ORIGINAL ARTICLE

Future Health Professionals Readiness and Awareness Towards Interprofessional Education in a Health Care Institution of Lahore

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ABSTRACT

Objectives: To measure the level of readiness and awareness of future health professionals about interprofessional education and to evaluate the differences in the readiness towards interprofessional education amongst different disciplines.

Study Design: This was a cross-sectional study in which a questionnaire "Readiness for Interprofessional Learning Scale" (RIPLS) was used.

Place and Duration of Study: The study, was conducted in June and July 2021 at CMH Lahore medical college, Lahore, Pakistan.

Materials and Methods Using Google forms, a web-based questionnaire "Readiness for Interprofessional Learning Scale" inventory was emailed to students through their email ID and WhatsApp group. The itemized and total mean scores of all nineteen items of the questionnaire covering the five health professions were compared. SPSS 22 was used for statistical analysis and all responses were analyzed upon 5-point Likert scale.

Results: Of the 924 future health professionals 582 completed the questionnaire with a response rate of 63%. The undergraduate students showed positive attitude towards IPE with a global mean score of 74.54±1.139. The overall RIPL mean was above the midpoint score (47.5). Students' ratings were low for two subscales, namely: Roles and Responsibilities and Professional identity, Whereas Teamwork & collaboration subscale showed high ratings. Nursing students showed highly significant mean = 79.4±1.16, whereas dentistry students showed lowest significant mean= 71.4±1.13.

Conclusion: Future health Professionals at CMH had a positive attitude towards IPE. Results of present study revealed that nursing undergraduate students appreciated interprofessional education more than the undergraduates of other disciplines. However, dental and medicine undergraduate students indicated minimum readiness and awareness. Result of current study suggests that curriculum developers could consider basic awareness of future health professionals for development of interprofessional education curricula.

Key Words: Competencies, Curriculum, Disciplines, Interprofessional Education, Undergraduate.

Introduction

The basic goal of every current and future health professional is to provide comprehensive and effective healthcare to all patients.[1] The process of learning and teaching between health care providers from two or more health or social professions promotes collaboration to produce better health outcomes.[2] IPE is progressively recognized as a basic component of medical education. IPE targets to educate and train future health care professionals involved in providing team-based safe care to patients for their wellbeing.

At the student level, it is revealed that learners involved in Interprofessional education (IPE) have a better understanding of health professions and show mutual respect towards their coworkers.[3] IPE also promotes the acquisition of competencies through interprofessional experiences which assist them to learn the skills required to be a member of the collaborative team.[4]

IPE is essential for augmenting patient safety as well as ensuring an effective system for the delivery of safe care to patients globally.[5,6] The World Health Organization (WHO) also recognized IPE's importance and published a framework in 2010 for Action on IPE & Collaborative Practice for producing healthcare professionals as a member of the collaborative practice team [1].To deliver holistic and optimal care to patients, the sharing and

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contribution of every health care provider from various fields play a major role.[7] IPE has been associated with the promotion of effective care, enhancement of patient's safety, and management of patients.[8] It is also a vital component for the training of future health professionals to acquire the generic skills for working as a team member.

In medical curriculum of Pakistan IPE is not given due importance. Most of the health professions' education focuses on practice and does not emphasize on the importance of interprofessional training for their learners. On the other hand, differences in future health professionals awareness of IPE may be a vital challenge for all health professions.[9]

Globally nowadays, IPE has been integrated into the medical education curriculum of many health care educational institutions.[10] The main challenge of this issue is how and when it is appropriate to teach and train undergraduates regarding IPE.A valid and reliable Readiness for Interprofessional Learning Scale(RIPL) questionnaire provides the baseline data and information to instructional designers for designing appropriate IPE educational programs for the medical curriculum.[11]The current study was conducted with the overall aim to explore the readiness and awareness of undergraduate health professional students towards IPE and to find the difference with respect to various disciplines.

