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Inter professional nurses-physicians collaboration and its effects on nurse's team activities

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Abstract: Inter professional collaboration and team work between nurses is crucial for improving patient outcome and quality of care. This study aims to study the inter professional collaboration between nurses-physicians and its effects on nurses team activities at Tanta University Hospitals. Data were collected by using two tools. Tool 1: Jefferson scale (2009) of Attitude toward Physician-Nurse Collaboration and modified by Ayman El sous (2017). It includes six subscales that measure (a) nurse-physician collaboration (8 items) (b) doctors authority (2 items) (c) shared education (3 items) (d) Nursing role in patient care (2 items) (e) disconnecting communication between nurses-physician (4 items) (f) Nurse-physician communication (4 items) responses ranged from 1-5 score. Tool 2: measures team activities scale was used to assess nurses team activities interactions, modified by the researcher based on Thompson (2007), these included 15 items. Responses were measured in five liker scale ranging from (5) all of the time to none of the time (1). **Results and conclusion** revealed that the total scores indicated that nurses have more positive attitudes towards nurse-physician inter professional collaboration than physicians. Also, the result reveals that 67% of nurses have high attitude level toward nurses team activities attitudes. **Recommendations:** Based on the results of the present study recommended that Initiating and developing mutually respectful inter-professional relationships between nurses and physicians. Also, encourage continuing in-service-training program and workshop these with a focus on teamwork and communication.

Keywords: Inter professional collaboration, Jefferson collaboration scale, team work activities, and nurse-physician collaboration.

INTRODUCTION

The interprofessional collaboration between nurses and physicians is essential in the health care system⁽¹⁻²⁾. Collaboration, between nurses and physicians mean cooperation in work, sharing responsibilities in patient care and problem solving. Also, participation in making decision making for plans of patient care⁽³⁾. Nurses and physicians definitely contribute to the patient care but often don't appreciate the role of each other⁽⁴⁾. Nurses and physicians viewed collaboration as following the instructions and the orders, while nurses view it as a complementary role more significantly than physicians do⁽⁵⁾. Other studies^(6,7) suggest that presently the two most important people responsible for patient care one the nurses and the physicians, but they often don't talk to each other properly and when they do, the interchange is often dysfunction⁽⁸⁾. Traditionally, relationship between the nurses and physicians is hierarchical and is characterized by doctor's dominance and nurse's one viewed as assistant rather than apartment of holistic patient care⁽⁹⁾.

Collaboration is working together to create something new in support of a shared vision⁽¹⁰⁾. The health care provider should be cooperated with each other in exchange relevant information and resources in support of each other goal. Team work approach professional practice should be recognized taking into consideration that the relationship between physicians and nurses is complementary and nurse's one partner in patient care⁽¹¹⁾.

Effective collaboration inter professionally communication skills include sharing information, listening attentively

respecting other opinions, and demonstrating flexibility, providing feedback to others and responding to feedback from others⁽¹²⁾. Inter professional collaboration between nurses and physicians affected by many factors as gender, attitude of nurses and physicians, inter professional education, effective communications between nurses and physicians clear and complete communication between health care providers is a prerequisite for safe patient managed and may help prevent medication errors^(13,14).

Communication between health care workers accounts for the major part of the information flow in health care and growing evidence indicates that errors. In communication impact on patient care^(15,16). Keeping group members informed and up-to-date relevant information, showing consideration for one's group members and encouraging team to share their expertise with others in the group. Providing group members with constructive feedback and perspective to assist team in their work. Sharing new experience with others in team meetings. Nurses-physician collaboration and teamwork can improve patient outcomes and lower health care cost. Increase job satisfaction and preserve patient's safety^(17,18). The communication between nurses and physicians is a considered a principles part of the information flow in health care. In addition, the improper communication can create a chronic state of conflict between nurses and physician leading to increase in the medical errors and poor outcome⁽¹⁹⁾. Collaboration between physicians, nurses, and other health care professionals increases team members' awareness of each others' type of

knowledge and skills, leading to continued improvement in decision making⁽²⁰⁾.

Effective teams are characterized by trust, respect, and collaboration. The teamwork requires cohesion, communication and shared goal. Teamwork, is endemic to a system in which all employees are working for the good of a goal, who have a common aim, and who work together to achieve that aim⁽²¹⁾. When considering a teamwork model in health care, an interdisciplinary approach should be applied. Unlike a multidisciplinary approach, in which each team member is responsible only for the activities related to his or her own discipline and formulates separate goals for the patient, an interdisciplinary approach coalesces a joint effort on behalf of the patient with a common goal from all disciplines involved in the care plan. The pooling of specialized services leads to integrated interventions. The plan of care depended on the frequency of assessments and treatment regimens, and it packages these services to create an individualized care program that best addresses the needs of the patient. The patient finds that communication is simple with the cohesive team, rather than with numerous professionals who do not know what others are doing to manage the patient⁽²²⁾.

Collaboration and communication between different health providers in different sectors of health is a hallmark of health care quality^(23,24). Successful nurse-physician collaboration is associated with positive attitudes of nurses and physicians towards⁽²²⁾. Patients and consequently – quality of health care. Conversely, breakdown of coordinated and positive interaction between these two groups of professionals lead to unhealthy work environments and poor patient outcomes⁽²⁵⁾. Collaboration communication between nurses and physician lead to better patient and organizational outcomes such as decrease length of stay and reduction in treatment costs without decrease satisfaction among patients. High quality nurses-physician communication increase satisfaction among nurses and physicians also increase autonomy for nurses^(26,27).

Aim of the study:

Assess the inter professional between nurses-physicians collaboration and its effects on nurses team activities At Tanta University Hospitals.

