

## Nurses' and Physicians' Attitudes Towards Nurse-Physician Collaboration in Critical Care

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### Abstract

Nurses-physician collaboration is crucial for patient's safety and patient's outcomes. This study aimed to assess nurses' and physicians' attitudes towards nurse-physician collaboration in critical care areas in one teaching hospital in Saudi Arabia. A cross-sectional study design was conducted, and the data were collected from both nurses and physicians (n = 239) who were working in critical care areas in one teaching hospital in Jeddah city by using Jefferson scale of attitudes toward nurse-physician collaboration. Data were analysed by using t-test, one-way ANOVA and Pearson correlation. The results demonstrated that nurses showed more positive attitudes towards collaboration in critical care areas than physicians. This study concluded that teamwork and collaboration must be encouraged among both nurses and physicians within the critical care units. Furthermore, interprofessional education for both nurses and physicians must be provided within the educational programs to increase the awareness regarding the importance of interprofessional education among healthcare providers.

**Keywords:** ANOVA, critical care, nurse-physician collaboration

### 1. Introduction

Nurse-physician collaboration is defined as "nurses and physicians are working together, sharing responsibilities for solving problems and making decisions to formulate and carry out plans for patient care" (Elsous, Radwan, & Mohsen, 2011). Nurses-physician collaboration is a major key for patient's safety and improving patient's outcomes. All health care providers in particular nurses and physicians are working together to maintain and enhance patient's safety as a first priority in clinical practice (Boev & Xia, 2015). However, the collaboration between all health care providers is challenging in each healthcare delivery system (Basavanthappa & Principal, 2010). Collaboration is complicated in terms of sharing knowledge and accountability in delivering ultimate patient care (Letourneau, 2004). Nevertheless, having good collaborative skills is essential for all health care providers (Daniel & Rosenstein, 2008). Thus, when there is a weakness in communication and collaboration it shows in by being a reason for poor patient outcomes (McCaffrey, Hayes, & Stuart, 2011). Several barriers were reported in the literature concerning nurse-physician collaboration to its full potential (Garber, Madigan, Click, & Fitzpatrick, 2009), (Vegesna et al., 2016). According to Garber, Madigan, Click, and Fitzpatrick (2009), nurses' awareness regarding the importance and the impact of the nurse-physician collaboration is higher than physicians. Moreover, physicians were unclear about nurses' roles in providing patient's care which resulted in misconception between nurses and physician's roles. Furthermore, physicians' rating regarding the quality of collaboration is higher than nurses (Garber, Madigan, Click, & Fitzpatrick, 2009), (Vegesna, Coschignano, Hegarty, Karagiannis, Polenzani, Messina, Zoli, & Vittorio, 2016).

Collaboration is one of the essence not only for the advantage of the patients; however, it is for the satisfaction of all healthcare professionals involved in the collaboration. The collaboration between physicians and nurses has the advantage when the accountability for the patients' health and wellness is shared (Green, MSED, & Johnson, 2015). In a study conducted in Greece by Mpouzika, Haikali, Giannakopoulou, Karanikola, Lemonidou, Patiraki, and

Papathanassoglou (2017), to explore nurse-physician collaboration among adult Intensive care unit by using Collaboration and Satisfaction about Care Decisions (CSACD) tool that was distributed among 355 nurses, the results indicated that low level of nurse-physician collaboration and satisfaction with care decisions were observed in ICU nurses.

However, there are relatively few studies in the area of importance of collaboration among nurses and physicians as demonstrated by Lancaster, Kolakowsky-hayner, Kovacich, and Greer (2015). In this study, the authors aimed to explore the potential for hospital-based interdisciplinary care. The data were collected by using semi structured interviews among 12 physicians, 13 nurses, and 11 unlicensed assistive personnel (UAPs). The findings revealed that physicians see themselves as the primary patient care decision makers, while many physicians advocate for and seek out nurses' input.

