

**PERCEPTION AND READINESS TOWARDS INTER-PROFESSIONAL EDUCATION
AMONG DIFFERENT HEALTH CARE DISCIPLINES AT KHYBER MEDICAL
UNIVERSITY PESHAWAR**

Yaser Ud-din¹, Zubaida Khaton², Zartasha³, Nasreen Ghani⁴, Haidar Ali⁵ and Sadar Badshah⁶

¹ Royal College of Nursing Swat Pakistan, Pakistan

²State College of Nursing, Mirpur AJK, Pakistan

³ Federal General Hospital, Islamabad, Pakistan

⁴Sarhad University of Science and Technology, Peshawar Pakistan

⁵Institute of Biotechnology and Genetic Engineering, the University of Agriculture Peshawar Pakistan

⁶Mardan Institute of Medical and Nursing Science

Corresponding authors:

Haidar Ali
Institute of Biotechnology and Genetic Engineering,
University of Agriculture Peshawar Pakistan.

Abstract.

Interprofessional learning (IPL) is an approach that teaches students diverse disciplines to communicate with each other about their professional knowledge in order to acquire a more complex one understanding of the current situation. According to WHO definition of IPE “it’s a process between two or more professionals learn about from, and with one another to permit effective association and enhance health outcome. The aim of this study was to measure perception and readiness towards IPE among different health care disciplines. A cross-sectional study was done with two hundred and eighteen post graduate nursing, public health, physiotherapy, and basic medical sciences students from September, 2020 to January, 2021 at Khyber Medical University Peshawar Pakistan. Convenient sampling technique was used to collect data. The Readiness for Inter-Professional Learning Scale (RIPLS) and Interdisciplinary Education Perception Scale (IEPS) were used to measure the readiness and perception of students regarding inter-professional leaning. The data were analyzed using software Statistical

Package for Social Science (SPSS) (Version 23). The RIPLS was completed by a total of 218 participants (response rate 100%, 61 Nursing students 28%, 51 physiotherapy students 23.4%, 53 public health students 24.3%, and 53 basic medical sciences students 24.3%). As shown in Table 1.1, the majority of respondents were male (51.4%) followed by female (48.6%). Most of the respondents were aged with a mean score of 27.92 ± 3.195 . Moreover, majority of respondents have experience less than 5 years (75.2%) and (22.8%) has experience above than 5 years. Value of perception and readiness in Shapiro-Wilk is .000 which shows that the data variable is not normally distributed, whereas in correlation of students towards interprofessional learning by applying Spearman' rho test: Students' perception has strong positive correlation with their readiness, p value (.000). Also students' readiness has strong positive correlation with their perception towards interprofessional learning. This study was to explore the readiness and perception of students towards interprofessional education in different health care students. IPL is beneficial for students to know other professionals to work together for teamwork and collaboration and it also increase communication between different health care professional and patients.

Keywords. IPL, RIPLS, IEPS, Basic Medical Sciences,

Highlights

- The most important findings of this study was subscale of roles and responsibility domain question “the function of the nurses and therapists is mainly to provide support for doctors” response of MSN students strongly disagree followed by Basic medical sciences students, Public health students, and physiotherapy students.
- Interprofessional education is very important and valuable to develop a willingness to work with others who health at work is a very important asset especially realizing what science has done today cooperative health cooperative discussion.

Introduction

Inter-professional learning (IPL) is an approach that teaches students diverse disciplines to communicate with each other about their professional knowledge in order to acquire a more complex one understanding of the current situation. According to WHO definition of IPE “it’s a process between two or more professionals learn about from, and with one another to permit effective association and enhance health outcome (1). Preparation of students for joint practice is one of the important role plays by IPE. By providing meaningful opportunities for interaction with single professions to engage students with other disciplines, Interprofessional education allows students to reflect their own roles in multi-disciplinary team, know the roles of others and develop effective teamwork communication skills that are transferable to clinical practice(2). Students have to prepare before their professional life through inter-professional education and encouraging strategies by teachers regarding teamwork and collaboration, which will be helpful to become a more effective member of Health care team and achieve maximum health care outcome in patients living with chronic diseases. Students learn by sharing with other healthcare disciplines and better understand clinical problems. (3)it has been shown that medical errors can be reduced through improved interdisciplinary communication, which is one of the benefits of IPL, particularly when the learning groups have balanced input from each of the other professions. Health professional students from discipline-focused programmes may have diverse attitudes and readiness towards participation in the IPL. The students’ preparedness to engage in IPL will be directly dependent on their attitudes and readiness. (4)the goal of IPE for students is to learn to function as part of an interprofessional team and to improve patient outcomes through interaction professional cooperation in your future practice. Greater coordination of health professionals through interdisciplinary collaboration has been shown to benefit patients prevent

