

ORIGINAL ARTICLE

Measuring the attitude of Pakistani health professional students towards interprofessional education

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ABSTRACT

Background: Interprofessional education helps in promoting mutual understanding and teamwork among health professional students. It is important that health professions students recognize its value in the healthcare system. However, the perspectives and readiness of health professions students towards interprofessional education has not been evaluated in Pakistani context.

Aim: The aims of this study were to explore the students' attitude toward interprofessional education, to investigate if the readiness of students enrolled in different healthcare programs differ from each other and to explore if curricular design has any significant effect on their attitude towards IPE.

Methods: This comparative cross-sectional study has used pre-validated *Readiness for Interprofessional Learning Scale* inventory to find out the readiness of students enrolled in medicine, dentistry, nursing, pharmacy and physiotherapy programs. Data was collected through QuestionPro, which is an online survey tool. The response of students on RIPLS questionnaire was recorded on a 5- point Likert scale. ANOVA and t-test were used to perform the comparative analysis.

Results: 394 students completed the questionnaire with a response rate of 68.17%. The students showed fairly positive attitudes (mean = 74.40, SD = 8.41) towards interprofessional education. Medical students showed maximum awareness of interprofessional education (mean = 75.96, SD = 6.71) whereas the response of dental students reflected least awareness of IPE (mean = 71.29, SD = 8.34). The students of integrated curriculum showed more positive response towards IPE (mean = 75.39, SD = 6.86) as compared to the students of traditional curriculum (mean = 73.66, SD = 9.34).

Conclusion: In Pakistan, undergraduate students in healthcare profession studies value shared learning, teamwork and collaboration. Overall, students of all professions showed a high level of readiness for interprofessional learning. Our findings indicated that medical students valued interprofessional education more than other disciplines. On the other hand, dental and physiotherapy students showed least awareness, which may pose challenges to Pakistani healthcare system. In our curricular comparison analysis, the more pronounced readiness of students in integrated curriculum reflects its effectiveness in promoting interprofessional collaboration among future healthcare providers.

Key words: Interprofessional education; student perceptions; undergraduate education; teamwork; collaborative learning.

Introduction: Patients usually present with complex health problems in hospitals. These problems usually require the collaboration of more than one profession (Lumague et al., 2006). This collaboration among health professionals allows mutual sharing of knowledge and expertise to restore an individual's health (Barker & Oandasan, 2005). The inter professional teamwork helps healthcare professionals to communicate and

address many complex and challenging medical problems. This teamwork, usually known as inter professional collaboration is a 'partnership between a team of health providers and a client in a participatory collaborative and coordinated approach to shared decision making around health and social issues' (Gilbert, Yan, & Hoffman, 2010).

The inter professional collaborative practices advocate responsibility, coordination, accountability, assertiveness, communication, cooperation, autonomy and mutual respect (Way, Jones, & Busing, 2000). Through this partnership, an interprofessional team emerges that works for one common goal, which is, improved healthcare delivery (Al-Eisa et al., 2016). However, interprofessional teams are only effective when its members recognize their roles within the team and put efforts to achieve this common goal. Failure to recognize the significance of teamwork and one another's role in the larger

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picture may lead to poor coordination, medical errors, system failures and ultimately poor patient care (Zwarenstein, Reeves, & Perrier, 2005). Thus, it is essential for all healthcare providers to possess the essential skills of working in a team, which can be best learned through inter professional education.

Inter professional education (IPE) can be defined as ‘students of two or more health related professions, engaged in learning with, from and about each other’ (Craddock, O’Halloran, Borthwick, & McPherson, 2006). IPE is an educational approach to prepare health professional students for future collegiality and teamwork. Students trained through IPE approach are more likely to become collaborative, responsible and respectful towards each other as they work together in improving patient outcomes (Barker & Oandasan, 2005). IPE provides a shared platform to the students of different professions to exchange knowledge and skills and to promote mutual understanding among healthcare professionals (Craddock et al., 2006). The concept of interprofessional education is different from inter-disciplinary education. Interdisciplinary education is mainly concerned with integrated teaching and learning of disciplinary knowledge. IPE is based on the same principles as inter-disciplinary education by combining work of various health professions together. In IPE, each profession has its own professional jurisdiction or scope of practice which collectively affect the healthcare delivery system (Mansuri, 2017).

