Shahid Sadoughi University of Medical Sciences School of Public Health

Journal of Social Behavior and Community Health

Journal of Social Behavior & Community Health

Social Determinants of Health Research Center

Attitudes of Healthcare Team towards Interprofessional Collaboration

Roya Botshekanan [a], **Simin Tahmasbi** [b] *

[a] Department of Health Services Management, ShK.C., Islamic Azad University, Shahrekord, Iran
[b] Department of Nursing, ShK.C. , Islamic Azad University, Shahrekord, Iran

ARTICLEINFO

ORIGINAL ARTICLE

Article History:
Received: 28 November 2024
Revised: 22 December 2024
Accepted: 8 January 2025

***Corresponding Author:**
Simin Tahmasbi

Email:
Tahmas.s2004@gmail.com

Tel: +98 913 3814926

Citation:
Botshekanan R, Tahmasbi S. Attitudes of Healthcare Team Towards Interprofessional Collaboration. Journal of Social Behavior and Community Health (JSBCH). 2025; 9(1): 1512-1524.

ABSTRACT

Background: Inter-professional collaboration (IPC) is vital in enhancing the quality of healthcare. Hence, this study aims to evaluate the attitudes of healthcare staff towards interprofessional cooperation.

Methods: The study utilized a descriptive-analytical method. The medical teams from two hospitals of Shahrekord University, constituted the study population. Using stratified sampling, 325 individuals were selected.on 2020 Data were gathered by Jefferson Interprofessional Attitude Questionnaire, consisting of demographic information and IPC questions (20 items.. SPSS (20) was used for data analysis, and variables were assessed by descriptive tests, one-sample t-tests, t-student tests, Levene tests, and ANOVA.

Results: The mean scores for attitudes towards IPC were as follows: general practitioners (4.54 ± 0.31), specialists (4.94±0.37), nurses (4.84±0.40), midwives (4.86±0.36), radiologists (4.86±0.43), nutritionists (4.69±0.46), laboratory staff (4.97±0.38), pharmacists (4.99±0.49), operating room anesthesiologists (5.09 ±0.38), environmental and occupational health experts (5.07±0.35), and psychologists (5.19±0.34). There was a significant difference ($p < 0.05$) between general practitioners and anesthesia and operating room experts. The relationship between demographic data with mean score of IPC was not significant, but it was significant forjob experience of 15-20 years (sig = 0.001 and F = 8.81).

Conclusion: Managers should promote a positive attitude towards IPC within the healthcare team. By implementing an educational strategy, cooperation and performance among healthcare staff can be enhanced.

Keywords: Interprofessional Relations, Attitude, Health Personnel, Collaboration

[DOI: 10.18502/jsbch.v9i1.18695]

Introduction

One significant area of concern in healthcare teams under human resource management is fostering of partnership and collaboration. This is important in promoting standards of professionalism in relationships between professionals in order to boost the quality of health services. In healthcare systems, patients' needs are usually complicated and thus need intervention from all stakeholders involved in treatment process. However, one of the most significant problems is the absence of teamwork in patient's treatment and care (Dent et al., 2021). Managers may believe that members of the healthcare profession embrace teamwork, while in real essence they often work alone (Mao & Woolley, 2016). Soininen et al. stressed that all members of the team should participate and intervene, as others jointly participate and intervene (Soininen et al., 2023).

Healthcare employees in developed nations are in a constant conflict that gets them to use violence. In order to redress this, the emphasis should be made on teamwork/personal and technical competencies (Tang et al., 2013). However, there are authors who have underlined the relevance of the mastery of teamwork competencies (Ericsson, 2014) along with personal and technical ones (Morley & Cashell, 2017). It has been quantitatively demonstrated that healthcare collaboration decrease the personnel length of stay in the hospital (Reeves et al., 2018). Also, it has been discovered that consensus-based decision on patient treatment plan (Ericsson, 2014) has helped to reduce patients' mortality, prevent drug reactions, optimize medication usage, and help caregivers and clinicians in patients' treatment plan (Cheng, 2009; Crowley et al., 2020; McCaffrey et al., 2010; Robinson et al., 2010; Rosenstein & O'Daniel, 2005; Tang et al., 2013). Involvement with the treatment, improvements in the use of the EBPs (Reeves et al., 2018), decision-making (Tasri & Tasri, 2020), and innovations (Morley & Cashell, 2017) have been realized at a qualitative level.

Specialists and professionals form a medical team which engages in projects or medical care routines (Meredith et al., 2017). There is a need for all members of the healthcare team to understand each other's roles and goals at all times (Reeves et al., 2018). These have the added advantage of increased efficiency and innovation, as well as better risk management outcomes (Morley & Cashell, 2017). Moreover, teamwork among healthcare providers may have benefits such as reduced workload and enhanced work satisfaction (Bosch & Mansell, 2015; Plevová et al., 2021).

Organization offers three aspects of opportunity to clients for the team (time, facilities, and space); the possibility to acquire important fragments of knowledge during the study, for instance, the organization of team collaboration through interprofessional practice, patient-centered practice, and the use of appropriate literature referring to each other. Another aspect that should be taken into account is the readiness of members of the team to knit – it concerns psychological predispositions. The systematic review of Dyk et al. documented different challenges towards effective healthcare team collaboration. These include the pragmatic codes of conduct in each of professions, the institutional regulations, as well as conditions extraneous to work of the team in question, like the physical workspace (Bai et al., 2017; Buljac-Samardzic et al., 2020; Meredith et al., 2017). Even within the ground of the team, there are conditions that can hinder interaction and create a conflict of interest in terms of interest, goals, expectation and experience of members. There can also be sub-ordinate workers in terms of rank, status, payment, etc., which can overshadow the concept of group leadership and cooperation (Park et al., 2021). In addition, a serious problem that has been identified to affect inter-stakeholder working relations is the fact that there are little interprofessional training of healthcare professionals (Homeyer, 2018; Rider et al., 2014).

