

Interprofessional Education: Saudi Health Students' Attitudes Toward Shared Learning

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Introduction: Interprofessional learning occurs through healthcare professionals' learning processes, increase collaboration, and improve the quality of patient care. This study aimed to demonstrate the attitudes of students in respiratory care (RC) as well as nursing and clinical laboratory sciences (CLS) during their last semester prior to graduating and then beginning their interprofessional education (IPE) with the help of the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire.

Methods: Sixty-seven students (25 RC, 14 nursing, 28 CLS) were recruited for this study. All participating students had never been exposed to IPE or any other professional experience. All students were instructed to answer the RIPLS questionnaire, which comprised 3 subscales and a total of 19 items, to assess their readiness to interactively engage with other students as well as shared learning. The 3 subscales included teamwork and collaboration, professional identity, and roles and responsibilities. The total RIPLS scores ranged from 19 to 95, and all respondents had been instructed on the RIPLS-measured concepts beforehand.

Results: Sixty-seven students participated in this study (49% male, 51% female), for which the response rate was 100% (25 [37%] RC students; 14 [21%] nursing; 28 [42%] CLS). The overall RIPLS scores were considered high, ranging from 66.86 to 74.6 (Table 3). CLS scored the highest among all disciplines 74.6 (79%), while RC scored the second highest with 71.4 (75%) and nursing the lowest with 66.9 (70%). A one-way ANOVA revealed a highly significant difference among the three groups' mean scores for overall attitudes (ANOVA $p = 0.001$). A post hoc Bonferroni comparison indicated that the overall RIPLS scores for CLS were statistically higher than those of nursing (ANOVA $p = 0.009$).

Conclusion: Healthcare students appear to be ready for the implementation of IPE. However, the findings reveal the need to enhance nursing students' awareness of their professional roles and attitudes as well as the advantages of IPE.

Keywords: education, interdisciplinary research, interprofessional relations, healthcare

Introduction

Inter-professional education (IPE) is the process wherein healthcare professionals learn from one another to further increase collaboration in the work environment and to improve qualitative measures for more efficient patient care services.¹ IPE is defined as circumstances wherein students from two or more disciplines learn together as well as from and about one another to further enhance their collaborative skills and to promote a higher quality of care.² From the learner's perspective, it is presumed that learners engaged in IPE are more likely to comprehend one another's professional roles and responsibilities.³ From the faculty member's perspective, it is recommended that IPE motivates reciprocal respect and further

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understanding among healthcare provider teams.² The literature specifically highlights that all students in healthcare should be involved in IPE as an essential part of their syllabus to be adequately prepared for their future professional environment and work.^{1,4}

IPE was afforded special consideration in the World Health Organization's reports that focus on encouraging that physicians participate in continued education to learn and practice collaborative work and subsequently improve healthcare services.⁵ The importance of IPE aligns with the essential need that healthcare team members deliver the most collaborative high-quality care in a competent way possible.⁶ Furthermore, the increase in chronic illnesses among the aging population as well as patients in need of complex care alongside the rapidly evolving scientific and clinical knowledge necessitates the employment of interprofessional collaboration for optimal patient care.⁷ Another important aspect of IPE is that it produces accreditation standards or recommendation guidelines for different healthcare councils and national and international accreditation bodies.⁸ IPE increases job satisfaction levels and decreases workplace tensions and conflicts.⁹ IPE has positively affected the appropriate use of healthcare resources and has increased the use of preventive services.¹⁰ IPE additionally motivates students to learn how to function on an interprofessional team as well as how they are expected to integrate collaborative skills into their practice.⁸

Previous studies have demonstrated the following barriers to IPE implementation: limited access to other healthcare streams, the lack of adequate clinical training sites or hospitals and clinics, scarce administrative support, insufficient faculty members, the lack of standardized evaluation tools, and scarce flexibility regarding curriculum requirements.^{11,12}

The RIPLS has proven to be a useful tool for assessing students' readiness to integrate IPE into the undergraduate healthcare context.^{13,14} To the best of our knowledge, there have been no studies that addressed students' readiness for IPE among RC, nursing, and CLS students from Saudi Arabia in general and Prince Sultan Military College of Health Sciences (PSMCHS) in particular. As such, the objective of this study is to assess the readiness for IPE in the school setting among the RC, nursing, and CLS students at PSMCHS.

Methods

Study Design

This study is a cross-sectional survey design. This survey-based study was conducted as a research activity at

PSMCHS in Dhahran, Saudi Arabia. The PSMCHS Institutional Review Board approved the study.

