be kept confidential.

### III. Administrative Design:

Before starting on the study, official and formal letters were issued from the Faculty of Nursing, Ain Shams University to the Directors of the study settings, explaining the aim of the work, and the expected benefits. Ensuring confidentiality of the information obtained. Individual oral consent was also obtained from each participant in the study.

### IV. Statistical Design:

Data entry and statistical analysis were done using SPSS 20.0 statistical software package. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means and standard deviations and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the tools through their internal consistency. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. In larger than 2x2 cross-tables, no test could be applied whenever the expected value in 10% or more of the cells was less than 5. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of inter-professional collaboration and perception of patient safety, multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value <0.05.

## Results:

**Table 1(A-B):** showed that about two third (48.2) of studied staff nurses aged (30) years old with Mean±SD 31.1±6.5 and three quarters of them were female (72.9 %) Their years of experience ranged between less than one year and 35 years, with Mean±SD 9.1±6.2 years The majority of the staff nurses were married(83.5%). About more than three quarter of staff nurses were technical institute diploma nurses (65.3) which were more than half of staff nurses living in rural (60.6 %) which were half of studied staff nurses reported insufficient income (50.6 %)

**Figure (1.)** Shows that about more than third quarters (91.2%) of studied staff nurses` had a high perception of inter professional collaboration, whenever a few percent of studied staff nurses` (8.8%) which had a low perception of inter professional collaboration

**Figure (2).** Shows that about more than two quarters (71.2%) of studied staff nurses` had a high total Perception of patient safety climate, whenever one quarter of studied staff nurses` (28.8%) which had a low perception of patient safety climate

**Table (2):** Describe relations between total staff nurses` perception of inter-professional collaboration and their characteristics. The table reveled Statistically significant relation between total staff nurses` perception of inter-professional collaboration and staff nurses qualification (p = 0.01).

**Table (3):** Describe relations between staff nurses` total perception of patient safety climate and their characteristics table reveled no statistically significant relation between staff nurses` total perception of patient safety climate and their characteristics.

**Table (4):** shows the correlation matrix of inter-professional collaboration and perception of patient safety climate domains scores.It shows high statistically significant relation at **p<0.01** with strong positive correlation between total perception

of inter-professional collaboration and patient safety climate domains (**0.201\*\***).

**Figure (3):** Shows that high positive correlation between staff nurses' scores of inter-professional collaboration and perception of patient safety climate.

**Table (1 –A):** Demographic characteristics of nurses in the study sample (n=170).

	Frequency	Percent
Age:		
<30	82	48.2
30-	70	41.2
40+	18	10.6
Range	21.0-60.0	
Mean±SD	31.1±6.5	
Median	30.0	
Gender:		
Male	46	27.1
Female	124	72.9
Nursing qualification:		
Diploma	120	70.6
Bachelor	50	29.4
Experience years:		
<5	26	15.3
5-	82	48.2
10+	62	36.5
Range	1.0-43.0	
Mean±SD	9.1±6.2	
Median	8.0	

**Table (1-B) :** Demographic characteristics of nurses in the study sample (n=170).

	Frequency	Percent
Job position:		
Nurse	111	65.3
Specialist	59	34.7
Marital status:		
Married	142	83.5
Unmarried (single/divorced/widow)	28	16.5
Residence:		
Rural	103	60.6
Urban	67	39.4
Income:		
Insufficient	86	50.6
Sufficient	84	49.4
Department:		
Special units (dialysis, endoscopy, etc.)	44	25.9
Emergency	16	9.4
Wards	67	39.4
Critical care	43	25.3

**Table (2):** Relations between total staff nurses' perception of inter-professional collaboration and their characteristics.

