Readiness for interprofessional education amongst students at public and private Medical Universities in Malaysia

Soe Soe Aye[a] [*], Asia Metropolitan University, Johor, Malaysia https://orcid.org/0000-0001-7528-6056

Mohd Azhar Mohd Noor[b], National Defence University of Malaysia https://orcid.org/0000-0001-9288-9393

Roy Rillera Marzo[c], Asia Metropolitan University, Johor, Malaysia https://orcid.org/0000-0001-9414-4010

Thein Win Naing[d], Asia Metropolitan University, Johor, Malaysia

Nor Anith Mohd Azhar[e] National Defence University of Malaysia https://orcid.org/0000-0002-2911-3303

Abstract
Background and Aims: Interprofessional Education (IPE) is a vital academic blueprint for preparing future doctors to provide patient-centered collaborative approach to care best integrated health services. This study aimed to evaluate the awareness and readiness of Malaysian medical students towards interprofessional education. **Materials and methods:** A cross-sectional study carried out using a questionnaire survey: The Readiness of Interprofessional Learning Scale (RIPLS). A convenience sampling method was employed. The sample was drawn from undergraduate students enrolled in year 1 to 5 of medical program in two medical universities. Descriptive and inferential statistics were used to analyze the data. **Results:** The RIPLS was completed by 361 medical students who valued the importance of IPE. The students mentioned that shared learning with other healthcare professional students will increase their ability to understand clinical problems. The students also specified that team-working skills are essential for all healthcare students to learn. However, there were differences between students of different years of study in their perception and readiness toward IPE. **Conclusion:** Our findings indicate that undergraduate-health-care students have high perception and readiness towards IPE, however important differences in baseline readiness emerged according to year-level. These findings suggest that educators consider baseline attitudes of students when designing interprofessional education curricula. The implication of this awareness and readiness to practice IPL will create a more concert and harmony workspace to the healthcare professionals.

Keywords: Interprofessional education, Interprofessional learning, readiness, RIPLS, medical education

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[*] ADDRESS FOR CORRESPONDENCE: Soe Soe Aye, Asia Metropolitan University, Johor, Malaysia
E-mail address: profsoe@amu.edu.my

Introduction

Adaptation is a must in a constantly evolving healthcare system. As such, there is a need for the provision of healthcare services to match these changes. Alongside this is the requirement for healthcare professionals to undergo adequate training to keep up with the ever-changing system.

For students to provide proper patient care once they become health professionals, they must have interprofessional education or IPE. This pedagogical approach equips them with the right knowledge and skills needed in a collective environment that requires them to work in teams. Barr (2005), Brasher (2001), Freeth et. al (2005), and Team Stepps (2009) are one in saying that IPE can be beneficial in terms of patient care since healthcare professionals are to work in teams. Teamwork in healthcare is beneficial since it can lower costs, lessen the duration of patient confinement in hospitals, and improve the quality of healthcare services provided to them (Greiner &Knebel, 2003).

Additionally, the World Health Organization (WHO) believes that frameworks involving patient management get strengthened by the practices promoted by IPE that are collaborative and interdisciplinary in nature. Bridges (2011) also believes that interprofessional learning (IPL) is one of the strategies that hold the most promise when it comes to making collaborative healthcare practices effective. This is due to IPL promoting student understanding when it comes to their key roles related to their jobs, as well as the roles of other professionals part of their team.

Objectives

1. To determine the readiness for interprofessional education (IPE) of undergraduate students in two medical universities in Malaysia.
2. To highlight the findings and make recommendations for an optimal clinical interprofessional learning environment.

Methodology

Study Design

An observational, cross-sectional study was conducted in two Malaysian medical universities (one public and one private) for 8 months in the latter part of 2019. A non-probability convenience sampling technique was used because it is inexpensive and the subjects were readily available.

The study participants were 361 students from first year to senior clerkship year, with 130 of them enrolled in the private medical university and 231 students of the public medical university.

Ethical Approval

Written consent was first obtained from the students before their voluntary participation in the study. And this study protocol was accepted by the Asia Metropolitan University Medical Research Ethics Committee.

