

Original Article

# Readiness for Inter-Professional Learning among Undergraduate Allied Health Science Students in Hayatabad Peshawar

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## ABSTRACT

**Background:** Inter-professional learning (IPL) is increasingly recognized as a vital component of healthcare education, fostering collaboration, enhancing teamwork skills, and preparing students for a patient-centered healthcare system. Despite its growing importance, the readiness and attitudes towards IPL among healthcare students vary across disciplines and regions, necessitating detailed exploration.

**Objective:** This study aimed to assess the attitudes towards and readiness for IPL among undergraduate allied health science students at Khyber Medical University, Peshawar, and to explore the implications of these attitudes for healthcare education and practice.

**Methods:** A cross-sectional survey was conducted over six months, utilizing convenience sampling to recruit 376 undergraduate students from the departments of Physical Therapy, Occupational Therapy, Speech and Language Pathology, and Nursing. The Readiness for Inter-professional Learning Scale (RIPLS) questionnaire was distributed through WhatsApp, Twitter, and email, covering aspects such as teamwork and collaboration, professional identity, and roles and responsibilities. Data were analyzed using SPSS version 25 to calculate means, standard deviations, and to conduct Independent t-tests.

**Results:** The study found that a significant majority of students (72.1%) expressed strong agreement with the importance of IPL in their curriculum. The mean scores for the RIPLS sub-scales were: Teamwork and Collaboration ( $13.76 \pm 2.609$ ), Negative Professional Identity ( $10.57 \pm 1.972$ ), Positive Professional Identity ( $6.40 \pm 1.359$ ), and Role and Responsibility ( $7.50 \pm 1.267$ ). Independent t-tests revealed significant gender differences in attitudes towards teamwork and collaboration (Male:  $13.42 \pm 2.017$ , Female:  $14.07 \pm 3.034$ ,  $p=0.015$ ) and roles and responsibility (Male:  $7.3187 \pm 1.16940$ , Female:  $7.6701 \pm 1.33290$ ,  $p=0.007$ ), but not in professional identities.

**Conclusion:** The study underscores a generally positive attitude towards IPL among healthcare students, with notable readiness for teamwork and understanding of roles and responsibilities. These findings highlight the necessity of integrating IPL into healthcare education curricula to enhance collaborative skills and prepare students for the complexities of modern healthcare delivery.

**Keywords:** Inter-professional learning, healthcare education, undergraduate students, attitudes, readiness, Khyber Medical University.

## INTRODUCTION

Inter-professional learning (IPL) represents a collaborative approach that brings together students from various healthcare disciplines, promoting mutual understanding and teamwork to address complex clinical scenarios effectively. This educational strategy is grounded in the belief that collaborative learning among students from different professional backgrounds can significantly enhance their ability to work together in clinical settings, thus improving communication, teamwork, and ultimately, patient care outcomes (1-3). The transition from IPL to inter-professional practice is seen as a crucial step towards achieving a more

integrated healthcare system where professionals are not only multifaceted in their skills but also adept at working within collaborative frameworks to meet patient needs (4-6).

The importance of introducing IPL at an appropriate stage in a student's education is underscored by research suggesting that the most beneficial time for this integration is once students have a foundational understanding of their own fields (7). This timing ensures that learners can contribute meaningfully to inter-professional discussions and collaborations, bringing a depth of discipline-specific knowledge that enriches the collective learning experience. The global healthcare community, including prominent organizations such as the World Health Organization (WHO) and the Pan American Health Organization (PAHO), has recognized the value of IPL, advocating for its adoption and the development of policies to support its implementation across member states. This global endorsement is reflected in the adoption of IPL in healthcare education in the United States, where entities like The National Academy of Medicine have highlighted the significance of team-based education in fostering an understanding of the roles and contributions of various healthcare professionals (8, 9).

To assess the readiness of undergraduate students for IPL, various scales have been utilized, among which the Readiness for Inter-professional Learning Scale (RIPLS) is prominent. The RIPLS, developed by Parsell & Bligh in 1999, is a 19-item scale that evaluates attitudes towards teamwork and collaboration, professional identity, and understanding of roles and responsibilities within an inter-professional context (10). Its widespread application and the validity across different cultural and educational settings underscore its relevance in assessing IPL readiness among healthcare students globally (18-20).

