Predicting Factors that Affect the Inter-Professional Team Collaboration among Health Care Team Members in Critical Care Units

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Abstract

Background: Interprofessional collaboration (IPC) has proven its effectiveness in improving the quality of care provided to the patient in intensive care units through many studies. However, there are many factors that may hinder the achievement of effective interprofessional collaboration (IPC) among members of the critical care team, which need to be investigated .

Objective: Examining which subjects' qualities have the potential to predict inter-professional team collaboration.

Methods: This study employed a cross-sectional design to investigate of the factor that impact on interprofessional collaboration (IPC). Place of study was critical care units and cardiac care units. Total participants in the study were 364 of critical care staff from eight various hospitals in the Najaf city. Assessment Interprofessional Team Collaboration Scale II (AITCS-II), was employed in the study. Data collection done through self-report method. Descriptive and inferential statistics were use in the study.

Result: Many socio-demographic and professional qualities have predicted the inter-professional team collaboration, including but not limited to: sex ($F(161.45) = 8.94$, p value= 0.00, $R^2 = 0.024$), educational level ($F(161.45) = 28.93$, p value= 0.00, $R^2 = 0.074$), specialization ($F(161.45) = 104.30$, p= 0.00, $R^2 = 0.224$).

Conclusion: The Interprofessional Team Collaboration is a multi-faceted constrct that may explain the relatively high number of socio-demographic and professional qualities that have predicted the inter-professional team collaboration.

Keywords: Interprofessional collaboration, Interprofessional education, Teamwork, Multidisciplinary care team.

Introduction

To provide high-quality and safe care for critical ill patients, and reducing mortality rate, cost and length of stay in critical care units, the IPC approach is the best way to achieve that goal (1,2,3,4). A negotiated agreement that appreciates the experience and contribution that every person provides to patient care is an example of IPC (5). Moreover, the IPC can be considered as two or more healthcare professionals that have particular roles, accomplish tasks that are interdependent on one another, and share a common objective(s) (6). The application of team collaboration in health care institutions has had a positive impact on the patient's health by providing safe care and good health care for patients (7). The IPC include set of for elements that is partnership, cooperation, coordination, and decision-making. All these elements interact to improve the health care for patients by providing patient center-care. Aiming basically for providing high quality of and safe care for acutely-ill patients, eventually reaching to the desire outcome for patients and health care provider (8).

The delivery of patient care in hospitals is impeded by poor different health care providers coordination, unsatisfactory collaboration, and a shortage of common professional expertise among healthcare providers (9). Thus, poor results and haphazard patient directions might result through incompetent health care practices that prioritizes their own roles (10). As a direct consequence of this, IPC has grown increasingly popular across the world in over twenty years as a successful approach for enhancing cooperative practices among multiple health care professions (11). However, collaborative teamwork among professionals from different specialties helps in achieving the desired goals that cannot be achieved by one profession working alone (12). This demonstrates the importance of team collaboration in the health care sector and is reflected as a

global trend in terms of improving collaborative practice among health care team members (13).

There are multiple causes that can lead to of insufficient IPC in critical care units, such as various professional opinions, communications obstacles and organizational structures. All can obstruct the free flow of information and the process of collaborative decision-making (14). In addition, the dynamic nature of the critical care units, high stress level, patient severity conditions, and the time required to interact with patients, all of these conditions may hinder effective IPC (15). To resolve this problem, by developing strategies that promoting work is mandatory. A work place policy that guarantees a productive environment. An environment which is characterized by transparent communication, mutual respect, and understanding of the roles of each team member (16). Healthcare organizations can enhance the quality of care provided in critical care units and ultimately improve patient outcomes (1,17).

Despite the bulk of publications about the factors that may influence the level of IPC at the global levels, it is surprising that there is a complete absence of research of this kind at the national level, which constitutes a research gap that must be filled. Therefore, this article was basically designed to diagnose the hypothesized gap in Iraqi health care settings.

1. Objectives

Examining which subjects' qualities have the potential to predict inter-professional team collaboration.

2. Methods

A descriptive cross-sectional design was used in this study to investigate the factors that influencing on level of IPC. This design provides the investigator with "snapshot", and it is observing the variables without affecting them. This design consistent with the aforementioned study objective.

The study was conducted in ICUs & CCUs for eight different hospitals in Najaf Governorate, Republic of Iraq. It targeted three health professions: nurses, physicians and pharmacists, who were working in critical care settings. The study started form January 2nd to January 30th 2024.

