

Evaluating Interprofessional Education Readiness and Perceptions Among Health Professions Students

Nouf Sulaiman Alharbi¹⁻³, Nourah Mohammed Alenazi⁴, Alaa Althubaiti^{2,5}, Reem Alkahtani^{2,3,6}, Seema Nasser^{2,3,7}, Marwh Gassim Aldriwesh^{2,3,8}

¹Department of Medical Education, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia; ²King Abdullah International Medical Research Center, Riyadh, Saudi Arabia; ³Ministry of the National Guard - Health Affairs, Riyadh, Saudi Arabia; ⁴General Administration of Emergencies, Disasters, and Medical Transportation, Ministry of Health, Riyadh, Saudi Arabia; ⁵College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Jeddah, Saudi Arabia; ⁶Department of Basic Medical Sciences, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia; ⁷Department of Nursing, College of Nursing, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia; ⁸Department of Clinical Laboratory Sciences, College of Applied Medical Sciences, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia

Correspondence: Nouf Sulaiman Alharbi, Department of Medical Education, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Riyadh, Saudi Arabia, Email ns.alharbi@gmail.com

Background: Inter-professional learning (IPL) or more broadly Inter-professional Education (IPE) refer to a pedagogical approach that involves creating a learning experience where students from different professions learn about, from, and with each other. IPE is crucial for preparing health professionals to offer patient-centered care as part of an interdisciplinary team. This study aims to assess the readiness for IPL among students from different health professions colleges at King Saud bin Abdulaziz University for Health Sciences.

Methods: A cross-sectional design was conducted for this study, with a total of 476 undergraduate students from College of Medicine, College of Nursing, and College of Applied Medical Sciences. By using quota sampling, the readiness for interprofessional learning scale (RIPLS) was used to assess the student's readiness for interprofessional learning.

Results: The overall mean score of RIPLS for the students participating was 76.20, with the highest mean score in teamwork and collaboration at 39.73. The lowest mean score was in roles and responsibility at 8.45. The professional identity subscale had a mean score of 26.85. A significant difference in professional identity was found between students in applied medical sciences, nursing, and medicine colleges.

Conclusion: The study reveals that undergraduate students have positive attitudes towards interprofessional education, which can enhance their engagement in developing competencies necessary for effective contribution to interprofessional healthcare teams. High readiness among medical, nursing, and applied medical sciences students allows for the Introduction of IPL.

Keywords: interprofessional education, readiness for interprofessional learning, undergraduate health professions

Introduction

Interprofessional Learning (IPL) or the broader concept of Interprofessional education (IPE) is a pedagogical approach that entails creating a learning experience that “occurs when students from two or more professions learn about, from, and with each other”.¹ Creating such a learning experience is crucial for preparing health professionals to offer patient-centered care as part of an interdisciplinary team in today's healthcare environment.² IPE promotes collaboration among different healthcare professionals. This collaboration contributes to reducing errors, enhancing patient safety, and improving overall health outcomes.^{2,3} Furthermore, IPE fosters communication skills that are essential for functioning well in multidisciplinary teams.⁴ More importantly, IPE encourages a more holistic approach to patient care⁵ Additionally, IPE provides an opportunity for health professions students to develop a strong professional identity

while also fostering an understanding of the roles and responsibilities of other professions. This dual awareness can lead to more respectful and collaborative interprofessional relationships.⁶ On another level, effective interprofessional collaboration can lead to a more supportive work environment, reducing stress and burnout among healthcare professionals. This can enhance job satisfaction and retention rates within the healthcare workforce.⁷ Finally, IPE provides an authentic learning environment that prepares students for the realities of their future work environments, making the transition from education to practice smoother and more effective.⁸ Generally, IPE enable healthcare workers to operate successfully as a team, enable team members to communicate efficiently, and allow them to understand each other's duties, which result in patients receiving safer, higher-quality treatment.⁹

Regardless of its importance, educators who want to implement IPE face many challenges due to the need to accommodate many roles and responsibilities. This accommodation requires a deep understanding of the theoretical framework that should guide IPE development, in addition to careful preparation of future and practicing healthcare professionals to ensure their readiness to learn and collaborate in interprofessional practice.¹⁰ The following paragraphs introduce the chosen theoretical framework that underlines the conception of the current study and summarize the available literature on IPE readiness, which influenced the study design.