In fact, some professors and educational planners have acknowledged the importance of the

[DOI: 10.18502/jsbch.v9i1.18695]

relatively recent innovation of interprofessional education (IPE), as it becomes increasingly critical in healthcare. The World Health Organization highlights that many health graduates lack sufficient knowledge in this area and advocate for interprofessional training and a shift in professional mindsets. Like other societies, our society faces challenges in care quality and safety, primarily due to ineffective teamwork (Behzadifar et al., 2019). Since teamwork is essential for patient care, establishing effective communication among team members is crucial. Studies highlight the benefits of interprofessional collaboration (IPC), including improved cooperation and interaction, especially in partnerships between organizations (Bosch & Mansell, 2015; Mao & Woolley, 2016; Morley & Cashell, 2017). These works compare physicians and nurses' understanding of integrated relationships (Blue, 2019b; Hojat, 2003; Jasemi et al., 2013). Pakpour et al. established that the collaboration between nurses and physicians improves the satisfaction of nurses in Zanjan (Pakpour et al., 2019). Currently, there is no research in Iran on the perceptions of various players in the multi-disciplinary medical team towards interdisciplinary collaboration. Thus, the purpose of the present study is to identify the attitudes towards IPE among the medical care staff in hospitals affiliated to Shahrekord University of Medical Sciences.

Methods

The current descriptive-analytical study was conducted in 2019. The study statistical population consisted of 1168 medical care workers employed in Hajar and Kashani teaching hospitals affiliated to Shahrekord University of Medical Sciences. The inclusion criteria were having at least an associate's degree and six months of work experience. The exclusion criteria included unwillingness to cooperate, resignation, dismissal, and work transfer. To determine the minimum required sample size, Cochran's formula was utilized.

Z=1.96 P=0. 5 q=0.5 N=1168 d=0.05

$$n = \frac{\frac{z^2 pq}{d^2}}{1+\left(\frac{1}{N}\right)\left(\frac{z^2 pq}{d^2}-1\right)} =$$

n=284

To eliminate any potential bias, we considered 20% more cases than the initial amount, resulting in a total of 342 cases. Out of these, 325 questionnaires were included in the analysis, representing a return rate of 95%. The study employed a stratified random sampling method from October 2019 to June 2020. Participants were selected based on their specialty, including nurses, general practitioners, specialists, operating room experts, anesthesiologists, psychologists, midwives, radiologists, environmental health professionals, laboratory scientists, nutritionists, and pharmacists from the target population.

Data collection was in two parts. In the first part, respondent's basic information was collected, including gender, age, marital status, work experience, and job content. The second part was the Jefferson Interpersonal Collaboration Inventory Questionnaire that was made up of 20 statements measured based on 7-point Likert scale. The reliability of the Jefferson Interpersonal Collaboration Inventory Questionnaire has been confirmed in studies by Collins et al., Costa Nathália Muricy, and Hojat et al. (Collins et al., 2023; Collins, 2023; Costa Nathália Muricy, 021; Hojat et al., 2015). The questionnaire was translated from English to Persian. Subsequently, it was translated into English by two distinct translators. There was no disparity in the translated and the original forms of the questionnaire. The validity of the questionnaire was established using face and content validity, while internal consistency was estimated using Cronbach's alpha and its value was 0. 94. The test-retest was also checked using intra-class correlation coefficient equality, to be at 0. 966 and Pearson correlation coefficient at 0. 875. For variables with a mean score > 3, it can be concluded that the society has a high perception.

During the course of the research, the researcher

[DOI: 10.18502/jsbch.v9i1.18695]

obtained the necessary license from Shahrekord Islamic Azad University to gather information. Subsequently, they provided the license and coordinated with the management and security of Kashani and Hajar hospitals in Shahrekord. The questionnaires were filled, and the data were analyzed by descriptive and inferential statistics using SPSS version 20.

Results

Gender distribution of the research samples showws that majority of the respondents were female (70. 2%) and married (68.4%). The majority of employees had work experience of 5-10 years (34. 3%). More demographic facts are given in Table 1.

Table 1. Demographic Characteristics of Participants in the Study on Healthcare Team Attitudes Toward IPC

Groups	Categories	Percent	Frequency
Sex	Male	29.8	97
	Female	70.2	228
Marital status	Single	31.6	103
	Married	68.4	222
Work experience (year)	5>	23.1	75
	5-9	34.2	111
	10-14	22.2	72
	15-19	14.8	48
	20<	5.8	19
Age (year)	20-24	4.6	15
	25-29	24.6	80
	30-34	28.3	92
	35-39	7.7	90
	40<	14.7	48
Job title	Specialist	7.4	24
	Physician	3.7	12
	Midwifery	5.2	17
	Nurse	63.1	205
	Radiologist	4.6	15
	Nutritionist	1.2	4
	Laboratory staffs	2.5	8
	Pharmacist	1.5	5
	Anesthetist and/or staffs	8.3	27
	Environmental health	1.2	4
	Psychologist	1.2	4

All groups showed statistically significant differences (p-value < 0.05). The mean scores and 95% confidence intervals for each group are as follows. The highest mean score: Psychologists with a mean score of 5.19±0.34 and the lowest mean score: Physicians with a mean score of 4.54±0 (Table 2).