Study Instrument

This study made use of a two-part survey for data gathering. The focus of the first part was the demographic information of respondents, including their ethnicity, gender, and their year level in their respective programs. The second part of the survey makes use of the Readiness for Interprofessional Learning Scale (RIPLS), which adapts the 5-point Likert scale and also has responses ranging from "Strongly Agree" (with a score of 5) to "Strongly Disagree" (with a score of 1). Note that the higher the

score, the stronger the respondent's agreement to the statement. The RIPLS consists of 19 items that fall under four different subscales with the total score of 95. The 4 subscales are 1) Teamwork and Collaboration (items 1 to 9 with a total possible score of 45), 2) Negative Professional Identity (items 10 to12 with a total possible score of 15), 3) Positive Professional Identity (items 13 to 16 with a total possible score of 20), and 4) Role and Responsibilities (items 17 to 19 with a total possible score of 15). If the respondent scored high on the Teamwork and Collaboration subscale, this indicates agreement to the idea that working in teams and collaborating with other professionals in the healthcare sector is important. Also, a respondent with a high score on the Positive Professional Identity subscale indicates that they see the value of sharing their knowledge and experiences with their fellow healthcare professionals. On the other hand, a high score on the Negative Professional Identity subscale is indicative of the respondent not seeing the value in learning through collaboration with their fellow healthcare professionals, and a high score on the Roles and Responsibilities subscale indicates confusion with regards to the role of the respondent and that of others.

The scale has a Cronbach's alpha of 0.86 with a test reliability of 0.62.

Statistical Analysis

All data were entered and analyzed using IBM's SPSS Statistics for Windows Version 22. Descriptive statistics were presented as percentages, frequencies, means, and standard deviation. The rest of the data had been analyzed using the one-way ANOVA test. Lastly, the results were considered to be statistically significant if the p-value was <0.05.

Results

Respondents' Demographic Characteristics

A total of 361 undergraduate medical students were invited to participate in this cross-sectional inter-professional learning (IPL) study. These students came from two medical schools in Malaysia, specifically one private and one public medical institution, and the study was conducted during the academic year of 2018 to 2019. Out of all the invited participants, 361 completed the questionnaire, resulting in an overall response rate of 99.7% (99.2% response rate for respondents in the private institution and 100% response rate from the public institution). The details of respondents' demographic characteristics were analysed and are shown in Table 1 below.

Table 1: Demographic Characteristics of Respondents

Characteristics	n	
	Private(n=130)	Public(n=231)
Gender		
• Male	45	127
• Female	85	104
Ethnicity		
• Malay	48	210
• Chinese	15	9
• Indian	63	10
• Others	4	2
Year of program		
• Year 1		

• Year 2	62	50
• Year 3	38	47
• Year 4	10	47
• Year 5	0	45
	20	42

Mean age in years (SD)	22.3 (1.6)	22.1 (1.3)

It was determined that 52.4% of the sample population were female and 47.6% were male. Two-thirds of the respondents had Malay ethnicity, and the mean age of the respondents was 22.2 years. The response rates for different year of the undergraduate medical program are as follows: 100% (n=112) from year 1, 98.8% (n=85) from year 2, 100% (n=57) from year 3, 100% (45) from year 4 and 100% (62) from year 5.

Respondents' Readiness Towards Interprofessional Learning

The attitudes towards interprofessional learning and readiness of medical students from the two chosen medical schools were analysed using the Readiness for Interprofessional Learning Scale (RIPLS) which was further divided into four subscales: *Subscale 1: Teamwork and Collaboration – items 1 to 9*, *Subscale 2: Negative Professional Identity – items 10 to 12, Subscale 3: Positive Professional Identity – items 13 to 16, Subscale 4: Roles and responsibilities – items 17 to 19.* The mean scores of each item of the scale are indicated below in Table 2, with the responses recorded per institution (Private (n=130) and Public (n=231)).

Table 2: Mean Scores of Respondents from Public and Private InstitutionsinEach Item of RIPLS

RIPLS ITEMS Sub-scale 1: Teamwork and Collaboration	AMU respondents Mean	SD	NDUM respondents Mean	SD
1. Learning with other students will help me become a more effective member of a health care team	4.35	0.56	4.4	0.58
2. Patients would ultimately benefit if health care students worked together to solve patient problems	4.33	0.54	4.38	0.52
3. Shared learning with other health care students will increase my ability to understand clinical problems	4.4	0.56	4.39	0.60
4. Learning with health care students before qualification would improve relationships after qualification	4.14	0.69	4.28	0.72
5. Communications skills should be learned with other health care students	4.19	0.72	4.28	0.58
6. Shared learning will help me to think positively about other health care professionals	4.14	0.69	4.19	0.62
7. For small-group learning to work, students need to trust and respect each other	4.41	0.60	4.38	0.58
8. Team-working skills are essential for all health care students to learn	4.41	0.60	4.44	0.64
9. Shared learning will help me to understand my own	4.18	0.60	4.23	0.58