Research questions:

1. Are the attitudes of nurses-physicians toward inter professional collaboration At Tanta University Hospitals.
2. What is the level of nurse's team activities?
3. Is there relation between nurses-physicians collaboration and nurse's team activities?

Setting:

The study was conducted at Tanta University Hospitals in different department as emergency, medical surgical and psychiatric departments.

Subject:

The study subject was include representative sample of 30% of total nurses {1000 nurse}, which was (n=300) and 30% of total physicians (435 physician) which was (n=150) at

95% confidence level. Who works in different department that mentioned above at time of data collection.

Tools: To fulfill the purpose of the study two tools was be used.

Tool 1: Nurse-physician collaboration scale was be used to arsis nurse-physician attitude regarding inter professional nurse-physician collaboration. It was modified by the researches based on Ayman El sous 2017²⁸ and Jennifer T.M and Kalheteen2009²⁹.

* This tool was consisting of two parts:-

Part 1:Personal characteristics of the subject as gender age, work experience, education, place of work (departments).

Part 2:Nurse- Physician collaboration scale questionnaire consists of 24 questions constituting 6 factors modified from the original scale:

1. Nurse-physician collaboration (items 1, 2, 4, 7, 8, 11, 13, and 14).
2. Doctors authority (items 12, 15).
3. Shared education (items 3, 5, and 6).
4. Nursing role in patient care (items 9, 10).
5. Disconnecting communication between nurse-physician (items 16, 17, 18, and 19).
6. Nurse-physician communication (items 20, 21, 22, 23, and 24).

The responses are measured on five point scale:

(0)=Not strongly disagree

(1)=Not agree

(2)=sometimes agree

(3)=Agree

(4)=strongly agree

The total score will be calculated by numerating scores of the categories, where a score of > 75% was indicate that high level of collaboration and Moderate level of collaboration 60>-75% and < 60% will illustrate low level of collaboration.

Tool 2.: Team activities scale was used To assess nurses team activities is being used to measure nurses team activities interaction.

Modified by the researches based on Thompson2007³⁰,

This includes 15-items.

Responses were measured in a five Likert scale ranging from all of the time (5) to none of the time (1).

The total score will be calculated by numerating scores of the categories, where a score of >75% was indicate high level of engagement by all team members, 60>-75% moderate level of engagement and < 60% will illustrate low level of engagement of team member.

Methods:

1- An official permission to conduct the study was obtained from the responsible authorities.

2- Ethical consideration:

Nurses and physicians conformed consent for participants 'was obtained after explaining the purpose of the study, they were informed about the privacy and confidentiality of information's obtained from them, natural of the study and right to withdraw at any time of the research processes.

3- Tools of the study were translated into Arabic language and presented to jury of five experts in the area of nursing administration to check their content validity.

4- Pilot study:

The revised questionnaires were piloted with (10%) from the subject. It was done on (45) from participants'. At Tanta University Hospitals at the test of month July and lasts for 3 days. These participants' nurses and physicians were included in the main subjects, to evaluate the effectiveness of the purposed data, collection tools and to assess the feasibility of the study. In addition to estimate the time needed to fill the form that approximately ranged from (20-30) minutes.

RESULTS

Table 1: Personal characteristic of participants (physicians, nurses) at Tanta University Hospitals N=(450)".

Variables								Chi-Square	
		Physician(N=150)		Nurses(N=300)		Total		X ²	P-value
		N	%	N	%	N	%		
Age group	<30 Years	37	24.67	142	47.33	179	39.78	25.926	<0.001*
	30-40 Years	91	60.67	110	36.67	201	44.67		
	>40 Years	22	14.67	48	16.00	70	15.56		
Sex	Male	83	55.33	22	7.33	105	23.33	128.795	<0.001*
	Female	67	44.67	278	92.67	345	76.67		
Department	General medical	92	61.33	129	43.00	221	49.11	68.262	<0.001*
	Surgical	19	12.67	5	1.67	24	5.33		
	ENER	22	14.67	151	50.33	173	38.44		
	Physic iatric	17	11.33	15	5.00	32	7.11		
Years of Experiences	<1year	2	1.33	18	6.00	20	4.44	14.371	0.006*
	1-5 Years	72	48.00	100	33.33	172	38.22		
	6-10 Years	39	26.00	75	25.00	114	25.33		
	11-20 Years	22	14.67	62	20.67	84	18.67		
	>20 Years	15	10.00	45	15.00	60	13.33		
Education	Diploma	0	0.00	167	55.67	167	37.11	231.897	<0.001*
	BACH	63	42.00	126	42.00	189	42.00		
	Master	85	56.67	7	2.33	92	20.44		
	Doctor	2	1.33	0	0.00	2	0.44		

Table (1):The tables reveals that the participants age ranged between (30 - 40) years . the highest percentages 66 .67% of physicians were in the age group 30-40 years old while 44.67% of nurses within this age . Seventy- six 76.07% were female and twenty- three 23.33% were male. Regarding department (place of work) the majority of physicians 61.33% were worked in general medical department while 49.11% of nurses were worked in general medical department. on the other hand, above fifty percent of nurses

Statistical analysis:

Data analysis was performed using BMSPSS statistical software version 22. The data were explored. Descriptive statistics with mean and standard deviation (SD) for continuous variables and frequency for categorical variables were analyzed. Qualitative variables were compared using independent (t) test and mean score between two and more groups, respectively. Correlation coefficient (r) was used to evaluate association between studied variables. The p-value is the degree of significant. A significant level value was considered when p-value 0.05 and a highly significant level value was considered when p-value 0.001, while p-value 0.05 indicate non-significant.