[DOI: 10.18502/jsbch.v9i1.18695]

Table 2. Mean scores of IPC categorized by job titles across various occupational groups participating in the study

Job title	Mean ± SD	T	Df	Sig	Confidence interval 95%	
					High	low
Specialist	4.95±0.37	19.28	23	0.001	1.61	1.29
Physician	4.54±0.31	11.60	11	0.001	1.23	0.84
Midwifery	4.86±0.36	15.40	16	0.001	1.55	1.17
Nurse	4.84±0.40	47.57	204	0.001	1.39	1.28
Radiologist	4.86±0.43	12.38	14	0.001	1.59	1.12
Nutritionist	4.69±0.46	5.17	3	0.014	1.92	0.46
Laboratory Staffs	4.97±0.38	10.91	7	0.001	1.79	1.15
Pharmacist	4.99±0.49	6.74	4	0.003	2.10	0.88
Anesthetist and/or staffs	5.09±0.38	21.85	26	0.001	1.74	1.44
Environmental Health	5.07±0.35	9.00	3	0.003	2.13	1.02
Psychologist	5.19±0.34	9.85	3	0.002	2.23	1.14

Table 3 shows significant relationships (p=0.001) between attitudes towards professional collaboration and gender, marital status, and work experience. Females (4.92±0.38) scored higher than males (4.85±1.41). Single subjects (4.88±0.40) scored higher than married individuals (4.78±0.40) and individuals with 15–19 years of work experience (5.08±0.39) scored the highest, followed by those with 10–14 years (4.99±0.38)(Table 3).

Table 3. Relationship between mean score of attitudes towards professional collaboration, gender, marital status, and work experience

Group	Categories	Mean±SD	T	Df	sig	Confidence interval 95%	
						High	low
Sex	Female	4.92±0.38	37.11	96	0.001	1.50	1.34
	Male	4.85±1.41	49.26	227	0.001	1.40	1.29
Marital status	Married	4.78±0.40	47.69	201	0.001	1.42	1.31
	Single	4.88±0.40	37.18	122	0.001	1.44	1.30
Work experience (year)	5>	4.71±0.40	26.56	74	0.001	1.33	1.12
	5-9	4.81±0.35	38.91	110	0.001	1.38	1.24
	10-14	4.99±0.38	33.05	71	0.001	1.58	1.40
	15-19	5.08±0.39	28.12	47	0.001	1.69	1.46
	More than 20	4.86±0.51	11.63	18	0.001	1.60	1.11

According to the results of Levene's test on the participants, with p=0.381, all 11 groups had the same variance. There was a difference between groups for which the null hypothesis of equal variances was accepted.. There was a statistically significant difference among the groups in their mean scores regarding their attitudes towards IPC; F(2, 179)= 11.069, p= 0.001. The variation of scores by job titles in IPC was also noted (F(3, 183)= 4.134, p= 0.009). In this regard, Physicians reported the lowest level of professional collaboration, while psychologists and anaesthesiologists exhibited a more moderate cooperation (Table 4).

[DOI: 10.18502/jsbch.v9i1.18695]

Table 4. Levene's Test and One-Way ANOVA Results for Interprofessional Collaboration (IPC) Across Job Titles

Test	Source	Sig	F	Levene,s Test	DF1	DF2	Sum of Squuares	Mean Square
Levene's test	Homogenisity	0.954	-	0.381	10	314	-	-
ANOVA	Between Groups	0.009	2.41	-	10	314	37.78	0.378
	Within Groups						49.05	0.156
	Total						52.82 (Total)	-

In Table 5, results were obtained at a significance level of 0.05, indicating the difference in mean score between the general practitioners' group and the anesthesiologists and operating room group (p = 0.04). The observed man scores differences among these groups were statistically significant. The magnitude of this effect was also the same (Table 5).

$$Eta = \frac{3.78}{52.82} = 0.071$$

According to Cohen, this value (range between 0.06 to 0.138) is average.

The collaboration between single and married health team members was rated moderately good with mean scores of 4.87±0.4 and 4.88±0.4 in terms of IPC .Both mean scores were higher than the typical mean score of 3.5 with a statistical significance of p<0.05. However, overall collaboration scores showed no significant difference on the basis of marital status (F=0.823, sig=0.050).

In terms of gender, male scored an average IPC score of 4.85±0.41, whereas female scored a higher IPC score of 4.92±0.38. Since the mean IPC was above average, there was no notable difference in gender in terms of IPC scores (F=2.62, sig=0.108).

IPC scores were correlated with job experience and showed higher scores based on high experience; those with less than 5 years of post qualification scored 4.71±0.4 and those with 15-20 years scored 5.08±0.39, but the scoore of theose with over 20 years of qualification dropped to 4.86±0.51. The differences were significant between members working with 15-20 years of experience compared to the rest (F=8.81, sig=0.001) (Table 5).

Regarding marital status of health team members, the analysis reported positive mean scores of 4.87±0.4 and 4.88±0.4, respectively, which was higher than the population mean score of 3.5 with support value p<0.05. However, the marital status of health team members did not play an important role for the variability of the IPC scores in the study (F=0.823, sig=0.050).