University of British Columbia's (UBC) Model of Interprofessional Education is a model created in UBC, a university that has a long history in creating and developing IPE opportunities for health professionals. More importantly, the model was developed systematically with consideration to educational theories. The model suggests that the professional development stage of learners plays a crucial role in their readiness to learn and develop as interprofessional practitioners. Thus, educators should consider the optimal time to introduce IPE when planning for a curriculum.¹¹ Furthermore, the model, in alignment with the literature, emphasizes the need for obtaining and managing logistics, the development of committed faculty, and the stimulation of student participation to ensure a successful IPE experience.^{11–13}

Considering the interchange between oneself and others, as well as the nature of professional education, the UBC model assumes that an individual's position in the learning process depends on where they are in their professional training.¹¹ It conceptualizes IPE as a process of three overlapping phases: 1) exposure: one is introduced to IPE while learning about one's own profession; 2) immersion: students are offered the opportunity to collaborate with other students to learn; and 3) mastery: learners have a deep understanding of interprofessional concepts and practice and can incorporate them in their practice.¹¹

Exploration of interprofessional education (IPE) readiness has been conducted on a global scale, involving undergraduate health professional students. These investigations are warranted, given that students' inclination to participate in IPE depends directly on their attitude and level of preparedness.¹⁴ Various instruments have been developed to assess the attitudes and perceptions of healthcare students and professionals toward IPE, such as the Readiness for Interprofessional Learning Scale (RIPLS).^{15,16}

The RIPLS was originally developed by Parsell and Bligh in 1990 based on adult learning theory and the shared learning principle. It aims to evaluate readiness for IPE among healthcare profession students and the outcomes of interprofessional learning experiences to help faculty and trainers design more impactful shared learning activities. The RIPLS is the most known IPE-related instrument; it is a short, easy-to-answer tool that can be completed in five to seven minutes and administered to a wide range of healthcare professional students, either online or in paper–pencil format.¹⁶ The tool is available for free download and can be adapted to any healthcare profession students or settings.

With the increasing global interest in shared interprofessional learning experiences and their use as a training method to promote a shared understanding of professional roles and responsibilities and active teamwork, the RIPLS has increasingly been used to evaluate the readiness of healthcare students for shared learning. The tool has been modified and translated into several languages, including Swedish¹⁷ French¹⁸ Japanese¹⁹ Indonesian²⁰ and German²¹ has undergone many critical analyses of its psychometric properties.

Several studies have utilized the RIPLS to assess readiness for IPE. In Canada, a study targeted students of dentistry, kinesiology, medicine, nursing, nutrition, pharmacy, and physiotherapy in the first year of their professional programs at the University of Saskatchewan. The results showed that readiness for IPE was influenced by sex and previous experience with such programs. For instance, female gender and previous experience with interprofessional collaboration

through school or work were traits that were associated with statistically significantly higher scores on the RILPS.²² Another study assessed the readiness of dental, medical, and nursing students who participated in IPE workshops conducted at Tokyo Medical and Dental University in Japan. The results showed that the total scores increased significantly for students of every discipline after the workshops, indicating higher readiness toward IPE.²³ A study in two areas of the UK involved medical and nursing students from four universities/ Data about IPE readiness were collected before and after the students took part in an IPE simulation session consisting of three acute scenarios. The results showed that the nursing students had consistently higher professional identity scores than the medical students. Another study of IPE readiness targeting undergraduate nursing and medical students in South Korea indicated that the nursing students scored higher on the professional identity subscale of the RIPLS, whereas the medical students scored higher on the competency and autonomy and perceived need for cooperation subscales.²⁴ In Turkey, a study showed that nursing students in three different cities had good readiness levels for IPE and found a positive relationship between readiness for IPE and the students' perceptions.²⁵ In Saudi Arabia, studies have shown that medical students and applied medical sciences students have positive perceptions of and readiness to adopt IPE activities in their schools.^{26,27}

Although the RILPS has been utilized in previous local and international studies to assess IPE in different health professions, the readiness and perceptions of interprofessional learning of healthcare students and professionals have not been adequately assessed in many contexts in Saudi Arabia. The need to explore IPE readiness is particularly valid in the context of a health sciences university that has many undergraduate programs, such as medicine, nursing, and applied medical science. Graduates from these colleges are expected to form healthcare teams and work together in the hospital setting to provide holistic, patient-centered services. However, efforts to prepare them for such expectations are in the initial phases. In addition, the need to understand the targeted learners is crucial to guide the development of any IPE educational activity in a systematic and evidence-based manner that is particular to learners' and their learning environments.²⁸ Therefore, this study aimed to evaluate the perceptions and readiness for IPL among undergraduate students from various health professions at King Saud bin Abdulaziz University for Health Sciences.

Methods

Study Design and Participants

A cross-sectional study design was used to attain the current study's aim. The study was conducted at King Saud bin Abdulaziz University for Health Sciences (KSAU-HS) in Riyadh, Saudi Arabia. KSAU-HS which is the only university in the region that specializes only in health sciences.