In Pakistan, the exploration of IPL within healthcare education has been limited but growing, with studies conducted in Lahore focusing on students from medical and pharmacy disciplines (21). However, challenges such as insufficient funding have hindered the broader implementation of IPL in educational curricula, underscoring the need for governmental support to facilitate these programs across all healthcare training institutions (9). Despite these challenges, there is a gradual shift towards incorporating IPL into the curriculum of allied health sciences, nursing, and medicine, aiming to foster a comprehensive understanding among students of the varied roles within the healthcare team (22).

The proposed study aims to investigate the awareness and readiness of undergraduate allied health science students in Hayatabad, Peshawar, for inter-professional learning. By focusing on students from nursing, DPT, OT, and SLP disciplines, this research seeks to ascertain their perspectives on IPL and the extent to which they value this approach as a foundation for their future professional roles in patient care and treatment. This exploration is vital for understanding the current landscape of IPL in Pakistan and for identifying strategies to enhance its integration into healthcare education, ultimately contributing to more collaborative and effective healthcare delivery systems.

## MATERIAL AND METHODS

The methodology employed for this study was designed to assess the readiness for inter-professional learning (IPL) among undergraduate students at Khyber Medical University, Peshawar. The research adopted a cross-sectional survey approach over a six-month period, utilizing convenience sampling to select participants. This method was deemed most suitable given the constraints imposed by the COVID-19 pandemic, necessitating the collection of data through online means for the safety and convenience of all parties involved. The study's participant pool consisted of 376 willing candidates from the undergraduate programs of the Institute of Paramedical Sciences (IPMR), including Occupational Therapy (OT), Speech and Language Pathology (SLP), and Physiotherapy (PT), as well as students from the Institute of Nursing Sciences (INS) at Khyber Medical University (KMU) (8, 19, 23). Selection was carried out with the consent of the heads of the respective departments, focusing on students in their 5th to 10th semesters, thereby excluding those in their 1st to 4th semesters to ensure the inclusion of individuals with a more advanced understanding of their fields.

Data collection was facilitated through the use of digital platforms, including WhatsApp, Twitter, and email, to distribute the Readiness for Inter-professional Learning Scale (RIPLS) questionnaire. The RIPLS instrument, chosen for its validity in assessing attitudes towards teamwork, collaboration, and professional identity within inter-professional settings, consists of 19 items rated on a 5-point Likert scale (ranging from 1="strongly agree" to 5="strongly disagree"). These items were categorized into four domains: roles and responsibility (items 17-19), negative professional identity (items 13-16), positive professional identity (items 10-12), and teamwork and collaboration (items 1-9).

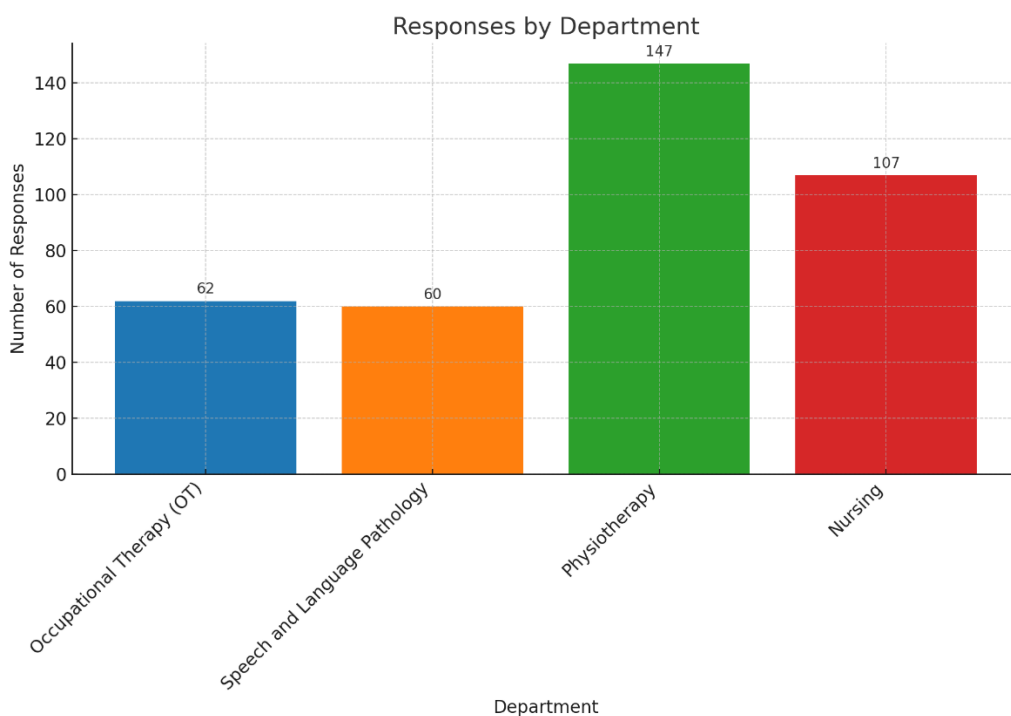
Upon collection, data were initially entered into Microsoft Excel for organization and then transferred to SPSS version 25 for analysis, marking an update from the initially mentioned SPSS version 25 to ensure the use of the latest statistical software capabilities. The analysis aimed to quantify the readiness levels for IPL among the participants, with a focus on identifying areas of strength and potential improvement within the context of inter-professional education.