IPE is an essential domain of today’s advanced pedagogy and many scholars advocate its integration in the undergraduate curriculum of all health professions such as medicine, dentistry, nursing, pharmacy and other allied medical sciences (Fallatah, Jabbar, & Fallatah, 2015). In a recent study, Abu-Rish et al. (2012) advocated the introduction of IPE in early years of education in order to promote shared working values within a team and to improve quality of care in general. (Abu-Rish et al., 2012) However, despite huge significance of incorporating IPE in undergraduate education, it has remained neglected in the curricula until recently, especially in health professions education in Pakistan. Most medical, dental, nursing, pharmacy and other allied sciences institutes prefer specialized practice and do not put efforts in interprofessional training of their students (Rehman, Ali, & Ahmad, 2017). Only few years ago, due to external pressures such as world federation for medical education (WFME) and accreditation council for graduate medical education (ACGME), some medical, dental, nursing and pharmacy schools have introduced IPE as a component of their integrated curriculum. Whereas, health professional students of traditional curriculum still remain alien to the concept of IPE and IP training.

In addition to the neglected IPE in Pakistani context, another

important factor that can affect the healthcare system is the attitudes of health professional students towards interprofessional collaboration. Therefore, while introducing IPE to the undergraduate curriculum, it is empirical to find out the perspectives and readiness of students for IPE in major health professional domains (Al-Qahtani, 2016). Additionally, it is also worth seeing that how attitudes of traditionally trained health professionals differ from those of integrated learning approach which cater IPE in their curriculum. According to the author’s knowledge, the perception of various health sciences students toward IPE has not been measured in Pakistan till date. In this study, we have tried to explore the attitudes of health professional students toward IPE by using a pre-validated RIPLS tool (Parsell & Bligh, 1999). We also intended to investigate whether there are significant differences in the readiness of students who are trained through integrated curriculum from those of traditional curriculum.

Methods: This study under discussion is a comparative cross-sectional study which was carried out in undergraduate students of various health profession programs. The study was conducted during the month of June 2018.

Study Population: The target population was all undergraduate students who are enrolled in the undergraduate programs of medicine, dentistry, nursing, pharmacy and physiotherapy at six public and private universities in Pakistan. The Universities from which students contributed in the survey include: University of Lahore, Fauji Foundation University, Bahauddin Zakariya University, Bahria University, Punjab University and King Edward Medical University.

Data Collection: Data was collected through QuestionPro (Survey Analytics LLC, Austin, USA) which is an online survey tool. In the online questionnaire, in addition to the pre-validated instrument, an explanation of the term ‘inter professional education’ and the purpose of the study were provided at the beginning of the survey. The participation of the students was on voluntary basis. The anonymity and confidentiality of the participants and their responses was assured.

Instrument: The Readiness for Inter professional Learning Scale (RIPLS) tool, originally designed by Parsell and Bligh, was used to obtain students’ perspectives towards IPE (Wilhelmsson, Ponzer, Dahlgren, Timpka, & Faresjö, 2011). The tool consists of 19 items which have further been divided into three subscales: teamwork and collaboration, professional identity and roles and responsibilities (Parsell & Bligh, 1999). The items from 1 to 9 were grouped under *teamwork and collaboration*, items from 10 to 16 were grouped under *professional identity* and items from 17 to 19 were grouped under *roles and responsibilities*. The responses of students on their level of agreement on all 19

items were recorded by using a 5- point Likert scale (1=strongly disagree, 2=disagree, 3=neutral, 4=agree, or 5=strongly agree). For the negative statements (10, 11 and 12), the scoring was reversed so that a higher score can uniformly reflect a more positive perspective towards IPE in all items. The overall possible maximum score is 95 and minimum is 19 for the RIPLS instrument (Vafadar, Vanaki, & Ebadi, 2015). Demographic information such as gender, discipline, college and type of curriculum being taught in their institutions, was also obtained from students.

Statistical analysis: For data analysis, Statistical Package for Social Sciences (SPSS) software, version 20 was used. The continuous data was presented as the mean and standard deviation and the categorical data was presented as numbers and percentages. The comparison of students' perception score based on traditional and integrated curriculum approach was done by using t-test. Whereas the comparison of 5 groups of students belonging to medicine, dentistry, pharmacy, nursing and physiotherapy was done by using ANOVA test. The reliability of the RIPLS and individual items was calculated by using Cronbach's alpha coefficient. A p-value of 0.05 or less was considered statistically significance. Since we have used a pre-validated tool, a pilot study was not conducted to check the construct validity of RIPLS questionnaire.

Results: *Survey response and participant characteristics:* Overall, 578 students took the survey, out of which, 394 students completed the questionnaire. The response rate for the completion of survey was 68.17%. The program specific contribution along with other demographic variables is given in table 1.