50.33% were worked in emergency department than 14.67% of physician . While less than frothy 33.33% of nurses have years of experience between (1-5) years. On the other hand the highest percent 20.67% of nurses had experience ranged from 11-20 years old , As regard to education level, it was reveals that , the majority of nurses 55.67% had diploma degree of nursing and 56.67% of physician had master degree.

Table (2) Levels of collaboration factors between physician and nurses At Tanta University Hospitals

Collaboration Factors						Chi-Square	
		Physicians=150		Nurses N=300		X ²	P-value
		N	%	N	%		
Collaboration	High	108	72.00	281	93.67	44.473	<0.001*
	Moderate	42	28.00	17	5.67		
	Low	0	0.00	2	0.67		
Doctor authority	High	138	92.00	249	83.00	6.765	0.034*
	Moderate	10	6.67	41	13.67		
	Low	2	1.33	10	3.33		
Shared education	High	132	88.00	270	90.00	0.420	0.517
	Moderate	18	12.00	30	10.00		
Nursing role patients care	High	67	44.67	261	87.00	103.599	<0.001*
	Moderate	53	35.33	37	12.33		
	Low	30	20.00	2	0.67		
Disconnecting communication	High	85	56.67	63	21.00	58.981	<0.001*
	Moderate	57	38.00	220	73.33		
	Low	8	5.33	17	5.67		
Communication	High	132	88.00	243	81.00	8.869	0.012*
	Moderate	16	10.67	57	19.00		
	Low	2	1.33	0	0.00		
Total Factors	High	131	87.33	266	88.67	0.171	0.679
	Moderate	19	12.67	34	11.33		

Table (2): Illustrate that the levels of collaboration factors between physicians and nurses at Tanta University Hospitals. The table reveals that there were statistically significant differences in all of factors of collaboration between physicians and nurses except the factor related of shared education. As regards to collaboration factor the table reveals that the majority of nurses 93.67% had high level of collaboration than physicians 72.00% on the other hand, the factor of doctor authority, the physicians had high level 92%

than nurses were 83% ,while, the factor related to shared education it reveals that the nurses slightly highest than physician 90% , 88% respectively. The nurses had high level 87% than physicians 44.67% related to factor of nursing role patient's while the physicians had high level 56.67% of disconnecting communication factor and the nurses had moderate level 73.33% .It was found that the physician higher level 88.90% than nurses 81% of communication factor of collaboration.

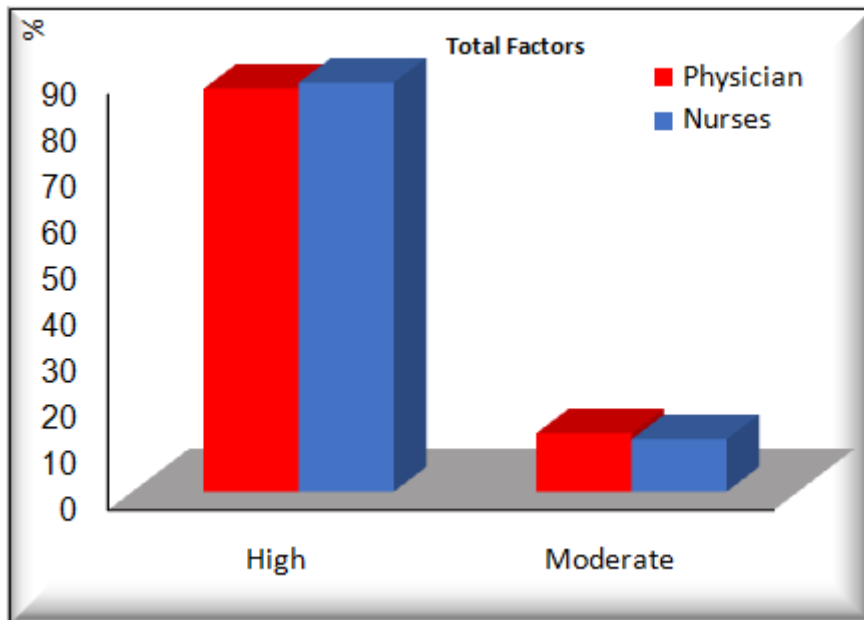


Figure1. Total Level of attitude for participants (physicians & nurses) towards collaboration factor at Tanta University Hospitals.

Figure(1): Reveals that the nurses had high level of attitude for total level of collaboration than physicians 88.67% , 87.33% respectively while the physicians had highest

moderate level of total factor of collaboration than nurses 12.67% , 11.33% respectively.

Table 3: Nurses attitudes toward nurses as team activities at Tanta University Hospitals N=(150)

Items of Team activity	All of the time		Most of the time		Sometime		Rely		None of the time	
	N	%	N	%	N	%	N	%	N	%
All team members made an effort to participate in discussion	62	20.67	166	55.33	66	22.00	4	1.33	2	0.67
When team members had different opinions, each member explain	50	16.67	186	62.00	52	17.33	8	2.67	4	1.33
Team members encouraged one another to express their opinion	60	20.00	126	42.00	100	33.33	12	4.00	2	0.67
Team members shared and received criticism without making it	72	24.00	111	37.00	80	26.67	35	11.67	2	0.67
Different points of view were respected by team members.	93	31.00	133	44.33	60	20.00	10	3.33	4	1.33
Often members helped a fellow team member to be understood b	100	33.33	153	51.00	41	13.67	2	0.67	4	1.33
My team used several techniques for problem solving (such as	93	31.00	153	51.00	40	13.33	12	4.00	2	0.67
Team members worked to come up with solutions that satisfied	85	28.33	150	50.00	57	19.00	6	2.00	2	0.67
All team members consistently paid attention during group discussion	115	38.33	126	42.00	49	16.33	10	3.33	0	0.00
My team actively elicited multiple points of view before discussion	82	27.33	119	39.67	88	29.33	9	3.00	2	0.67
Team members listened to each other when someone expressed a	78	26.00	134	44.67	75	25.00	7	2.33	6	2.00
Team members willingly participated in all relevant aspects	99	33.00	151	50.33	37	12.33	11	3.67	2	0.67
Team members resolved differences of opinion by openly speak	85	28.33	119	39.67	72	24.00	20	6.67	4	1.33
Team members used feedback about individual or team performance	98	32.67	130	43.33	64	21.33	4	1.33	4	1.33
Team members seemed attentive to what other team members view	123	41.00	116	38.67	48	16.00	9	3.00	4	1.33