fragmentation of care and improve a holistic approach access to health. (5)one of the important aspects of interprofessional learning is concerned about changes in attitudes among professionals groups that may need research when considering shared learning. Thus Applying the principles of servant leadership can enhance the practice of professional development and strengthen the relationships between students in society, so that there is an increase respect the contributions and skills of different disciplines.(6). (7)generally, for successful IPE programs positive attitude toward other professionals and team working is required. (8)the same understanding can however are not available to all team members. One of the report shows that medical students have the least confidence in their professional role and in their faith which requires more knowledge and skills than nursing or pharmacy students.(9)

Aim of the Study

The aim of this study was to assess the perception and readiness towards inter-professional education among different health care disciplines at Khyber Medical University Peshawar

Significance of the Study

IPL helps students become familiar with key roles in their work, as well as the role of their team members from other professions. Recent research has shown that the value of previous IPL experience in the workplace lies in a better professional identity and attitude towards teamwork. Practice is important because the department seeks to provide a supportive learning experience cooperation of disciplines after graduation and into practice. Provide to the elderly an adult with experience in interdisciplinary teams improves the quality of their care, and providing students of different disciplines a real view of life in advanced age. This study addresses the degree of perception and readiness towards IPE among students of different healthcare disciplines. The study also helps the administrators to introduce and implement IPE in curriculum as well as its significant results also affect the quality of communication with patients.

Methods and Material:

Study design

A correlational cross-sectional study design was conducted for the period of 4 months from September to December 2020, in different departments of Khyber medical university Peshawar. Convenience sampling was undertaken. The sample size was calculated using OpenEpi software by considering the total population of students during the study period; response distribution as 50% confidence interval was set at 95 and margin of error was at 5%. All the students were invited to participate in the study. The minimum sample size required to fulfill the study findings were a total of 218 students (61 Nursing students, 51 physiotherapy students, 53 public health students, and 53 basic medical sciences students completed the survey). Post graduate students from all discipline were included in the study. Undergraduates and students who were not interested in participating were excluded from the study.

Setting, participants and ethical considerations.

The study was conducted at Khyber medical university, Peshawar Pakistan, which provides healthcare related programmes. The sample was drawn from all postgraduate students enrolled in 2 years' post-graduation degree program. Participation was voluntary. A written consent was obtained from the student prior to receiving the questionnaire. The study protocol was accepted by Khyber medical university ethical committee review board. Data obtained was stored safely for the specific period of time according to the requirements. Privacy and confidentiality will be maintained strictly. Risks and benefits ratio of the study was explained to the participants as per the requirement of the study.

Study instruments.

The Readiness for Interprofessional Learning Scale (RIPLS) developed by Parsell and Bligh (1999), which enabled the students to reflect on various aspects of IPL, was used to measure student readiness, or student beliefs, about IPL. A 5-point Likert Scale (Strongly agree = 5, agree = 4, neutral = 3, disagree = 2 and strongly disagree = 1) was used to analyze the students' responses. The study tool has 19 self-reported items under four different domains. Domain 1 focused on the aspects of teamwork and collaboration (item 1–9). Domain 2 focused on positive and negative professional identity towards other professions (item 10–16). Domain 3 focused on the roles and responsibilities of professionals (item 17–19). The Interdisciplinary Education Perception Scale (IEPS) developed by Luecht, Madsen, Taugher, and Petterson (1990) was the second instrument used in the study to detect changes in learning over time among health professional students. It consisted of three domains (proficiency and dependence, Perceived Need for teamwork, and Perception of Actual Collaboration) with 18 items. The validated instrument used a 6-point Likert-scale (Strongly disagree = 1, moderately disagree = 2, somewhat disagree = 3, somewhat agree = 4, moderately agree = 5 and strongly agree = 6). Additionally, the participants' demographic details (age, gender, Programme of study and year of experience in field work) were also collected.

