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Mila Nu Nu Htay

Department of Community Medicine, Melaka-Manipal Medical College (Malaysia), MAHE, drmlnnh@gmail.com

Sudipta Pal

General Dentistry, Melaka-Manipal Medical College (Malaysia), MAHE, drmlnnh@gmail.com

Htoo Htoo Kyaw Soe

Department of Community Medicine, Melaka-Manipal Medical College (Malaysia), MAHE, drmlnnh@gmail.com


Soe Moe

Department of Community Medicine, Melaka-Manipal Medical College (Malaysia), MAHE, drmlnnh@gmail.com

Htay Lwin

Department of Community Medicine, Melaka-Manipal Medical College (Malaysia), MAHE, drmlnnh@gmail.com

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Authors

Mila Nu Nu Htay, Sudipta Pal, Htoo Htoo Kyaw Soe, Soe Moe, Htay Lwin, and Adinegara Lutfi Abas

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Email: drmlnnh@gmail.com

Abstract

Background: Globally, the health care delivery system is focusing on the involvement of the inter-professional team. Inter-professional education (IPE) is an important strategy to train the students to be ready for collaborative practice. This study aimed to evaluate the students' preference and readiness towards IPE. **Methods:** This cross-sectional study was conducted in a private medical institution in Malaysia. A total of 168 medical and 129 dental students were recruited for this study. The demography, readiness of health care students for inter-professional learning scale (RIPLS) and the students' preference to learn with other health care students were included in the questionnaire. The data were analysed using Predictive Analytics Software (PASW, version 18). **Results:** The overall RIPLS score of 74.66 ± 7.84 (mean \pm SD) indicated a favourable attitude towards IPE among our study participants. Females had lower negative professional identity compared to male participants, indicating that they favoured more towards the collaborative learning environment of IPE. The preference to study with other health care students was different among the medical and dental students, which might reflect on their learning environment and study context. **Conclusions:** This study provided the medical and dental students' attitude, readiness and preference for shared learning before the implementation of IPE. The overall RIPLS scale was favourable towards IPE and was similar to previous studies conducted in Malaysia. The preference to study with other health care students was different among medical and dental students. This might be reflection on their learning environment and study context.

Key words: Collaborative learning, inter-professional education, preference towards IPE, readiness of health care students, RIPLS

Introduction

Globally, the health care delivery system is focusing on the patient-centred approach, involving the inter-professional team to provide better health care to the patients.¹ Inter-professional teamwork has proven benefits in a wide range of health care provisions, including diabetic care², chronic disease management in primary health care³, cancer patients' management⁴, etc. Inter-professional teams have advantages on the improvement of patient

care⁵, reduction of treatment costs and shortening the duration of hospital stay.⁶ IPE is an important learning strategy that helps to develop team spirit among health care students.

The IPE is defined as 'Inter-professional education that occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.'⁷ The IPE is not just learning in the classroom without interaction among the students from different professional streams. It should include the patient care setting training, by sharing the process of decision-making among the health care students and taking shared responsibility in patient care.¹

Inter-professional education strategy was first introduced in North America and European countries, and then endorsed and promoted by the

Mila Nu Nu Htay¹, Sudipta Pal², Htoo Htoo Kyaw Soe¹, Soe Moe¹, Htay Lwin¹, Adinegara Lutfi Abas¹

¹Department of Community Medicine, Melaka-Manipal Medical College (Malaysia), MAHE

²General Dentistry, Melaka-Manipal Medical College (Malaysia), MAHE

*Corresponding Author

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WHO in 1988.⁸ Early IPE implementations had barriers related to professional boundaries and tensions.⁸ Therefore, it is crucial that the medical and dental students understand and accept the principles and objectives of IPE before implementation of it in their curriculum. This will help to reduce bias against other health care programs.⁹ The prior readiness and acceptance of IPE will improve the acceptance of roles and responsibilities of other health care professionals, improve team-work spirit and collaboration.⁹ In order to assess the students' readiness for the inter-professional learning process, Parsell et al. (1999) developed the instrument, known as the Readiness for Inter-professional Learning Scale (RIPLS).⁹ The original version of RIPLS included three subscales,⁹ which was later modified by McFadyen AK, et al. in to four subscales.¹⁰

The IPE has been incorporated in the curriculum of the health care courses in the public and private universities in Malaysia. Studies on inter-professional learning had been conducted in Malaysia and revealed that the attitudes and readiness were significantly different among the different health care program students (Medical, dental, pharmacy and health science programs).¹¹ In addition, the professional year of study had also an influence on their readiness and found to be significantly different according to their study year.¹¹ Another study that included undergraduate medical, pharmacy and nursing students found that the nursing and pharmacy students were more willing to engage in the IPE compared to the medical students.¹² In our teaching institution, inter-professional learning is yet to be incorporated in the curriculum and little is known about the students' attitudes towards inter-professional learning. This study aimed to evaluate the students' preference and readiness towards inter-professional education in a private medical institution in Malaysia.