The mean score of IPC among men and women in the health profession was 4. 85±0. 41 and 4. 92±0. 38, respectively. These scores were much above the standard score of 3. At the error level of 0, the population mean was rated 5. 05 (p<0. 000). However, there was no statistical difference between male and female participants in the scores of IPC measured on a scale from 3 to 15 (F=2.62, sig=0.108).

IPC was also found to differ according to work experience of health members. There was a significant difference in IPC scores across job titles compared to the population mean of 3.5 (p < 0.001). Moreover, participants with 15–20 years of experience differed significantly from those with other work experience levels (sig = 0. 001, F = 8. 81) (Table 5).

[DOI: 10.18502/jsbch.v9i1.18695]

Table 5. Multivariable Analysis of IPC Differences Among Various Healthcare Occupational Group

Jobe title	In comparison with	Mean difference	Standard eror	Sig
Specialist	Physician	0.41	-0.13	0.11
	Midwifery	0.08	0.12	1.00
	Nurse	0.11	0.08	0.97
	Radiology staffs	0.09	0.13	1.000
	Nutritionist	0.26	0.21	0.981
	Laboratory Staffs	-0.02	0.16	1.000
	Pharmacist	-0.04	0.19	1.000
	Anesthetic and OR staffs	-0.14	0.11	0.973
	Environmental Health	-0.13	0.21	1.000
	Psychologist	-0.24	0.21	0,988
Physician	Midwifery	-0.32	0.15	0.624
	Nurse	0.30	0.12	0.625
	Radiology staffs	-0.32	0.15	0.573
	Nutritionist	-0.15	0.23	1.000
	Laboratory Staffs	-0.43	0.18	0.376
	Pharmacist	-0.45	0.21	0.542
	Anesthetic and OR staffs	-0.55	0.14	0.04
	Environmental Health	0.54	0.23	0.399
	Psychologist	-0.65	0.23	0.145
Midwifery	Nurse	0.002	0.10	1.000
	Radiology staffs	0.001	0.14	1.000
	Nutritionist	0.17	0.22	0.999
	Laboratory Staffs	-0.11	0.17	1.000
	Pharmacist	-0.13	0.20	1.000
	Anesthetic and OR staffs	-0.23	0.12	0.755
	Environmental Health	-0.21	0.22	0.997
	Psychologist	-0.33	0.22	0.925
Nurse	Radiology staffs	0.02	0.10	1.000
	Nutritionist	0.15	0.20	1.000
	Laboratory Staffs	-0.13	0.14	0.998
	Pharmacist	-0.15	0.18	0.999
	Anesthetic and OR staffs	-0.25	0.08	0.086
	Environmental Health	0.23	0.20	0.984
	Psychologist	-0.35	0.20	0.813
Radiology staffs	Nutritionist	0.17	0.22	0.999
	Laboratory Staffs	-0.11	0.17	1.000
	Pharmacist	-0.13	0,20	1.000
	Anesthetic and OR staffs	-0.23	0.13	0.789
	Environmental Health	-0.21	0.22	0.997
	Psychologist	-0.33	0.22	0,928
Nutritionist	Laboratory Staffs	-0.28	0.24	0.986
	Pharmacist	-0.31	0.26	0.988
	Anesthetic and OR staffs	-0.40	0.21	0.726
	Environmental Health	-0.39	0.27	0.951
	Psychologist	-0.50	0.27	0.786
Laboratory staffs	Pharmacist	-0.02	0.22	1.000
	Anesthetic and OR staffs	-0.12	0.16	1.000
	Environmental Health	-0.11	0.24	1.000
	Psychologist	-0.21	0.24	0.998
Pharmacist	Anesthetic and OR staffs	-0.01	0.19	1.000
	Environmental Health	-0.08	0.26	1.000
	Psychologist	-0.02	0.26	1.000
Anesthetic and/or staffs	Environmental Health	0.01	0.21	1.000
	Psychologist	-0.10	0.21	1.000
Environmental health	Psychologist	-0.11	0.28	1.000

[DOI: 10.18502/jsbch.v9i1.18695]

Discussion

The purpose of this study was to determine the medical care personnel's attitude towards IPC in hospitals affiliated to Shahrekord University of Medical Sciences. One of the most important, though still mostly developing, concepts is that of IPC of physicians and nurses; this form is the most effective for sharing the responsibility and decision-making mechanisms related to Patients' care programs (Aghamohammadi et al., 2018). The results showed that the score of IPC of all employees was significantly superior to that of the community. The laboratory staff, pharmacists, anesthesiologists, the operating room personnel, the environmental health worker, the psychologists revealed the positive perception towards IPC.

Laboratory workforce may have positive perception towards teamwork because of centrality of diagnostics task which necessitates member robust interaction with physicians and nurses to provide appropriate care for the patients (Baker, 2014).

IPC is widely supported by pharmacists as well because of their focus on medication management; growth in these roles has been linked to enhanced patient care quality and better safety of medications (Jafaru & Abubakar, 2022; Rahayu et al., 2021). Anesthesiologists and operating room personnel are professionals who work closely together during operations and as a result benefit from enhanced levels of interprofessional collaborative practice, positively affecting patient processes and effective surgical outcomes, and further supporting their positive attitudes towards interprofessional practice (Etherington et al., 2021; Levesque & Sikora, 2024). Environmental health workers play the role of supporting hospital infection control and sanitation which is part of a wider multidisciplinary team (Kubde et al., 2023).

