Nurse- physician collaboration and its relation with patient safety

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Abstract

Background: Effective collaboration is built on trust, but without trust, team collaboration, along with patient safety, is compromised. It is important for nurses and physicians to develop a new culture of collaboration which merges the unique strengths of each discipline with the mutual goal of quality patient care. **The aim of the study:** was to assess the nurse-physician collaboration and its relation with patient safety at Zagazig University Hospitals**. Subjects & Methods: Research design:** cross-sectional correlation study design was utilized. **Setting**: The present study was conducted in New Surgical Hospital. **Subjects** A sample size included 200 nurses and 80 physicians **Tools of data collection:** Two tools were used for data collection: 1) nurse-physician collaboration questionnaire sheet. 2) Hospital survey of patient safety culture questionnaire sheet, **Results**: Nurses had higher mean scores than physician's regarding nurse-physician collaboration. Physicians had higher mean scores than nurses regarding patient safety culture. **Conclusion**: There was no statistically significant correlation between nurse-physicians collaboration and patient safety culture **Recommendations:** Encouraging programs for promoting interaction between medical and nursing students help these future professionals understand each other's roles and responsibility and establishment, development and optimizing of data collection and reporting systems and developing programs for improving culture of patient safety.

Keywords: Nurse; Physician; Collaboration; Patient safety

Introduction:

A new culture supporting collaborative behavior among nurses and physicians is needed to merge the unique strengths of both professions into opportunities to improve patient outcomes [(1).] In an effort to improve patient safety, hospitals across the world are turning to outside industries for lessons in communication and quality improvement [(2).]

Nurse-physician collaboration can be defined as interactions between nurses and physicians that work together to achieve shared problem-solving, conflict resolution, decision-making, communication and coordination [(3).] The nature and extent of mutual collaboration between nurses and physicians can be influenced not only by prescribed societal roles and cultural norms, but also by educational factors [(4).]

Collaboration between physicians, nurses and other health care professionals increase team member's awareness of each other's type of knowledge and skills, leading to continued improvement in decision making [(6).]

A collaborative inter-professional team requires each member to have a respectful attitude for each other while sharing knowledge and responsibility, understanding the functions of each team member, and working together to deal with different client situations [(5).]The patient find that communication is easier with the cohesive team, rather than with numerous professionals who do not know what others are doing to manage the patient [(6).]

Successful patient safety is being considered as one of the major

principles in health care organizations. Patient safety is the foundation of good patient care. Understanding how to make healthcare safer is hard and actually making care safer is still harder [(7).] The health care industry will not make significant progress toward reducing errors unless health care industry leaders, practitioners, and even patients have a strong commitment to error reduction and patient safety [(8).]

Patient safety results from actions which avoid prevent and improve adverse events and injuries resulting from the process of health care delivery. Patient safety differs from general aspects related to medical care given its focus on the more negative side of quality of care, i.e., on care that is actually harmful, and not only on care that is less than good [(9).]

Collaborative efforts between physicians and nurses become more important for achieving positive outcomes for patients [(10).] Although we are working in the same environment and systems with our colleagues there are some major barriers to delivering high quality care. The inability to overcome the barriers to inter-professional collaborative practice puts patients at risk for unsafe care and negative outcomes [(11).]

Significance of the Study:

Contributing factors to patient care errors, nurses cited communication issues with physicians as one of the two most highly contributing factors, [(12).] Effective relationship and collaboration are built on trust, but without trust, team collaboration, along with patient safety, is compromised [(13).] It is important for nurses and physicians to develop a new culture of collaboration which merges the unique strengths of each discipline with the mutual goal of quality patient care. [(14)]

To the extent of our knowledge, there is no study carried out at Zagazig University Hospital on nurse –physician collaboration and its relation with patient safety, so the researcher needs to assess the relation between nurse and physician collaboration and its relation with patient safety.

Aim of the study:

The aim of this work is to assess nurse-physician collaboration and its relation with patient safety.

Research questions:

- What is the difference of attitude toward nurse-physician collaboration among nurses and physicians?
- What is the difference of perception toward patient safety culture among nurses and physicians?
- What is the relation between nurse-physician collaboration and patient safety?