Table(3):Shows that the nursing staff altitudes toward nurses as team activities. The tables reveals that the above fifty percent(50.33%) most of times the nurses had different opinions, each member explain, all team members made effort to participate in discussion, often members helped a

fellow team members to understood, the team used several techniques for problem solving and all team willing to participate in all aspects 62%, 55.33%, 50.33%, 50.10% and 50.% respectively.

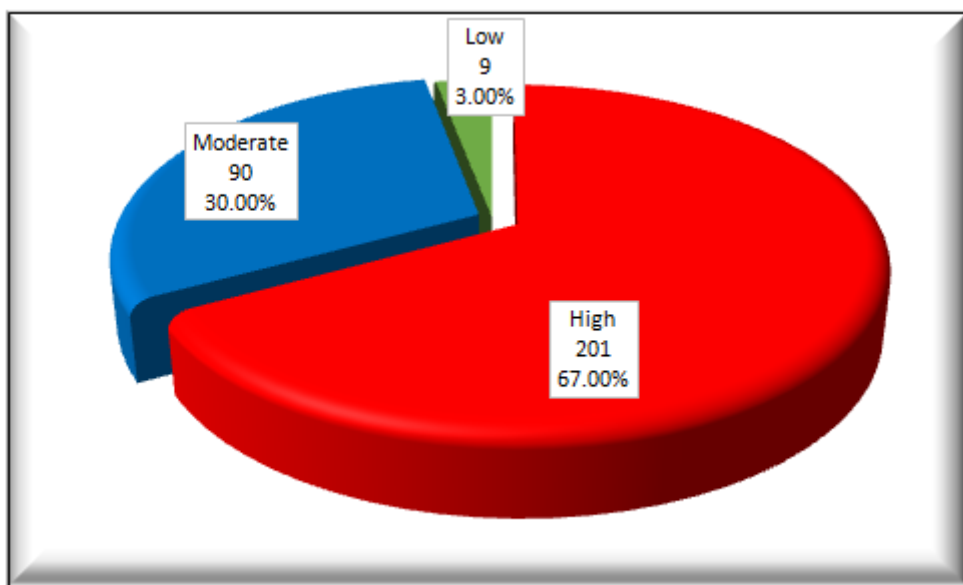


Figure2. Total levels of nurses attitudes towards nurse's activities.

Figure (2):Show that total level of nurse's attitudes towards nurse's team activities. The figure reveals that 67% of nurses have high level attitudes toward nurses team activities.

While the nurses had moderate level of attitude 30% toward nurses team activities.

Table (4) Mean value and Standard deviation between physician and nurses according to factors of collaboration=(450)

Factors of collaboration							T-Test	
	Physician			Nurses			T	P-value
	Mean	±	SD	Mean	±	SD		
Collaboration	32.560	±	3.559	35.270	±	3.198	-8.158	<0.001*
Doctor authority	8.540	±	0.987	8.510	±	1.365	0.240	0.811
Shared education	13.213	±	1.369	13.410	±	1.431	-1.394	0.164
Nursing role patients care	6.947	±	1.718	8.717	±	1.161	-12.907	<0.001*
Disconnecting communication	15.773	±	2.737	13.877	±	2.027	8.291	<0.001*
Communication	19.920	±	1.763	20.270	±	2.121	-1.742	0.082
Total Factors	96.953	±	6.971	100.053	±	7.237	-4.336	<0.001*

Table(4):Reveals that there is significant different between physicians and nurses in the three items of the factor of collaboration related to collaboration factor, nursing role patient case and disconnecting communication, the nurses mean score of 8.717 ± 1.161 at 0.001 p value was higher than physician 6.947 ± 1.718 at 0.001 p value on nursing role patient ease factor. Also, the nurses mean score 20.270

± 2.121 at 0.082 p value was higher than physician 19.920 ± 1.763 at 0.001 p value on communication factor. While the physician was mean scores 15.773 ± 2.737 at 0.001 p value was higher than nurses 13.87 on disconnecting communication factor. There is a significant difference of table mean score between physician and nurses.

Table(5): Relationship between physician and nurses personal characteristic according to their age and collaboration

Factors of collaboration		Age group						ANOVA				
		<30 Years		30-40 Years		>40 Years						
		Mean	±	SD	Mean	±	SD	Mean	±	SD	F	P-value
Physician	Collaboration	31.649	±	2.124	32.495	±	3.984	34.364	±	3.032	4.230	0.016*
	Doctor authority	8.946	±	0.848	8.418	±	1.023	8.364	±	0.902	4.366	0.014*
	Shared education	13.054	±	1.373	13.198	±	1.392	13.545	±	1.262	0.903	0.408
	Nursing role patients care	6.432	±	1.405	6.945	±	1.785	7.818	±	1.622	4.714	0.010*
	Disconnecting communication	15.946	±	2.613	15.495	±	2.960	16.636	±	1.649	1.654	0.195
	Communication	20.432	±	0.603	19.978	±	1.949	18.818	±	1.842	6.333	0.002*
	Total Factors	96.459	±	4.735	96.527	±	7.960	99.545	±	5.152	1.803	0.168
Nurses	Collaboration	35.303	±	2.833	35.236	±	3.386	35.250	±	3.790	0.014	0.986
	Doctor authority	8.282	±	1.582	8.673	±	1.174	8.813	±	0.915	4.028	0.019*
	Shared education	13.254	±	1.355	13.555	±	1.530	13.542	±	1.398	1.619	0.200
	Nursing role patients care	8.796	±	1.095	8.618	±	1.133	8.708	±	1.398	0.726	0.485
	Disconnecting communication	13.972	±	2.297	13.573	±	1.784	14.292	±	1.584	2.422	0.090
	Communication	20.246	±	2.070	20.191	±	2.021	20.521	±	2.492	0.419	0.658
	Total Factors	99.852	±	6.420	99.845	±	8.132	101.125	±	7.402	0.625	0.536