The study tool was Assessment Interprofessional Team Collaboration Scale II (AITCS-II) (18). In the current study a nonprobability purposive sampling technique was used. The data collection phase was done through self-report approach. The eligibility criteria for the study included health care team members, targeting nurses, physicians and pharmacists, who agreed to participate in the study, and were working in (ICUs), and (CCUs) in the aforementioned eight hospitals. The exclusion criteria of the study included nurses, physicians, and pharmacists who were working in hospitals that did not contain ICUs, and CCUs. Similarly, subjects who worked in places other than intensive care units, were also excluded. Additionally, nurses who hold a secondary school degree in nursing, were also excluded.

The target population is consisted of 500 subjects who were working (ICUs), (CCUs), during the data collection phase. 218 subjects represented the minimum sample when using Raosoft© (2004) calculator.100 subjects were excluded and 36 failed in completing the entire questionnaire filling. Thus, 364 subjects were the accessible population, nurses (n=237), pharmacists (n=71), and physicians (n=51). The data were entered into the IBM-SPSS, version 19 software program. It was then analyzed using descriptive and inferential statistics

In terms of the ethical considerations, the Institutional Review Board (IRB) at the University of Baghdad College of Nursing officially approved the study. Thus, the ethical approval was obtained from the University of Baghdad College of Nursing Committee of Scientific Research (CSR) number 2, on November 22nd, 2023.

Another official approval was issued by the Ministry of Planning (Central Statistical Organization) on December 12th, 2023. The researchers undertake to save the participants identifying details private and to utilize the collected data without producing any actual or potential damage to the study participants. After obtaining the formal agreement from the hospitals, participants were given the voluntary right to participate in the study through the signing of a consent form and were told that their involvement was voluntary and that the gathered information would be handled privately and used only for scientific research. The researchers have effectively completed the Human Research Protection Foundation Training of the Office of Human Research Protection (OHRP).

4.Resuts

Table (1): Descriptive Statistical Presentation of the Subjects' Sociodemographic Characteristics

Demographic Data	Rating and interval	F	%
Sex	Male	192	**52.7**
	Female	172	47.3
Age (Years)	≤ 24	59	16.2
	25 - 30	230	**63.2**
	31+	75	20.6
Work shift	Morning shift 8hrs	110	30.2
	Night shift 12hrs	205	**56.3**
	Night shift 18hrs or more	49	13.5
Educational Level	Diploma	101	27.7
	Bachelor Degree	234	**64.3**
	Master's Degree	8	2.2
	Board Certified Degree	21	5.8
Certificate Source	Inside Iraq	359	**98.6**
	Outside Iraq	5	1.4
Specialization	Nurse	237	**65.1**
	Pharmacist	71	19.5
	Physician	56	15.4

Table (1) descriptive statistical presentation of the subjects' sociodemographic characteristics. The study findings show that the dominant percentage of study sample (52.7 %) are males, (63.2%) are within (25 - 30) years old, and (56.3%) work in the night shift of12hrs. Also, the study reveals that (64.3%) of study

participants had a Bachelor's degree, (98.6%) of them obtained it from inside Iraq, and (65.1%) of the study sample are nurse.

Table (2) Regression table to determine the Impact of subjects' professional qualities on their level of Inter-professional team collaboration

Demographic & professional qualities	B_0	B_1	R^2	F	Sig.
Sex	1.92	0.28	0.024	8.94	0.00
Age (Years)	2.25	0.04	0.001	0.27	0.60
Time shift work	2.53	-0.10	0.005	1.92	0.17
Educational Level	1.90	0.22	0.074	28.93	0.00
Certificate Source	2.30	0.04	0.000	0.01	0.93
Specialization	1.47	0.58	0.224	104.30	0.00
Workplace	2.47	-0.09	0.003	0.93	0.34
Duration of time with the team	2.53	-0.09	0.006	2.02	0.16
Participation in specialized workshops for inter-professional team collaboration	2.18	0.13	0.003	1.22	0.27
The number of hospitalized patients in critical unit	2.29	0.03	0.000	0.15	0.70
The number of Nurses practicing in the critical unit in your shift	2.20	0.09	0.005	1.73	0.19
The number of Pharmacists practicing present in critical units in your shift	1.96	0.28	0.030	11.21	0.00
The number of Physicians practicing present in critical units in your shift	1.63	0.64	0.044	16.64	0.00
Introduced during your academic preparation to the concept of inter-professional collaboration	1.58	0.53	0.082	32.50	0.00
Are you working on educating yourself on the concept of inter-professional team collaboration in a self-reliant capacity	1.35	0.60	0.100	40.19	0.00