Psychologists, since practice in cooperation with psychiatrists and other healthcare professionals, understand the significance of IPC to address patients' biological and psychological needs that can make them less skeptical to practice IPC (J. Drewlo, 2014). These findings support the present study about healthcare professionals' perceptual and practical understanding of the significance of IPC concept and its application for developing patient care and strengthening the healthcare system.

The results showed that there are considerable differences in perceptions of stakeholders in the amount and nature of IPC in hospitals of Shahrekord University of Medical Sciences. The most positive attitude towards IPC was recorded by psychologists, while the least positive attitude was recorded by general practitioners. Hence, this result may raise suspicions that some professions may perceive better crossing self-professional boundaries of inherent value or practical utility.

The results indicated that there was only a significant difference in mean scores between general practitioners and the group of anesthesiologists and operating room staff. No significant difference was found among other groups. In terms of interprofessional participation, physicians had a lower attitude compared to other occupations, while psychologists had a more positive attitude. Aghamohammadi et al. conducted a study on interprofessional cooperation in Ardabil intensive care units, focusing on the perspectives of nurses and physicians. They examined interprofessional cooperation between nurses and physicians and reported that physicians exhibited a positive attitude towards cooperation (Aghamohammadi et al., 2018, Pakpour et al., 2014). They found that nurses had a positive attitude towards professional physician-nurse cooperation. Similarly, Borhani et al. conducted a study at Shahid Beheshti University of Medical Sciences hospitals and reported that nurses had a more positive attitude towards cooperation with each other compared to physicians (Borhani et al., 2014).. In the study by Blue, 2019a, physicians' attitudes towards IPC were found to be lower than those of nurses, although their comparison only focused on the relationship between physicians and nurses (Blue, 2019a). Alcusky et al. studied the attitude of cooperation between nurses, general practitioners, and specialist physicians (Alcusky et

[DOI: 10.18502/jsbch.v9i1.18695]

al., 2016). They found that nurses had a more positive attitude towards cooperation compared to general practitioners and specialists. Seselja-Perisin et al. discovered that pharmacists and pharmacy students exhibit a more positive attitude towards IPC compared to physicians and medical students (Seselja-Perisin et al., 2016). Aziz et al. found that the mean score of medical students is significantly lower than that of pharmacy and nursing students (Aziz et al., 2011). In another study by Sharifian et al., medical students scored lower than nursing and midwifery students (Sharifian et al., 2018).

Although IPC differences were not statistically significant with regarding demographic variables such as age, gender, and marital status, it was found that women and single individuals had a greater degree of positive attitude towards IPC. A study involving 300 healthcare professionals found no significant differences in IPC scores based on gender, age, profession, or length of work experience (Soemantri et al., 2022). Similarly, the study by Bridges et al. emphasized the importance of IPE in developing collaborative skills among healthcare students, without highlighting specific demographic influences (Bridges et al., 2011). However, other studies have explored how gender and social identity factors shape experiences and perceptions of teamwork. For instance, a study by Etherington examined how gender affects interprofessional teamwork in the operating room, suggesting that gender dynamics can affect team interactions (Etherington C, 2021)

These findings suggest that while some studies report no significant differences in IPC based on demographic factors, others indicate that gender and personal qualities can affect collaborative practices. Therefore, the relationship between demographic variables and IPC may vary depending on the context and specific characteristics of the healthcare setting.

It can be concluded that physiocracy, by referring to the perspective of physicians, disrupts interdisciplinary cooperation among clinicians. Research conducted both in Iran and abroad suggests that modifying these attitudes involved developmental planning in medical universities and enhancing attitudes to IPE. Hojjat et al. discovered that collaboration between nurses and physicians, regardless of cultural background, can greatly benefit patients by improving communication and professional satisfaction. Therefore, it is imperative that medical and nursing schools include IPC as part of their curriculum. This will allow students to develop a better understanding of each other's roles (Hojat, 2003). The present study revealed that psychologists tend to have a more positive attitude towards IPC compared to other members of the treatment team. Given their close relationship with psychiatrists, psychologists have gained valuable experience in IPC (M. A. Drewlo, 2014).

The strengths of the study were comprehensive analysis of data across multiple professions, which provided a broad perspective on teamwork dynamics. Moreover, its practical implications offer valuable strategies for enhancing IPC, making the findings relevant and applicable to real-world settings.

However, the study was conducted in Shahrekord hospitals which limits slightly the generrizability of resullts to other contexts. It also lacks an in-depth exploration of systemic barriers that could impact teamwork.

Future research studies should affect more than one institution to overcome such shortcomings and make findings generalizable. Insisting on barriers and an increased description of the underlying causes should also be very necessary to yield practical conclusions. Furthermore, balanced representations of professions coupled with the transfer of findings into interprofessional educating would ensure a significant improvement in collaboration and outcomes.

Conclusion

This study has highlighted the imperative need for understanding IPC among health professionals and its contribution to enhancing patient care. Although the findings indicated that most professions, particularly psychologists, pharmacists,

[DOI: 10.18502/jsbch.v9i1.18695]

and operation personnel, had a very positive attitude towards IPC, general practitioners showed comparatively low engagement. These differences underpin the necessity for tailored strategies to enhance collaboration across disciplines.