limitations

Sub-scale 2:	Negative Professional identity				
	10. I don't want to waste my time learning with other health care students*	4.2	0.59	4.24	0.61
	11. It is not necessary for undergraduate health care students to learn together*	4.46	0.59	4.44	0.60
	12. Clinical problem-solving skills can only be learnt with students from my own department/ school / organisation*	4.38	0.52	4.35	0.57
Sub-scale 3:	Positive Professional identity				
	13. Shared learning with other health care students will help me to communicate better with patients and other professionals	4.33	0.56	4.4	0.54
	14. I would welcome the opportunity to work on small-group projects with other health care students	4.39	0.52	4.37	0.57
	15. Shared learning will help me to clarify the nature of patients' problems	4.34	0.58	4.32	0.55
	16. Shared learning before qualification will help me become a better team worker	4.29	0/61	4.22	0.60
Sub-scale 4:	Roles and Responsibilities				
	17. The function of nurses and therapists is mainly to provide support for doctors	3.8	0.93	3.9	1.02
	18. I am not sure what my professional role will be	3.54	0.97	3.58	0.80
	19. The aim of inter-professional education is to work as professionals in vigorous health teams towards common goal of patient health outcome	4.3	0.74	4.4	0.56

Subscale 1: Teamwork and Collaboration

In analysing the first subscale, which is on Teamwork and Collaboration, it is interesting to note that respondents from both private and public institutions scored the highest mean score for item number 3 that states the following: 'Shared learning with other healthcare professional students will increase their ability to understand clinical problems'. The second highest mean score was obtained for the statement, 'Shared learning with other healthcare professionals will help me to communicate better with patients and other professionals'. This means respondents from both private and public institutions agreed that teamwork and collaboration will enhance their clinical knowledge and skills throughout their study.

Subscale 4: Roles and Responsibilities

Similar responses from respondents from both private and public institutions were obtained in item number 18 of the Roles and Responsibilities subscale. In particular, the respondents recorded the

lowest mean score in the entire scale for this statement: '*I am not sure what my professional role will be*'.

Table 3: RIPLS Subscale Mean Scores for Different Year Levels(n=361)

RIPLS subscale	Year 1 Mean(SD)	Year 2 Mean(SD)	Year 3 Mean(SD)	Year 4 Mean(SD)	Year 5 Mean(SD)	p-value
Subscale 1: Teamwork and Collaboration	36.31(5.4)	38.57(3.04)	38.76(3.59)	38.91(3.75)	39.16(3.93)	p<0.001
Subscale 2: Negative professional identity	9.67(3.44)	10.80(2.24)	10.89(3.31)	11.52(1.95)	11.78(2.77)	p=0.003
Subscale 3: Positive professional identity	16.30(2.27)	16.59(1.85)	16.80(2.28)	17.13(2.01)	17.22(1.97)	p=0.289
Subscale 4: Roles and Responsibilities	8.24(1.97)	8.31(2.07)	8.81(1.88)	9.34(2.12)	9.44(2.68)	p=0.008

Table 3 shows the RIPLS scores for each subscale according to their year of study. Based on the results, the respondents had varying opinions on the 'Teamwork and Collaboration', 'Negative Professional Identity', and 'Roles and Responsibility' subscales, regardless of year level.

Subscale 1: Teamwork and Collaboration

The majority of students from all the different years of study generally agree with the nine statements in this subscale based on the overall scores, as shown in Table 3. However, there was a statistically significant difference between the scores of respondents who were in year level 1 and year level 5. This indicates differences of opinion, as respondents in year level 5had a significantly higher score than the year level 1 respondents (p<0.001). It is interesting to note that the overall score progressively increases as the respondents advance in their year level.

Subscale 2: Negative Professional Identity

It was observed that there was a statistically significant difference in the scores for the different year levels (i.e. between junior and senior students). Likewise, the year 1 respondents (junior) and year 5 respondents (senior) showed a difference of opinion about 'negative professional identity'. Table 3 shows that the year 5 respondents had significantly higher scores than the year 1 respondent (p=0.003) for this subscale. On the other hand, the analysis showed that there was no statistically significant difference between the scores of respondents from year levels 2, 3, and 5.

Subscale 3: Positive Professional Identity

Interestingly, there was no difference in opinion among the respondents from different year levels in this subscale.

Subscale 4: Roles and Responsibilities

Respondents from years 1 and 5 showed differences in opinion in this subscale. In particular, the respondents from year level 5 scored significantly higher than the year level 1 respondents (p=0.008).

Table 4: Total mean scores of items of RIPLS at two Medical Universities

Items	Subscale	Private	Public
1-9	Teamwork & Collaboration	38.55	38.97
10-12	Negative Professional Identity	13.04	13.03
13-16	Positive Professional Identity	17.35	17.31
17-19	Roles and Responsibilities	11.64	11.88
	Total Mean Score	80.58	81.19

Discussion

Medical knowledge, skills, and social requirements such as teamwork and collaboration are vital to provide effective care for the patients (Marzo, RR. 2018). This study aimed to determine the level of readiness of medical students in Malaysia when it comes to interprofessional education, as well as their perception towards it. Prior to getting the results, the researchers anticipated that the selected MBBS students chosen from the two Malaysian universities will not have information about IPE, nor be ready for it. The results, however, showed the opposite – the MBBS students were already aware of IPE and showed readiness towards it. With this, the researchers believe that the IPE should be implemented.