Table (5):Reveals that is no significant difference between the total factor of collaboration and the age of physicians and nurses . Also, the highest total mean score of physicians age 99.54 ± within 40 years old. As regards to collaboration factor it was found that the highest mean scores 34.364±3.032 at 0.0106 p value of physician age related to collaboration factor. The physician age mean score 7.818 ± 1.622 at 0.010 p value resemble highest mean score were in 40 years related to nursing role patient care factor, on the other hand, the communication factor resemble highest mean score 20.432 ± 0.603 at 0.002 p value within 30 physicians years and followed its 19.978 ± 1.949 at 0.002 p value and 18.818 ± 1.842 at 0.002 p value mean scores within 30-40 years and 40 years respectively. There is a

significant difference between physicians age and collaboration factors related to four factors to collaboration , doctors authority , nursing role and communication factor .While, there is a significant difference of mean scores only in the factor of doctor authority, he highest mean score of total factors 101.125 ± 2.492 at 0.0658 p value within 40 years of nurses age and followed 99.852 ± 6.420 , 99.845 ± 8.132 at 0.536 p value within 30 -40 age respectively. There is a significant difference between total mean scores of nurses team acclivities and nurses personal age. The highest mean score of nurses age 63.063 ± 6.508 at 0.005 p value were within 40 years and followed 60.100 ± 9.980 at 0.005 p value.

Tables (6): "Relationship between physicians personal characteristics according to their sex and collaborative factor "

Factors of collaboration		Sex					T-Test		
		Male			Female			t	P-value
		Mean	±	SD	Mean	±	SD		
Physician	Collaboration	33.133	±	3.802	31.851	±	3.115	2.222	0.028*
	Doctor authority	8.795	±	0.960	8.224	±	0.935	3.667	<0.001*
	Shared education	13.627	±	1.237	12.701	±	1.360	4.356	<0.001*
	Nursing role patients care	6.675	±	1.939	7.284	±	1.335	-2.186	0.030*
	Disconnecting communication	16.398	±	2.306	15.000	±	3.035	3.204	0.002*
	Communication	19.783	±	1.739	20.090	±	1.790	-1.059	0.291
	Total Factors	98.410	±	6.376	95.149	±	7.295	2.919	0.004*
Nurses	Collaboration	32.909	±	5.245	35.457	±	2.911	-3.672	<0.001*
	Doctor authority	7.545	±	2.110	8.586	±	1.262	-3.508	0.001*
	Shared education	12.455	±	1.711	13.486	±	1.383	-3.306	0.001*
	Nursing role patients care	8.182	±	1.368	8.759	±	1.135	-2.260	0.025*
	Disconnecting communication	12.455	±	3.555	13.989	±	1.817	-3.482	0.001*
	Communication	20.182	±	2.500	20.277	±	2.093	-0.202	0.840
	Total Factors	93.727	±	9.422	100.554	±	6.810	-4.387	<0.001*

Table(6): Reveals that there is a significant difference between total mean score of physician and nurses personal characteristics according to their sex and collaborative factor. Also, there is a significant difference was found in all factors of collaboration and physicians personal characteristic according to sex except the factor of communication. The table resemble that the majority of total mean scores of physicians sex 98.410 ± 6.376 at 0.004 p

value had were male. While there is a significant difference between the total mean scores of nurses' personal characteristics according to their sex and collaborative factor. The majority of total mean score 100.554 ± 6.810 at 0.001 p value of nurses according to their sex had were female than male. Also, the most nurses had were female 60.180 ± 8.533 at 0.001 p value according to nurse's team activities.

Table (7): Relationship between physician and nurses personal characteristics according to place of work and collaborative factors .N=450

Factors of collaboration		Department								ANOVA					
		General medical		Surgical		ENER		Physic iatric		F	P-value				
		Mean	±	SD	Mean	±	SD	Mean	±			SD			
Physician	Collaboration	33.196	±	3.481	31.421	±	3.656	32.909	±	3.766	29.941	±	2.015	5.166	0.002*
	Doctor authority	8.685	±	0.960	8.000	±	1.155	8.364	±	0.658	8.588	±	1.121	2.909	0.037*
	Shared education	13.424	±	1.251	12.105	±	1.487	13.636	±	1.329	12.765	±	1.251	6.923	<0.001*
	Nursing role patients care	6.902	±	1.887	7.421	±	1.387	7.182	±	1.500	6.353	±	1.169	1.327	0.268
	Disconnecting communication	16.033	±	2.443	15.263	±	3.541	16.000	±	2.430	14.647	±	3.445	1.521	0.212
	Communication	20.185	±	1.657	20.158	±	1.425	19.000	±	1.852	19.412	±	2.152	3.436	0.019*
	Total Factors	98.424	±	6.451	94.368	±	9.063	97.091	±	5.245	91.706	±	6.142	5.998	0.001*
Nurses	Collaboration	34.527	±	2.704	32.600	±	0.548	35.828	±	3.490	36.933	±	2.631	6.734	<0.001*
	Doctor authority	8.194	±	1.225	8.400	±	0.548	8.709	±	1.477	9.267	±	0.799	5.125	0.002*
	Shared education	13.287	±	1.324	11.600	±	2.191	13.530	±	1.473	13.867	±	1.187	3.959	0.009*
	Nursing role patients care	8.512	±	1.225	7.000	±	0.000	8.894	±	1.066	9.267	±	0.884	7.779	<0.001*
	Disconnecting communication	13.589	±	1.810	12.000	±	0.000	14.132	±	2.244	14.400	±	0.910	3.515	0.016*
	Communication	20.023	±	2.327	19.200	±	1.095	20.457	±	2.029	20.867	±	0.640	1.807	0.146
	Total Factors	98.132	±	6.839	90.800	±	1.095	101.550	±	7.227	104.600	±	4.501	10.858	<0.001*