	Total inter-professional				X <sup>2</sup> test	p-value
	High		Low			
	No.	%	No.	%		
<b>Age:</b>						
<30	72	87.8	10	12.2		
30-	65	92.9	5	7.1	--	--
40+	18	100.0	0	0.0		
<b>Gender:</b>						
Male	44	95.7	2	4.3		
Female	111	89.5	13	10.5	Fisher	0.36
<b>Nursing qualification:</b>						
Diploma	114	95.0	6	5.0		
Bachelor	41	82.0	9	18.0	Fisher	0.01*
<b>Experience years:</b>						
<5	23	88.5	3	11.5		
5-	74	90.2	8	9.8	0.76	0.68
10+	58	93.5	4	6.5		
<b>Job position:</b>						
Nurse	104	93.7	7	6.3		
Specialist	51	86.4	8	13.6	2.52	0.11
<b>Department:</b>						
Special units (dialysis, endoscopy, etc.)	41	93.2	3	6.8		
Emergency	15	93.8	1	6.3	--	--
Wards	62	92.5	5	7.5		
Critical care	37	86.0	6	14.0		
<b>Marital status:</b>						
Married	127	89.4	15	10.6		
Unmarried	28	100.0	0	0.0	Fisher	0.14
<b>Residence:</b>						
Rural	93	90.3	10	9.7		
Urban	62	92.5	5	7.5	0.25	0.61
<b>Income:</b>						
Insufficient	77	89.5	9	10.5		
Sufficient	78	92.9	6	7.1	0.58	0.45
<b>Attended inter-professional courses:</b>						
No	36	87.8	5	12.2		
Yes	119	92.2	10	7.8	Fisher	0.36
<b>Attended patient safety courses:</b>						
No	28	90.3	3	9.7		
Yes	127	91.4	12	8.6	Fisher	0.74

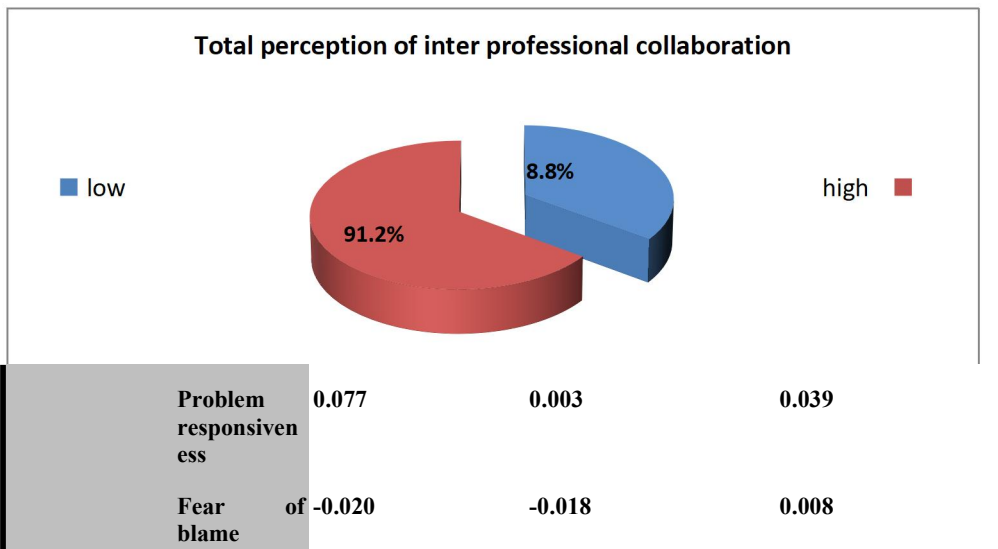
**Table (3):** Relations between staff nurses' total perception of patient safety climate and their characteristics.

	Total patient safety perception				X <sup>2</sup>	p-value
	High No.	%	Low No.	%		
<b>Age:</b>						
<30	56	68.3	26	31.7		
30-	53	75.7	17	24.3	1.21	0.55
40+	12	66.7	6	33.3		
<b>Gender:</b>						
Male	33	71.7	13	28.3		
Female	88	71.0	36	29.0	0.01	0.92
<b>Nursing qualification:</b>						
Diploma	86	71.7	34	28.3		
Bachelor	35	70.0	15	30.0	0.05	0.83
<b>Experience years:</b>						
<5	20	76.9	6	23.1		
5-	59	72.0	23	28.0	0.80	0.67
10+	42	67.7	20	32.3		
<b>Job position:</b>						
Nurse	79	71.2	32	28.8		
Specialist	42	71.2	17	28.8	0.00	1.00
<b>Department:</b>						
Special units (dialysis, endoscopy, etc.)	30	68.2	14	31.8		
Emergency	12	75.0	4	25.0	1.87	0.60
Wards	51	76.1	16	23.9		
Critical care	28	65.1	15	34.9		
<b>Marital status:</b>						
Married	101	71.1	41	28.9		
Unmarried	20	71.04	8	28.6	0.00	0.97
<b>Residence:</b>						
Rural	72	69.9	31	30.1		
Urban	49	73.1	18	26.9	0.21	0.65
<b>Income:</b>						
Insufficient	64	74.4	22	25.6		
Sufficient	57	67.9	27	32.1	0.89	0.35
<b>Attended inter-professional courses:</b>						
No	29	70.7	12	29.3		
Yes	92	71.3	37	28.7	0.89	0.35
<b>Attended patient safety courses:</b>						
No	25	80.6	6	19.4		
Yes	96	69.1	43	30.9	1.66	0.20