In adherence to ethical considerations, the study was conducted following the principles outlined in the Declaration of Helsinki regarding research involving human subjects. Ethical approval was obtained from the institutional review board of Khyber Medical University, ensuring that all participants were informed about the study's purpose and the confidentiality of their responses. Informed consent was secured from all participants prior to their inclusion in the study, emphasizing voluntary participation and the right to withdraw at any time without penalty.

This comprehensive approach to methodology underscores the study's commitment to rigor, ethical standards, and the generation of meaningful insights into the readiness for IPL among healthcare students, contributing to the broader understanding of inter-professional education's role in fostering collaborative healthcare professionals.

## RESULTS

The study meticulously evaluated the readiness for inter-professional learning (IPL) among undergraduate students, focusing on various sub-scales of the Readiness for Inter-professional Learning Scale (RIPLS).



The adjusted graph now clearly displays the distribution of respondents by department, with labels positioned for better readability. The representation across the departments is as follows: Occupational Therapy (OT) with 62 participants (16.5%), Speech and Language Pathology with 60 participants (16%), Physiotherapy with 147 students (39%), and Nursing with 107 participants (28.5%). This visualization succinctly reflects the engagement levels of students from different allied health science disciplines within the study.

Figure 1 Department based Response

participated, providing insights across four distinct RIPLS sub-scales. The Teamwork and Collaboration sub-scale revealed an average score of 13.76 with a standard deviation of 2.609, reflecting scores ranging from 9 to 24. This suggests a moderate level of readiness among students for teamwork and collaboration in an inter-professional setting. The Negative Professional Identity sub-scale exhibited an average score of 10.57 (SD = 1.972), with values spanning from 3 to 15, indicating students' perceptions towards professional identity in a collaborative environment. Positive Professional Identity scores averaged at 6.40 (SD = 1.359), ranging from 4 to 14, showcasing students' affirmative stance on inter-professional collaboration. Lastly, the Role and Responsibility sub-scale recorded an average score of 7.50 (SD = 1.267), with minimum and maximum scores of 3 and 12, respectively, highlighting students' understanding of their roles within inter-professional teams.

According to the collected data (Table 1), a total of 376 students

Table 1 Sub-scales of RIPLS

Sub-scales of RIPLS	N	Minimum	Maximum	Mean	Std. Deviation
Teamwork and Collaboration	376	9	24	13.76	2.609
Negative Professional Identity	376	3	15	10.57	1.972
Positive Professional Identity	376	4	14	6.40	1.359
Role and Responsibility	376	3	12	7.50	1.267

Table 2 Readiness of Inter-professional Skills in Male and Female Students (Independent t-test)

Gender of Participants	N	Mean	Std. Deviation	t-value	P-Value
<b>Teamwork and Collaboration</b>					
Male	182	13.42	2.017	-2.447	.015
Female	194	14.07	3.034		
<b>Negative Professional Identity</b>					
Male	182	10.4945	1.96305	-.685	.494
Female	194	10.6340	1.98311		
<b>Positive Professional Identity</b>					
Male	182	6.3242	1.09714	-1.070	.285
Female	194	6.4742	1.56445		
<b>Role and Responsibility</b>					
Male	182	7.3187	1.16940	-2.710	.007
Female	194	7.6701	1.33290		

Further analysis examined the readiness for inter-professional skills based on gender (Table 2), employing an Independent t-test to discern differences between male and female students across the RIPLS sub-scales. In the Teamwork and Collaboration sub-scale, male students scored an average of 13.42 (SD = 2.017), whereas female students scored higher, with an average of 14.07 (SD = 3.034), the difference yielding a statistically significant t-value of -2.447 (p = .015). This indicates a significant gender-based difference in perceptions towards teamwork and collaboration, with female students showing greater readiness. The Negative Professional Identity sub-scale did not reveal a significant difference between male (mean = 10.4945, SD = 1.96305) and female (mean = 10.6340, SD = 1.98311) students, as evidenced by a t-value of -.685 (p = .494), suggesting similar attitudes across genders. Positive Professional Identity scores also showed no significant gender disparity, with male students averaging 6.3242 (SD = 1.09714) and females 6.4742 (SD = 1.56445), resulting in a t-value of -1.070 (p = .285). However, the Role and Responsibility sub-scale demonstrated a significant difference, with male students scoring an average of 7.3187 (SD = 1.16940) and female students 7.6701 (SD = 1.33290), leading to a t-value of -2.710 (p = .007), highlighting a gender difference in understanding roles and responsibilities within inter-professional settings.