Table (7): The tables illustrate generally , physicians in general medical department had positive attitudes 98.424 ± 6.451 at 0001 p value towards collaborative factors and followed at emergency departments, surgical departments and physic iatric departments 97.091 ± 5.245 , 94.368 ± 9.063 and 91.706 ± 6.142 respectively. Also, there is a significant difference between mean scores of physicians personal characteristics according to place of work and collaborative factors in all factors except the factor related to nursing role patient care. While, as regarding to the nurses

The tables generally revealed that nurses in psychiatry departments had positive attitudes 104.600 ± 4.501 at 0.001 p value towards collaborative factors and followed of emergency , general medical and surgical departments 101.550 ± 7.227 , 98.132 ± 6.839 and 90.800 ± 1.095 nurses according place of work and collaborative factors in all factors of collaboration expect the communication positive attitude towards nurses team activities 65.133 ± 7.220 at 0.003 p value than nurses in emergency general medical and surgical department respectively.

Table (8): Relationship between physician an nurses personal characteristic according to their education and collaboration factors

Factors of collaboration		Education								ANOVA	
		Diploma		BACH		Master		Doctor		F	P-value
		Mean	± SD	Mean	± SD	Mean	± SD	Mean	± SD		
Physician	Collaboration	-	± -	31.683	± 3.151	33.294	± 3.703	29.000	± 0.000	4.977	0.008*
	Doctor authority	-	± -	8.683	± 0.964	8.447	± 1.006	8.000	± 0.000	1.338	0.265
	Shared education	-	± -	13.079	± 1.274	13.294	± 1.446	14.000	± 0.000	0.778	0.461
	Nursing role patients care	-	± -	6.556	± 1.254	7.282	± 1.937	5.000	± 0.000	4.771	0.010*
	Disconnecting communication	-	± -	15.381	± 3.260	16.106	± 2.268	14.000	± 0.000	1.711	0.184
	Communication	-	± -	20.127	± 1.611	19.812	± 1.861	18.000	± 0.000	1.800	0.169
	Total Factors	-	± -	95.508	± 6.435	98.235	± 7.106	88.000	± 0.000	4.659	0.011*
Nurses	Collaboration	35.335	± 3.374	35.238	± 3.021	34.286	± 1.799	-	± -	0.371	0.690
	Doctor authority	8.539	± 1.330	8.452	± 1.429	8.857	± 1.069	-	± -	0.375	0.688
	Shared education	13.551	± 1.325	13.230	± 1.545	13.286	± 1.604	-	± -	1.840	0.161
	Nursing role patients care	8.707	± 1.163	8.706	± 1.173	9.143	± 0.900	-	± -	0.481	0.618
	Disconnecting communication	14.090	± 1.830	13.571	± 2.268	14.286	± 1.254	-	± -	2.520	0.082
	Communication	20.473	± 2.099	19.921	± 2.130	21.714	± 1.254	-	± -	4.185	0.016*
	Total Factors	100.695	± 6.761	99.119	± 7.856	101.571	± 5.224	-	± -	1.870	0.156

Table (8):The table reveals that is a significant difference physicians personal characteristics according to their education and collaboration only in two factors related to collaboration and nursing role patients care factor. Also, there is a significant difference between the total mean scores of collaborative factors and physicians education. The higher total mean scores of physicians that had master degree 98.235 ± 7.106 and followed its.B.sc degree and doctor degree 95.508 ± 6.435 , 88.000 ± 0.000 at 0.11 p values respectively. Also, there is no significance difference between nurses personal characteristic according to

education and collaborative factors excepting the factor of communication,. The table reveals that the higher total mean scores for nurses that had a master degree 101.57 ± 5.27 and followed nurses had diploma and bachelorize degree 100.695 ± 6.761 and 99.119 ± 7.856 at p value 0.156 respectively. Also, there is a significant difference between the nurses' team activities and collaboration factors. The diploma nurses had positive attitude towards collaboration factors than bachelor degree and master degree. 60.86 ± 8.32 , 58.540 ± 9.66 and 53.71 ± 5.438 receptivity.

