Perceptions On Interprofessional Education Among Undergraduate Health Care Students

M Denika Chathurangi Silva[1*], Dr. Gominda P Ponnamperuma[2]

[1] *General Sir John Kotelawala Defence University, Sri Lanka*
[2] *University of Colombo, Sri Lanka*

Abstract

Interprofessional education (IPE) is two or more professionals representing two or more healthcare professions learning in a collaborative learning environment. Bridges et al (2011) have identified that IPE improves healthcare students' skills in working in an inter professional team. The purpose of this study was to evaluate the perception towards IPE among medical, nursing and physiotherapy undergraduates at a Sri Lankan university. A cross-sectional descriptive study was carried out among first year and final year medical, nursing and physiotherapy undergraduates using a self- administered inventory: Readiness to Inter Professional Learning Scale (RIPLS) to evaluate the perception towards IPE. The data of the study were analyzed using Statistical Package of Social Science (SPSS) software version 20. Descriptive statistics (mean and SD), Cronbach's alpha reliability test, t-test and one way analysis of variance (ANOVA) with Turkey HSD were used to compare the perception on IPE; with gender, year of study and among three different disciplines. Ninetytwo medical, 98 nursing and 52 physiotherapy undergraduate students participated in this study. The highest response rate was observed among first year students (78.48%) whereas the response rate among final year students was 64.8%. Cronbach's alpha value of overall inventory was 0.798. The mean score of the RIPLS of this study (77.10+_7.68) was higher than the average score on the scale (47.5). The overall mean of RIPLS score was significantly higher in females (77.74+-7.13) compared to males (76.06+_ 8.46) (p<0.005). Though not significant, final year students (78.23+_8.23) have a higher mean compared to first year students (76.21+_7.11). A significant higher mean value for RIPLS score was achieved by physiotherapy students compared with medicine and nursing students during the first year. But final year nursing students achieved higher mean though the difference was not significant. In general, perception towards inter professional education was favorable among undergraduate health care students. Higher perception on IPE was observed among female and final year undergraduates. A significant higher mean value was achieved by first year physiotherapy students. Higher values among final year nursing undergraduates can be explained by the positive attitudes they develop towards IPE with successive years in their undergraduate programmes.

Introduction

Health care professionals have to work with each other in a multidisciplinary health care team in many situations e.g. clinical context, ward setting, community and etc. Conflicts can happen when different professionals working with each other in a multidisciplinary team (Ramsay, 2001). Ultimately, the impact of these conflicts may lead to poor quality of patient care. It is necessary to understand and respect each profession in a multidisciplinary team in order to work without conflicts, to achieve a common goal leading to proper patient care (Young Hee Lee et al, 2014). Inter-professional education (IPE) plays an important role in acquisition of team working skills to enhance professional working relations (Dargahi et al, 2012). Also, IPE is beneficial to improve healthcare students' skills when working in inter-professional teams (Bridges et al, 2011).

IPE is defined as "when students from two or more professions learn about, from, and with each other, to enable effective collaboration and improve health outcomes" (WHO, 2010).

There are a lot of advantages of IPE. IPE develops knowledge, skills and attitudes of the student within an inter-professional team environment. IPE improves specific competencies of the student, including teamwork, leadership, consensus building, and the ability to identify and achieve common patient care goals (Shauna et al, 2009).

Usually, there is insufficient emphasis on inter-professional education within medical or allied health undergraduate curricula. (Bridges et al, 2011). These curricula have only focused on the specific role of their own profession. This is similar in Sri Lankan universities too.

Currently there is a desire to emphasize the importance of inter-professional education during the behavioral science stream and personal development module in medical and allied health sciences faculties.

This study was conducted in a university in Sri Lanka where medical and allied health sciences students learn together during some instances that fulfill a part of inter-professional education, according to WHO definition.

To our knowledge, no study has examined the perceptions of medical and allied health sciences students in Sri Lanka

The purpose of this study, thus, was to evaluate and compare the perception towards inter- professional education among first year and final year medical, nursing and physiotherapy undergraduates in a multi-faculty university in Sri Lanka, where these student groups learn together within the same university in medical and allied health sciences faculties.

Methodology

A cross sectional descriptive study was conducted in a multi faculty university, Sri Lanka where medical students and allied health sciences students learn together during some instances. The participants of the study were the students from different health care disciplines; medicine, nursing, and physiotherapy. These students learn together mostly during their first year in common subjects and during all the years at clinical practice.