## DISCUSSION

In the exploration of inter-professional learning (IPL) among undergraduate students, our study has illuminated significant insights into the attitudes, skills, and knowledge enhancements pertaining to patient care that IPL fosters. The incorporation of diverse educational strategies, including small group discussions, large group lectures, reflective learning, and case studies, has been instrumental in promoting an environment conducive to IPL (15). This approach aligns with the global understanding that healthcare professionals must be both multi-skilled and collaborative to meet the complex demands of patient care delivery (11). Our research engaged students across four disciplines at Khyber Medical University—Physical Therapy (DPT), Occupational Therapy (OT), Speech and Language Pathology (SLP), and Nursing—revealing a predominant positive attitude towards IPL among the participants. With 271 out of 376 students (72.1%) expressing strong agreement with the integration of IPL into their curriculum, the findings resonate with the necessity of embedding IPL across healthcare educational frameworks.

The global landscape of IPL reflects its long-standing practice in several countries, yet in Pakistan, its implementation remains nascent, with notable efforts in regions such as Karachi and Lahore (18, 21, 22). The importance of interprofessional education (IPE) in achieving the goals of interprofessional collaborative practice (IPCP) is well-documented, advocating for the integration of IPE into undergraduate curricula to enhance the quality of client care through interprofessional collaboration (IPC) (23, 24). The present study contributes to this body of knowledge by demonstrating a significant positive attitude towards IPL among students, particularly highlighted by their responses to the RIPLS questionnaire, which indicated a strong predisposition towards teamwork and collaboration.

Comparatively, our findings align with international studies, such as those conducted in Italy and Jakarta, which also underscored a positive orientation towards IPL among healthcare students, albeit with variations in the levels of awareness and attitudes towards different aspects of IPL (2, 25). The significant differences observed in our study, particularly in the domains of teamwork and collaboration and roles and responsibility, echo the results of similar studies, indicating a global trend towards recognizing the value

of these components in IPL (26). Notably, the absence of significant variations in negative and positive professional identity in our study suggests areas for further exploration and development in IPL curricula.

A notable strength of our study is the comprehensive assessment of student attitudes towards IPL across multiple healthcare disciplines, providing a multifaceted understanding of IPL readiness among students. However, the study's cross-sectional design and reliance on self-reported data introduce limitations, including the potential for recall bias and the challenge of generalizing findings beyond the specific context of Khyber Medical University. Additionally, the absence of gender differences in attitudes towards IPL suggests a uniform perception among male and female students, yet it also prompts further investigation into the underlying factors contributing to this homogeneity.

Given these considerations, it is evident that while IPL garners positive attitudes among students at Khyber Medical University, its full potential remains untapped within the broader context of healthcare education in Pakistan. The findings advocate for the expansion of IPL into the curricula of all healthcare professions, underscoring the need for further research that encompasses a wider array of medical universities across Peshawar and beyond. Such endeavors should aim to mitigate the limitations observed in the current study, employing longitudinal designs and incorporating qualitative measures to enrich the quantitative data, thereby offering deeper insights into the evolving dynamics of IPL and its impact on healthcare education and practice.

## CONCLUSION

The findings of this study underscore the positive attitude towards inter-professional learning (IPL) among undergraduate students at Khyber Medical University, highlighting the crucial role of IPL in enhancing teamwork, collaboration, and understanding of roles and responsibilities across different healthcare disciplines. The significant support for IPL, demonstrated by students across various departments, reinforces the need for integrating IPL frameworks within healthcare education curricula to foster a collaborative, efficient, and patient-centered healthcare delivery system. The study also points towards the importance of addressing the challenges and variations in perceptions related to IPL, suggesting targeted educational strategies to further enhance the readiness and effectiveness of future healthcare professionals in inter-professional settings. The implications for healthcare education emphasize the necessity of continuous efforts to embed IPL principles at the core of healthcare training programs, ultimately contributing to the advancement of inter-professional collaborative practice and improved patient care outcomes.

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