The participants were selected from the College of Medicine (COM), the College of Nursing (CON), and the College of Applied Medical Sciences (COAMS). COAMS has eight programs: occupational therapy, respiratory therapy, emergency medical services, anesthesia technology, clinical laboratory sciences, radiological sciences, cardiovascular technology, and clinical nutritional science. The curricula of the programs are divided into two phases named: preprofessional and professional. In the preprofessional phase, students spend their first two years of college in the College of Science and Health Professions. During this time, they take basic science courses, English language courses, and introductory courses related to their specialties. The professional phase is when students enroll in their respective colleges, followed by one year of internship. The duration and the educational experience in the professional phase differ from one college to another. The participants in this study were fourth-year students in the COM and third-year students in the CON and the COAMS. Since the study's purpose was to determine their readiness for IPE, the participants were assessed just before they were exposed to IPE activities as part of their curricula. COM students are required to attend IPE activities in their fifth year, while COAMS and CON students are required to attend IPE activities in their fourth year.

Data Collection Tool

A modified version of the RIPLS questionnaire, which is a self-administered and validated tool, was used for the data collection. The original RIPLS is a 19-item tool with a 5-point Likert-type scale used to assess healthcare students' readiness for IPE. The original tool has three subscales: teamwork and collaboration, negative and positive professional

identity, and roles and responsibilities. In this study, a modified four-factor subscale model developed by McFadyen²⁹ was used as it offers better analysis and presentation of the results. The four subscales of the modified tool are teamwork and collaboration, negative professional identity, positive professional identity, and roles and responsibility (see [Supplement 1](#)).

The questionnaire is divided into two parts. The first part collects the demographic data, including the year of study, gender, and specialty. The second part assesses readiness for interprofessional learning. The degree of agreement of the respondents with different statements was measured using the following Likert-type scale: 1 = strongly disagree with the statement, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree. The total score of RIPLS ranges from 19 to 95. Prior to data analysis, all negatively worded items were reverse scored. Consequently, a higher score signified more positive views. Finally, an open-ended question asked the students for any additional comments regarding IPE. The total score attainable by any respondent ranged from 19 to 95, with a higher score representing greater readiness for IPL. Despite evaluations highlighting concerns regarding the structure of this instrument, it remains the most utilized tool.^{29,30}

Cronbach's alpha was used to determine the internal consistency of the total scale and the four subscales. The primary issues pertain to the internal consistency of the subscale "roles and responsibility". In this study, the Cronbach's alpha values were as follows: total RIPL (0.82), teamwork and collaboration (0.83), negative professional identity (0.78), and positive professional identity (0.80). The roles and responsibilities domain, however, exhibited low reliability with a Cronbach's alpha of 0.41. Consequently, we opted to exclude roles and responsibilities as a subscale and instead analyzed the items separately, aligning with methodologies employed in previous research.^{31,32}

The researchers utilized a non-probabilistic quota sampling technique, which is well-suited for gathering data from respondents in this study. The aim was to invite all students to participate, ensuring that at least 75% of students from each college took part, thereby avoiding the underrepresentation of any single college and ensuring a more representative sample.³³

From the COM, 314 fourth-year students (193 males and 121 females) were included. From the CON, 110 female students in their third year were included. From the COAMS, 250 students in 8 programs were included. With a total population of 674. The data from the participants were collected during the third semester (March–June) of 2023 using the English version of the previously validated RIPLS.

The data from the participants were collected by the research team members, who asked the students to fill out a paper-based questionnaire. The study received an ethical approval from King Abdullah International Medical Research Center (see declarations section) and an informed consent was obtained from each participant before their participation in the study. No names or identification numbers were requested to complete the data collection form. The participants' data will remain confidential and will be accessed only by the research team members. The data were collected and stored on the College of Medicine computer and will be used only for this research.

Data Analysis

The statistical analysis was conducted using IBM SPSS Statistics (version 26). Histograms and Q-Q plots were used to assess the normality of the data distributions. Continuous variables were presented as means and standard deviations (SDs), while categorical variables were summarized using frequencies and percentages. To compare the students' mean scores across different demographic variables and other characteristics, statistical tests were employed. An independent sample *t*-test was utilized to compare the mean scores between two independent groups. For comparisons involving more than two groups, a one-way Analysis of Variance (ANOVA) was performed. When the ANOVA indicated a significant difference, post hoc tests using Tukey's Honest Significant Difference (HSD) method was conducted. A *p*-value of less than 0.05 was considered statistically significant for all tests.

Results

The response rate was 69.3% (*n* = 467), comprising 58.82% (*n* = 275) female participants and 41.18% (*n* = 192) male participants. The mean age of the participants was 21.8 years. Of the participants, 41.03% were from the COM, 22.89% were from the CON, and 36.08% were from the COAMS. The proportions of students from each COAMS program were as follows: 21.51% from the respiratory therapy program, 16.86% from the emergency medical services program, 12.79% from the occupational therapy program, 15.71% from the radiologic science program, 5.81% from the clinical

laboratory studies program, 14.53% from the anesthesia technology program, 8.14% from the cardiovascular technology program, and 4.65% from the clinical nutrition program. Regarding previous experience of interprofessional learning, most participants had none (see Table 1).