All the first year students at the end of the first year and all the final year students at the end of the final year from each discipline (medicine, nursing and physiotherapy) participated in this study.

Ethics clearance was obtained from Ethics Review Committee of General Sir John Kotelawala Defence University, Sri Lanka, prior to the study with the research proposal. A self- administered questionnaire was used in this study, consisting of two main parts: socio demographic data to assess the personal information of the student and RIPLS (Readiness to Inter-professional leaning Scale) inventory to assess the perception towards IPE. The questionnaire was pretested on second year and third year students from the same university to evaluate the suitability and understandability of the questionnaire items prior to using in this study. Content validity of the questionnaire was evaluated by a panel of lecturers who participated actively in inter-professional learning.

Students were invited to participate in this study during the free time slots (lunch break) and after academic hours.

The data were collected after obtaining informed written consent, to ensure volunteer participation. The confidentiality and privacy of the participant data were maintained, as the anonymity of the responses were maintained.

All the participants were provided a brief description about IPE (definitions, importance and disadvantages of the IPE); and about the questionnaire prior to the study.

Statistical analysis

The data of the study were analyzed using Statistical Package of Social Sciences (SPSS) software version 20. Perception on IPE among participants was analysed using Readiness for Inter-Professional Learning Scale (RIPLS) (Blight et al., 1999) consisting of 19-items, measuring perception on inter-professional education.

Descriptive statistics (i.e. mean and standard deviation) were used to summarize the demographic data. Inferential statistics [i.e. t test and one way analysis of variance (ANOVA), including post hoc Turkey Honesly significant (HSD)] were used to compare the means of RIPLS inventory with gender, year of the study and the three different disciplines. The results were considered as significant if the p value were > 0.05.

RIPLS Inventory

The 19-item questionnaire were scored based on a five-point Likert scale (1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, and 5 = strongly agree) (Parsel and Bligh, 1999). Prior to statistical analysis of the data, negative items (i.e. items 10 to 12) were reverse scored as suggested by McFadyen (2001).

The RIPLS included three subscales analyzed as separate domains: teamwork and collaboration (question 1-9), professional identity (10-17) and roles and responsibilities (18-19).

Cronbach's alpha, developed to measure the internal consistency of either a statistical scale or test (Tavakol et al, 2011) was calculated on each of the three RIPLS domains and the overall RIPLS questionnaire.

Results

- *Response rate*

  Ninety two medical undergraduates (38.02%), 98 nursing (40.49%), and 52 (21.49%) physiotherapy undergraduates participated in this study. The response rate was highest among physiotherapy students (86.67%), followed by nursing students (78.4%) and medical students (61.74%).

  The response rates were highest in first year students (78.48%) than final year students (64.8%) concerning all the disciplines.

- *Demographic data*

  An overview of demographic information of all the (242) participants in the study are presented in Table 1:

Table1:
Demographic data of all the participants (n= number of participants)

		Medicine (n=92)	Nursing (n=98)	Physiotherapy (n=52)	Total participants (n=242)
Gender	Male	50 (54.3%)	25 (25.5%)	16 (30.8%)	91 (37.6%)
	Female	42 (45.7%)	73 (74.5%)	36 (69.2%)	151(62.4%)
Year of study	First year	54(58.7%)	52 (53.1%)	29 (55.8%)	135 (55.8%)
	Final year	38 (41.3%)	46(46.9%)	23(44.2%)	107 (44.2%)

Two hundred forty two students participated in this study including 91 (54.3%) male and 151 (45.7%) female students. Among all the participants; 135 (55.8%) were from first year and 107 (44.2%) were from final year.

Out of 92 medical students, 50 (54.3%) were males; 42 (45.7%) were females; and 54 (58.7%) were in first year and 38 (41.3%) were in final year. Among 98 nursing students, 25 (25.5%) were males; 73 (74.5%) were females; and 52 (53.1%) were in first year and 46 (46.9%) were in final year. Among 52 physiotherapy students 16 (30.8%) were males; 36 were females; and 29 (55.8%) were in first year and 23 (44.2%) were in final year.

- *Inter professional Collaboration*

  None of the students had undergone 'structured' (as opposed to ad hoc) inter-professional education. However, all of them have learnt with other health care professional students (parallel education) either in the university classroom or during their clinical practice.

  Frequency of inter-professional sessions they had according to students' perception is described in Table 2.