**Table (4):** Correlation matrix of inter-professional collaboration and perception of patient safety climate domains scores.

		Spearman's rank correlation coefficient		
		Inter-professional collaboration		
		Care coordination	Sharing in clinical activities	Total
Sharing in clinical activities		.209**		
Perception of patient safety climate:				
	Senior leadership	0.365**	0.239**	0.409**
	Safety resources	0.088	0.169*	0.185*
	Facility characteristics	-0.086	0.055	-0.029
	Workgroup leadership	0.052	0.172*	0.126
	Workgroup norms	0.139	0.141	0.143
	Workgroup recognition	0.014	0.204**	0.133
	Fear of shame	-0.079	-0.145	-0.162*



Psychological safety	0.070	0.210**	0.143
Outcomes	0.177*	0.200**	0.241**
Learning	0.123	0.173*	0.200**
Total perception	0.140	0.155*	0.201**

Figure (1): The total perception of inter professional among studied staff nurses.

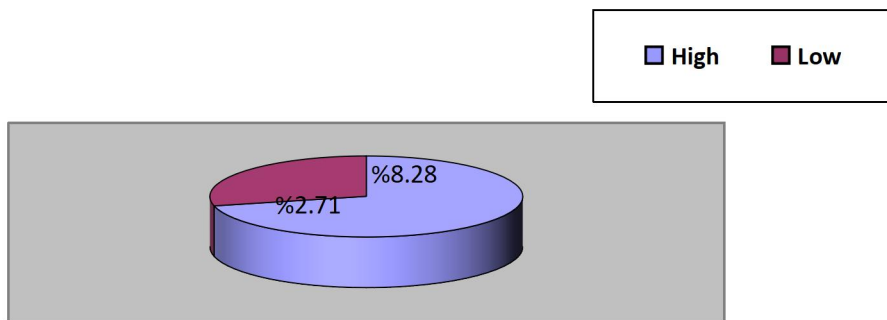


Figure (2): The total Perception of patient safety climate among staff nurses' studied.

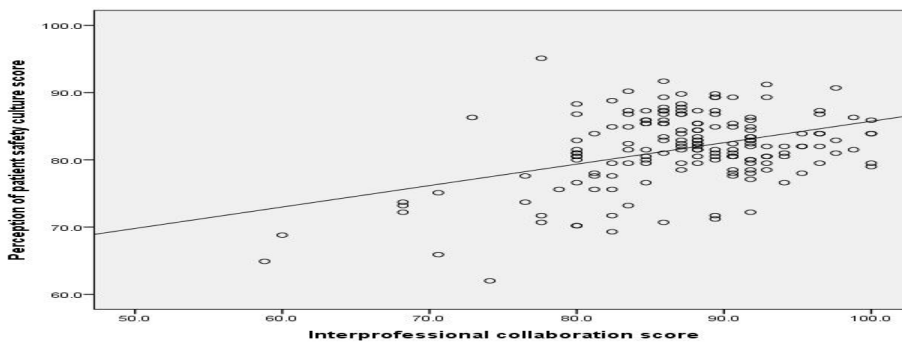


Figure (3): Correlation between staff nurses' scores of inter-professional collaboration and perception of patient safety climate.

**Discussion:**

Appropriate communication of procedures and medical decisions has gained

increasing interest in recent decades in the context of increasing patient safety, especially in the intensive care and acute care settings (Dellenborg et al., 2019). During the last few

decades, there have been extensive technical developments in health care, which have resulted in an increased focus on patient safety. A lack of cooperation among staff has been shown to contribute to the risk for adverse events in healthcare, whereas effective teamwork was correlated with positive treatment outcomes (*Agency for Healthcare Research and Quality, 2016*).