In response to the open-ended question inquiring about any additional comments regarding IPE, few participants responded ($n = 11$). These responses were positive and emphasized that the students perceived IPE as a positive experience, while only one response indicated otherwise. In addition, three main suggestions were highlighted by the students: (1) define IPE because it can be misinterpreted as interdisciplinary education (among members from the same specialty); (2) encourage collaboration as an extra-curricular activity; and (3) enforce communication among health professionals at different levels of their professional careers. Table 2 summarizes the answers to the open-ended questions and provides quotes as an example of each theme.

Table 3 shows the agreement levels on each item in RIPLS. Most students strongly agree or agree with the importance of IPL in improving the team work and collaboration skills (with percentages ranged between 82.3% to 92.6%). Agreement levels differed in the subscale negative professional identity, unlike in positive professional identity were most students adhered to positive professional students. The majority of respondents, 79.78% (strongly agree / agree), believe that nurses and therapists primarily provide support for doctors. This might indicate a traditional hierarchical view of healthcare roles. The relatively low percentages of respondents who disagree or strongly disagree (4.79%) suggest that the view of nurses and therapists as support roles is widely accepted or perhaps not frequently questioned among this group of respondents. About 30.8% (strongly agree + agree) express uncertainty about their professional roles, conversely, the 39.3% (disagree + strongly disagree) who feel clear about their professional roles present a more confident subset, though they are not the majority. A significant proportion of respondents, 61.1% (strongly agree + agree), feel that they need to acquire significantly more knowledge and skills compared to other healthcare students. The high number of undecided respondents (28.5%) may reflect uncertainty about the expectations placed on them.

The overall mean score for the Readiness for Interprofessional Learning Scale (RIPLS) was 76.20 ± 8.41 . The mean scores and standard deviations (SDs) for the overall scores of each subscale across the different colleges are presented in Table 4.

Table 1 Students' Characteristics

Characteristic	N	Percent
Sex		
Female	280	58.82%
Male	196	41.18%
Age, mean (SD) years	21.8 (1.07)	
College		
Applied Medical Sciences	175	36.08%
Medicine	199	41.03%
Nursing	111	22.89%
IPE previous experience	11	2.41%

Abbreviations: SD, standard deviation; IPE, interprofessional education.

Table 2 Brief Statement of Previous IPE Experience

Theme/ definition	Frequency	Example
Agreement	4	"Working and studying together will improve and clarify what is my role, give environment of real situation, know what others need from me, and what do I want from them". "It is very nice opportunity because that make the student in virtual practical and learning facility".
Disagreement	1	"Group project is not effective by using IPE due to dependence of some student on each other".
Suggestions	3	"Put some collaboration sessions outside the curriculum".

Table 3 Agreement Levels on Questionnaire Items, n(%) are Reported

Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Learning with other students will help me to become a more effective member of a healthcare team	242 (50)	184 (38)	47 (9.7)	11 (2.3)	-
Patients would ultimately benefit if health care students worked together to solve patient problems	266 (55)	169 (34.9)	43 (8.9)	3 (0.6)	3 (0.6)
Shared learning with other health care students will increase my ability to understand clinical problems	265 (55.6)	174 (36.1)	32 (6.6)	4 (0.8)	4 (0.8)
Communications skills should be learned with other healthcare students	285 (59.6)	134 (28)	44 (9.2)	12 (2.5)	3 (0.6)
Team-working skills are vital for all healthcare students to learn	294 (61.1)	139 (28.9)	42 (8.7)	6 (1.2)	-
Shared learning will help me to understand my own professional limitations	250 (52.4)	168 (35.2)	50 (10.5)	9 (1.9)	-
Learning with healthcare students before qualification would improve relationships after qualification	229 (47.6)	170 (35.3)	74 (15.4)	8 (1.7)	-
Shared learning will help me think positively about other health care professionals	213 (45.5)	172 (36.8)	63 (13.5)	20 (4.3)	-
For small-group learning to work, students / professionals need to respect and trust each other	312 (67.5)	116 (25.1)	26 (5.6)	8 (1.7)	-
I don't want to waste my time learning with other healthcare students	51 (11.1)	60 (13.1)	88 (19.2)	159 (34.6)	101 (22)
It is not necessary for undergraduate health to learn together	57 (12.3)	67 (14.5)	105 (22.7)	135 (29.2)	98 (21.2)
Clinical problem solving skills can only be learned with students from my own college	67 (14.6)	112 (24.3)	104 (22.6)	108 (23.5)	69 (15)
Shared learning with other health students will help me to communicate better with patients and other professionals	234 (50.9)	170 (37)	39 (8.5)	15 (3.3)	2 (0.4)
I would welcome the opportunity to work on small group projects with other healthcare students	211 (45.7)	155 (33.5)	68 (14.7)	18 (3.9)	10 (2.2)
Shared learning and practice will help me clarify the nature of patients' problems	212 (46.3)	182 (39.7)	50 (10.9)	9 (2)	5 (1)
Shared learning before qualification will help me become a better team worker	227 (49.2)	164 (35.6)	55 (11.9)	14 (3)	1 (0.2)
The function of nurses and therapists is mainly to provide support for doctors	165(35.87)	202(43.91)	71(15.43)	17(3.70)	5(1.09)
I am not sure what my professional role will be	61 (13.2)	81 (17.6)	138 (30)	98 (21.3)	83 (18)
I have to acquire much more knowledge and skill than other healthcare students	141 (30.7)	140 (30.4)	131 (28.5)	36 (7.8)	12 (2.6)