Nurse-physician collaboration have a strong correlation with patient care quality. In a study conducted by Kramer and Schmalenber (2013), in 14 hospitals that are characterised by having Magnet recognition indicated that healthy collaboration between nurses and physicians is linked directly to optimum patients' outcomes. Moreover, a positive correlation was found between nurse-physician collaboration and the quality of patient care outcomes (Kramer & Schmalenber, 2013)

Furthermore, several studies were found in the literature assessing the attitudes towards nurses-physician collaboration. For example, nurses and physicians attitudes regarding nurse-physician collaboration at Mansoura University Hospital was assessed within general medical and surgical units in a study carried out by El-sayed and Sleem (2011). The data in this study were collected by surveying 97 nurses and 38 physicians who were available at the time of the study using the Arabic version of Jefferson scale of attitudes toward nurse-physician collaboration. The study revealed that nurses have more positive attitudes toward nurse-physician collaboration than physicians.

A similar results were found in a further study carried out by Elsous, Radwan, and Mohsen (2011), who examined the attitudes of nurses and physicians toward nurse-physician collaboration by surveying staff nurses (n=313) and physicians (n=101). The data were collected by surveying both nurses and physicians the Arabic version of the Jefferson Scale of Attitude toward Physician-Nurse Collaboration. The results demonstrated that nurses showed positives attitudes toward collaboration than physicians ( $3.40 \pm 0.30$  and  $3.01 \pm 0.35$ , resp.) Another study was carried out by Nair, Fitzpatrick, McNulty, Click, Glembocki (2012), showed that the mean score for nurses (2.95) is higher than physicians (2.34). The data in this study were collected by using the Nurse-Physician Collaboration Scale (NPCS) from 114 registered nurses and 33 physicians in an acute care hospital. Therefore, according to the literature El-sayed and Sleem (2011) and Elsous, Radwan, and Mohsen (2011) it was suggested that nurses demonstrate a higher positive attitude toward nurse-physician collaboration in both general care and critical care areas than physicians.

## 2. Research Problem

Collaboration is defined by the interactions in which professionals work together cooperatively with shared responsibility and independence (Dongen, Lenzen, van Bokhoven, Daniëls, van der Weijden, & Beurskens, 2016). Moreover, it is considered as one of the collaborative behaviour that is beneficial to patient recovery. Therefore, without collaboration patient's recovery is impaired. Nurse-physician collaboration must be well-practiced in order to enhance and facilitate the interaction among health care team to achieve high level of satisfaction. However, ineffective collaboration can influence the interaction between nurses and physicians which has an impact on patient safety. Moreover, ineffective work environment can participate in the effectiveness of care which can put patients at risk (Lancaster, Kolakowsky-hayner, Kovacich, & Greer, 2015). Health care team must direct their priority to the patient to maximize the context of care. Hence, plentiful medical errors and complications occurred due to ineffective collaboration between nurses and physicians and lack of interpersonal relationship among health care team members, as it is essential to improve patient outcome, lessen the length of stay and decrease hospital-acquired infections (McCaffrey, Hayes, & Stuart, 2011).

Several studies were found in the literature internationally to assess the nurses and physicians attitudes towards collaboration; however, no studies were located to measure or to assess the attitudes of nurse-physician collaboration in the context of Saudi Arabia. Therefore, the aim of this study is to assess nurses' and physicians' attitudes towards nurse-physician collaboration in critical care areas.

## 3. Methodology

### 3.1 Design

This study was conducted by using a quantitative nonexperimental descriptive cross-sectional research design

(Reyes & Drummond, 2017), to assess the attitude of nurses and physicians towards nurse-physician collaboration in critical care units.

### *3.2 Sampling*

The sample of this study involved both nurses and physicians working in selected intensive care areas and emergency department. The reason for targeting both nurses and physicians based on the literature review given that nurses and physicians in the critical care units experience several issues, challenges as well as different factors affecting their collaboration. In order to select the study participants, a convenience sampling technique was used to recruit all registered nurses, as well as all specialists working in intensive care units and Emergency Department (Erika, Musa, & Alkassim, 2015).