The results as seen in Table 4 show that aside from being ready for IPE and having positive perceptions about it, the students are also aware of the challenges present, particularly in the clinical and educational aspects. These results indicating the positive perceptions of undergraduate students of healthcare programs towards IPE are also consistent with those of other studies, such as those by Olenick, Allen, & Smego (2010) and Lairamore & McCullough (2013).

From the findings of this study, it can be said that students showed a favorable attitude towards teamwork and collaboration, regardless of their year level. Based on the results of the Teamwork and Collaboration subscale, the majority also recognized the value of collaborating with other healthcare professionals in their line of work. These indicate that the students are open to the idea of group learning, as well as support the findings of Keshtkaran (2014). The low scores of students on the Negative Professional Identity subscale and high scores in the Positive Professional Identity subscale are further proof that students understand the value of IPE and learning in groups, particularly with students of other healthcare programs. On the other hand, the scores of students in the Roles and Responsibilities were on the extreme ends. In particular, some students clearly understood their roles as well as that of others, while the rest did not. To be precise, those in their fifth year of study understood their roles and that of others more than that those just in their first year.

Overall, the researchers noticed that there were significant differences in terms of the RIPLS scores of the respondents, with respect to their year levels. Based on the results, the medical students in their first year of study were the group that was least favourable to the idea of collaborative learning compared to the rest. This result was also similar to that of the study made by Hertweck, Hawkins, & Bednarek (2012), wherein they discovered that those graduate students of various healthcare disciplines and had more years of experience recognized the importance of interprofessional collaboration compared to the undergraduate students. Olenick, Allen, & Smego and Lairamore& McCullough (2013) had similar observations, wherein those with a higher level of education, specifically medical interns and residents, had a higher perception of IPE. This was in comparison to nursing and medical students who were still at their lower levels of study, and it can be attributed to the fact that the interns and residents are more experienced when it comes to interprofessional work and provision of healthcare services.

The results of Table 3 highlight the fact that no matter what their year level is, students welcomed collaborative learning. In particular, they appreciated doing so with their seniors when it comes to dealing with various clinical problems, specifically in terms of recognition and management. According to Tan et al. (2014), shared learning experiences have a role in shaping the attitudes and perceptions of students towards IPE and in preparing these students for their future practice that is collaborative in nature. In an earlier study, Morison et al. (2004) stressed that medical students found value in shared learning sessions, especially when it comes to identifying the various roles of other healthcare professionals and working in teams. This study echoed the results of the studies of Morison et al. (2004) and Tan et al. (2014). Not only that but shared learning can also improve the communication skills of students when it comes to patient management and interaction with other healthcare professionals.

The findings of this study may prove useful to those students on track to join rehabilitation teams in the future; the rehabilitation teams themselves in different healthcare facilities, and the faculty members of academic institutions. However, the findings also reveal a need to overhaul the curriculum, particularly focusing on IPE and teamwork in the clinical setting. It is suggested that an interprofessional spiral curriculum model be implemented starting from the early years of various healthcare programs. Doing so will expose and familiarize the students to work in teams throughout their training in their respective programs.

Conclusion

Before IPE strategies can be developed and integrated into the undergraduate medical curriculum, there is a need for student assessment to first determine their attitudes towards it. Because the respondents of this study showed positive feedback towards IPE, this means students are more likely to participate in collaborative practices on their path to becoming future healthcare providers. To encourage this, administrators and educators should introduce an undergraduate curriculum and implement it. Doing so will also allow them to keep up with the current healthcare education trends in Malaysia and gear them towards an ideal clinical environment that promotes collaborative learning.

Recommendations

Based on the results, the researchers recommend the following:

1.) To include the level of readiness of other undergraduates, particularly from the faculty of nursing and other healthcare managers. This is because the WHO (2010) stated that a requirement of IPE is that "students from two or more professions learn about, from and with each other to enable effective collaboration and improved health outcomes."

2.) To make a proposal that will make interprofessional education among the educational policies of the university.

3.) To organize a workshop that will conduct a curriculum review, propose a new one that is IPE-based, and design teaching modules following it.

4.) To implement IPE in different learning methods, such as interactive lectures, practicum, clinical skills, and tutorials. It can be made into a university policy so that the implementation of IPE with specific learning methods can take place to improve competence and student collaboration (Soe-Soe, Aye and Marzo, RR, 2020).

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