Table 4 Comparison of RIPLS Mean Scores by Professional Program, Mean (SD) are Reported

Subscales/Scale	All	College			F-value, p-value
		Applied Medical Sciences	Medicine	Nursing	
Teamwork and collaboration	39.73 (4.54)	39.72 (4.47)	39.39 (4.84)	40.33 (4.04)	1.404, 0.24
Negative professional identity	9.77(3.23)	9.10(3.50)	10.24(2.94)	9.94(3.13)	5.653, 0.003
Positive professional identity	17.09(2.73)	16.97(2.93)	16.97(2.65)	17.47(2.55)	1.338, 0.26
Total RIPLE	76.20 (8.41)	75.82 (8.27)	75.98 (8.83)	77.16 (7.91)	0.843, 0.43

Abbreviations: SD, standard deviation.

A one-way ANOVA revealed a significant difference among the mean scores of the three groups in terms of negative professional identity. No other subscales showed statistically significant differences. Further post hoc analysis indicated a statistically significant difference in professional identity scores between students from the College of Applied Medical Sciences and the College of Medicine. Students from COAMS had a mean score of 9.10 (SD = 3.5), whereas students from COM had a mean score of 10.24 (SD = 2.94) (mean difference = 1.14, confidence interval = 0.32 to 1.96; *p*-value of 0.002).

Discussion

This study aimed to evaluate the readiness for IPE of health profession students in different colleges. Based on the belief that individuals' professional identities are fundamental for interprofessional interactions, the current study embraced the UBC model for IPE. The model conceptualizes IPE as an overlapping process of three phases: exposure, immersion, and mastery.¹¹

Despite reporting that they did not have any previous experience with IPE, the findings demonstrated that students from different colleges in various health professional programs were ready for IPE as a component of their education. This finding is similar to what was found in previous studies conducted in Saudi Arabia.^{26,27} Levels of student readiness for IPE and of professional identity are important, as they forecast the likelihood that future healthcare providers will participate in interprofessional practice.³⁴ The reported levels of readiness and professional identity of the participants in this study suggest that although IPE was not currently part of their formal curricula, the students were provided with opportunities to participate in learning experiences with colleagues from other professions (ie, they were exposed to IPE concepts). Even more, the students may have been ready for such experiences prior to the point at which their readiness was assessed in the current study. Exposure is the first, introductory phase of the UBC model, where students are expected to focus mainly on developing their own professional identity before they can proceed to learn and understand others. However, during this phase, the concept of interprofessional practice should be introduced. Educational experiences at this stage should be tailored toward building the foundations for later learning.¹¹ Having students score a high level of IPE readiness suggests that they are ready to proceed to more advanced IPE activities that widen their exposure and start the immersion phase, where they should be exposed to activities that allow them to learn from, with, and about each other.¹¹ Nevertheless, educators should consider the possibility of the students being ready at an earlier stage of their study. This consideration entails introducing IPE in the 2nd or 3rd year of students' studies, as developing IPE attributes takes time and earlier exposure could be beneficial.³⁵

The results showed that most of the students perceive IPL as important for enhancing teamwork and collaboration skills. This high level of agreement suggests that IPL initiatives are effective in fostering essential collaborative competencies among healthcare students, aligning with the goals of modern interprofessional education frameworks.⁴ However, the differences in agreement levels between positive and negative professional identity subscales indicate a fine distinction in how students understand their professional roles. While most students exhibit a strong positive professional identity, the variability in responses regarding negative professional identity suggests that some students still struggle with some aspects of their professional self-concept. This discrepancy can directly result from the differences offered by the educational experiences, the influence of traditional hierarchical structures in healthcare, and varying levels of exposure to interprofessional practices.^{36,37} Addressing these issues through enhanced interprofessional education and mentorship could help students develop a more cohesive professional identity.¹