### *3.4 Sample Size*

The sample size was calculated by using an online equation to determine a representative sample for both nurses and for physicians who are working in critical care units with the confidence level of (95%) and desired confidence interval of (5%) (Vazirani, Hays, Shapiro, & Cowan, 2005). Based on the calculated equation, the recommended sample size of this study was 239 (169 nurses and 70 physicians).

### *3.5 Setting*

The study was carried out at one teaching hospital in Jeddah city, Saudi Arabia within the following clinical units: Medical Intensive Care Unit (MICU), Surgical Intensive Care Unit (SICU), Neonatal Intensive Care Unit (NICU), Paediatric Intensive Care Unit (PICU) and Emergency Department (ED)

### *3.6 Measurement Tool*

In this study, the researchers used an adapted questionnaire from Hojat, Gonnella, and Nasca et al. (2003), Jefferson Scale of Attitudes toward Physician-Nurse Collaboration: (JSAPNC). The questionnaire consisted of two parts. Part 1 includes demographic characteristics (3 items) included age, gender and specialization. Part 2 includes the attitudes toward physician-nurse collaboration which composed of 15 items in four factors: (1) nurse-physician collaboration (items 3, 4, 5, 7, 9, 11, 12, and 13), (2) doctor's authority (items 14 and 15), (3) shared education (items 1, 2, and 6), and (4) nursing role in patient care (items 8 and 10). The participants' responses will be measured by using 4-point Likert scale as follow: (1) strongly disagree, (2) disagree, (3) agree and (4) strongly agree, permission for use of the copyrighted instrument was obtained from copyright holder.

Nurses and physicians were approached in each critical care area by attending the handover meeting for both day and night shifts and then represented the study aim, research question, the significance of the study as well as the questionnaire. The researchers then distributed questionnaires to all nurses and physicians who attended the handover meeting and are willing to participate in the study in each area. Both nurses and physicians who participated in the study were requested to return the questionnaires in closed envelop in the provided box at the head nurse office. All data were collected between 26th March and 5th April 2018.

### *3.5 Ethical Considerations*

Ethical approval was obtained from the teaching hospital in Jeddah city, Saudi Arabia. Researchers ensured that the participants comprehend the purpose of the study, and how their willingness to participate profoundly beneficial and contribute to the study, educational and clinical purpose.

Furthermore, no harm was imposed on the participants and their rights were respected and protected. Researchers aimed to fulfil the ethical duty of protecting participants' information and confidentiality.

Security procedures were followed to ensuring that the information were preserved within the members of the research group and withheld from uncertified personnels. Researchers were seeking to collect and access information about participants that completely protects their anonymity. Information or data that possess identifiable qualities can indisputably stir the participants' confidentiality. On that account, researchers intend to conceal the identifiable factors of the participants' information, such as: name and ID number.

### *3.6 Data Analysis*

Data were analyzed by using SPSS version 23 was used for analysis, descriptive statistics in the form of means, percentages, frequencies and standard deviations. Moreover, t-test was used to compare between the mean of the two groups (nurses and physicians) to assess if differences exist on the attitudes toward nurses-physician's collaboration according to JSAPNG domains. In addition, the one-way analysis of variance (ANOVA) was used to determine whether there are any statistically significant differences between the means of the two independent

groups with regard to intensive care units. Finally, Pearson correlation was used to measure the relationship between two scale variables.

#### 4. Results

##### 4.1 Sociodemographic Characteristics

A total of 152 nurses and 35 physicians were participated in the study with a response rate of 78%.