Data Collection.

Data collection was conducted in different departments of Khyber Medical University i.e. (INS, IPMR, IBMS, and IPH&SS). Those respondents who have agreed and signed informed consent data were collected. Prior to signing the consent form students were informed about the confidentiality and given an explanation about the research aim. The procedures for completing

the questionnaires were described after the questionnaire's distribution. Students completed the questionnaires manually by ticking the statements which are match with their perceptions.

Results

The RIPLS was completed by a total of 218 participants (response rate 100%, 61 Nursing students 28%, 51 physiotherapy students 23.4%, 53 public health students 24.3%, and 53 basic medical sciences students 24.3%). As shown in Table 1.1, the majority of respondents were male (51.4%) followed by female (48.6%). Most of the respondents were aged with a mean score of 27.92 ± 3.195 . Moreover, majority of respondents have experience less than 5years (75.2%) and (22.8%) has experience above than 5years. (Fig 1.1-1.4)

Table 2 showing the significance value of perception and readiness in Shapiro-Wilk is .000 which shows that the data variable is not normally distributed. Just because the data is not normally distributed Pearson correlation test was applicable to use in this study. So we will use Spearman' rho correlation test to check the correlation of student's readiness and perception.

Table 3 showing correlation of students towards interprofessional learning by applying Spearman' rho test. Students' perception has strong positive correlation with their readiness, p value (.000). Also students' readiness has strong positive correlation with their perception towards interprofessional learning.

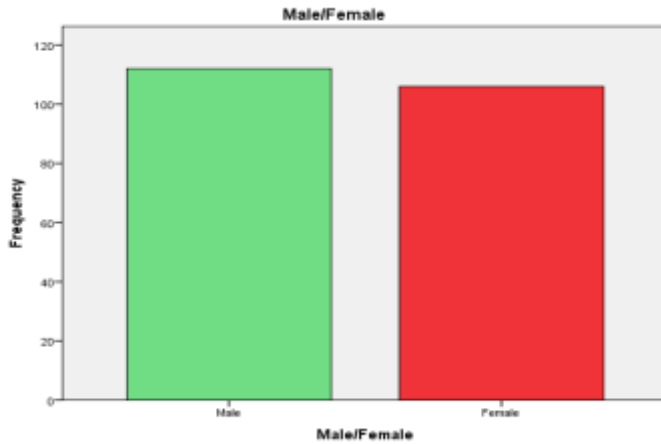
Table 4 showing the mean score for the readiness and perception. Mean score for the readiness of the students was 69.8 (SD= 8.41) and a minimum of 44 and maximum of 93 out of a possible 95. And the mean score for the perception students towards interprofessional education was 74.90 (SD=13.81) and a minimum score of 30 while a maximum score of 100 out of a possible 108.

Table 5 showing the results of each subscale for perception of the students towards inter-professional education for all discipline were: proficiency and dependence was 20.68 (SD 4.67) with a minimum of 7 and a maximum of 28. Score for subscale: perceived need for teamwork 16.38 (SD 3.39) with a minimum of 7 and a maximum of 23. Score for subscale: perception of actual collaboration was 20.40 (SD 4.33) with a minimum of 7 and a maximum of 28. Score for subscale: considering other values was 17.42 (SD 3.54) with a minimum of 7 and a maximum of 24. While the results of each subscale of readiness for all discipline was: Teamwork and collaboration; were 24.21 (SD 4.13) with a minimum of 10 and a maximum of 30. Score for subscale: Professional identity was 24.32 (SD 3.68) with a minimum of 15 and a maximum of 34. Score for subscale: Roles and responsibility was 8.80 (SD 2.25) with a minimum of 3 and a maximum of 15.