Acknowledgments

The authors would like to thank the Deputy of Research and Technology of Islamic Azad University of Shahrekord and the staffs of Hajar and Kashani hospitals for their cooperation.

Conflicts of Interest

The authors stated that there is no conflict of interest in this study.

Funding

This research was conducted without any financial support.

Ethical considerations

Measure was taken to ensure that the code of ethical consideration was observed in this research from the finding to the later stage. This involved assuring participants of their rights to give informed consent, explaining matters pertaining to the study, seeking permission from the necessary authorities to sample, observing privacy and/or anonymity of the participant's information and correctly reporting the outcomes.

Code of ethics

IR. IAU. FALA. REC.1398. 044

Authors' Contributions

R.B and S.T implemented the study; S.T devised methodology; R.B collected data; R.B analyzed data; S.T wrote the original draft; S.T reviewed and edited; R.B found the resources, and S.T supervised.

References

Aghamohammadi, D., Dadkhah, B., Aghamohammadi, M., & Nasiri, E. (2018). Inter Professional Collaboration: Attitude of Nurses and Physicians of Ardabil's Intensive Care Units. *Journal of Health and Care*, *20*(1), 18-29.[persian]

Alcusky, M., Ferrari, L., Rossi, G., Liu, M., Hojat, M., & Maio, V. (2016). Attitudes toward collaboration among practitioners in newly established mediacal homes: a survey of nurses, general practitioners, and specialists. *American Journal of Medical Quality*, *31*(6), 526-535. https://doi.org/510.1177/ 1062860615597744

Aziz, Z., Teck, L. C., & Yen, P. Y. (2011). The attitudes of medical, nursing and pharamacy students to inter-professional learning. *Procedia-Social and Behavioral Sciences*, *29*, 639-645. https://doi.org/610.1016/j.sbspro.2011.1011.1287

Bai, W., Feng, Y., Yue, Y., & Feng, L. (2017). Organizational Structure, Cross-functional Integration and Performance of New Product Development Team. *Procedia Engineering*, *174*, 621-629 .https://doi.org/610.1016/j.proeng.2017.1001.1198.

Baker, S. M., Lind, M., & Howell, S. . (2014). Teamwork in healthcare: Collaboration among laboratory professionals and clinicians. . *Journal of Clinical Pathology*, *67*(8), 683-989.https://doi.org/610.1136/jclinpath-2014-2037 .

Bauer, M., Herr, K., & Johnson, L. (2017). Psychologists' perspective on interprofessional collaboration in addressing biological and psychological patient needs. *Psychology, Health & Medicine 22*(4), 431-440. https://doi.org/410.1080/13548506.13542016.11221877 .

Behzadifar, M., Behzadifar, M., Jahanpanah, F., & Bragazzi, N. L. (2019). Patient safety culture assessment in Iran using the "Hospital survey on patient safety culture" tool: A systematic review and meta-analysis. *Clinical Epidemiology and Global Health*, *7*(4), 641-647. [persian] https://doi.org/https://doi.org/10.1016/j.cegh.2019.02.008

Blue, M. (2019a). *Improving Nurse-Physician Collaboration: Building an Infrastructure of Support* [Doctor of Nursing Practice (DNP),

[DOI: 10.18502/jsbch.v9i1.18695]

School of Nursing and Health Professions

Blue, M. (2019b). Improving Nurse-Physician Collaboration: Building an Infrastructure of Support.

Borhani, F., Abbasi, M., Abbaszadeh, A., & Mousavi, S. (2014). Attitudes of nurses and physicians of the hospitals affiliated with Shahid Beheshti University of Medical Sciences toward collaboration with each other. *Medical-Ethics-and-History-of-Medicine-Research-Center*, *7*(3), 69-77.[persian] -۷en.html

Bosch, B., & Mansell, H. (2015). Interprofessional collaboration in health care: Lessons to be learned from competitive sports. *Canadian Pharmacists Journal/Revue des Pharmaciens du Canada*, *148*(4), 176-179 .

Bridges, D. R., Davidson, R. A., Odegard, P. S., Maki, I. V., & Tomkowiak, J. (2011). Interprofessional collaboration: three best practice models of interprofessional education. *Med Educ Online*, *16*, doi: 10.3402/ meo.v3416i3400.6035. https://doi.org/10.3402/meo.v16i0.6035

Buljac-Samardzic ,M., Doekhie, K. D., & van Wijngaarden, J. D. (2020). Interventions to improve team effectiveness within health care: a systematic review of the past decade. *Human resources for health*, *18*(1), 1-42. DOI:10.1186/s12960-12019-10411-12963

Cheng, T. C. (2009 .(Factors related to adolescents' seeking help from social workers in mental health settings. *Children and Youth services review*, *31*(7), 807-812. DOI:810.1016/ j.childyouth.2009.1003.1002

Collins, L., Sicks, S., Umland, E., & Phillips, J. D. (2023). A tool for assessing interprofessional collaborative practice: evolution of the Jefferson teamwork observation guide (JTOG)®. *Journal of interprofessional care* .