Table 2:
Frequency of inter-professional collaboration

	All the participants (n=242)	First year (n=135)	Final year (n=107)	Medicine (n=92)	Nursing (n=98)	Physiotherapy (n=52)
Frequency of undergraduate class room learning using inter-professional collaboration						
Never	52 (21.5%)	46(34.1%)	6 (5.6%)	42(45.7%)	8 (8.2%)	2 (3.8%)
Rarely	73 (30.2%)	30(22.2%)	43(40.2%)	25(27.2%)	29(29.6%)	19 (36.5%)
Often	89 (36.8%)	40(29.6%)	49(45.8%)	19(20.7%)	47 (48%)	23 (44.2%)
Very often	28 (11.8%)	19(14.1%)	9 (8.4%)	6 (6.5%)	14(14.3%)	8 (15.4%)
Frequency of work based/clinical inter-professional collaboration						
Never	61 (25.2%)	52(38.5%)	9 (8.4%)	40(43.5%)	10(10.2%)	11 (21.2%)
Rarely	72 (29.8%)	35(25.9%)	37(34.6%)	30(32.6%)	25(25.5%)	17 (32.7%)
Often	85 (35.1%)	37(27.4%)	48(44.9%)	15(16.3%)	48 (49%)	22 (42.3%)
Very often	24 (9.9%)	11 (8.1%)	13(12.1%)	7 (7.6%)	15(15.3%)	02 (3.8%)

Considering all the participants of the study a majority (36.8%) of the students had often experienced parallel education in classroom and 21.5% had responded that they never had parallel education in classroom with other

healthcare students. Similarly a majority (35.1 %) of all the students had often experienced parallel education in clinical setting often and; 25.2% of all had responded that they never had education with other healthcare students in clinical setting.

When considering first year students, 34.1% had never had parallel education in lectures, and 29.6% and 14.1% students had often and very often parallel education respectively during lectures. While 38.5% never had parallel education in clinical settings, 27.4% and 8.1% had very often and often parallel education respectively in clinical settings.

When considering final years students, however, only a very few number of final year students answered that they never had parallel education during lectures and clinical settings (5.6% and 8.4%, respectively), while 45.8% and 44.9% had often experience in parallel education during lectures and during clinical postings, respectively. This indicates that inter-professional education has progressively increased, as they move towards latter years of their undergraduate training.

Most of the medical students had never had inter-professional collaboration either in classroom (45.7%) or during clinical setting (43.5%), compared to nursing (8.2% and 10.2%, respectively) and physiotherapy (3.8 and 21.2%, respectively) students. However, 47 (48%) and 48 (49%) nursing students had more often experienced parallel education during lectures and during clinical postings, respectively, and the comparable numbers for physiotherapy students were 44.2% and 42.3%, respectively.

The reason for that is nursing and physiotherapy students study together most of the time in allied health science faculties and ward setting compared to medical students.

- *RIPLS inventory*
  The total mean score of RIPLS inventory in this study among all the students was 77.14 (SD=7.68). This score was higher than the average score (47.5) of scale.

The score of each of the three domains (teamwork and collaboration 38.75 ± 3.85, professional identity 31.38 ± 4.35, and roles and responsibilities 6.98 ± 1.42.) too was higher than the average score of each domain of RIPLS inventory.

The total mean score of RIPLS for each discipline (76.7 ± 7.77, 76.85 ± 7.8, 78.31 ± 7.3 for medicine, nursing, and physiotherapy, respectively) was also higher than their corresponding average score of the RIPLS inventory.

- *Internal consistency of RIPLS inventory*
  The overall score for RIPLS inventory in this study reported an acceptable internal consistency with an alpha value of 0.799 (Bland *et al.*, 1997; Tavakol *et al.*, 2011).

Considering the internal consistency for each of the three domains: professional identity (domain 2) reported the highest Cronbach's alpha score of 0.746, while teamwork and collaboration (domain 1) had 0.743, and roles and responsibilities (domain 3) showed a negative Cronbach's alpha value (-0.695). Hence, the results of domain 3 cannot be interpreted with any reliability or precision.

- *Perception on IPE*
  Association with gender

Association on perception on IPE with gender is described by table 3

Table 3:
Association of perception on IPE with gender

	Gender		
	Male (91)	Female (151)	p value
Total score	76.07+_8.46	77.74+_7.13	0.10
Teamwork and collaboration	38.68+_4.17	38.79+_3.66	0.83
Professional identity	30.51+_4.60	31.90+_4.12	0.02
Roles and responsibilities	6.88+_1.46	7.04+_1.39	0.4

When comparing RIPLS score between males and females, using independent sample t test, the overall mean was significantly higher for females (77.74 ± 7.13) than for males (76.07 ± 8.46) (*p*<0.05).