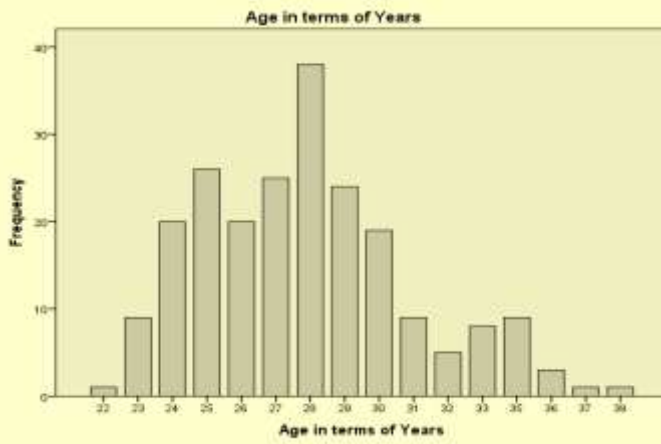
Demographic data of the Participants

Characteristics.	n=218	Percentages.	Academic Program	n=218	Percentages.
Sex			Nursing	61	28%
Male	112	51.4%	Physiotherapy	51	23.4%
Female	106	48.6%	Public Health	53	24.3%
Age			Basic Medical Sciences	53	24.3%
<30	163	74.8%			
>30	55	25.2%			
Experience					
<5 Years	164	75.2%			
>5 Years	54	24.8%			