Study Population

Sixty-seven students (25 RC, 14 nursing, 28 CLS) were recruited for this study, all of whom had never been exposed to IPE or any other professional experience. All participants provided their consent to participate prior to the study's commencement.

All participants were asked to answer the RIPLS questionnaire,¹³ which comprised 3 subscales and a total of 19 items, to assess their readiness to interactively engage with other students as well as shared learning. The 3 subscales included teamwork and collaboration, professional identity, and roles and responsibilities. The total RIPLS scores ranged from 19 to 95, and all participants were instructed on RIPLS-measured concepts.

Data Acquisition and Analysis

Data were collected and completed over a period of 8 days, at the end of the last academic semester of their programs during May 2019, by a questionnaire that was specifically designed for this study and included three sections.

The first section (nine questions) contained questions that focused on teamwork and collaboration, the second section (seven questions) included the professional identity-related questionnaire, and the third and final section (three questions) consisted of questions related to the students' roles and responsibilities. Students were asked to rate the module according to their agreement on each subscale with a scale of 1 to 5 (1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, 5 = strongly agree).

Statistical Analysis

Data were analyzed using GraphPad Prism 5 software (GraphPad Software Inc., La Jolla, CA, USA). The Kolmogorov–Smirnov test of normality was applied, and data were presented in the form of mean and standard deviation. A one-way analysis of variance (ANOVA) with a post hoc Bonferroni test was conducted to determine differences between the study groups. This RIPLS questionnaire showed a high internal consistency with Cronbach's alpha of 0.84. A p-value 0.05 was considered statistically significant.

Results

A total of 67 participants from PSMCHS were included in this study, of which 33 were males and 34 were females aged between 21 and 25 years; the age of 7 students were not obtained. Of all the students, 26 (39%) studied CLS, 25 (37%) studied RC, and 16 (24%) studied nursing. The response rate was determined to be 100%. A total of 67 students were instructed to fill out the RIPLS questionnaire, which was divided into 3 subscales of teamwork and collaboration, professional identity, and roles and responsibilities. These three subscales consisted of 19 questions to assess students' readiness to integrate both IPE and shared learning. Table 1 summarizes the participating students' demographic characteristics. All respondents indicated that they had not previously completed an RIPLS questionnaire and that IPE training had not been included in any of their previous syllabi or programs. Table 2 summarizes the participating healthcare professional students' responses to the RIPLS questionnaire.

The RIPLS scores ranged from 19 to 95. As observed in (Table 3), high overall scores were identified in all groups, ranging from 66.86 to 74.64. Among the three groups, the CLS students scored the highest with 74.64, followed by RC with 71.42 and nursing with 66.86. ANOVA (*F*-test) has been used to find difference among means of each study groups. The significance level has been indicated in Table 3. Though there is significant difference through ANOVA, it is indicating

only that some of the groups or all of the group means differ significantly. A post hoc comparisons Bonferroni test was applied to determine how the groups differ significantly from one another particularly pairs of study groups. Table 3 shows the difference of means between pairs of study groups and the respective p-values with confidence interval.

Discussion

This study has determined that the participants from the CLS and RC streams demonstrated positive, supportive attitudes toward IPE, while nursing faculty students were found to be quite unaware of their professional roles or the futuristic advantages of IPE implementation in their professional lives.

In this study, all the healthcare respondents (N= 67) ranked the items in teamwork and collaboration highest. The study participants also agreed upon the aspect that it is decidedly necessary to cultivate a positive atmosphere and positive relationships between various healthcare professionals by increasing contact before becoming qualified to serve the community. The subscale of professional identity demonstrated the existence of a conflict of interest between a discipline-based learning approach and students' readiness to integrate the team-based learning approach. The roles and responsibilities category received the lowest rankings. According to current professional practices, some roles are superior to others, and doctors are considered team leaders in the overall patient management realm.¹⁵ Furthermore, we reported a significant divergence in the results between strongly agree/agree and strongly disagree/disagree.