When we consider the three domains of RIPLS inventory, females had more positive perceptions on IPE compared to males in all three (03) domains, but the association was statistically insignificant (p>0.05).

- *Association with year of study*
  Association on perception on IPE with year of study is described in Table 4.

Table 4:
Association of perception on IPE with year of study

	Year of Study		
	first year (n=135)	final year (n= 107)	P value
Total score	76.21+_7.12	78.23+_8.23	0.04
Teamwork and collaboration	38.79+_3.55	38.70+_4.23	0.86
Professional identity	30.62+_4.32	32.33+_4.21	0.00
Roles and responsibilities	6.80+_1.40	7.21+_1.42	0.03

When comparing RIPLS score between first year and final year students using independent sample t test; students of final year of study had higher mean of overall RIPLS score than first year students of all three groups but the association was insignificant (p>0.05).

Final year students had higher mean for domain 2 (professional identity) and 3 (roles and responsibilities) than first year students but the association was insignificant. Yet first year students had higher mean for domain 1 (teamwork and collaboration) compared to final year students and the association was significant.

- *The perception towards inter professional education among medical, nursing and physiotherapy students*
  Table 5 indicates the mean difference of total RIPLS score and domains among three student groups after applying ANOVA with Turkey HSD test.

Table 5:
Perception on IPE among undergraduates of three health care discipline

	RIPLS domains	Total Score		Teamwork and collaboration		Professional identity		Roles and responsibilities	
Year study	Student discipline	Mean	p value	Mean	P value	Mean	P value	Mean	P value
All	Medicine	76.7	0.442	38.85	0.594	30.90	0.338	6.95	0.397
	Nursing	76.86		38.47		31.5		6.89	
	Physiotherapy	78.31		39.12		31.98		7.21	
First year	Medicine	75.65	0.000	38.63	0.001	30.07	0.004	6.97	0.282
	Nursing	74.29		37.85		29.88		6.56	
	Physiotherapy	80.72		40.79		32.97		6.94	
Final year	Medicine	78.18	0.100	78.18	0.092	39.16	0.049	6.95	0.294
	Nursing	79.76		79.76		39.17		7.26	
	Physiotherapy	75.26		75.26		37		7.52	

When the means of the total RIPLS score, and the means of the domain-specific RIPLS score of all the students (not concerning the year of study), were compared among the three disciplines, using ANOVA, the differences of all the mean values were insignificant.

When the means among three disciplines considering only first year students were compared, the physiotherapy students had a significantly higher mean score for the total scale as well as for domains 1 and 2 (teamwork and collaboration, and professional identity) than other disciplines.

When considering final year students, the mean differences among the three disciplines of total scores of RIPLS inventory and mean scores of domain 1 (teamwork and collaboration) and domain 3 (roles and responsibilities) were insignificant. However, the latter cannot be considered valid due to the negative reliability of domain 3. Despite their statistical significance, the mean scores of the total scale as well as domains 1 and 2 in the nursing students were higher than the means of other student groups in the final year.

Discussion

This study was conducted in a multi-faculty university in Sri Lanka where medical and allied health sciences students learn together during some instances e.g. anatomy and physiology lectures, clinical settings. These students have an opportunity to learn with each other. This fulfill a part of IPE according to WHO definition, but this parallel learning is not considered as planned IPE with meaningful interaction.

The results indicate that when students advanced through the years of study they have progressively better opportunities for inter-professional collaboration. Since most of the medical students never had inter-professional collaboration either at class room (45.7%) or during clinical setting (43.5%) this may influence negatively when the medical students practice in a health care team.

The total mean score of RIPLS inventory in this study among all the students was higher than the average score of scale and also mean scores of RIPLS among each discipline (among medicine, nursing, and physiotherapy students) too were higher than the average. This indicates that undergraduate healthcare students have high perception toward IPE, and such favourable perceptions have been reported also in previous studies (Al-Elsa et al, 2016; Aziz, Teck , and Yen, 2011; and Vafadar, Vanaki , and Ebadi, 2015).

The overall mean for RIPLS score in this study was significantly higher for females compared to males. A study by Al-Elsa et al (2016) too found a similar result.

The findings of this study indicates that the final year students had a higher mean of overall RIPLS score than first year students. The insignificant, but higher means on RIPLS in the final year are supported by the findings of another study conducted among postgraduate students in three main professional groups: medical, nursing and other allied health professions (Vafadar, Vanaki, and Ebadi, 2015). In contrast, no differences between students of different years of study in their perception on IPE found by another study (Al-Elsa et al, 2016).