Demographic characteristics



1. In the current study, the gender composition of the participants was founded



2. The age of the participants was categorized into different categories. Among them,

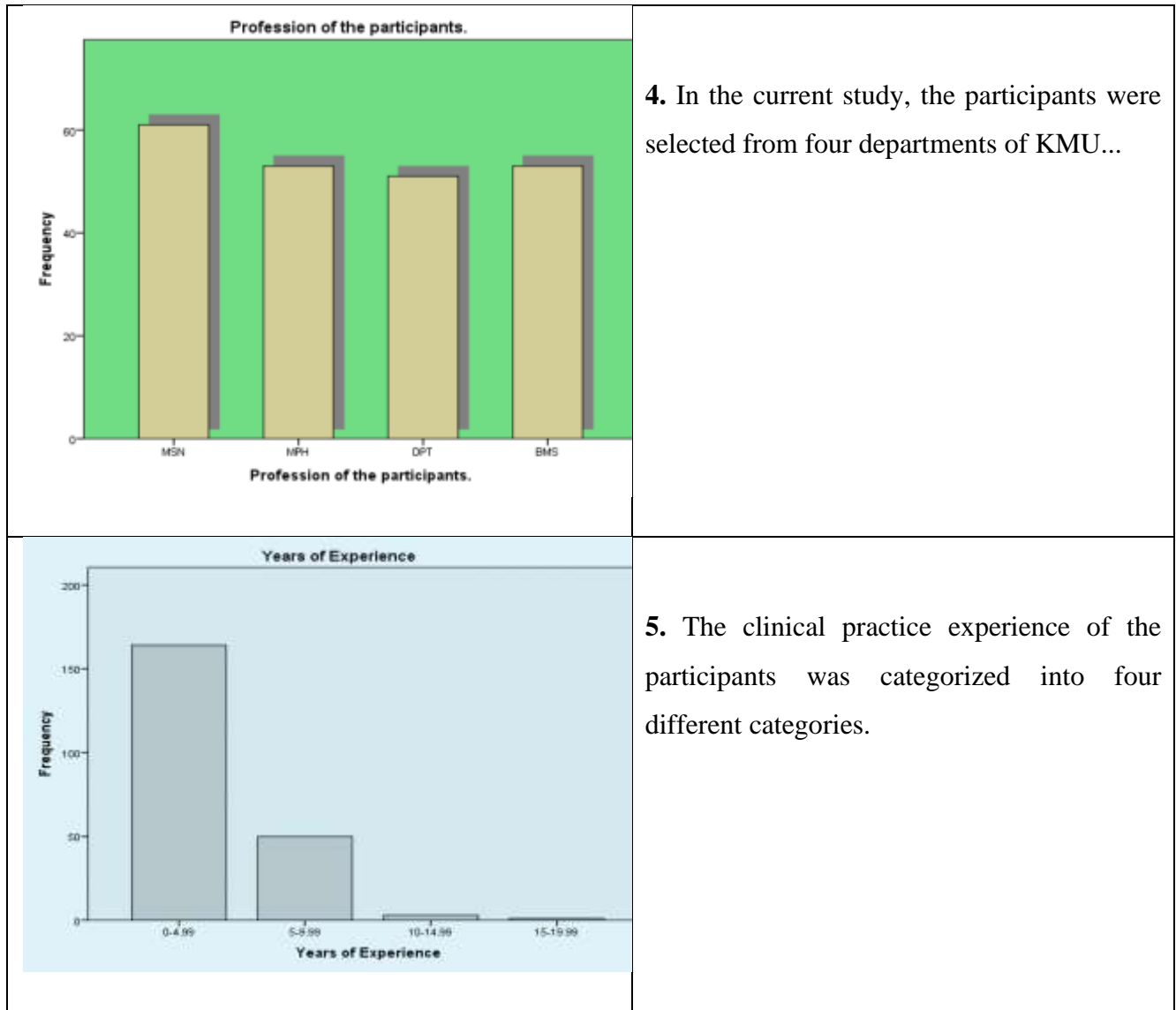


Table 2

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Perception	.097	218	.000	.961	218	.000
Readiness	.131	218	.000	.962	218	.000