Subjects and methods

Research design:

Cross sectional-correlational study design was utilized

Study setting:

The present study was carried out at New Surgical Hospital at Zagazig University Hospital

Study subjects:

The study will include all nurses and physicians working in the above mentioned setting (No=280).

Tools of data collection:

The study will utilize two tools for data collection:

Tool (I): Nurse-Physician Questionnaire Sheet;

- **First part**: **Demographic characteristics**

Which includes personal data of nurses and physicians. It includes age, gender years of experience and department.

- **Second part:** Jefferson (2001) survey of attitude toward nurse-physician collaboration.it contains 15 items designed to assess nurse-physician collaboration distributed on 4 dimensions of nurse-physician collaboration namely: Shared education and teamwork (7 items), Caring as opposed to curing (3 items), Nurse's autonomy (3 items) Physicians' dominance (2 items).

Scoring systems: Responses of participants were measured on five-points, Likert-type Scale from strongly agree =5 to strongly disagree =1

Tool (II): Patient Safety Culture Questionnaire Sheet

The agency for health care research and quality (AHRQ) (2007) displays the perceptions of patient safety climate in 12 factors. It contained 42 items distributed on the following dimensions.(12) Overall perceptions of safety (4 items).Organizational learning/ continuous improvement (3 items). Team within units (4 items).Non-punitive response to error (3 items). Staffing (4 items). Supervisor/manager expectations and actions (4 items). Communication openness (3 items).Feedback and communication about Error (3 items). Frequency of events reported (3 items).Hospital management support for patient safety (3items). Teamwork across hospital units (4 items). Hospital handoffs & transitions (4 items).Number of events reported (one item).Patient safety grade (1 item).

Scoring systems:

Responses of participants were measured on five-points Likert Scale ranging from strongly disagree (1) to strongly agree (5), except Two dimensions, frequency of event reported and feedback and communication about errors, ranging from never (1) to always (5). The HSOPS also comprises two single-item outcome measures: the patient safety grade, scored from failing (1) to excellent (5); and the number of adverse events reported by the respondent during the last year, scored from no events (1) to ≥21 events (6).

Content of validity & reliability:

The tools were tested for content validity by panel of experts of nursing administration to judge the content validity of them these experts assessed the tools for clarity, relevance, comprehensiveness, applicability, and understanding. Nurse-physician questionnaire sheet and patient safety culture questionnaire sheet were translated into Arabic language using the translate-back-translate technique to ensure their original validity.

Field work:

Field work of the current study was executed in three months started at the beginning of March, 2015 and completed by the end of May, 2015.The researcher used a code number to mark each sheet using systematic serial number for each unit. Personal interviews with the study subjects either nurses or physicians were done at different days according to their work attendance schedule to fill the study questionnaire.

Pilot study:

Before performing the main study**,** a pilot study was carried out on a sample of 28 nurses and physicians of New Surgical Hospital. The aim was to test clarity of the instructions, the format of the questionnaire,

comprehension of the items, and to estimate the exact time required for filling in the questionnaire sheet. The participants involved in the pilot study were excluded from the main study subjects.

Administrative and ethical considerations:

Permission to conduct the study was obtained by submission of official letters issued from the dean of the faculty of nursing at university to the directors of Zagazig university hospitals. The objectives of the study were explained to the subjects and their approval to share in the study was taken. Assuring, maintaining anonymity and confidentiality of the subject's data were stressed on. Nurses and physicians were informed that they have the choice to participate or not in the study and that they have the right to withdraw from the study at any time.

Statistical analysis:

Data collected were analyzed by computer using the statistical package for social sciences (SPSS) software version 20. Mean and standard deviation, median and percentages were used for data summarization. Student's t test and Chi square test were used for testing significant differences and relations between variables. Pearson's correlation test was used for testing linear relationship between numeric variables. Significant difference was considered if $p \leq 0.05$.

Results:

Table (1): described the personal characteristics of the study subjects. It revealed that the most frequent age group for nurses and physicians was from 25-29 years (37.5%) and (46.2%) respectively. Regarding gender, the majority of nurses (99.0%) were females and the majority of physicians (93.7%) were males. It also revealed that 59.5% of nurses had more than 10 years experience. About one quarter of nurses (24.5%), and physicians (25%) were working at the orthopedic department.