According to the study conducted by El-Awaisi et al¹⁵ positive attitudes toward IPE were reported by pharmacy academics, and the majority of their participants considered IPE to be important, thus aligning with the findings of the present study. Faculty members and students have recently reported an enhanced understanding of specific team roles and more effective communication, both of which help team members improvise collaboration through the incorporation of IPE in curricula.¹⁶⁻¹⁸ In their study, Vafadar et al¹⁹ reported that patients' care satisfaction delivered by inter-professional students was greater than that delivered by. This study's results are in accordance with the study conducted by Rodger et al²⁰ which demonstrated that the majority of all healthcare professionals hold positive perceptions of IPE. Two studies from the Middle East reported that few healthcare professional services report IPE differences.²¹⁻²³

Table 1 Demographic Characteristics of Participants

Variable	Value Label	Number of Participants (N=67)	Percentage
University/college	PSMCHS	67	100
	Nursing	16	24
	Clinical laboratory	26	39
	Respiratory care	25	37
Gender	Male	33	49
	Female	34	51
Have you completed RIPLS questionnaire before	No	67	
	Yes	0	
	No	67	
	Yes	0	

Note: Data are expressed as number (n) and percentage.

Abbreviations: PSMCHS, Prince Sultan Military College of Health Sciences; RIPLS, Readiness for Interprofessional Learning Scale.

Table 2 RIPLS Responses from Healthcare Students

Questions in RIPLS Questionnaire Item	Values and Labels (Number of Participants) (N=67)				
	1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
Subscale 1: Teamwork and collaboration					
a) Effective team-working					
• Shared learning with other students will help me to become a more effective member of a health care team	0 (0)	2 (3)	5 (7.5)	29 (43.2)	31 (46.3)
• Patients would ultimately benefit if health care students worked together to solve patient problems	0 (0)	0 (0)	9 (13)	36 (54)	22 (33)
• Shared learning with other health care student will increase my ability to understand clinical problem	0 (0)	0 (0)	6 (9)	27 (40)	34 (51)
• Communication skills should be learned with other health care students	0 (0)	0 (0)	8 (12)	28 (42)	31 (46)
• Team – working skills are essential for all health care students to learn	2 (3)	2 (3)	10 (15)	26 (39)	27 (40)
• Shared learning will help me to understand my own professional limitations	0 (0)	3 (4)	12 (18)	26 (39)	26 (39)
b) Relationship with other professionals					
• Learning between health care students before qualification would improve working relationships after qualification	0 (0)	0 (0)	4 (6)	24 (36)	39 (58)
• Shared learning will help me think positively about other health care professionals	0 (0)	0 (0)	9 (13)	26 (39)	32 (48)
• For small – group learning to work, students need to trust and respect each other	0 (0)	0 (0)	8 (12)	29 (43)	30 (45)
Subscale 2: Professional identity					
a) Negative professional identity					
• I do not want to waste my time learning with other health care students	27 (40)	27 (40)	5 (8)	4 (6)	4 (6)
• It is not necessary for undergraduate health care students to learn together	23 (34.5)	26 (39)	10 (15)	5 (7.5)	3 (4)
• Clinical problem-solving can only be learnt effectively with students from their own profession	15 (23)	20 (30)	13 (19)	13 (19)	6 (9)
b) Positive professional identity					
• Shared learning with other health care professionals will help me to communicate better with patients and other professionals	0 (0)	0 (0)	17 (25.4)	25 (37.3)	25 (37.3)
• I would welcome the opportunity to work on small group projects with other health care students	0 (0)	1 (1.5)	11 (16.5)	21 (31)	34 (51)
• Shared learning will help to clarify the nature of patient problems	0 (0)	0 (0)	6 (9)	28 (42)	33 (49)
• Shared learning before qualification will help me to become a better team – worker	0 (0)	0 (0)	5 (7.5)	35 (52.2)	27 (40.3)
Subscale 3: Roles and responsibilities					
• The function of nurses and pharmacists is mainly to provide support for doctors	11 (16.5)	10 (15)	13 (19)	10 (15)	23 (34.5)
• I am not sure what my professional role will be	30 (45)	16 (23.5)	11 (16.5)	2 (3)	8 (12)
• I have to acquire much more knowledge and skills than other health care students	2 (3)	2 (3)	17 (25.4)	25 (37.3)	21 (31)

Abbreviation: RIPLS, Readiness for Interprofessional Learning Scale.