a. Lilliefors Significance Correction

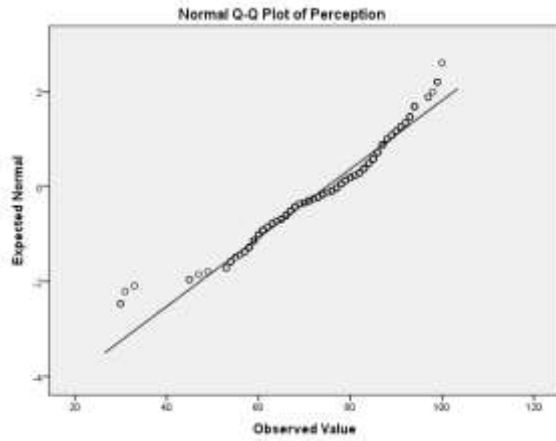


Fig 2.1

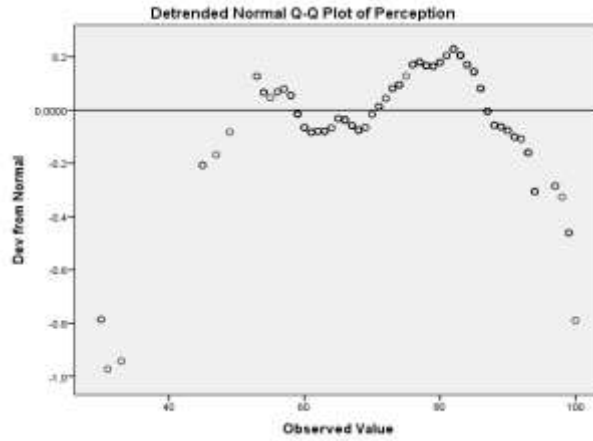


Fig 2.2

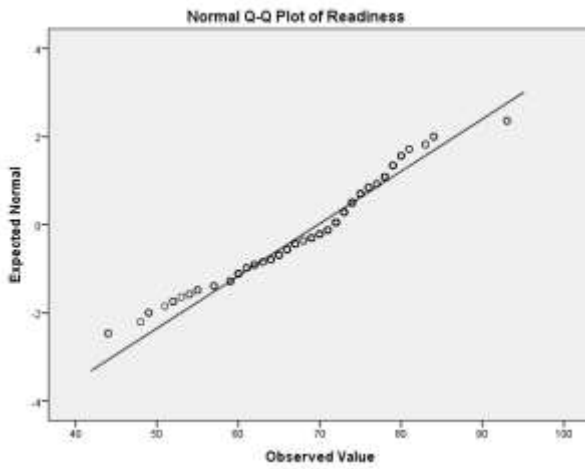


Fig 2.3

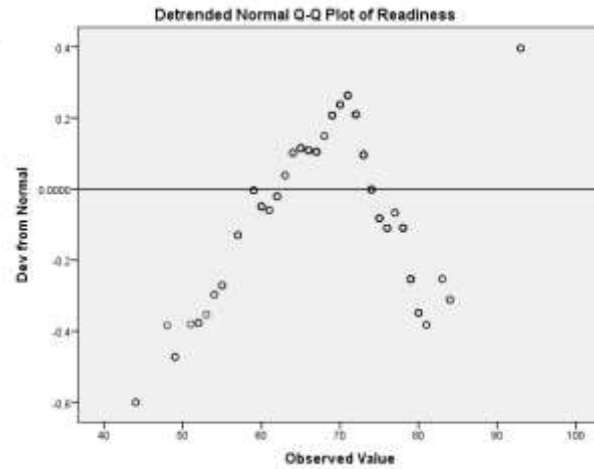


Fig 2.4

Table 3 Correlations b/w Students and IPL

		Perception	Readiness
Perception	Pearson Correlation	1	.522**
	Sig. (2-tailed)		.000
	N	218	218
Readiness	Pearson Correlation	.522**	1
	Sig. (2-tailed)	.000	
	N	218	218

** . Correlation is significant at the 0.01 level (2-tailed).

Table 4

Mean score of Readiness and perception of all discipline.

	Perception	Readiness
N	218	218
Mean	74.9083	69.7982
Std. Deviation	13.81146	8.41743
Minimum	30.00	44.00
Maximum	100.00	93.00

Table 5.

Subscale for IEPS & RIPLS among all disciplines.

	Teamwork Collaboration	Professional identity	Roles Responsibility	Proficiency &dependence	Perceived Need Teamwork	Perception Actual Collaboration	Considering Other Values
N	218	218	218	218	218	218	218
Mean	24.2156	24.3211	8.8073	20.6835	16.3899	20.4083	17.4266
Std. Deviation	4.13865	3.69426	2.25751	4.67327	3.39141	4.33327	3.54518
Minimum	10.00	15.00	3.00	7.00	7.00	7.00	7.00
Maximum	30.00	34.00	15.00	28.00	23.00	28.00	24.00

Table 6

Profession of the participants.		N	Mean	Std. Deviation
MSN	Teamwork and Collaboration	61	25.1475	3.67803
	Professional identity	61	23.9672	4.12297
	Roles Responsibility	61	8.8361	2.43023
	proficiency and Independence	61	20.7049	4.26749
	Perceived Need &Teamwork	61	16.2131	2.60202
	Perception& Actual Collaboration	61	20.3607	4.30516
	Considering Other Values	61	17.8033	2.90299
MPH	Teamwork and Collaboration	53	22.3585	3.94722
	Professional identity	53	25.2075	4.06845
	Roles& Responsibility	53	8.4340	2.01446
	proficiency and Independence	53	21.2075	4.00653
	Perceived Need &Teamwork	53	17.7358	2.49731
	Perception & Actual Collaboration	53	20.5283	2.84608
	Considering Other Values	53	18.7925	2.84442
DPT	Professional identity	51	24.6667	5.05041
	Roles & Responsibility	51	24.8627	3.31674
	proficiency and Independence	51	8.4706	1.94271
	Perceived Need &Teamwork	51	19.4510	6.08379
	Perception & Actual Collaboration	51	14.6471	3.89268
	Considering Other Values	51	19.7059	5.58317
	Teamwork and Collaboration	51	15.8431	4.27725
BMS	Professional identity	53	17.1509	3.52680
	Roles & Responsibility	53	24.5660	3.30215
	proficiency and Independence	53	23.3208	2.82008
	Perceived Need & Teamwork	53	9.4717	2.46205
	Perception & Actual Collaboration	53	21.3208	4.03720
	Considering Other Values	53	16.9245	3.77160
	Teamwork and Collaboration	53	21.0189	4.24486