Considering the gender of nurses, a total of 92.1% of nurses were female while only 7.9% were male. The age of most of the nurses 52% were between 23-34 years old, 37.8% were between 35-46 years old, 8.6% were between 47-58 years old and 1.4 were 59-64 years old and above. In this study, the majority of nurses 43.4% are working in ED while 23% are working in NICU, 16.4% are working in PICU, 9.2% are working in SICU and a total of 7.9% are working in MICU. Regarding the physicians' gender, the majority of physicians 94.3% were male whereas only 5.7% were female. The age of most of physicians 37.1% were between 30-35 years old; 31.6% were between 36-41 years old, 28.6% were between 42-47 years old and 2.9% were 59 and above. The majority of physicians in this study 34.3% are working in ED while 11.4% are working in NICU, a total of 17.1% are working in PICU, 14.3% are working in SICU and 22.9 are working in MICU (Table 1)

Table 1. Sociodemographic characteristics of participants (N = 187)

Variables		Physicians (N = 35) (%)	Nurses (N = 152) (%)	Total (N = 187) (%)
Gender	Male	33(94.3)	12(7.9)	45(24.2)
	Female	2(5.7)	139(92.1)	141(75.8)
Specialty	MICU	8(22.9)	12(7.9)	20(10.7)
	SICU	5(14.3)	14(9.2)	19(10.2)
	PICU	6(17.1)	25(16.4)	31(16.6)
	NICU	3(8.6)	35(23)	38(20.3)
	ED	13(37.1)	66(43.4)	79(42.2)
Age	≤35 years	15(44.1)	88(57.9)	103(55.4)
	>35 years	19(55.9)	64(42.1)	83(44.6)

##### 4.2 Individual Item Mean Scores

The JSAPNC individual item mean scores and the item total correlation are also examined as demonstrated in Table 2. Physicians scored higher than nurses in two items 'Medical and nursing students are involved in teamwork' and 'Interprofessional relationships between physicians and nurses should be included in their educational program' 3.71(0.86); 3.74(0.741) respectively. While nurses scored higher and showed predisposition for collaboration better than physicians within the 13 items. The item total correlations supported the inter item relationship which is ranged between 0.188 and 0.577. The question "Doctors should be the dominant authority in all healthcare matters" had the weakest correlation (Table 2).

Table 2. JSAPNC individual item mean scores

NO.	Question	Physicians M(SD)	Nurses M(SD)	Total M(SD)	Corrected Item, Total Correlation
1	Collaborater and colleague with physician	3.57(0.655)	3.72(0.491)	3.7(0.527)	0.41
2	Assess and respond to phsychological	3.43(0.85)	3.76(0.471)	3.7(0.574)	0.56
3	Medical and nursing students are involved in teamwork	3.71(0.86)	3.7(0.62)	3.7(0.669)	0.553
4	Nurses should be involved in making policy decision affecting their working decisions	3.51(0.818)	3.77(0.508)	3.72(0.584)	0.557

5	Nurses should be accountable to patients for the nursing care	3.57(0.815)	3.79(0.44)	3.75(0.535)	0.549
6	Overlapping areas of responsibility between physicians and nurses	3.2(0.994)	3.55(0.607)	3.49(0.706)	0.382
7	Nurses' special expertise in patient education and psychological counseling	3.23(0.942)	3.53(0.69)	3.48(0.75)	0.523
8	Doctors should be the dominant authority in all healthcare matters	2.83(1.272)	2.84(1.062)	2.84(1.1)	0.188
9	Physician and nurse should contribute to decisions regarding to the hospital discharge of the patient	3.29(0.86)	3.56(0.648)	3.51(0.698)	0.305
10	The primary function of the nurse is to carry out the physicians' orders	2.49(0.981)	2.85(1.078)	2.78(1.068)	0.219
11	Nurses should be involved in making policy decisions concerning the hospital the hospital support services	3.54(0.741)	3.6(0.612)	3.59(0.636)	0.448
12	Nurses should also have responsibility for monitoring the effects of medical treatment	3.57(0.698)	3.76(0.488)	3.72(0.537)	0.419
13	Nurses should clarify a physician's order when they feel that it might have the potential for detrimental effects	3.8(0.719)	3.84(0.417)	3.83(0.486)	0.542
14	Physicians should be educated to establish collaborative relationships with nurses	3.6(0.812)	3.74(0.57)	3.72(0.622)	0.522
15	Interprofessional relationships between physicians and nurses should be included in their educational program	3.74(0.741)	3.62(0.659)	3.65(0.675)	0.577

4.3 Mean Values and Differences between Physicians and Nurses According to JSAPNC Domains

Table 3 demonstrated the mean values and differences between physicians and nurses according to JSAPNC domains. Nurses scored higher than physicians in the four subscales of the questionnaire which was statistically significant ( $p < 0.001$ ), indicating that the nurse's attitudes towards shared education were more positive than physicians. The results revealed significant statistical differences between physicians and nurses attitude towards the shared education. The mean total score for nurses was 3.68 (SD: 0.36) compared to 3.4 (SD: 0.67) for physicians (Table 3).