Table 3 RIPLS Scores by Professional Disciplines and Post Hoc Test Bonferroni

	Possible Min & Max Scores	Nursing Mean \pm SD	RC Mean \pm SD	CLS Mean \pm SD	One-Way ANOVA p-value*
Subscales					
• Team work and collaboration	9-45	38.14 (2.28)	38.42 (3.85)	39.07 (3.76)	0.25
• Professional identity	7-35	21.64(1.73)	23.63 (2.90)	25.07 (3.76)	0.005*
• Roles Responsibilities	3-15	7.07 (1.14)	9.37 (2.16)	10.5 (2.58)	0.001*
Overall	19-95	66.86 (3.8)	71.42 (5.09)	74.64 (7.47)	0.009*
Post Hoc Test Bonferroni	Comparison	Mean Difference	Confidence Interval	p-value	
Team work and collaboration	Nursing with CLS	-0.929	-3.78-1.92	1.00	
	Nursing with RC	-0.274	-3.21-2.66	1.00	
	RC with CLS	-0.655	-3.08-1.77	1.00	
Professional identity	Nursing with CLS	-3.43	-5.94 - -0.91	0.004*	
	Nursing with RC	-1.98	-4.57 - 0.60	0.191	
	RC with CLS	-1.45	-3.58 - 0.69	0.303	
Roles and Responsibilities	Nursing with CLS	-3.43	-5.20 - -1.66	0.000*	
	Nursing with RC	-2.30	-4.13 - - 0.48	0.008*	
	RC with CLS	-1.13	-2.63 - 0.38	0.213	
Overall	Nursing with CLS	-2.60	-8.26-3.07	0.809	
	Nursing with RC	1.52	-7.34-4.30	1.000	
	RC with CLS	-1.08	-5.89-3.74	1.000	

Notes: Data are expressed as mean \pm SD. *P-values,<0.05 were regarded as statistically significant.

The present study's findings are also in accordance with the positive results reported from previously conducted studies in the related literature in which respondents exhibited positive attitudes toward IPE.²⁴⁻²⁷

The RIPLS questionnaire was developed to study students' readiness to integrate multi-professional-shared learning using three subscales comprised of strongly weighted items. In the present study, a causal relationship was established between "team-based approaches toward learning" and various attributes for teamwork and further collaboration, professional identity, roles and responsibilities, individual growth, and the benefits of IPE implementation in patient management. The significant point that should be noted here is that carrying out multi-professional shared learning on the basis of prequalification curricula is difficult to perform. The important issue faced in multi-professional shared learning involves the arrangement of learning activities that may help further develop healthcare professionals' positive attitudes. This study demonstrates that all healthcare respondents were ready for IPE implementation and shared learning, and CLS students were identified as the most frequent collaboration.

This study's results are quite similar to those achieved by studies conducted by Al-Qahtani & Guraya,²⁸ Olenick et al²⁹ and Lairamore et al¹⁶ both of which revealed that most of their involved healthcare students positively perceived IPE during their undergraduate education. The positive findings of the present study may be considered in future research work as a basic platform to support educators and policy-makers in their further initiation of new IPE curricula.

A few statistically notable differences were reported in our students' readiness according to their different professional programs. Our findings support the results of Hertweck et al³⁰ and Keshtkaran et al¹⁷ both of which reported considerable differences between the readiness of students in varied health programs. In this study, the overall RIPLS mean score of the CLS group was found to be higher than that of the other two groups. These findings may be further attributed to the nature of this profession's services, which constitutes a common service base for all other healthcare professionals. Therefore, students in the CLS group were likely to be more exposed to challenges during their professional experiences and collaborative work with other healthcare professionals.

A final comparison of the three subscales' mean scores among the included healthcare professional groups demonstrated that students in the CLS profession admitted the value of IPE, which was particularly revealed by the subscales of teamwork and collaboration, while their professional identity was measured higher than that of the other groups. These findings can be further explained by the fact that CLS students are frequently in demand compared to other professions. Nursing faculty students scored comparatively lower scores on the RIPLS subscales. A possible explanation for these students' less positive attitudes may be that these scores were partially affected by the quality of their curriculum and/or clinical training sessions.

This study has a major strength that is the high response rates. However, there are limitations. First, the sample size is small in particular with nursing group and we cannot the findings on other professions in the same College or other Colleges at national wide. Second, all students were of the same ethnic and same age group, this effect could not be clearly ascertained in the study. Third, this study included only three professions among other nine professions, and may be future study will aim to include the other professions for better sampling and outcomes.

Conclusions

The present study demonstrates reasonable level of readiness and positive attitudes among healthcare students among PSMCHS regarding their shared learning and the importance of the teamwork and collaboration. The findings revealed that CLS students appreciated and ascribed comparatively greater importance to interprofessional collaboration than did the RC and nursing students. Therefore, we appeal to the policymakers in healthcare education, suggesting that they explore the utilization of qualitative measures other than an attitudinal scale (e.g., focus groups) to further learn additional factors that may influence students' attitudes toward IPE.

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Author Contributions

MDA developed, collected and analyzed data, and wrote the manuscript. MDA gave final approval of the version to be published, and agrees to be accountable for all aspects of the work.

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