Discussion

The aim of this study was to explore the readiness and perception of students towards interprofessional education in different health care students. IPL is beneficial for students to know other professionals to work together for teamwork and collaboration and it also increase communication between different health care professional and patients. The result is that students can learn professional skills from each other and enhanced understanding between them as well as patients' problem. While the advantage of interdisciplinary education among different healthcare students is to understand their professional role and allow them to be able to work closely with individuals in other profession. (10). The participants of this study was post-graduation students who were enrolled in a 2 years' degree program in Khyber Medical University Peshawar from different disciplines that include Master in Nursing 28%, Master in physiotherapy 23.4%, Master in public health 24.3% and Master in basic medical sciences 24.3% i.e. (Anatomy, Microbiology, Biochemistry, Pharmacology and histopathology) 24.3% in which 51.4% male and 48.6% female. Study distribution was check by applying Shapiro-Wilk W test to check the normality of the data. As the result was 0.000 and it was less than 0.05 so it was statistically significant that the sample was not normally distributed and we reject the null hypothesis that the sample was drawn from a normal distribution. Spearman's rho was correlation test was used to check the correlation of students' perception and readiness. Participants shows strong positive correlation in their readiness and perceptions towards inter-professional learning, ($p=.000$). The results are in agreements with some previous studies, which show most healthcare students have positive perception and readiness towards IPL in undergrads level. (1). Our results show that on the subscale teamwork and collaboration majority of students were agreed with importance of collaboration and teamwork domain with other health care

professionals. This result matches the previous finding study that observed students had positive attitude towards teamwork and collaboration.(9). The high values of our results in professional identity subscale for the first three questions that show negative professional identity in this domain highly suggests by all disciplines students that for undergrads it is not necessary to learn together with other healthcare professional and clinical problem solving skills can be learned from my own department students' as well as also had a high score of students' agreement from each health profession group agreed or strongly agreed with the four items in this section that show positive professional identity. Respondents from all disciplines agreed that shared learning with other health care professionals would help them to communicate better with patients and other professionals. The item in subscale roles and responsibility are concerned with the idea that professional clinical practice improves health professionals' responsibility. Results to the following question in this domain "the function of the nurses and therapists is mainly to provide support for doctors" response of MSN students was 62.29% strongly disagree followed by Basic medical sciences students 56.60%, Public health students 52.83% and physiotherapy students 47.05%. Our study findings were collected through a valid and reliable questionnaire. It is an appropriate instrument that measure students' readiness towards IPE. The RIPL scale was validated for Middle Eastern populations. The authors reported the instrument as having high content validity and an internal consistency reliability of 0.9. (11). The data collected from 218 students represented a response rate of 100% and it was close to the recommended sample size. Our study findings may be useful for students who are being considered as future members of rehabilitation teams, faculty members of universities, and rehabilitation teams in health-care centers.

Some of the challenges encountered in our study affected the result. The short period of time restricted the involvement of our health profession education students in our study; therefore, we are unable to include all the disciplines related to health care profession team. The subject was selected from one university of Peshawar therefore the results cannot be generalized to students of other universities or contexts. This was a cross sectional study design that is not able to exactly determine the factors that affect the differences among the results. Ideally, IPE would promote specific learner skills; including teamwork, leadership; consensus building and the ability to recognize achieve common goals of patient care. Course administration is an interprofessional teamwork in the health program a great challenge for the clinical teaching community. IPE offers the opportunity to address the multidisciplinary concept through hospitals.

Conclusion

Present study findings showed strong positive correlation between perception and readiness for interprofessional learning. Positive attitude of students towards interprofessional training of qualified health professionals to note, share and learn from each other new skills and practices experience and knowledge. The most important findings of this study was subscale of roles and responsibility domain question “the function of the nurses and therapists is mainly to provide support for doctors” response of MSN students strongly disagree followed by Basic medical sciences students, Public health students, and physiotherapy students. Interprofessional education is very important and valuable to develop a willingness to work with others who health at work is a very important asset especially realizing what science has done today cooperative health cooperative discussion.