Materials and Methods

Cross-sectional questionnaire-based study was carried out at CMH Lahore Medical College & institute of dentistry, CMH Institute of Nursing, and School of Allied Health Sciences Lahore, Pakistan. Targeted study population included all fourth and final year students of medicine, third and final year students of dentistry, final year students of Allied and nursing school of CMH Lahore Medical College., sample size, was calculated by Open Epi which is a valid and reliable tool for the mentioned purpose. The confidence limit was set at ± 5% which gave a sample size of 249 students with 95% confidence interval (CI).

Institutional Review Board Committee of CMH Lahore Medical College &, CMH, Lahore IOD, Institute of Nursing and School of Allied Health Sciences approved the study protocol, case# 542/ERC/CMH/LMC. The study was conducted following the Declaration and all the students provided electronic consent was taken prior to participation. All these participants had started clinical training and exposed to the patients in hospitals during the 2020-2021 academic years. Students who refused to take part in the study were not included in the study. Purposive sampling was used and the Readiness for Interprofessional Learning Scale (RIPLS) questionnaire, a free online, valid, reliable, and pretested instrument was used to measure the readiness of undergraduate students towards IPE. Reliability of questionnaire calculated by the developer was 0.83.[12]

The tool used was having 19 items which were further divided into three subscales: Labelling of the three subscales, items numbers and scoring for the subscales of this questionnaire are shown in the below table:

Subscales	Item numbers	Scoring of items
Teamwork and collaboration	1-9	9×5= 45
Professional Identity	10-16	7×5=35
Roles and Responsibilities	17-19	3×5=15

The questionnaire was distributed to 924 undergraduate students. Using Google Forms. The link was disseminated using students' institutional mailing list. The link to the questionnaire was also shared with cohort groups of eligible students on WhatsApp Messenger. Data was collected within a period of one week from June 29 to July5, 2021. Daily reminders were given to the students during the study period to increase the response rate. All were informed regarding the anonymity of the study. The first part of the survey composed of the demography of participants: undergraduate's gender and 'discipline of participants while the second part of questionnaire consisted of 19 items. Questions were measured on a Likert scale of five points (5= strongly agree, 1 = strongly disagree). Items 10, 11 and 12 were reverse coded according to the instructions of developer. The scale was reversed for these three items so that for the other 16 items: the greater the marks the greater the indication of positivity towards readiness. This implies that the best possible points of RIPL was 95 and minimum points was19.Overallscore of 57 out of 95 would indicate a

neutral readiness, score>57 would indicate a more positive towards readiness, while score<57 would indicate a less than satisfactory towards readiness. The scores of the subscales were utilized to recognize the positive and negative areas of participants regarding awareness and readiness towards IPE.

The data collected was analyzed by using statistical software SPSS-22. Mean and standard deviation were calculated for the score of questionnaires. ANOVA test was used to find the difference of attitudes among five groups based on different disciplines. The statistical significance was set at a value ≤0.05. Cronbach's Alpha test was applied to check the reliability of questionnaire.

Results

Inventories were completed and returned by 582 students out of 924 students registered in medical, dentistry, nursing, physiotherapy, and medical imaging at CMH, yielding a response rate of 63%.Distribution of the future health professionals by academic year is illustrated in Table-I

(Table II) The best score (4.2) was given by most students for two items # 2 and 7: "Patients would ultimately benefit if health care students / professionals worked together" and "For small group learning to work, students / professionals need to respect and trust each other". Students gave low scores to last three items (17,18,19) of sub scale "Roles and Responsibilities" and lowest score 3.0 for item # 12: Clinical problem solving can only be learnt effectively with students / professionals from my own program highlighted the area for improvement.

Overall participants of all five disciplines were positive towards IPE. Cronbach alpha calculated for the complete questionnaire was 0.91. It was an excellent value. The total mean score of the inventory was 74.54 out of 95 for the 19 items. RIPL questionnaire scored >57 so the participants showed more satisfactory awareness and readiness regarding IPE.

