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

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Abstract: Background: Nurses-physician collaboration is crucial for patient's safety and improving patient's outcomes. Aim: This study aimed to assess nurses' and physicians' attitudes towards nurse-physician collaboration in critical care units in one teaching hospital in Saudi Arabia. Method: A cross-sectional descriptive study design was conducted by using Jefferson scale from 152 nurses and 35 physicians in critical care units. Results: The results demonstrated that nurses have more positive attitudes toward nurse-physician collaboration in critical care units than physicians.

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Introduction

Nurse-physician collaboration is defined as "nurses and physicians working together, sharing responsibilities for solving problems and making decisions to formulate and carry out plans for patient care" (Garber et al. 2009). 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 to maintain and enhance patient's safety as the main priority in clinical practice. However, the collaboration between all health care providers is challenging in each healthcare delivery system (Institute of Medicine, 2001). Collaboration is complicated in terms of sharing knowledge and accountability in delivering ultimate patient care. Nevertheless, having good collaborative skills is essential for all health care providers. Thus, when there is a weakness in communication and collaboration it shows in by being a reason for poor patient outcomes (McCaffrey R.G et al. 2010). Several barriers were reported in the literature concerning nurse-physician collaboration to its full potential (Garber et al. 2009; Vazirani et al. 2005). According to Garber et al. (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 et al. 2009; Vazirani et al. 2005). 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 and Jhnson, 2015). In a study conducted by Mpouzika et al.(2017) to explore nursephysician collaboration among adult ICU 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 in Greece. There are relatively few studies in the area of importance of collaboration among nurses and physician as demonstrated in a study conducted by Lancaster et al .(2015) to explores 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 showed that physicians see themselves as the primary patient care decision makers, but many physicians advocate for and seek out nurse input. Nurse-physician collaboration have a strong correlation with patient care quality. In a study conducted by Kramer and Schmalenber (2003) 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 the, collaboration, nurse-physician relationships and the quality of patient care outcomes. (Kramer and Schmalenber,2003) 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 (2016). 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 et al. (2017) 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 ± 0.30 and 3.01 ± 0.35, resp.) Likewise, another study conducted by Ashok Vegesnaa (2016) to explore the attitudes towards collaboration of general practitioners (GPs) and nurses within the CCUs showed that Nurses reported significantly more positive attitudes towards collaboration than GPs. The data in this study were collected by using the Jefferson Scale of Attitudes towards Physician– Nurse Collaboration (JSAPNC) questionnaire that was sent electronically to 218 GPs and 46 nurses of 23 CCUs in two Local Health Authorities of Tuscany. Another study was carried out by Nair et al. (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) survey from 114 registered nurses and 33 physicians in an acute care hospital. Research Problem Collaboration is defined by the interactions in which professionals work together cooperatively with shared responsibility and independence (Dongen et al. 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 and it. The attitude of nurse-physician must be well-practiced in order to enhance and facilitate the interaction among the 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, the ineffective work environment can participate in the effectiveness of care which can put patients at risk (Lancaster et al. 2015). Heath 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 a lack of interpersonal relationship among health care professional, as it is essential to improve patient outcome, lessen the length of stay and decrease hospitalacquired infections (McCaffrey et al. 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.

Methodology:

Design: This study was conducted by using a quantitative nonexperimental descriptive cross-sectional research design to assess the attitude of nurses and physicians towards nurse-physician collaboration in critical care units. Sampling: This study employed convenience sampling. The sample of this study included all nurses and physicians working in the selected intensive care units and emergency department as a follow: • Inclusion criteria: 1. Nurses: All registered nurses working in ICUs and ED 2. Physician: All specialist in ICUs and ED • Exclusion criteria: 1. Nurses: All nursing students and interns and all nurses working in general care units 2. Physician: Consultant, house officers and residents and All physicians working in general care units Sample size : To determine a representative sample, an online equation was used by calculating the total number of population for nurses (301) and for physicians (85) who are working in critical care units, the confidence level (95%) and desired confidence interval (5%) using the following equation (Surveysystemcom, 2018). Based on the calculated equation above, the sample size of this proposed study was calculated as follow: Sample size for nurses is 169 nurse, Sample size for physicians is 70 physician Setting: The research was carried out at one teaching hospital in Saudi Arabia within the following clinical units: Medical Intensive Care Unit (MICU) , Surgical Intensive Care Unit (SICU) , Neonatal Intensive Care Unit (NICU) , Pediatric Intensive Care Unit (PICU) and Emergency Department (ED) Measurement Tool: In this study, the researchers used an adapted questionnaire from Hojat et al. (2001), Jefferson Scale of Attitudes Toward Physician-Nurse Collaboration: (JSAPNC). The questionnaire consisted of two parts. Part1 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 (items3,4,5,7,9,11,12,and13), (2) doctor's authority(items14and15), (3) shared education (items1,2,and6),and (4) nursing role in patient care (items8and10). 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. After obtaining the ethical approval from hospital, in each unit, the researchers met the head nurse in each unit and introduced the purpose of the study, questionnaire and