Yet first year students had higher mean for domain 1 (teamwork and collaboration) compared to final year students. This indicates perception on teamwork and collaboration is high during the first year of the study and with through successive years in the university the perception on teamwork and collaboration is reduced.

When the means among three disciplines, considering only first year students, were compared, physiotherapy students had a significantly higher mean for the total score scale as well as for domains 1 and 2 (teamwork and collaboration, and professional identity) than the mean scores of the students of other disciplines. However, the total mean score as well as the means scores for domains 1 and 2 for physiotherapy students had decreased over the years to become the lowest (though statistically insignificant) in the final year. In the final year, the mean scores of the nursing students (though statistically insignificant, except for domains 3, which was unreliable) were the highest. The higher preference for IPE by nursing students may be explained by their future role in inter-professional teams. The literature that indicates that among the professional groups, nurses constitute the largest professional group in the health system, they experience more challenges in inter-professional relationships and team care, and their contribution is essential to the successful outcome of patients (Vafadar, Vanaki, & Ebadi, 2015). Aziz, Teck, and Yen (2011) too showed that pharmacy and nursing students were significantly more willing to be engaged in IPE when compared to medical students.

Limitation and Recommendations

The subjects were selected from one university of Sri Lanka; therefore, the results cannot be generalized to the entire country.

Further studies are needed to investigate the factors that may have a significant effect on the implementation of IPE in the university and to redesign the curriculum to enhance IPE in clinical setting.

Conclusion

Favorable attitude towards IPE was observed among all the students and a higher attitude was seen among female and final year undergraduates. A significant higher attitude on IPE was observed by first year physiotherapy students and insignificant higher values were seen among final year nursing undergraduates. Higher values among final year undergraduates can be explained by the positive attitudes they develop towards IPE during successive years in their undergraduate training.

References

Al-Eisa, E., Alderaa, A., AlSayyad, A., AlHosawi, F., AlAmoudi, S., AlTaib, S., ... & Anwer, S. (2016). The perceptions and readiness toward interprofessional education among female undergraduate health-care students at King Saud University. *Journal of physical therapy science*, *28*(4), 1142-1146.

Aziz, Z., Teck, L. C., & Yen, P. Y. (2011). The attitudes of medical, nursing and pharmacy students to inter-professional learning. *Procedia-Social and Behavioral Sciences*, *29*, 639-645.

Bridges, D. R., Davidson, R. A., Odegard, P. S., Maki, I. V., & Tomkowiak, J. (2011). Interprofessional collaboration: three best practice models of interprofessional education. *Medical education online*, *16*.

Dargahi, H., Shirazi, M., & Yazdanparast, S. A. (2012). Interprofessional learning: the attitudes of medical, nursing and pharmacy students to shared learning at Tehran University of Medical Sciences. *Thrita*, *1*(2), 44-8.

Grant, R., & Finocchio, L. (1995). *Interdisciplinary collaborative teams in primary care: A model curriculum and resource guide*. San Francisco, CA: Pew Health Professions Commission.

McFadyen, A. K., Webster, V., Strachan, K., Figgins, E., Brown, H., & McKechnie, J. (2005). The Readiness for Interprofessional Learning Scale: A possible more stable sub-scale model for the original version of RIPLS. *Journal of interprofessional care*, *19*(6), 595-603.

MAE. (2001). Conflict in the health care workplace. Paper Presented in *Proc (Bayl Univ Med Cent)*, *14*(2), 138–139. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1291328/

Parsell, G., & Bligh, J. (1999). The development of a questionnaire to assess the readiness of health care students for interprofessional learning (RIPLS). *Medical education*, *33*(2), 95-100.

Buring, S. M., Bhushan, A., Broeseker, A., Conway, S., Duncan-Hewitt, W., Hansen, L., & Westberg, S. (2009). Interprofessional education: definitions, student competencies, and guidelines for implementation. *American journal of pharmaceutical education*, *73*(4), 59.

Vafadar, Z., Vanaki, Z., & Ebadi, A. (2015). The readiness of postgraduate health sciences students for interprofessional education in iran. *Global journal of health science*, *7*(4), 190–199.

Baker, P. G. (2010). *Framework for action on interprofessional education and collaborative practice.*

Lee, Y. H., Ahn, D., Moon, J., & Han, K. (2014). Perception of interprofessional conflicts and interprofessional education by doctors and nurses. *Korean journal of medical education*, *26*(4), 257-264.