(Table III) The highest percentage score of 81.7% was given to the "Teamwork and collaboration" subscale, followed by the "Professional Identity" subscale which gained 75.4 %, whereas "Roles and Responsibilities" obtained a minimum percentage of 68.60%. The mean overall score of the whole group was 78.4%.Analysis of Variance (ANOVA) was used to calculate the differences among groups of five

disciplines given in Table IV in the form of items' mean, standard deviation, and p-values. Statistical analysis by utilizing ANOVA showed that nursing students scored higher points than students of other health professions (P values between 0.00 and 0.05)Table IV.

Table I: Demographic Characteristics of Participants in The Study n= 582

Variables		n= No. of Students	% Percentage of Students
Gender			
	Male	168	28.9%
	Female	409	70.3 %
Discipline			
	MBBS	233	40%
	BDS	106	18.2%
	DPT	108	18.6%
	MIT/MID	64	11%
	Nursing	64	11%

Table II

RIPLS Items	Description: Using a 5-point Likert scale (5-strongly agree to 1-strongly disagree)	Mean	Std. Deviation
1.	Learning with other health professional students will make me a more effective member of a health care team.	4.092	1.078
2.	Patients would ultimately benefit if health care students / professionals worked together.	4.209	1.066
3.	Shared learning with other health care students / professionals will increase my ability to understand clinical problems.	4.168	1.050
4.	Learning with other health care students before qualification would improve working relationships after qualification.	4.104	1.054
5.	Communications skills should be learned with other health care students /professionals.	4.190	1.012
6.	Shared learning will help me think positively about other health care professionals.	4.132	1.037
7.	For small group learning to work, students / professionals need to respect and trust each other.	4.231	1.042
8.	Shared learning will help me to understand my own professional limitations.	4.094	1.010
9.	Team-working skills are vital for all health and social care students / professionals to learn	4.011	1.0
10	I don't want to waste time learning with other health care students / professionals.	3.890	1.141
11	It is not necessary for undergraduate / postgraduate health care students /professionals to learn together.	3.658	1.153

12	Clinical problem solving can only be learnt effectively with students / professionals from my own program.	3.072	1.177
13	Shared learning with other health care professionals will help me to communicate better with patients and other professionals.	4.032	1.044
14	I would welcome the opportunity to work on small group projects with other health care students / professionals.	4.061	1.039
15	Shared learning and practice will help me clarify the nature of patients' or clients' problems.	4.042	1.027
16	Shared learning before and after qualification will help me become a better team worker.	4.075	1.026
17	The function of nurses and therapists is mainly to provide support for doctors.	3.283	1.274
18	I am not sure what my professional role will be / is	3.554	1.229
19	I have to acquire much more knowledge and skill than other students /professionals in my own faculty / organization.	3.611	1.122

Table III: Three Subscales Measuring Future Health Professionals' Readiness and Awareness Towards Interprofessional Education

Sub scales	Item numbers	Total score of sub scales	Obtained Score of sub scales in current study	Mean	% age
Teamwork and collaboration	1-9	45	36.8	36.8	81.7
Professional Identity	10-16	35	26.4	26.4	75.4
Roles and Responsibilities	17-19	15	10.3	10.3	68.6

Discussion

This study revealed positive attitudes of participants from five different disciplines at CMH towards IPE. This is evident from a score of 78.4% in the