Furthermore, the significant proportion of students who expressed uncertainty about their professional roles can suggest a need for guidance and role definition within healthcare education.^{38,39} This uncertainty, in addition to the high percentage of students feeling the need to acquire more knowledge and skills about their profession, suggests that current educational frameworks may need to fully address the expectations and competencies required for future healthcare professionals.¹ The number of undecided respondents also reflects this need and supports the call for evaluating current curricula and plan for reforms that provide more structured and comprehensive professional development.⁴⁰

The findings have also revealed a significant difference among the three colleges concerning the mean scores for negative professional identity. A post hoc comparison indicated that students from the COAMS exhibited a more negative professional identity compared to students from the COM. The lower scores recorded on the subscale of negative professional identity among COAMS students may be attributed to a variety of factors, including discrepancies

in the opportunities for hands-on experience provided by the colleges.^{27,41,42} Explicitly, in comparison to the applied medical sciences students, medical students' readiness for interprofessional practice may have been influenced by their early exposure to the clinical context. Additionally, during their coursework, medical students engage in greater observation-based learning and regular clinical practice.⁴³ Moreover, societal perceptions that prioritize medicine over other disciplines in the medical field can influence the professional identity of students who are expected to graduate and function in those disciplines.⁴⁴ It is worth noting that the literature did not report similar discrepancy in professional identity between applied medical students in comparison to medical and nursing students.

The current study has the following limitations: First, it relied on a self-reported measure, which is subject to participants estimation. In other words, students could overestimate or underestimate their readiness due to several reasons, such as social desirability or lack of self-awareness. Second, factor analysis of the data collection tool was not conducted. Nevertheless, following face validity assessments, the tool showed strong internal consistency in reliability testing. It's essential to re-evaluate the tool's validity and reliability before using it in different cultural and contextual settings to ensure its accuracy and relevance.

Finally, though the study considered several programs, they are all under the umbrella of a single institution. This suggests that all the programs adhere to the same context which may limit the generalizability of the findings to other institutions with different educational structures, resources, and student demographics. Along with replicating the study across multiple institutions with different educational settings to increase the chance of identifying general factors that influence IPE readiness, future studies should consider conducting longitudinal studies to track the development of IPE readiness and professional identity in health professions students over time, from early years of study to clinical practice. In addition, researchers should incorporate qualitative methods such as interviews and focus groups to gain deeper insights into the experiences and perceptions of students regarding IPE and professional identity.

Conclusion

According to the study findings, healthcare students have positive attitudes toward and readiness for IPE, which can enhance their engagement in developing the competencies necessary for effectively contributing to interprofessional healthcare teams. Moreover, the present study sheds light on the need to provide sufficient attention to the professional identities of our students, especially those in allied medical sciences programs, as an important base for their development toward being interprofessional practitioners.

Data Sharing Statement

The datasets used during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

Ethical clearance for conducting this study was attained from King Abdullah International Research Centre (KAIMRC), King Saud Bin Abdulaziz University for Health Sciences (RYD-23-419812-34778).

Acknowledgments

The author would like to acknowledge all the students who participated in the study.

Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Funding

There is no funding to report.

Disclosure

The authors declare that they have no competing interests in this work.