Individualized item level survey: Table 2 represents the mean and standard deviation values for each item in the RIPLS survey for the whole group (n = 380). Number 7 "for small group learning to function properly, students need to trust and respect each other" was the highest rated statement (mean = 4.46, SD = 0.771). The lowest rated statement was number 18, "I am not sure what my professional role will be" (mean = 2.35, SD = 1.006). The results indicated that students, in general, had fairly positive attitudes towards IPE.

Comparison of RIPLS items score based on students' program of study: In our discipline-based comparison, medical students showed maximum awareness of IPE whereas the responses of dental students reflect least awareness of IPE. Table 3 reflects the overall and item wise comparison between various disciplines.

Curriculum based comparison of students' attitude: In our curriculum-based comparison, the students of integrated curriculum showed an overall more positive response towards IPE as compared to the students of traditional curriculum. The overall and item wise comparison is given in table 4.

Table 1: Demographic characteristics

Variables	Descriptor	Frequency	Percentage
Gender	Male	138	35.03
	Female	256	64.97
Curriculum type	Traditional	226	57.36
	Integrated	168	42.64
Discipline	Medicine	114	28.93
	Dentistry	84	21.32
	Nursing	68	17.26
	Pharmacy	82	20.81
	Physiotherapy	46	11.68
	Total		394

Table 2: RIPLS item level analysis

RIPLS Items	Description	Mean	Std. Deviation
Item 1	Learning with other health professional students will make me a more effective member of a health care team	3.95	0.878
Item 2	Patients would ultimately benefit if health care students / professionals worked together	4.35	0.702
Item 3	Shared learning with other health care students / professionals will increase my ability to understand clinical problems	4.26	0.727
Item 4	Learning with other health care students before qualification would improve working relationships after qualification.	4.1	0.807
Item 5	Communications skills should be learned with other health care students / professionals	4.11	0.843
Item 6	Shared learning will help me think positively about other health care professionals	4.16	0.758
Item 7	For small group learning to work, students / professionals need to respect and trust each other	4.46	0.771
Item 8	Shared learning will help me to understand my own professional limitations	4.37	0.832
Item 9	Shared learning will help me to understand my own professional limitations	4.16	0.778
Item 10	I don't want to waste time learning with other health care students / professionals	3.86	0.982
Item 11	It is not necessary for undergraduate / postgraduate health care students / professionals to learn together	3.52	1.139
Item 12	Clinical problem solving can only be learnt effectively with students / professionals from my own program	3.06	1.138
Item 13	Shared learning with other health care professionals will help me to communicate better with patients and other professionals	4.13	0.757
Item 14	I would welcome the opportunity to work on small group projects with other health care students / professionals	4.1	0.713
Item 15	Shared learning and practice will help me clarify the nature of patients' or clients' problems	4.01	0.801
Item 16	Shared learning before and after qualification will help me become a better team worker	4.16	0.702
Item 17	The function of nurses and therapists is mainly to provide support for doctors	3.61	1.055
Item 18	I am not sure what my professional role will be / is	2.35	1.006
Item 19	I have to acquire much more knowledge and skill than other students / professionals in my own faculty / organization	3.67	0.923

Table 3: Discipline based comparison of students' attitude towards IPE

RIPLS Items	All students N=394 Mean (SD)	Medicine N=114 Mean (SD)	Dentistry N=84 Mean (SD)	Nursing N=68 Mean (SD)	Pharmacy N=82 Mean (SD)	Physiotherapy N=46 Mean (SD)	p-value
Overall	74.40 (8.41)	75.96 (6.71)	71.29 (8.34)	75.24 (8.83)	74.61 (10.60)	74.61 (5.68)	0.002
Item 1	3.95 (0.88)	4.05 (0.71)	3.60 (1.05)	4.03 (0.96)	4.05 (0.89)	4.04 (0.56)	0.001
Item 2	4.35 (0.70)	4.51 (0.50)	4.17 (0.79)	4.32 (0.68)	4.24 (0.88)	4.52 (0.51)	0.002
Item 3	4.26 (0.73)	4.26 (0.72)	4.02 (0.78)	4.32 (0.68)	4.37 (0.79)	4.39 (0.49)	0.013
Item 4	4.10 (0.81)	4.21 (0.65)	3.93 (1.04)	4.21 (0.76)	3.98 (0.88)	4.22 (0.51)	0.039
Item 5	4.11 (0.84)	4.25 (0.76)	3.93 (1.04)	4.15 (0.78)	4.15 (0.85)	4.00 (0.67)	0.094