Table IV

RIPLS Questions	All Students N= Mean(SD)	Medicine N= Mean(SD)	Dentistry N= Mean(SD)	Nursing N= Mean(SD)	Physiotherapy N= Mean(SD)	MIT N= Mean(SD)	P- value
Q1	4.092(1.078)	4.004(1.081)	3.764(1.167)	4.375(1)	4.296(1.016)	4.324(0.953)	0.000
Q2	4.209(1.066)	4.185(1.053)	3.972(1.191)	4.578(1.005)	4.259(0.999)	4.25(1.013)	0.009
Q3	4.168(1.050)	4.107(1.059)	3.896(1.121)	4.516(1.008)	4.324(0.984)	4.25(0.952)	0.001
Q4	4.104(1.054)	4.064(1.051)	3.962(1.086)	4.219(1.091)	4.204(1.083)	4.206(0.939)	0.341
Q5	4.190(1.012)	4.197(1.015)	4.019(1.042)	4.453(0.975)	4.204(1.030)	4.162(0.956)	0.115
Q6	4.132(1.037)	4.060(1.053)	4.019(1.033)	4.359(1.060)	4.240(1.031)	4.162(0.971)	0.150
Q7	4.231(1.042)	4.210(1.023)	4.047(1.124)	4.531(0.975)	4.315(1.038)	4.176(1.021)	0.048
Q8	4.094(1.010)	4.082(0.977)	3.934(1.017)	4.25(1.054)	4.120(1.030)	4.176(1.050)	0.285
Q9	3.890(1.141)	3.708(1.218)	3.660(1.170)	4.484(0.690)	4.111(0.998)	4(1.146)	0.000
Q10	3.658(1.153)	3.481(1.156)	3.519(1.213)	4.219(0.826)	3.787(1.120)	3.764(1.211)	0.000
Q11	3.072(1.177)	2.948(1.155)	3.123(1.127)	3.344(1.263)	3.130(1.208)	3.103(1.186)	0.169
Q12	4.032(1.044)	3.957(1.054)	3.934(1.035)	4.266(1.043)	4.093(1.081)	4.132(0.976)	0.179
Q13	4.061(1.039)	4.004(0.989)	3.849(1.094)	4.281(1.119)	4.194(1.054)	4.176(0.992)	0.032
Q14	4.042(1.027)	4.009(0.996)	3.858(1.099)	4.188(1.111)	4.185(0.978)	4.074(1.012)	0.129
Q15	4.042(1.027)	4.009(0.996)	3.858(1.099)	4.188(1.111)	4.185(0.978)	4.074(1.012)	0.129
Q16	4.075(1.026)	4.060(1.020)	3.830(1.055)	4.281(1.076)	4.139(1.009)	4.206(0.955)	0.035
Q17	3.283(1.274)	3.506(1.130)	3.377(1.082)	2.734(1.576)	2.824(1.426)	3.588(1.149)	0.000
Q18	3.554(1.229)	3.339(1.229)	3.472(1.156)	4.25(1.069)	3.657(1.305)	3.618(1.120)	0.000
Q19	3.611(1.122)	3.687(1.103)	3.321(1.029)	3.891(1.236)	3.6021.168)	3.515(1.072)	0.015
Total	74.54(1.139)	73.61(1.128)	71.41(1.131)	79.40(1.160)	75.86 (1.164)	75.95(1.084	0.001

questionnaire, a good value that supports IPE. Our findings are similar to the findings from Riaz et al. study conducted in Pakistan[13]and international studies conducted by Talwalkar at Yale University which is located in the northeastern United States[9], Coster et al. in the UK[14] and a study conducted by University of Central Arkansas 'College of Health and Behavioral Sciences.[15] However, our study revealed a few significant differences. Nursing students appreciated (83.5%) IPE more than other health professions in the present study. They believe more in collaboration as compared to dentistry and medical students who believe in individualism.[13] Nurses usually perform their duties along with other health professionals. and support working of systems for optimum health care while due to the privileged position of doctors, MBBS students think that doctor as an individual is responsible for working in health care settings. This is similar to the findings from countries like Sweden[16] and Canada[17] but studies from UK[14], and Iran[18] contradict this finding. A study in KSA conducted by Hind Ibrahim Fallatah et al. revealed that MBBS students considered IPE important as compared to nursing students for improving patient safety and thought that IPE should be a part of their academic program.[4] Our study revealed that dentistry students scored lowest among all groups. This finding is in accordance with another multicentered study conducted by Amna et.al in Pakistan.[13] Curriculum in most dental colleges of Pakistan is based on traditional model. The teamwork and collaboration with other health professions are negligible and focused more on specific dental field. This could be the probable reason of demonstrating less positive attitude towards IPE. Medical students scored second last (77%). This finding may be due to the privileged position of doctors in our health system. The reason of highest mean of Nurses, physiotherapists and MIT undergraduates may be that these professions are not satisfied with their professional relationship with doctors and thought about the lack of their role in providing suggestions to doctors[19].A study conducted in Pakistan by Raisa Gul et al, highlighted lack of respect for nurses by doctors and not valuing the role of nurses in decision making, which is a point of concern for our health system.[20]