Table (2): described nurses' and physicians' attitude regarding nurse-physician collaboration. There were no statistical significant differences between nurses' and physicians' attitudes toward their collaboration ($p>0.05$). It was noticed that the nurses have higher mean scores regarding all items of nurses-physician subscales expect for nurses' autonomy.

Table (3): illustrated that physicians had higher total perception mean scores (136.96±8.23) than nurses (134.51± 13.53) regarding the patient safety culture. It showed also that there were statistical significant differences between the two groups regarding dimensions of overall perceptions of safety, frequency of events reported and hospital management support for patient safety, with higher physicians' perception mean scores than nurses ($p<0.05$). There were statistical significant differences between the two group regarding the dimensions of team work within units and non-punitive response to error, with higher nurses' perception mean scores than physicians ($p<0.05$).

Table (4): illustrated that the most frequent percentage of both nurses and physicians (48.5%) & (36.2%) respectively, had reported no events in the past 12 months. It showed also that the frequent percentages of nurses (48%) and physicians (47.5%) gave acceptable and poor overall grade on patient safety respectively.

Table (5): There were statistical significant positive strong correlation between nurse-physician collaboration and patient safety culture for nurses ($r=0.787$ and $P <0.001$) and for Physicians ($r=0.618$ and $P <0.001$).

Discussion:

Nurse-physician collaboration is a common strategy to achieve desired quality outcomes in an effective and efficient manner in a complex array of health services. Nowadays, improved inter-professional collaboration is essential to facilitate information flow and the coordination and provision of healthcare within an increasing diversity and provision of healthcare within an increasing diversity meet all patient needs**.** Collaboration within and across healthcare teams is essential to remove any threats to safety of patients Martin et al. **(15)**

The World Health Organization argued that nurse-physician collaboration can play a significant role in mitigating many of the challenges associated with patient safety, for examples improved co-ordination of care, accesses to service, reduced hospital complications and improved end of life care **(16).**

Concerning gender, the findings of the present study revealed that the majority of the nurses were female and the majority of the study were male. This may be due to that entry of males in the field of nursing is new in recent years, so in our hospital we have more of female nurses than male nurses and more of male doctors than female doctors; the more male dominated doctor group gives instructions which are obeyed by the female dominated nurse group. This could be the cause for gender role perception based conflict.

These findings go in the same line with a study of Amsalu et al.(2) who found that the majority of the study nurses were female and the majority of study physicians were male. The findings of present study indicated that nurses scored higher on all subscales except nurses' autonomy subscale. This revealed that nurses showed more positive attitudes toward collaboration as compared with physicians. This result might be attributed to that nurses provide higher mean score regarding caring versus curing and physician dominance than nurses.

Falana, et al, **(17)** stated that nurses were better with regards to collaboration than doctors because doctors tend to be less cooperative working with nurses and other health professionals because of a more powerful position which they occupy in the health team as a result of their educational qualification**.**

This result was in accordance with Elsayed and Sleem **(18)** who conducted a study in Egypt about nurse-physician collaboration: a comparative study of the attitude of nurses and physicians At Mansoura University Hospital and showed that nurses' contributions to the psychosocial and educational aspect of patient care, and a stronger rejection of a totally dominant physician role.

The findings of present study showed that nurses demonstrated more positive attitude toward collaboration than did physicians. These results agree with Garber et al.**(19)** from the united States and also Hansson et al., **(20)** from Sweden also reported that nurses have positive attitudes toward collaboration than physicians. Also in a study conducted by Amsalu et al.**(2)** stated that nurses demonstrated significantly more favorable attitudes than physicians.

Regarding The results of this study showed that there were statistical significant differences between nurses and physicians regarding dimensions of overall perceptions of safety, frequency of

events reported and hospital management support for patient safety, with higher physicians' perception mean scores than nurses This might be due to that physicians not expect they have patient safety problems and the procedures and systems are good at preventing errors from happening and that may lead to increase the likelihood of the study physicians to report a higher patient safety grade.

Bodur and Filiz, [21] stated that The patient safety culture perception levels of physicians and nurses Improved through the reporting of adverse events, non-punitive policies with respect to error reporting, open communication, management support for safety culture, and staffing improvements.