This study aimed at examination of staff nurses' perception of inter-professional collaboration versus patient safety climate. This study research question was: What's staff nurses' perception of inter-professional collaboration versus patient safety climate ?

The current study was conducted on one hundred and seventy of the staff nurses in Benha Tropical & Fever Hospital Qaliubiya Directorate of Health Affairs Ministry of Health & population.

The age of the participants in this study ranged between 24 and 50 years with a mean of  $31.1 \pm 6.5$  years. About half of the participants were aged less than 30 years. Their years of experience ranged between less than one year and 35 years, with a mean  $9.1 \pm 6.2$  years, approximately half of them had experience between 5 and 10 years.

The study of *Ibrahim and Kamel (2019)*; "Nurse - physician collaboration and its relation to patients' safety climate in critical care units" showed that half of nurses in their study aged between thirty to forty years in two hospitals, and more than half of them had sixteen to twenty years of experience in two hospitals, which is inconsistent with this study results.

The study of *Hossny and Sabra (2021)* entitled "Effect of nurses' perception to workplace civility climate on nurse-physician collaboration" agrees with this study as regards the years of experience, as most of their study sample had less than ten years experience.

The present study showed that most of the staff nurses were married, and a little than two thirds were of rural residency. About more than two thirds of them were having diploma

and the remaining were having bachelor degree. In agreement with current study results, the study of *Ibrahim and Kamel (2019)* revealed that the most of the participants were married, and the majority had diploma.

As revealed from the current study, males were contributing only a little more than quarter of the participants and the majority of the nurses were females. This may be due to that entry of males in the field of nursing is new in recent years. Also, male nurses prefer to travel abroad or to work in private hospitals to get more money.

The Sharing in clinical activities domain showed association with the staff nurses qualification and the attendance of the inter-professional collaboration courses, with marginal significance. Significant association was also explored between the total inter-professional collaboration perception score and the nurses qualification. These findings explore the importance of higher education grades as well as the continuous training and educational courses to provide proper work environment.

These findings go in the same line with a study of *Amsalu et al. (2014)* entitled " Attitudes of nurses and physicians toward nurse-physician collaboration in northwest Ethiopia: a hospital based cross-sectional study" found that the majority of the study nurses were females.

This finding also coincides with *Abd Elrehem et al. (2014)* "Correlates of Missed Nursing Care in Selected Medical Intensive Care Units " who found that more than three quarters of the study sample were females and the rest were males, and the most recent study of *Hossny and Sabra (2021)* who reported female percentage in the nurse staff of more than four fifths.

In the recent Egyptian study of *Mahmoud et al. (2018)*, which conducted at Zagazig University Hospitals, and aimed to assess the nurse-physician collaboration and its relation with patient safety "Nurse- physician collaboration and its relation with patient

safety", they, in agreement with present study, revealed that majority of the nurses were female.

In current study, more than four fifths of the participants attended patient safety courses and more than three quarters attended the inter professional collaboration courses. These percentages were considerably higher than that founded by *Ibrahim and Kamel (2019)*, as they reported that less than half of their study sample had received training program about collaboration and patient safety in two hospitals. This might be explained by that in the hospital of the current study, the continuous medical education program had been constructed long time ago and continuously encouraging staff for attendance of beneficial educational training courses.

The present study revealed that the majority of staff nurses had high level perception of both domains of inter-professional collaboration; with percentage of near full scores for care coordination and sharing clinical activity. This result is in accordance to the study of *Hamlan (2015)*, "The Relationship Between Inter-Professional Collaboration, Job Satisfaction, and Patient Safety Climate for Nurses in a Tertiary-Level Acute Care Hospital" who documented high levels of nurses staff perception as regards both domains of inter-professional collaboration.

Also, the study of *Hassona and El-Aziz (2017)* "Relation between Nurse-Nurse Collaboration And Missed Nursing Care Among Intensive Care Nurses" agree with the current study, they showed that the highest percentage of the studied nurses have satisfactory level in all nurse-nurse collaboration subscales.

In contrast, the study of *Ibrahim and Kamel (2019)*, revealed that nurses had a neutral level of collaborative behavior. Also, *Serrano-Gemes and Rich-Ruiz (2017)* conducted a study "Intensity of inter-professional collaboration among intensive care nurses at a tertiary hospital" to measure the intensity of inter-professional collaboration (IPC) in nurses of an intensive care unit (ICU) at a tertiary hospital, and they reported an average levels of inter-

professional collaboration among the study participants.