A single linear regression analysis was conducted to examine the relationship between participants' demographic & professional qualities and their

level of inter-professional team collaboration. The results indicated sex (F (161.45) =8.94, p value= 0.00, R^2 = 0.024), educational level (F (161.45) =28.93, p value= 0.00, R^2 =0.074), specialization (F (161.45) = 104.30, p= 0.00, R^2 =0.224), number of Pharmacists practicing present in critical units in one shift (F (161.45) =11.21, p value= 0.00, R^2 = 0.030), number of Physicians practicing present in critical units in your shift (F (161.45) =16.64, p value= 0.00, R^2 =0.044), Introduced during your academic preparation to the concept of inter-professional collaboration (F (161.45) =32.50, p value= 0.00, R^2 =0.082), working on educating yourself on the concept of inter-professional team collaboration in a self-reliant capacity (F (161.45) =40.19, p value= 0.00, R^2 =0.100), that a significant predictor of inter-professional team collaboration. The positive regression coefficient (B =0.28, p value 0.00, B =0.22, p value 0.00, B = 0.58, p 0.00, B =0.28, p value 0.00, B =0.64, p value 0.00, B =0.53, p value 0.00, B =0.60, p value 0.00) respectively. suggests that as participants' similar sex, educational level, specialization, number of Physicians & Pharmacists practicing present in critical units in one shift, academic preparation, and working on educating yourself increased, their reported level of inter-professional team collaboration also increased. In other hand, there not relationship predictor between other factors and interprofessional collaboration.

4- Discussion

This study was conducted to predicting factors that may have an impact on level of IPC among critical care staff. The current study findings demonstrated the sex positively predict level of IPC, this come in agreement with (19) who found a relationship between sex and the level of collaboration among the health care team, where it was reported that level of collaboration was differed between the sexes. However, this result may disagree with that obtained by (20) who found no significant relationship between sex and health team collaboration. The cultural differences between Iraqi hospital environment,

health professions included in this study, and the differences in sample size, were reasons to explain differences in those aforementioned studies and the current study.

According to the current study's findings show level of education positively predict collaboration level. The study predicted that increasing in educational level, associated with the higher level of IPC (Table 2). This explanation is supported by the work of (21) who found that RNs with graduate degrees reported the least collaboration compared to holders of Bachelor's degrees and technical diplomas. On the other hand, (22) reported that participants with high education perceived the level of interprofessional collaboration to be higher than staff did.

Of equal importance, the present study revealed specialization positively predict level of collaboration. This finding agrees with (22) who found that nurses and other health care providers exhibited lower level of interprofessional collaboration than physicians. The rising burnout rates among nurses that often face discrimination and are denied their rights is a probable cause of this result (23). Additionally, the present study discovers larger number of physicians and pharmacists practicing in critical units in the shift positively predict level of collaboration. This might be ascribed to the development of a positive work atmosphere, which could be improved by having an adequate number of physicians staff in the critical care unit (24).

The results of the current study show academic preparation to the concept of inter-professional collaboration positively predict level of staff collaboration. This result may come in accordance with (25) who highlighted the relationship between staff collaboration and students' acquisition of knowledge in relation to other professions. The development of teamwork skills, and the changes in collaborative behavior during the course of university is a probable cause of this result.

The current results have shown staff a working on educating themselves on the concept of IPC positively predict level of IPC. This indicates that the more self-education on the concept of IPC increases, the level of collaboration will be increase. It has been reported that providing adequate care for patients requires effective collaboration in health systems and this collaboration primarily requires interprofessional education (IPE). In other words, IPE is the foundation for interprofessional collaboration (26).

Conclusions

The study found that inter-professional collaboration is positively influenced by several factors, including sex, educational level, specialization, the number of pharmacists and physicians in critical care units during a shift, academic preparation related to inter-professional collaboration, and self-education on team collaboration concepts. The result of the study emphasizes on the importance of highlighting the factors that affect the level of interprofessional collaboration, especially in intensive care units, where interprofessional collaboration is vital in these units. Since this is the first national study with factors that have an actual or potential effect on collaboration in critical care units, solutions must come through health system-level efforts.

Author contributions:

"Maitham Al-Twigey and Sadeq AL-Fayyadh conceptualized the study and drafted the initial manuscript. Maitham Al-Twigey collected, analysed, and interpreted the data. Sadeq AL-Fayyadh reviewed and revised the manuscript and contributed towards the content and design. Sadeq AL-Fayyadh supervised the study. All the authors read and approved the final manuscript for publication".

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