Regarding Overall perceptions of safety**,** the result of this study revealed that physicians overall perception of physicians was higher than nurses perceptions. This may be due to that higher percentage of physicians agreed that patient safety is never sacrificed to get more work done and they have not patient safety problems in this unit and It is not just by chance that more serious mistakes happen in the unit.

This was in congruence with Top & Takingunduz **[22]** who found that greater perception of physicians about patient safety by increased the likelihood of attaining a better overall perception of safety.

Iriviranty et al**. [23],** stated that over all perception of safety of nurses and physicians 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. Assessment of different elements in an organization remarkably influences patient safety.

Concerning the numbers of event reported, the present study revealed that about slightly less than half of nurses and about more than one third of physicians had not reported any medical errors in the last 12 months prior to study. It is obvious that promotion in medical error reporting system would be a positive point in further improving health system and health care organizations could improve the quality of care.

This result was in agreement with Al-Ahmady, **[24]** in Saudi Arabia declared that less than half of the staff members had not reported any medical errors. Similarly, Bodur & Filliz [21] showed that the majority of the studied personnel had not made any report of a medical error in the last 12month. On the same line, Davoodi, **[25]** showed that nurse's overtime working (more than 12 hours per day or 40 hours per week) had led to an increase in the number of medical errors. Nurses who have more free time are more aware about their patient's condition and could better prevent such errors.

Regarding to the overall grade on patient safety, the result of the present study revealed that less than half of both nurses and physicians agreed that the overall grade on patient safety was acceptable. This may be due to Procedures and systems are good at preventing errors but there are patient safety problems.

The findings was in accordance with Dimitriadou et al.[26], who found that the majority of nurses considered the overall grade as acceptable. While this result disagreed with a study conducted by Ghanem et al.[27] who found that the highest percentage of nurses reported very good patient safety grades.

The present study revealed that there were significance differences between nurses and physicians ages and nurses-physician collaboration and

patient safety. The mean score for nurses age was higher than physicians mean scores ,this may be due to that nurses tend to be submissive to older members of the team members in contrast with the younger physicians who did not have a more positive attitude towards nurse-physician collaboration than their older physicians.This result was in agreement with Hansson et al,[28], in a study where they found that the younger medical professionals did not have a more positive attitude towards nurse-physicians collaboration than their older colleagues.

The present study revealed that there was strong positive correlation between nurse-physician collaboration and patient safety. Similar study conducted in Egypt by Abdou and Saber [28], and stated that there was statistically significant relation between team work climate and safety climate.

This result agreed with Dimitriadou et al**.** **[26]** who stated that there was statistically significant relation between the collaboration and patient safety. The current result was concordant with a study conducted by Boev and Xia **[30],** and stated that nurse-physician collaboration was significantly related to health care-associated infections and patient safety.Similar findings was carried out by study conducted in Western Ontario by Hamlan **[5]** and stated that there was statistically significant relation between inter-professional collaboration and patient safety.

CONCLUSION:

Nurses have higher positive attitude than physicians regarding nurse-physician collaboration. Physicians have higher perception than nurses regarding patient safety culture. There was no correlation between nurse-physician collaboration and patient safety culture.

RECOMMENDATIONS:

Based on the findings of the current study the following recommendations can be suggested:

- Encourage programs that promote interaction between medical and nursing students help these future professionals understand each other's roles and responsibilities.
- Encouraging opportunities for nurses and physicians to provide mutual understanding of roles, and enable both groups to better envision collaborative practice.
- Shared continuing educational and workshop especially these with a focus on teamwork and communication.
- Encouraging open discussion and problem solving, thus creating an ongoing awareness of the need for improved collaboration.
- Inadequate numbers of professionals in relation to the amount of work showed be viewed to avoid work load and medical errors.
- Establishment, development and optimizing of reporting systems for improving culture of patient safety in hospitals.
- Reducing individual blame through developing rich protocols for avoiding individual blame in the case of errors, therefore, it is critical to improve the climate of “speaking up” and break free from the “blame cycle” and promote a “reporting culture".