Table 3. Mean values and differences between physicians and nurses according to JSAPNC domains

Factor	Professions	M(SD)	SEM	t	df	P-Value
<b>Nurse-physician collaboration</b>	nurse	3.7(0.32)	0.03	1.584	38.38	0.121
	physician	3.53(0.6)	0.11			
<b>Doctor's authority</b>	nurse	3.69(0.56)	0.05	0.115	185	0.909
	physician	3.68(0.73)	0.13			
<b>Shared education</b>	nurse	3.68(0.36)	0.03	2.426	38.645	0.02
	physician	3.4(0.67)	0.12			
<b>Nursing role in patient care</b>	nurse	2.85(0.93)	0.08	1.085	185	0.279
	physician	2.66(0.95)	0.16			
<b>OverAll</b>	nurse	3.58(0.3)	0.03	1.756	38.392	0.087
	physician	3.41(0.56)	0.1			

(P.Value) greater than or equal (0.05) we will assume there is no statistical difference between groups.

-(P.Value) less than (0.05) we will assume there is statistical difference between group.

Generally, nurses and physicians in medical intensive care unit had positive attitudes toward all JSAPNC as shown in Table 4. Nurse-physician collaboration, doctor's authority, shared education and nursing role in patient care were highly scored by both nurses and physicians in medical intensive care unit in comparison to other critical care units. However, nurse-physician collaboration was the lowest scored in pediatric intensive care unit. Doctor's authority was lowest scored in neonatal intensive care unit. While shared education was the lowest score in both pediatric intensive care unit and emergency department. Whereas, nursing role in patient care was the lowest score in surgical intensive care unit (Table 4).

Table 4. One Way Anova test to determine any statistically significant differences between all JSAPNC and the hospital units

Factor	MICU	SICU	PICU	NICU	ED	P-Value
Nurse-physician collaboration	3.79(0.17)	3.63(0.31)	3.61(0.42)	3.66(0.36)	3.66(0.44)	0.593
Doctor's authority	3.8(0.3)	3.71(0.54)	3.76(0.43)	3.43(0.78)	3.73(0.59)	0.07
Shared education	3.67(0.36)	3.67(0.35)	3.61(0.43)	3.63(0.44)	3.61(0.49)	0.979
Nursing role in patient care	3.03(0.91)	2.47(1.17)	2.89(0.72)	2.86(0.73)	2.78(1.01)	0.416
Total	3.66(0.17)	3.49(0.32)	3.54(0.36)	3.52(0.29)	3.54(0.43)	0.598

- (P.Value) greater than or equal (0.05) we will assume there is no statistical difference between groups.

The p person revealed that there is no statistical correlation between JSAPNC factors and the age. There is no statistical significant differences between the gender and the JSAPNC factors.

## 5. Discussion

The aim of the study was to assess nurses' and physicians' attitudes towards nurse-physician collaboration in critical care areas. It was expected that nurses demonstrate a higher positive attitude toward nurse-physician collaboration in critical care areas than physicians. This study revealed that attitude toward collaboration between physicians and nurses is significantly different as nurses had more positive attitudes than physicians. This result is consisted with several studies found in the literature such as Elsous, Radwan, and Mohsen (2017) study, which indicated that nurses expressed more positives attitudes toward collaboration than physicians. Moreover, the results of this study is also supported by House and Havens (2017), who found that nurses had a more positive attitude toward collaboration than physicians. In House and Havens (2017) study, nurses and physicians reported different views regarding what constitutes effective collaboration regarding nurse-physician collaboration.