The present study reported high percentage of inter-professional collaboration could be explained, in researchers' view, by the good organizational support and that the study hospital quality unit efforts in the field of quality control provided the staff with proper job descriptions and understanding of each other's roles and tasks, rather shared aims and priorities, as well the common traditions and professional values found in this study staff nurses.

Concerning patient safety climate assessment, three domains were assessed with current study; organizational dimension, work group dimension and interpersonal dimension. This study indicated that staff nurses recorded high perception of the organizational dimension, work group dimension as well as interpersonal dimension. This is mostly attributed to the high levels of communication and collaboration perception exhibited in this study participants, as it was documented that the basis of patient safety is the good inter-professional collaboration, and that the inability to overcome the barriers to interprofessional collaborative practice puts patients at risk for unsafe care and negative outcomes (*Bell, 2014*).

The findings of present study are contradicting with *Abbas et al. (2016)* " Perception of front-line health care providers toward patient safety: A preliminary study in a University Hospital in Egypt" and *Ibrahim and Kamel (2019)*, they revealed that nurses had poor and neutral perception regard patient safety, respectively. However, both studies did not individualize the patient safety domains, they, instead, described patient safety in general.

*Irviranty et al. (2016)* in their study "Evaluation of patient safety culture and organizational culture as a step in patient safety improvement in a hospital in Jakarta, Indonesia" stated that over all perception of safety of nurses could be viewed as an outcome component of the healthcare system. Effectual patient safety culture arises from the interactions of various components of inputs

and processes, including professionalism, service design and resource management within an organization.

Regard the agreement of inter\_professional regarding patient safety climate, the highest percent of inter\_professional agreed on senior leadership or outcomes and the learning in the clinical area makes it easy to learn from the others errors. This is due to patient safety climate aimed to avoid adverse outcomes and reduce possible harm to a patient from healthcare personnel. So healthcare personnel should be follow hospital rules and guideline to provide safe and effective care.

The present study revealed that the total perception of inter-professional collaboration was associated with most of the patient safety climate domains perception. This association was found to reach the level of significance / high significance statistically as regards senior leadership, safety resources, workgroup recognition, psychological safety and outcomes. A growing body of literature links the quality of teamwork to the quality and safety of health care delivery (*Samaiya, 2015*).

Positive association was evident between staff nurses' total perception of patient safety climate and their perception of inter-professional collaboration domains, with high significant level of association found between total perception of patient safety climate and sharing in clinical activities domain perception as well as the total score of inter-professional collaboration perception. High significant / significant positive correlation was exhibited between senior leadership and outcome perception with the care coordination, sharing in clinical activities as well as the total perception score.

Regard correlation between inter\_professional collaboration and patient safety climate regarding staff nurses' perception, the result of present study revealed significant correlation between inter\_professional collaboration and patient safety climate. This is due to effective inter\_professional collaboration

is important to enhance and support the patient safety climate and patient care.

The result of present study consistent with Morley and Cashell. (2017) study "Collaboration in Health Care". They stated that health care involves the participation of patients, family, and a diverse team of often highly specialized health care professionals. Involvement of all these team members in a cooperative and coordinated way is essential to providing exceptional care.

### **Conclusion:**

**Based on the results of the present study and research questions, the study concluded that:**

Slightly more than two thirds of staff nurses' have high perception toward inter professional collaboration, while slightly less than three quarters of staff nurses' have positive perception toward patient safety climate. Moreover, the research question was supported by the result of present study, there was a highly statistical significant relation between total perception of inter professional collaboration and their total perception of patient safety climate.

### **Recommendations:**

Based on the study findings, the following recommendations are proposed:

- Provide useful training strategy to professional collaboration and recognize the autonomy and competence of each profession before entering hospitals.
- Provide shared in service programs and workshop about collaborative team work and patient safety climate to improve inter professional collaboration and achieve high quality care for patient.
- Develop a new culture for staff nurses about collaboration and patient safety climate which merges the unique strengths of each discipline with the mutual goal of quality patient care.
- Provide an inter-professional collaborative environment as a vital part of healthcare organization development to increase staff

nurses' performance as well as improve patient safety climate.

- There is a need for further studies that explain the important factors that hindering inter professional collaboration and its negative outcomes.

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