References

- Gilbert J, Yan J, Hoffman S. A WHO report: framework for action on interprofessional education and collaborative practice. *J Allied Health*. 2010;39:196–197.
- Nester J. The importance of interprofessional practice and education in the era of accountable care. *N C Med J*. 2016;77(2):128–132. doi:10.18043/nem.77.2.128
- Jha N, Palaian S, Shankar PR, Poudyal S. Readiness for interprofessional learning among first year medical and dental students in Nepal. *Adv Med Educ Pract*. 2022;13:495–505. doi:10.2147/amep.s354210
- Reeves S. Why we need interprofessional education to improve the delivery of safe and effective care. *Interface Comunicação, Saúde, Educação*. 2016;20(56):185–197. doi:10.1590/1807-57622014.0092
- Dow A, Thibault G. Interprofessional education — a foundation for a new approach to health care. *N Engl J Med*. 2017;377(9):803–805. doi:10.1056/NEJMp1705665
- Solomon P. Interprofessional education: has its time come? *J Phys Ther Educ*. 2010;24(1):3. doi:10.1097/00001416-201010000-00001
- Körner M, Wirtz MA, Bengel J, Göritz AS. Relationship of organizational culture, teamwork and job satisfaction in interprofessional teams. *BMC Health Serv Res*. 2015;15(1):10.1186/s12913-015-0888-y.
- Kowitlawakul Y, Ignacio J, Lahiri M, Khoo SM, Zhou W, Soon D. Exploring new healthcare professionals roles through interprofessional education. *J Interprof Care*. 2014;28(3):267–269. doi:10.3109/13561820.2013.872089
- Buring SM, Bhushan A, Broeseker A, et al. Interprofessional education: definitions, student competencies, and guidelines for implementation. *Am J Pharm Educ*. 2009;73(4):59. doi:10.5688/aj730459
- Hawk C, Buckwalter K, Byrd L, Cigelman S, Dorfman L, Ferguson K. Health professions students' perceptions of interprofessional relationships. *Acad Med*. 2002;77(4):354–357. doi:10.1097/00001888-200204000-00020
- Charles G, Bainbridge L, Gilbert J. The university of British Columbia model of interprofessional education. *J Interprof Care*. 2009;24(1):9–18. doi:10.3109/13561820903294549
- DianeR B, Davidson RA, Soule Odegard P, Maki IV, Tomkowiak J. Interprofessional collaboration: three best practice models of interprofessional education. *Med Educ Online*. 2011;16(1):6035. doi:10.3402/meo.v16i0.6035
- Hall LW, Zierler BK. Interprofessional education and practice guide no. 1: developing faculty to effectively facilitate interprofessional education. *J Interprof Care*. 2014;29(1):3–7. doi:10.3109/13561820.2014.937483
- Binienda J. Critical synthesis package: readiness for Interprofessional Learning Scale (RIPLS). *MedEdPORTAL*. 2015. doi:10.15766/mep_2374-8265.10274
- Vaughan B, Macfarlane C, Dentry T, Mendoza G. The Interdisciplinary Education Perception Scale (IEPS): which factor structure? *Edu Med J*. 2014;6(3). doi:10.5959/eimj.v6i3.259
- Parsell G, Bligh J. The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Med Educ*. 1999;33(2):95–100. doi:10.1046/j.1365-2923.1999.00298.x
- Lauffs M, Ponzer S, Saboonchi F, Lonka K, Hysin U, Mattiasson AC. Cross-cultural adaptation of the Swedish version of Readiness for Interprofessional Learning Scale (RIPLS). *Med Educ*. 2008;42(4):405–411. doi:10.1111/j.1365-2923.2008.03017.x
- Cloutier J, Lafrance J, Michallet B, Marcoux L, Cloutier F. French translation and validation of the Readiness for Interprofessional Learning Scale (RIPLS) in a Canadian undergraduate healthcare student context. *J Interprof Care*. 2014;29(2):150–155. doi:10.3109/13561820.2014.942837
- Tamura Y, Seki K, Usami M, et al. Cultural adaptation and validating a Japanese version of the readiness for interprofessional learning scale (RIPLS). *J Interprof Care*. 2012;26(1):56–63. doi:10.3109/13561820.2011.595848
- Tyastuti D, Onishi H, Ekayanti F, Kitamura K. Psychometric item analysis and validation of the Indonesian version of the Readiness for Interprofessional Learning Scale (RIPLS). *J Interprof Care*. 2014;28(5):426–432. doi:10.3109/13561820.2014.907778
- Mahler C, Rochon J, Karstens S, Szecsenyi J, Hermann K. Internal consistency of the readiness for interprofessional learning scale in German health care students and professionals. *BMC Med Educ*. 2014;14(1). doi:10.1186/1472-6920-14-145
- Huebner S, Tang Q, Moisey L, Shevchuk Y, Mansell H. Establishing a baseline of interprofessional education perceptions in first year health science students. *J Interprof Care*. 2020;35(3):400–408. doi:10.1080/13561820.2020.1729706
- Numasawa M, Nawa N, Funakoshi Y, et al. A mixed methods study on the readiness of dental, medical, and nursing students for interprofessional learning. Shankar PR, editor. *PLoS One*. 2021;16(7):e0255086. doi:10.1371/journal.pone.0255086
- Song HY, Nam KA. The need for and perceptions of interprofessional education and collaboration among undergraduate students in nursing and medicine in South Korea. *J Multidiscip Healthc*. 2022;15:847–856. doi:10.2147/jmdh.s359412
- Tosunöz I K, Yıkar S K, Çerçer Z, Kara P, Arslan S, Nazik E. Perceptions of interdisciplinary education and readiness for inter-professional education of nursing students: a sample of three different cities in Turkey. *Nurse Educ Today*. 2021;97:104673. doi:10.1016/j.nedt.2020.104673
- Alzamil H, Meo SA. Medical students' readiness and perceptions about Interprofessional Education: a cross sectional study: interprofessional Education. *Pak J Med Sci*. 2020;36(4). doi:10.12669/pjms.36.4.2214
- Alruwaili A, Mumenah N, Alharthy N, Othman F. Students' readiness for and perception of Interprofessional learning: a cross-sectional study. *BMC Med Educ*. 2020;20(1):10.1186/s12909-020-02325-9. doi:10.1186/s12909-020-02325-9
- Marks TH. Step 2 Targeted needs assessment refining the foundation. In: Thomas P, Kern D, Hughes M, Tackett S, Chen B, editors. *Curriculum Development for Medical Education. Fourth*. Baltimore, Maryland: John Hopkins University Press; 2022:33–56.
- McFadyen AK, Webster V, Strachan K, Figgins E, Brown H, Mckechnie J. The Readiness for interprofessional learning scale: a possible more stable sub-scale model for the original version of RIPLS. *J Interprof Care*. 2005;19(6):595–603. doi:10.1080/13561820500430157
- Yu TC, Jowsey T, Henning M. Evaluation of a modified 16-item Readiness for Interprofessional Learning Scale (RIPLS): exploratory and confirmatory factor analyses. *J Interprof Care*. 2018;32(5):1–8. doi:10.1080/13561820.2018.1462153