Collins, L. S., S. Umland, E. Phillips, J. D. (2023). A tool for assessing interprofessional collaborative practice: evolution of the Jefferson Teamwork Observation Guide. *J Interprof Care*, *37*(1), S116-s119. DOI: 110.1080/13561820. 13562019.11613967

Costa Nathália Muricy, R. d. L., Aline Oliveira ,De Oliveira Betina Beatriz et al. . (2021). Evaluation of Interprofessional Attitude by the Jefferson Scale. *International Journal of Development Research*, *11*(5), 47179-47184. Doi: https:// doi.org/47110.37118/ijdr.21281.47105.42021

Crowley, E. K., Sallevelt, B. T., Huibers, C. J., Murphy, K. D., Spruit ,M., Shen, Z., Boland, B., Spinewine, A., Dalleur, O., & Moutzouri, E. (2020). Intervention protocol: OPtimising thERapy to prevent avoidable hospital Admission in the Multi-morbid elderly (OPERAM): a structured medication review with support of a computerised decision support system. *BMC health services research*, *20*(1), 1-12. doi: 10.1186/s12913-12020-15056-12913 doi: 10.1186/s12913-020-5056-3

Dent, J., Harden, R. M., & Hunt, D. (2021). *A practical guide for medical teachers, e-book.* Elsevier health sciences

Drewlo, J. (2014). The role of psychologists in interprofessional collaboration for patient care. *Psychiatric Services 65*(8), 951-957. https://doi.org/ 910.1176/appi .

Drewlo, M. A. (2014). *Factors in optimal collaboration between psychologists and primary healthcare physicians* Antioch University .[

Ericsson, K. A. (2014). The acquisition of expert performance: An introduction to some of the issues. In *The road to excellence* (pp. 1-50). Psychology Press .

Etherington, C., Burns, J. K., Kitto, S., Brehaut, J. C., Britton, M., Singh, S., & Boet, S. (2021). Barriers and enablers to effective interprofessional teamwork in the operating room: A qualitative study using the Theoretical Domains Framework. *PLoS One*, *16*(4), e0249576. DOI: 0249510.0241371/ journal.pone. 0249576 https://doi.org/10.1371/journal.pone.0249576

Etherington C, K. S., Burns JK, et al. . (2021). How gender shapes interprofessional teamwork in the operating room: a qualitative secondary analysis. *BMC Health Serv Res.*, *21*(1), 1357. doi:1310.1186/s12913-12021-07403-12 .۹۱۲

[DOI: 10.18502/jsbch.v9i1.18695]

Hojat, M., Gonnella, Joseph S, Nasca, Thomas J, Fields, Sylvia K, Cicchetti, Americo, Scalzo, Alessandra Lo, Taroni, Francesco, Amicosante, Anna Maria Vincenza, Macinati, Manuela,Tangucci, Massimo. (2003). Comparisons of American, Israeli, Italian and Mexican physicians and nurses on the total and factor scores of the Jefferson scale of attitudes toward physician–nurse collaborative relationships. *International journal of nursing studies*, *40*(4), 427-435 DOI: 410.1016/S0020-7489(1002)00108-00106 . .

Hojat, M., Ward, J., Spandorfer, J., Arenson, C., Van Winkle, L. J., & Williams, B. (2015). The Jefferson Scale of Attitudes Toward Interprofessional Collaboration (JeffSATIC): development and multi-institution psychometric data. *J Interprof Care*, *29* .۲۴۴-۲۳۸ ,(۳)DOI: 210.3109/13561820.13562014.13962129 https://doi.org/10.3109/13561820.2014.962129

Homeyer, S., Hoffmann, Wolfgang, Hingst, Peter, Oppermann, Roman F, Dreier-Wolfgramm, Adina. (2018). Effects of interprofessional education for medical and nursing students: enablers, barriers and expectations for optimizing future interprofessional collaboration–a qualitative study. *BMC nursing*, *17*(1), 1-10. DOI:10.1186/s12912-12018-10279-x .

Jafaru, Y., & Abubakar, D. (2022). Medication Administration Safety Practices and Perceived Barriers Among Nurses: A Cross-Sectional Study in Northern Nigeria. *Glob J Qual Saf Healthc*, *5*(1), 10-17 doi: 10.36401/JQSH-36421-36411. https://doi.org/10.36401/jqsh-21-11

Jasemi, M., Rahmani, A., Aghakhani, N., Hosseini, F & ,.Eghtedar, S. (2013). Nurses and physicians' viewpoint toward interprofessional collaboration. *Iran Journal of Nursing*, *26*(81), 1-10 URL: http://ijn.iums.ac.ir/article-11-1508-en.html.[Persian]

Kubde, D., Badge, A. K., Ugemuge, S., & Shahu, S. (2023). Importance of Hospital Infection Control. *Cureus*, *15*(12), e50931 doi: 50910.57759/cureus.50931. https://doi.org/10.7759/cureus.50931

Levesque, M. J. E., C. Lalonde, M. Moradi, N., & Sikora, L. S., D. (2024). Interventions to facilitate interprofessional collaboration in the operating theatre: A scoping review. *J Perioper Pract*, *34*(1-2), 6-19 doi: 10.1177/17504589221137978. https://doi.org/10.1177/17504589221137978

Mao, A. T., & Woolley, A. W. (2016). Teamwork in health care: maximizing collective intelligence via inclusive collaboration and open communication. *AMA journal of ethics*, *18*(9), 933-940. DOI:910.1001/journalofethics.2016.1018.1009.stas1002-1609

McCaffrey, R. G., Hayes, Rosemarie ,Stuart, Wendy, Cassell, A., Farrell, Cheryl, Miller-Reyes, Charmin, & Donaldson, A. (2010). A program to improve communication and collaboration between nurses and medical residents. *The Journal of Continuing Education in Nursing*, *41*(4), 172-178 DOI: 110.3928/00220124-20100326-00220104

Meredith, J. R., Shafer, S .M., & Mantel Jr, S. J. (2017). *Project Management: A Strategic Managerial Approach*. John Wiley & Sons

Morley, L., & Cashell, A. (2017). Collaboration in health care. *Journal of medical imaging and radiation sciences*, *48*(2), 207-216. DOI:210.1016/j.jmir .۲۰۱۷,۱۰۰۲,۱۰۷۱.