Generally, all students showed high readiness for IPE. However, compared to the nursing, physiotherapy and MIT students, a noticeable low readiness was found in the dentistry and medical students. Our study supports the necessity to improve the dentistry and medical students' awareness of their professional role in collaborative practice and the advantages of IPE in their clinical practice.

Majority of students in the present study reported attitudes supportive to statements regarding Teamwork and Collaboration. The highest scored item (4.23) was about respect and trust each other. This is in line with the study conducted by Talwalkar et al. in USA, Qadeer et al. and Riaz et al. in Pakistan.[13,21]

The low mean scores of last three items in subscale "'Roles and Responsibilities" provided us the opportunity to investigate the weakness of health professionals in terms of their role in IPE. This finding was in accordance with findings from other studies of Pakistan, Amna etal. (2020) conducted for undergraduates and Qadeer et.al (2020) conducted for postgraduate reported that the lowest scored item was regarding the role of participants toward IPE.[13,21] The lowest mean score item of current study is "Clinical problem solving can only be learnt effectively with students / professionals from my own program". This finding also supports the need for integrating IPE, as the students showed lack of awareness about the roles of health care team. Majority of students needed comprehensive understanding of IPE, Lama et al. (2018) conducted at Beirut Arab University mentioned that IPE was found to provide the defined roles of each of the health professions and augment the participants' views on the importance of the roles of other providers. The point of IPE is to develop an environment where each health provider recognizes his strengths and limitations and performs his/her duties competently for the safe care of the patient[22] Education regarding the various roles of health professions would assist to improve the knowledge needed for collaboration with other coworkers which has been associated with effective clinical practice.[22] Due to this fact, it was suggested that the training of future health professional should give the type of IPE that allows them to get deep understanding regarding the roles, and practices of

other health professionals, as well as their own.[23] Romanow et al. noted that it is imperative for all health care workers to identify and understand their role for collaboration and mutual respect which improve working environment, health care and patient safety. Currently, lack of training is noticed in academic programs for healthcare settings among health professions.[24] This issue could be solved by providing early IPE and training to our future health professionals for patient centered practice. The advantage of incorporating IPE in early years of education may discourage the stereotyping and prejudices and encourage mutual respect and trust among students.[25]

The results of local and foreign studies can give a broad picture regarding readiness of future health professionals for IPE. Moreover, the findings can assist the curriculum developers and instructional designers to integrate IPE in the curriculum of Pakistani health professions.

Implications

Carefully designed IPE courses and workshops regarding the basic knowledge and holistic view of IPE could be developed for students of all health professions based on their baseline data. To strengthen IPE in workplace settings, the roles and responsibilities of all stakeholders should be clearly defined.

Strengths and Limitations

A validated and reliable survey RIPL was utilized. The limitation of this study is that it is done in only one private institution of Pakistan. Future research is also needed for the replication of the current study in other private and public medical, nursing, dental and allied schools for the generalization of results.

Conclusion

A clear positive attitude of future health care professionals of our institution (undergraduate students of medical, dental, nursing, DPT & MIT)is shown towards IPE analyzed through this questionnaire. However, noticeable differences have emerged among students of health professions. The results encourage pilot projects and provide baseline information with the goals to incorporate IPE into health professions curriculum all over Pakistan, take initiatives and develop strategies for the promotion of patient safety among future health professionals. This will bring change in professional personalities of

our future doctors according to the global needs and standards.

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DATA SHARING STATMENT
The data that support the findings of this study are available from the corresponding author upon request.

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