Table (9): Relationship of personal characteristic of physicians and nurses according to their years of experience and collaboration factors=(450)

Physician			Years of Experiences					ANOVA	
			1-12 Months	1-5 Years	6-10 Years	11-20 Years	>20 Years	F	P-value
Physician	Collaboration	Mean	34.000	31.819	32.846	33.273	34.133	1.925	0.109
		SD	0.000	3.041	3.766	4.803	2.825		
	Doctor authority	Mean	8.000	8.542	8.513	8.727	8.400	0.424	0.791
		SD	0.000	0.934	1.254	0.827	0.737		
	Shared education	Mean	13.000	12.958	13.538	13.227	13.600	1.507	0.203
		SD	0.000	1.368	1.274	1.572	1.242		
	Nursing role patients care	Mean	5.000	6.819	6.282	8.182	7.733	6.728	<0.001*
		SD	0.000	1.314	2.176	1.181	1.668		
	Disconnecting communication	Mean	16.000	15.375	15.410	16.727	17.200	2.323	0.059
		SD	0.000	3.124	2.623	1.667	1.612		
	Communication	Mean	20.000	20.097	20.769	18.773	18.533	8.530	<0.001*
		SD	0.000	1.512	1.677	1.631	1.885		
	Total Factors	Mean	96.000	95.611	97.359	98.909	99.600	1.715	0.150
		SD	0.000	6.484	7.407	8.428	5.011		
Nurses	Collaboration	Mean	34.111	35.110	35.640	36.242	34.133	3.904	0.004*
		SD	1.967	3.152	2.603	2.690	4.551		
	Doctor authority	Mean	7.222	8.260	8.667	9.081	8.533	8.598	<0.001*
		SD	1.987	1.555	1.107	0.929	1.057		
	Shared education	Mean	12.222	13.230	13.640	13.935	13.178	6.863	<0.001*
		SD	1.060	1.434	1.467	1.054	1.585		
	Nursing role patients care	Mean	8.333	8.550	8.960	8.871	8.622	2.214	0.068
		SD	1.455	1.067	1.108	1.248	1.134		
	Disconnecting communication	Mean	14.667	13.530	13.573	14.258	14.311	2.977	0.020*
		SD	2.701	2.661	1.637	0.974	1.505		
	Communication	Mean	18.444	19.910	20.493	20.774	20.733	6.058	<0.001*
		SD	2.833	2.207	1.982	1.453	2.157		
	Total Factors	Mean	95.000	98.590	100.973	103.161	99.511	6.953	<0.001*
		SD	5.941	7.493	6.909	4.757	8.583		

Table(9):The table reveals that there's a significant difference between physicians personal characteristic according to years of experience and collaborative factors in two factors only for nursing role patient's care and communication factors. The majority of mean score physicians had 20 years of experience 99.600 ± 5.011 and 98.90 ± 8.428 had 11-20 years of experience, the towards mean score of physicians experience had 1-5 years of years' experience 95.61 ± 6.48 at 0.150 p value. As regards to collaboration factor it was found that most of mean score of physicians experience had in 20 and 1-12 month 34.133 ± 2.825 and 34.00 ± 0.00 respectively at p value 0.109 . most of physicians attitude towards collaboration had 20 years of experience 7.733 ± 1.668 related to factors of nursing role patients care. Also, most physicians had 20 years of experience 17.200 ± 1.612 related to disconnecting communicate the majority of mean scores of physicians that had 6-10 years of experience 20.769 ± 1.677 related to communication factors. **Also,** The table illustrate that there

is a significant difference between nurses personal characteristics according to their years of experience and collaboration factors in all factors of collaboration except the factor of nursing role patients care. Also, there is a significant difference between total mean score of factors for collaboration and nurse's personal characteristics according to their years of experience resemble higher mean score at 103.16 ± 7.757 towards it 6-10 years of experience at 100.97 ± 6.90 at 0.001 p value. As regards to the highest mean score of nurses experience were had 11-20 years in most factors of collaboration related to collaboration , doctor authority , shared education and communication factor 36.24 ± 2.69 , 9.081 ± 0.929 , 13.935 ± 1.054 and 20.77 ± 1.453 respectively. Also there is a significant difference between nurses' personal characteristics according to years of experience and nurses team activities. The highest mean score of nurses had positive attitude it 20 years of experience at 65.371 ± 6.569 towards nurses team activates.

Table (10): Correlation coefficient between physician's nurse collaboration factors and demographic characteristics related to their age''

Correlations	Age			
	Physician		Nurses	
	r	P-value	R	P-value
Collaboration	0.239	0.003*	0.024	0.679
Doctor authority	-0.116	0.158	0.200	0.001*
Shared education	0.145	0.076	0.126	0.029*
Nursing role patients care	0.245	0.002*	0.022	0.703
Disconnecting communication	0.107	0.191	0.054	0.355
Communication	-0.327	<0.001*	0.128	0.027*
Total Factors	0.154	0.060	0.129	0.025*

Table(10):The table shows that there is a positive correlation between collaboration factor and physician age. While there is a negative correlation between physician age and doctor authority factor- 0.116 and nursing role patients care factor 0.245. As regards to nurses that there is a positive correlation between nurses' age and collaboration factors related to doctor authority 0.200, shared education 0.126 and communication factor 0.128. Also, there is a positive correlation between there table factors of nurses age and collaboration factors 0.129.

in all factors of collaborations except the doctor related to communication.

Table (12): Correlation coefficient between nurses team activities and age of nurses

Correlations	Age	
	Nurses	
	r	P-value
Nurses team performance	0.234	<0.001*

Table (11): Correlation coefficient between nurses collaboration factors and nurses team activities

Correlations	Nurses team activities	
	r	P-value
Nurses		
Collaboration	0.301	<0.001*
Doctor authority	0.342	<0.001*
Shared education	0.290	<0.001*
Nursing role patients care	0.183	0.001*
Disconnecting communication	0.560	<0.001*
Communication	0.080	0.166
Total Factors	0.465	<0.001*

Table(11): Reveals that there is a positive attitude of nurses according to collaboration factors and nurses team activities

Table (12):shows that the correlation between nurses team activities and age of nurses. The table revealed that there is a high positive correlation between nurses team activities and age of nurses at <0.001* p-value.