Recommendations

Interprofessional learning should be included the study programs of all health professional programs, this can motivate students to dominate the healthcare industry suppliers and understand the importance of teamwork and Cooperation.

Conflict of Interest

All the authors of the manuscript entitled "PERCEPTION AND READINESS TOWARDSINTER-PROFESSIONAL EDUCATION AMONG DIFFERENT HEALTH CARE DISCIPLINES AT KHYBER MEDICAL UNIVERSITY PESHAWAR" has no conflicts of interest to declare regarding the publication of this research in the your journal.

We have no financial or personal relationships that could inappropriately influence or bias the work presented in the manuscript. We have provided a statement regarding conflicts of interest in the manuscript, and we are willing to provide any further information or clarification if required.

Ethical statement

We are pleased to report that this study was conducted with a high level of ethical rigor, with all relevant ethical guidelines and regulations strictly adhered to. Informed consent was obtained from all participants, and their confidentiality and privacy were carefully protected throughout the study. The study was approved by the institutional review board, and all procedures were conducted in accordance with ethical principles such as respect for persons, beneficence, and non-maleficence. We are confident that the results of this study contribute to the scientific knowledge base while upholding the highest ethical standards.

References

1. Einas al-Eisa1) Aa. The perceptions and readiness toward interprofessional education among female undergraduate health-care students at King Saud University. The Journal of Physical Therapy Science. Dec. 23, 2015;Vol. 28, No. 4, 2016.
2. Emer M. Guinan EMB. <Attitudes to Interprofessional Education in Health Science.pdf>. International Journal of Health Sciences Education. 2018;Volume 5.

3. Gilani SA, Afzal M, Perveen K, Hussain M, Mukhtar J. Students' Perception and Readiness towards Inter-Professional Learning. *International Journal of Social Sciences and Management*. 2018;5(3):192-200.
4. Maharajan MK, Rajiah K, Khoo SP, Chellappan DK, De Alwis R, Chui HC, et al. Attitudes and Readiness of Students of Healthcare Professions towards Interprofessional Learning. *PLoS One*. 2017;12(1):e0168863.
5. Shauna M. Buring P, Alok Bhushan, PhD, Amy Broeseker, PhD, Susan Conway, PharmD, Wendy Duncan-Hewitt, PhD, Laura Hansen, PharmD, and Sarah Westber, PharmDg. INTERPROFESSIONAL EDUCATION SUPPLEMENT, Interprofessional Education: Definitions, Student Competencies, and Guidelines for Implementation. *American Journal of Pharmaceutical Education* 2009 59:73 (4)
6. Neill M, Hayward KS, Peterson T. Students' perceptions of the interprofessional team in practice through the application of servant leadership principles. *J Interprof Care*. 2007;21(4):425-32.
7. Sigalet E, Donnon T, Grant V. Undergraduate students' perceptions of and attitudes toward a simulation-based interprofessional curriculum: the KidSIM ATTITUDES questionnaire. *Simul Healthc*. 2012;7(6):353-8.
8. Glennys parsell Jb. In general, positive attitude toward other professionals and team working is required for successful IPE programs Blackwell Science Ltd Medical education. 1999;33:095-100.
9. Keshtkaran Z, Sharif F, Rambod M. Students' readiness for and perception of inter-professional learning: a cross-sectional study. *Nurse Educ Today*. 2014;34(6):991-8.
10. Emily Donato NL, Lorraine Carter, Leigh MacEwan. Interprofessional Education in Canadian Nursing Programs and Implications for Continuing Education. *JOURNAL OF PROFESSIONAL, CONTINUING, AND ONLINE EDUCATION*. 2016;V o l 1 1 . 1 , .
11. El-Zubeir M, Rizk DE, Al-Khalil RK. Are senior UAE medical and nursing students ready for interprofessional learning? Validating the RIPL scale in a Middle Eastern context. *J Interprof Care*. 2006;20(6):619-32.