inclusion criteria. Then the researchers handed questionnaires in closed envelop to nurses personally after coordinating with the unit's manager during day shifts. Nurses were requested to return questionnaires in closed envelop. Moreover, nurse mangers in each unit were requested to distribute questionnaires to night shift staff. Filled questionnaires were collected by researcher in closed envelop in the following day. All data were collected between 26th March to 5th April. Ethical considerations: Ethical approval was obtained from the teaching hospital in 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 aim to fulfil the ethical duty of protecting participants' information and confidentiality. Security procedures were followed to ensure that the information were preserved within the members of the research group and withheld from uncertified personnel. 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. Data analysis Data were analyzed by using 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-physicians collaboration according to JSAPNG domains. In addition, One Way 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. Pearson correlation also used to measure the relationship between two scale variables.

Result

Demographic Characteristics: a total of 152 nurses were participated in the study; 7.9% of them were male and 92.1% were female. 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. 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, a total of 35 physicians were participated in the study; 94.3% of them were male and 5.7% were female. The age of most of physicians 37.1% was 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 study sample 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 (**?** =187) **Variables Physicians Nurses Total (? = 35) (%) (? = 152) (%) (? = 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) Differences in the Mean Values: Table 2 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 (? < 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 (Table2). Table 2: Mean values and differences between physicians and nurses according to JSAPNC domains. **Factor Professions M(SD) SEM t df P-Value Nurse-physician collaboration** nurse 3.7(0.32) 0.03 1.584 38.38 0.121 physician 3.53(0.6) 0.11 **Doctor's authority** nurse 3.69(0.56) 0.05 0.115 185 0.909 physician 3.68(0.73) 0.13 **Shared education** nurse 3.68(0.36) 0.03 2.426 38.645 0.02 physician 3.4(0.67) 0.12 **Nursing role in patient care** nurse 2.85(0.93) 0.08 1.085 185 0.279 physician 2.66(0.95) 0.16 **OverAll** 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 Individual item mean scores: The JSAPNC individual item mean scores and the item total correlation are also examined as demonstrated in Table 3. 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 3). Table 3: 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 funcation 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 detrimentaleffects 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 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** 3.79(0.17) 3.63(0.31) 3.61(0.42) 3.66(0.36) 3.66(0.44) 0.593 **collaboration 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 correlation between JSAPNC factors and the age: The p person revealed that there is no statistical correlation between JSAPNC factors and the age as shown in Table 5. Table 5: Correlation coefficient between nurse physician collaboration factors and demographic characteristics. Factor Age (r) (P-Value) **1-Nurse-physician collaboration** 0.048(0.514) **2-Doctor's authority** -0.018(0.81) **3-Shared education** -0.018(0.805) **4-Nursing role in patient care** -0.011(0.879) **5-Total** 0.015(0.837) (P.Value) greater than (0.05) we will assume there is no statistical correlation Age & Factors Table 6 demonstrated that there is no statistical significant differences between the gender and the JSAPNC factors. Table 5: independent t-test to determine if there are any statistically significant differences between two groups. **Male (n=45) Female (n=141) Independent sample t-test** Mean (SD) Mean (SD) t P-Value **Nurse-physician** 3.59(0.54) 3.68(0.32) -1.383 0.168 **collaboration Doctor's authority** 3.71(0.67) 3.67(0.57) 0.401 0.689 **Shared education** 3.48(0.6) 3.67(0.37) -2.003 0.05 **Nursing role in** 2.64(0.97) 2.87(0.91) -1.393 0.165 **patient care Total** 3.46(0.51) 3.57(0.3) -1.795 0.074 (P.Value) greater than or equal (0.05) we will assume there is no statistical difference between groups

Discussion:

This research adds up to the knowledge on nurse-physician collaboration in a critical care units in one teaching hospital in Saudi Arabia. This study revealed that attitude toward collaboration between physicians and nurses is significantly different and nurses had more positive attitudes than physicians. This result is consisted with Elsous et al (2017) study which indicated that nurses expressed more positives attitudes toward collaboration than physicians. Moreover, the result 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 nurse's attitudes towards all items of shared education were more positive than physicians. This result is in line with previous studies from El sayed & sleem (2011) which revealed that nurses scored significantly higher mean than the physicians in the shared education and team work. This result is further supported by Ashok et al (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 that 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 phycians' responsibilities. This study showed that physicians scored higher 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 sayed & sleem (2011) , Ashok et al(2016) , Elsous et al (2017) and McCaffrey et al (2011). These studies showed that nurses scored higher in those individual. 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 units are characterised by having an effective teamwork and collaboration between nurses and physicians as nurses and physicians are working together during the shift. Recommendations: Based on the results of this present research the following recommendations are suggested. Teamwork and collaboration must be encouraged from all the critical care units. Interprofessional education for both nurses and physicians must be provided within the education program to increase the awareness on the importance of interproffesional education among healthcare providers. Clear roles and responsibilities must be ensured by the hospital administration. Future research is recommended to examine the relationship between nurse-physician collaboration and how it effects patient outcome and prevent the occurrence of patient harm

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