Table (1): Personal characteristics of the study subjects (n=280)

Variables	Nurses (n=200)		Physicians (n=80)	
	N	%	N	%
Age				
<25	31	15.50		
25->	75	37.50	37	46.25
30->35	15	7.50	29	36.25
35->40	14	7.00	13	16.25
<40	65	32.50	1	1.25
Gender				
Male	2	1.00	75	93.75
Female	198	99.00	5	6.25
Years of experience				
> 1 year	4	2.00	3	3.75
1-3 years.	18	9.00	23	28.75
4 - 6 years	24	12.00	14	17.50
7 - 9 years.	35	17.50	18	22.50
≤10 years	119	59.50	22	27.50
Department				
Orthopedic	49	24.50	20	25.00
Neurology	22	11.00	8	10.00
Obs/Gyne	15	7.50	13	16.25
General surgery	27	13.50	17	21.25
Urology	12	6.00	7	8.75
ICU	16	8.00		
Operation	31	15.50	6	7.50
Ear, nose& throat	28	14.00	9	11.25

Table (2): Nurses and physicians attitude regarding nurse-physician collaboration (n=280)

Nurse-physician collaboration subscales	Subjects (n=280)						T-test	
	Nurses			Physicians				
	Mean	±	SD	Mean	±	SD	T	P-value
Shared education and teamwork	29.575	±	2.444	29.550	±	2.025	0.081	0.935
Caring versus curing	9.995	±	2.207	9.638	±	2.094	1.242	0.215
Nurses' autonomy	10.720	±	1.838	10.913	±	2.014	-0.770	0.442
physicians' dominance	7.860	±	1.191	7.788	±	1.187	0.461	0.645
Total	58.150	±	4.313	57.888	±	4.870	0.443	0.658

Table (3): perception of nurses and physicians toward patient safety culture dimensions (n=280)

Patient safety culture dimensions	Nurses n=(200)			Physicians n=(80)			T	P_value
Overall perceptions of safety	12.745	±	2.260	14.800	±	2.631	-6.552	0.000*
Organizational Learning/ Continuous improvement	11.630	±	2.084	11.375	±	1.731	0.968	0.334
Team work Within Units	15.205	±	2.120	14.513	±	1.772	2.582	0.010*
Non-punitive Response to Error	8.100	±	2.312	7.338	±	2.086	2.561	0.011*
Staffing	10.820	±	2.346	11.088	±	1.759	-0.921	0.358
Supervisor/Manager Expectations Actions Promoting patient safety	12.395	±	1.867	12.763	±	1.022	-1.662	0.098
Communication Openness	8.745	±	2.429	8.638	±	2.039	0.350	0.727
Feedback and Communication About Error	10.360	±	2.914	10.113	±	1.772	0.709	0.479
Frequency of Events Reported	9.335	±	2.713	10.550	±	1.771	-3.701	0.000*
Hospital Management Support for Patient Safety	9.835	±	2.567	10.625	±	2.340	-2.384	0.018*
Teamwork Across Hospital Units	13.110	±	3.262	13.338	±	2.756	-0.550	0.583
Hospital Handoffs & Transitions	12.230	±	3.475	11.825	±	2.773	0.930	0.353
Total	134.510	±	13.525	136.963	±	8.227	-1.513	0.131

Table (4): responses of nurses and physicians regarding items of number of events reported in the past 12months and overall grade on patient safety.

In the past 12 months, how many event reports you have filled out and submitted	Nurses (n=200)		Physicians (n=80)		X^2	P-value
	N	%	N	%		
No event reports	97	48.50	29	36.25		
1 to 2 event reports	34	17.00	10	12.50		
3 to 5 event reports	41	20.50	26	32.50	**29.2**	**0.0000**
5 to 10 event reports	8	4.00	15	18.75		
11 to 20 event reports	5	2.50	0	0.00		
21 event reports or more	15	7.50	0	0.00		
Please give your work area or unit in this hospital an overall grade on patient safety.						
Excellent	8	4.00	0	0.00		
Very Good	10	5.00	0	0.00		
Acceptable	96	48.00	36	45.00	**11.3**	**0.023**
Poor	65	32.50	38	47.50		
Failing	21	10.50	6	7.50		

Table (5): Correlation between nurse-physician collaboration subscales and patient safety culture dimensions (No=280)

R	Nurse-physician collaboration			
	Nurses (No=200)		Physicians (No=80)	
Patient safety culture	R	p-value	R	p-value
	0.787	0.000	0.618	0.000

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