31. Kersbergen M, Creugers N, Kuijter W, et al. Interprofessional learning in a student-run dental clinic: the effect on attitudes of students in oral healthcare. *J Interprof Care*. 2022;37(1):1–8. doi:10.1080/13561820.2022.2037530
32. Roopnarine R, Boeren E. Applying the Readiness for Interprofessional Learning Scale (RIPLS) to medical, veterinary and dual degree Master of Public Health (MPH) students at a private medical institution. *PLoS One*. 2020;15(6):e0234462. doi:10.1371/journal.pone.0234462.
33. Althubaiti A. Sample size determination: a practical guide for health researchers. *J Gen Fam Med*. 2022;24(2):72–78. doi:10.1002/jgf2.600
34. Andhini C, Fajriyani I, Kamasturyani Y, et al. Students' perception on collaboration through the online implementation of Interprofessional Education (IPE) in Handling Covid-19. *Budapest Int Res Critics Inst J*. 2021;4(4):7614–7619.
35. Wood DF. Interprofessional education - still more questions than answers? *Med Educ*. 2001;35(9):816–817. doi:10.1046/j.1365-2923.2001.01038.x
36. Frenk J, Chen L, Bhutta Z, et al. Health professionals for a new century: transforming education to strengthen health systems in an interdependent world. *Lancet*. 2010;376(9756):1923–1958. doi:10.1016/S0140-6736(10)61854-5
37. Hoffman S, Thistlethwaite J, Moran M. Learning outcomes for interprofessional education: literature review and synthesis. *J Interprof Care*. 2010;24(5):503–513. doi:10.3109/13561820.2010.483366
38. D'Amour D, Oandasan I. Interprofessionalism as the field of interprofessional practice and interprofessional education: an emerging concept. *J Interprof Care*. 2005;19 Suppl 1(sup1):8–20. doi:10.1080/13561820500081604
39. Hammick M, Freeth IKSR D, Barr H, Reeves S, Barr H. A best evidence systematic review of interprofessional education: BEME guide no. 9. *Med Teach*. 2007;29(8):735–751. doi:10.1080/01421590701682576
40. Clark PG. Examining the interface between interprofessional practice and education: lessons learned from Norway for promoting teamwork. *J Interprof Care*. 2011;25(1):26–32. doi:10.3109/13561820.2010.497751
41. Snell R, Fyfe S, Fyfe G, Blackwood D, Itsiopoulos C. Development of professional identity and professional socialisation in allied health students: a scoping review. *Focus Health Profess Educ*. 2020;21(1):29. doi:10.11157/fohpe.v21i1.322
42. Crossley J, Vivekananda-Schmidt P. The development and evaluation of a professional self identity questionnaire to measure evolving professional self-identity in health and social care students. *Med Teach*. 2009;31(12):e603–e607. doi:10.3109/01421590903193547
43. Curran VR, Sharpe D, Forristall J, Flynn K. Attitudes of health sciences students towards interprofessional teamwork and education. *Learning in Health and Social Care*. 2008;7(3):146–156. doi:10.1111/j.1473-6861.2008.00184.x
44. White MT, Borges NJ, Geiger S. Perceptions of factors contributing to professional identity development and specialty choice: a survey of third- and fourth-year medical students. *Ann Behav Sci Med Educ*. 2011;17(1):18–23. doi:10.1007/BF03355144

Advances in Medical Education and Practice

Dovepress

Publish your work in this journal

Advances in Medical Education and Practice is an international, peer-reviewed, open access journal that aims to present and publish research on Medical Education covering medical, dental, nursing and allied health care professional education. The journal covers undergraduate education, postgraduate training and continuing medical education including emerging trends and innovative models linking education, research, and health care services. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <http://www.dovepress.com/advances-in-medical-education-and-practice-journal>