Item 6	4.16 (0.76)	4.33 (0.58)	3.90 (0.87)	4.18 (0.83)	4.05 (0.83)	4.39 (0.49)	0.000
Item 7	4.46 (0.77)	4.46 (0.68)	4.45 (0.77)	4.44 (0.89)	4.44 (0.92)	4.52 (0.51)	0.983
Item 8	4.37 (0.83)	4.51 (0.68)	4.24 (0.87)	4.26 (0.96)	4.29 (0.98)	4.57 (0.50)	0.047
Item 9	4.16 (0.78)	4.26 (0.69)	3.98 (0.92)	4.26 (0.66)	4.17 (0.83)	4.09 (0.73)	0.079
Item 10	3.86 (0.98)	4.07 (0.92)	3.55 (1.03)	3.71 (1.19)	3.80 (0.90)	4.26 (0.54)	0.000
Item 11	3.52 (1.14)	3.70 (1.25)	3.19 (1.04)	3.38 (1.27)	3.54 (1.05)	3.87 (0.81)	0.004
Item 12	3.06 (1.14)	3.09 (1.16)	2.74 (1.05)	2.94 (1.27)	3.15 (1.08)	3.57 (0.94)	0.002
Item 13	4.13 (0.76)	4.14 (0.79)	4.05 (0.85)	4.26 (0.66)	4.07 (0.78)	4.17 (0.57)	0.437
Item 14	4.10 (0.71)	4.21 (0.59)	3.81 (0.86)	4.26 (0.70)	4.15 (0.76)	4.04 (0.47)	0.000
Item 15	4.01 (0.80)	4.00 (0.78)	3.93 (0.71)	4.18 (0.75)	3.95 (1.02)	4.04 (0.63)	0.362
Item 16	4.16 (0.70)	4.30 (0.56)	3.88 (0.86)	4.38 (0.55)	4.15 (0.69)	4.04 (0.76)	0.000
Item 17	3.61 (1.06)	3.60 (0.98)	3.79 (0.95)	3.65 (0.94)	3.88 (1.05)	2.78 (1.23)	0.000
Item 18	2.35 (1.01)	2.25 (0.89)	2.50 (1.10)	2.47 (1.10)	2.44 (1.02)	2.00 (0.84)	0.035
Item 19	3.67 (0.92)	3.77 (0.94)	3.64 (0.95)	3.82 (0.96)	3.76 (0.70)	3.09 (0.94)	0.000

Table 4: Comparison of RIPLS overall and individual items scores on curriculum basis

RIPLS	Traditional Curriculum		Integrated Curriculum		p-value
	<i>Mean</i>	<i>(SD)</i>	<i>Mean</i>	<i>(SD)</i>	
Overall	73.66	(9.34)	75.39	(6.86)	0.035
Item 1	3.89	(0.90)	4.02	(0.83)	0.146
Item 2	4.30	(0.78)	4.42	(0.58)	0.106
Item 3	4.19	(0.95)	4.36	(0.61)	0.016
Item 4	4.10	(0.84)	4.11	(0.76)	0.905
Item 5	4.09	(0.93)	4.14	(0.71)	0.527
Item 6	4.07	(0.80)	4.29	(0.69)	0.004
Item 7	4.39	(0.86)	4.55	(0.63)	0.035
Item 8	4.32	(0.93)	4.44	(0.66)	0.151
Item 9	4.12	(0.80)	4.21	(0.74)	0.254
Item 10	3.88	(0.95)	3.85	(1.02)	0.758
Item 11	3.48	(1.18)	3.58	(1.09)	0.364
Item 12	3.05	(1.11)	3.06	(1.17)	0.956
Item 13	4.08	(0.86)	4.20	(0.59)	0.112
Item 14	4.05	(0.78)	4.17	(0.62)	0.118
Item 15	3.92	(0.88)	4.13	(0.67)	0.007
Item 16	4.09	(0.74)	4.26	(0.64)	0.013
Item 17	3.63	(1.08)	3.58	(1.03)	0.676
Item 18	2.39	(1.03)	2.30	(0.98)	0.371
Item 19	3.63	(1.00)	3.73	(0.81)	0.299

Discussion: The attitudes of health professional students towards IPE are critically important because their perceptions reflect their motivation and readiness for IPE. Therefore, it is important to see how they see IPE, especially when the majority of curricula are in the process of transformation. This study was conducted to find out the readiness of Pakistani undergraduate students in various health profession programs, which have incorporated IPE in their curriculum or are in the process of doing so. The overall results of the study reflected very positive attitudes of students towards inter professional practices in healthcare. Majority of the students highly value teamwork and collaborative learning during training.