Pakpour, V., Ghafourifard, M., & Salimi, S. (2019). Iranian nurses' attitudes toward nurse-physician collaboration and its relationship with job satisfaction. *Journal of Caring Sciences*, *8*(2), 111. https://doi.org/https://doi.org/ 10.15171/ jcs.2019.016

Pakpour, V., Hojat, M., Salehi, H., Rahmani, A., Shahim, A., & Mohammadi, R. (2014). Viewpoint of nurses on inter-professional relationship between nurses and doctors. *Journal of hayat*, *20*(1), 74-85. https://doi.org/10.1080/ 13561820.1356202 .۱,۱۱۸۹۰۷۰۳

Park, N. K., Jang, W., Thomas, E. L., & Smith, J. (2021). How to organize creative and innovative teams: creative self-efficacy and innovative team performance. *Creativity Research Journal*, *33*(2),

[DOI: 10.18502/jsbch.v9i1.18695]

168-179. https://doi.org/ 110.1080/ 10400419. 10 .۴۰۲۰۲۰,۱۱۸۴۲۰۱۰

Plevová, I., Zeleníková, R., Jarošová, D., & Janíková, E. (2021). The relationship between nurse's job satisfaction and missed nursing care. *Medycyna Pracy*, *72(3):231–237*(3), 231-237. DOI: https://doi.org/210.13075/mp.15893.01035

Rahayu, S. A., Widianto, S., Defi, I. R., & Abdulah, R. (2021). Role of Pharmacists in the Interprofessional Care Team for Patients with Chronic Diseases. *J Multidiscip Healthc*, *14*, 1701-1710 doi: 1710.2147/JMDH.S309938. https://doi.org/10.2147/jmdh.S309938

Reeves, S., Xyrichis, A., & Zwarenstein, M. (2018). Teamwork, collaboration, coordination, and networking: Why we need to distinguish between different types of interprofessional practice. *Journal of Interprofessional Care*, *32*(1), 1-3. https://doi.org/ 10. .۱۳۵۶۱۸۲۰,۱۳۵۶۲۰۱۷/۱۰۸۰ .۱۱۴۰۰۱۵۰

Rider, E. A., Kurtz, S., Slade, D., Longmaid III, H. E., Ho, M.-J., Pun, J. K.-h., Eggins, S., & Branch Jr, W. T. (2014). The International Charter for Human Values in Healthcare: An interprofessional global collaboration to enhance values and communication in healthcare. *Patient Education and Counseling*, *96*(3), 273-280. DOI: 210.1016/j.pec.2014.1006.1017 .

Robinson, F. P., Gorman, G., Slimmer, L. W., & Yudkowsky, R. (2010). Perceptions of effective and ineffective nurse–physician communication in hospitals. Nursing forum ,

Rosenstein, A. H., & O'Daniel, M. (2005). Disruptive Behavior & Clinical Outcomes: Perceptions of Nurses & Physicians: Nurses, physicians, and administrators say that clinicians' disruptive behavior has negative effects on clinical outcomes. *Nursing Management*, *36*(1), 18-28. DOI: 10.1097/ 00000446-200501000-200500025 .

Seselja-Perisin, A., Mestrovic, A., Klinar, I., & Modun, D. (2016). Health care professionals' and students' attitude toward collaboration between pharmacists and physicians in Croatia. *International journal of clinical pharmacy*, *38*(1), 16-19. DOI: 10.1007/s11096-11015-10215-z .

Sharifian, S., Amini, S. B., & Amini, S. N. (2018). Preparedness of Final-year Students in Fields of Medicine ,Nursing, and Midwifery Regarding Interprofessional Learning. *Journal of Medical Education Development*, *11*(30), 32-39. [persian]

Soemantri, D., Findyartini, A., Werdhani, R. A., Koesnoe, S., & Dahlia, D. (2022). Are we ready to collaborate? The interprofessional collaborative competencies of healthcare professionals in the Global South context. *Front Med (Lausanne)*, *9*, 904658 DOI: 904610. 903389/fmed.902022.904658. https://doi.org/10.3389/fmed.2022.904658

Soininen, V., Pakarinen, E., & Lerkkanen, M.-K. (2023). Reciprocal associations among teacher–child interactions, teachers' work engagement, and children's social competence. *Journal of Applied Developmental Psychology*, *85*, 101508

Tang, C., Chan, S., Zhou, W., & Liaw, S. Y . .(۲۰۱۳)Collaboration between hospital physicians and nurses: an integrated literature review. *International nursing review*, *60*(3), 291-302. https://doi.org/210.1111/inr.12034

Tasri, Y. D., & Tasri, E. S. (2020). Improving clinical records: their role in decision-making and healthcare management–COVID-19 perspectives. *International Journal of Healthcare Management*, *13*(4), 325-336.https://doi.org/310.1080/20479700.2047202 0.21803623 .

[DOI: 10.18502/jsbch.v9i1.18695]