Analysis of the Jefferson subscales revealed that the nurses' attitudes towards all items of shared education were more positive than physicians. This result is in line with previous studies such as El sayed and Sleem (2011), which revealed that nurses scores were significantly higher than physicians in the shared education and team work. This result is further supported by Vegesna, Coschignano, Hegarty, Karagiannis, Polenzani, Messina, Zoli, and Vittorio (2016), who showed that nurses scored higher in the shared education factor than physicians. This result can be explained by the fact that nurses working at the current hospital are viewed as assistant to all physicians rather than a colleague working in one team. A further explanation is that nurses working at the critical care units at the current hospital are doing non nursing job such as physician's work due to unclear job description which resulted in overlapping between nurses and physicians' responsibilities.

This study showed that physicians showed positive attitude than nurses regarding the statement of '*Medical and nursing students are involved in teamwork*' as well as '*Interprofessional relationships between physicians and nurses should be included in their educational program*'. However, this result was reported differently in the literature in several studies by El sayed and Sleem (2011), Vegesna, Coschignano, Hegarty, Karagiannis, Polenzani, Messina, Zoli, and Vittorio (2016), Elsous, Radwan, and Mohsen (2017), and McCaffrey, Hayes, and Stuart (2011). These studies showed that nurses scored higher in those mentioned items. A possible explanation of this result is that critical care units is complex working environment that require a good and effective nurse-physician communication, collaborate and relationship to maintain patient safety and prevent the occurrence of patient harm. In the context of the current hospital, all the critical care areas are characterized by having an effective teamwork and collaboration between nurses and physicians as nurses and physicians are working together during the shift. Regards the correlation between JSAPNC subscales with age, the p person revealed that there is no statistical correlation between JSAPNC factors and the age of participants which is against the results of Elsous, Radwan,

and Mohsen (2017) results which shows that a more positive attitude toward collaboration is correlated with the age of the nurses and physicians. This study had some limitations. Survey-based research applies, including response bias (respondents may desire avoiding rating themselves as not being collaborative). Since this research was conducted at one teaching hospital only, comparisons of attitude differences toward collaboration between teaching and non-teaching hospitals should be undertaken. Institutional socialization and culture may differ among institutions and may affect attitudes toward collaboration. Disproportionate gender sample sizes in both the physician and nurse groups made it difficult to draw a definitive conclusion regarding differences in attitudes toward collaboration based on gender.

## 6. Recommendation

According to the results of the current study, the following recommendations are suggested. Future studies to explore the barriers of effective communications between nurses and physicians; clarifying behavioural expectations; and to examine ways to integrate the escalating role of nurses into the revolutionizing working relationship with physicians are recommended. Furthermore, future studies are required to assess the current education curriculums of both nurses and physicians in Saudi Arabia to determine what inter-professional education is currently included to promote shared experiences and better understanding of the roles of physicians and nurses. Establish a successful outcome can be attributed to the leadership of nurses, physicians, and health care executives. Another study is need it to examine the relationship between nurse-physician collaboration and patients' outcomes as well as to explore how nurse-physician collaboration can prevent the occurrence of patient harm.

## 7. Conclusion

To conclude, this study showed that nurses showed more positive attitudes towards collaboration in critical care areas than physicians within 13 items. While physicians showed more positive attitude than nurses within two items only. Additionally, teamwork and collaboration must be encouraged from all the critical care units within the hospital work environment. Interprofessional education for both nurses and physicians within the educational programs must be provided to increase the healthcare providers' level of awareness on the importance of interprofessional education. Clear roles and responsibilities must be ensured by the hospital administration.

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## Authors' Contributions

Fatimah S. Alsallum, Sulafah K. Gattan and Salha A. alwalani conceived the study and literature, collected and analysed the data. Maram A. Banakhar drafted, revised the manuscript reviewed the analytical approach, Roaa A. Alsuhaime conducted the parts literature review and collected the data and Raghad A. Samarkandi collected the data. All authors read and approved the final manuscript.

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