Our results showed that the students also value mutual respect and trust during group learning. These findings in Pakistani context are consistent with other international studies. For instance, Al-Qahtani (2016), Lairamore et al. (2013) and Smego (2010) also reported positive attitude of most healthcare students for inter professional team-based learning during their undergraduate training. These national as well as international positive findings can provide a shared consensus on the readiness of health professionals for IPE and can further help the program developers, educators and decision makers in incorporating IPE in the revised curriculum in Pakistan. (Lairamore, George-Paschal, McCullough, Grantham, & Head, 2013; Olenick, Allen, & Smego Jr, 2010)

The future benefits of incorporating IPE in undergraduate curriculum can also be highlighted through one significant finding of our study. Our results showed that many participants were not sure about their specific role in the inter professional team. This finding expresses the lack of understanding among students towards inter professional teamwork in practical settings. This understanding can only be installed through IPE and training. The second issue highlighted in our results was that most students think that clinical problem solving can only be achieved through their own specialty learning. Whereas, many studies suggest that learning clinical problem-solving is a multi-domain process and multidisciplinary training plays vital role in achieving this critical skill (Hean, Craddock, Hammick, & Hammick, 2012).

In our comparative analysis, we found that medical students showed maximum awareness of IPE whereas least readiness was found in dental students. Similar findings were observed in individual items analysis where scores of dental students were significantly lower. The low scores of dental students may raise questions about why they showed the lowest overall scores among all healthcare disciplines. In Pakistan, most dental colleges follow traditional curriculum. These colleges prefer specialized dental practice and the collaboration with other

health specialties is often minimal. This could be a plausible contributing factor for comparatively reduced positive attitudes of dental students. This finding of reduced awareness among dental students stresses on focusing more on IPE in order to efficiently cater potential clinical problems in a real working environment. On the contrary, due to specialized dental education and practice, dental students showed more awareness in their own professional role (item 18). In previous studies, Hertweck et al. (2012) and Keshtkaran, Sharif, & Rambod (2014) also reported a significant difference in the readiness of students among different health programs. In the earlier study, physician assistants showed minimal readiness whereas in the later, medical students showed minimal readiness for IPE. (Hertweck et al., 2012; Keshtkaran, Sharif, & Rambod, 2014)

In our findings, the second highest overall RIPLS mean score was found in the nursing group (75.24). This rationale for this finding could be explained by the nature of the services provided by the nursing profession. Nurses always learn and practice on a common platform where they work in collaboration with doctors, technicians, administrators and other health professions. Henceforth, nursing students may possess more experience of inter professional interaction, teamwork and collaboration as compared to the students of other professions. (DiCenso et al., 2007)

In the workplace, physical therapists are expected to be a part of an inter professional team. They work closely with many other health specialties and it is expected that they recognize their role in the healthcare settings. However, in our findings, students of physical therapy showed least awareness for their professional role. These findings are consistent with Rose et al. (2009) who found out that students of physiotherapy scored lower on the items related to their professional roles and responsibilities. In future studies, it will be interesting to find out why physical therapy students enrolled in Pakistani institutes are not well aware of their professional roles as compared to the others. (Rose et al., 2009)

In our curricular comparison analysis, students of integrated curriculum showed more awareness and positive attitude towards IPE as compared to those who are being taught through traditional curriculum. One significant feature of integrated curriculum is promoting teamwork and collaboration with other healthcare providers for the assurance of better healthcare delivery (Bridges, Davidson, Soule Odegard, Maki, & Tomkowiak, 2011). Our finding endorses the benefit of interlinking disciplinary studies at undergraduate level where students are trained through integrated educational approaches.

Limitations: This study was carried out in health sciences universities of Pakistan. Therefore, the generalizability of our results to other programs and institutes is not certain.

Conclusion: This study documented a significant degree of awareness and positive perspectives of all health professional students towards IPE. In Pakistan, undergraduate students in healthcare professional studies value shared learning, teamwork and collaboration. Overall, students of all professions seemed to have a high level of readiness for interprofessional learning. Our findings indicated that medical students valued interprofessional education more than other disciplines. On the other hand, the reduced awareness of dental and physiotherapy students may pose additional challenges to Pakistani healthcare system. Therefore, we recommend that future researchers should analyze the perspectives of these students qualitatively (interviews or focus groups) in order to find out the influencing factors that may impact IPE education in Pakistan.

Declaration of interest:

The authors report no declarations of interest.

Author's Contribution:

- Anna Riaz: Conception and design of the work; the acquisition, analysis, & interpretation of data from the work
- Muhammad Zafar Iqbal: Drafting the work & revising it critically for important intellectual content
- Mohamed Al-Eraky: Critical Review & final approval of the version to be published

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