DISCUSSIONS

Inter professional collaboration and teamwork between nurses and physicians is crucial for improving patients out comes and qualities of health services and breakdown in this area is major root come of sentinel events (**Hojat & Gonnella**)⁽³¹⁾. Indeed, improved perceptions of nurse-physicians collaboration and their effects on nurses as a teamwork is often suboptimal (**Sollami & Thomson.**)^(32, 33). Now a days, improved inter professional collaboration is essential to facilitate information flow and the coordination and provision of health care within an increasing diversity of

disciplines where one health professional can no longer meet all patient needs (**Sterchi & Mitter**)⁽³⁴⁻³⁵⁾

We found that attitude toward collaboration between nurses and physicians is significantly different and nurses showed more favorable attitudes than physicians, which is in the time with the idea presented by **Hojat et al.**³¹. This findings are further supported by others researches (**Hamric & Thomas & Barrere C.**,⁽³⁶⁻³⁷⁾). This result can be attributed the nurse-physician relationship to hierarchical model of patient care which means nurses are doctor assistant and are viewed as subordinate other studies (**Mitter&Hamric**)^(35,36) contrast this results in which physicians in intensive care units had more positive attitudes toward collaboration than nurses.

Results revealed that the nurses showed a big rejection of dominant doctor's role. These findings indicated that the doctor's attitudes as the primary authority in patient care decisions (**Nair ,Oleary&Hansson**).^(38, 39) are in line with previous studies from Egypt, Sweden and America. In the present study, more positive attitudes and orientation toward factor of shared education from both nurses and doctors. This result can attributed that nurses and physicians had knowledgeable and the principles of collaboration and they had shared responsibility of patients care. This result consistent with **Thomson**⁽³³⁾ and **Strechi**⁽³⁴⁾.

As regards to the factor related to nursing role of patient care it was found that disagreement is obvious about nursing role in the patient care. Physicians scored low level of agree 44-67% while nurses scored high level of agree 87%. This result attributed that the lack of organizational support for nurses contribution in holistic model of patient care. This result supported by **Strechi**⁽³⁴⁾. **Barrere and Ellis**⁽⁴¹⁾ supported this result who mentioned that, as knowledge about important of the nurse's role increased, the positive changes took place in the nurse's attitudes toward collaboration. Also, limited knowledge about the nurse practitioners role in patient care adversely affected physician's ability to envision collaboration practice⁽¹⁴⁾.

The result was revealed that there was a clear disconnect between the attitudes of nurses and doctors on communication and its causes. However, interactions and causes of disconnect. In the crescent study the physicians rated lack of time as the leading causes of nurse-physician communication disconnect a different learned communication styles and strict hierarchy. Effective nurse-physician communication is essential in providing patients with the best possible medical care **Vazirani**⁽⁴²⁾.

As regards to the factor five of communication that included four questions focus on attitudes nurses and physicians feel toward communication, it's possible and gather information on the interaction between the nurses and physicians. Impacts. While physicians rated their overall interaction with nurses more enjoyable. Satisfying and respected than nurses, they also gave lower ratings when questioned about correct information, understanding and frustration. This is result attributed that nurses do not feel as respected and the interactions are not as enjoyable, they are receiving correct information and are satisfied. This data aligns with what

Meiers⁽⁴³⁾ mentioned in the interview about avoiding certain nurses based on their experience.

The results revealed that the nurses had appositive attitude toward their role as team work. Team work approach in the professional practice should be recognized taking into consideration that the relationship between physicians and nurses complementary and this collaboration have impact on nurse's work. This result attributed that. The nurses made an effort to participate in discussion and explain to everyone in the team when different opinion occurs. Also the team member had several techniques for problem solving and team members willingly participated in all relevant aspects.

Kramer and Schmalenberg⁽⁴⁴⁾ mentioned that the challenge, then, is to make the best of all interactions to utilize the best knowledge and abilities of all health team members and produce positive patient outcomes. This study revealed that there is significant difference in physicians attitudes toward collaboration based on hospital departments. The physicians of medical department scored higher than others departments. This could be attributed that the nature of medical wards selling in Tanta University Hospitals which comprise various specialized disciplines. However, the physicians and nurses have to work and coordinate their care with other care providers which may hence communication and collaboration. **Chaboyer and Patterson**⁽⁴⁵⁾ supported this result.

As contract, the nurses more positive attitude toward nurse-physician collaboration in the psychiatric departments, this result could be attributed to the nature of patients in this department required more good communication and establish relationship with health providers. Also, nurses-physicians coordinated with each other to provide optimum patient care. A contrast result was found with **Chaboyer and Patterson**⁽⁴⁸⁾ who founded that nurses who specialized in working in the intensive care unit perceived greater levels of physician-nurse collaboration than did hospital generalist nurses. As regards the correlation between collaboration subscales with age and years of experience at work, this study revealed that a more positive attitude toward collaboration is correlated with the age of the nurses and physicians in contrast to ward et al is study **Ward et al .,** study⁽⁴⁶⁾ and **Elsayed and Sleem** findings⁷.

Regarding the correlation between nurses collaboration factors and nurses team activities. The result found that there were positive attitudes of nurses according to collaboration factor and the nurses team activities in all factors of collaboration expect the factor related to communication. This result attributed that the inter professional collaboration between physician-nurse had a positive impact and its essential to team development and ongoing positive activities. **This** result may be due to the nurses sharing information and clear direction that lead to sharing responsibility for patients care and team success. **Larson and Lafasto**⁽⁴⁷⁾ included a collaborative climate one of their eight essential characteristics of team excellence. A common goal of patient well-being also enhances team unity.

Collaborative interactions are most effective and rewarding when they are efficient. The rapid, relentless evolution of the health care system brings with it the need to periodically revisit important concepts. Nurse-Physician collaboration is one such concept. In climate constantly demanding efficiency, cost, Effectiveness and quality improvement **Lindal**⁽⁴⁸⁾.

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