Method

Study design and setting

This cross-sectional study was conducted in a private medical institution in Malaysia from October to November 2018. The institution is providing medical and dental programs. The students from 4th and

5th study year of medical and dental programs were recruited to participate in this study. The sample size was calculated by using Epi-info software, by considering the total number of students in 4th and 5th study year, expected frequency of 50%, margin of error of 5% and 95% confidence interval. The sample size of 207 was calculated for this study. The students were invited to participate in the survey after the lecture classes and those who provided the written informed consent were recruited for the survey. Ethical approval was taken from the institutional ethical committee and confidentiality of the participants was maintained.

Study instrument

The questionnaire included three sections, [1] demography, [2] RIPLS and [3] students' preference on IPE. The RIPLS was taken from McFadyen AK, et al., which included 19 items by using the 5-point Likert scale.¹⁰ The third section of the questionnaire was to inquire the preference of students to learn together in IPE by providing the various options and multiple responses were allowed. The content validation for the third section was established by collecting the opinions of six experts. The content validity index (CVI) for the questions was >0.85. In order to assess the internal consistency of the RIPLS items, Cronbach's alpha was calculated.

Data analysis

The data was entered and analysed using PASW (version 18). The demographic data were analysed by the descriptive statistics to report in the aggregate, frequency and percentages. RIPLS included four subscales and 19 items in total. Each item was scored with Likert's scale ranging from 1-5, therefore, the total score ranged from 19 to 95. The negative professional identity items were reversely scored to calculate the composite score. The RIPLS three subscales were analysed individually and combined score to evaluate the readiness of the participants for IPE. We analysed the data to identify any significant difference between gender, study year, previous exposure to IPE and readiness of the participants for IPE. The mean scores were compared by using one-way ANOVA test.

Results

A total number of 297 undergraduate students participated in this study and 168 (56.5%) were from the medical program and 129 (43.4%) were from the dental program. Among them, 176 (95.2%) of students were studying at 4th year and 121 (40.7%) were at 5th year in their respective programs. The mean age of the participants was 23.12 ± 1.26 . The majority of the participants 291 (98%) were of Malaysian nationality, meanwhile 6 (2%) were international students. Approximately, two-thirds of the participants were female students, which was 185 (62.5%). Regarding the ethnic distribution, Chinese ethnic group comprised of 123 (41.7%), Indian 95 (32.2%) and Malay 59 (20%) respectively. The majority of the participants, 238 (95.3%), admitted that they did not have any previous experience of inter-professional education (Table 1). The Cronbach's alpha for the RIPLS scales was 0.85 and it represents a high internal consistency in between the items.

The readiness of health care students for inter-professional learning (RIPLS)

Subscale 1 – Teamwork and collaboration

A total number of 9 items were included in the teamwork and collaboration subscale. This subscale is correlated to the students' attitudes towards shared learning, teamwork and collaboration. The higher score in this subscale reflects the students' value on the shared learning and respect to the other health care professional students.¹³ The highest mean score was attained with the item No. (7). The mean score for this subscale was 37.67 ± 4.62 (mean \pm SD) (Table 2).

Subscale 2- Negative professional identity

In the negative professional identity subscale, 3 items were included and they were negatively worded. Reverse-scoring was done to calculate the mean score for the subscale. The mean score was 10.79 ± 2.60 (Table 3).

Subscale 3- Positive professional identity

Four items were included in the positive professional identity subscale of RIPLS. 'Shared learning before qualification will help me become a better team

worker' obtained the highest mean score in this subscale and the mean score was 16.31 ± 2.19 (Table 4).

Subscale 4 – Roles and responsibilities

In the roles and responsibilities subscale, 3 items were included and the highest mean score was achieved in item No. 17, 'The function of nurses and therapists is mainly to provide support to doctors.' The total mean score for this subscale was 9.85 ± 1.85 . The total RIPLS mean score for all participants was 74.66 ± 7.84 (Table 5).

Among the 297 participants, 14 (4.7%) had previous experience of IPE. Those who had the previous experience of IPE obtained a higher score in teamwork and collaboration subscale (39.5 ± 4.38), positive professional identity subscale (17.21 ± 1.76) and overall RIPLS score (77.15 ± 7.93) compared to those who did not have previous experience of IPE. The students with previous exposure to IPE had lower negative professional identity compared to those who did not have any exposure (Table 6).

The univariate analysis showed that the gender of the participants was significantly associated with the negative professional identity subscale. The female participants had a higher mean score, 27.48 ± 3.57 in professional identity subscale compared to the male participants, 26.50 ± 4.13 ($P < 0.001$) (Table 6).

Preference of undergraduate students to learn together in IPE

The undergraduate students' preference, on learning together with other health care program students in IPE, was investigated in this study. The radiography (76%), nursing (72%) and physiotherapy students (68%) were the most preferred to learn in IPE by the medical students (Figure 1). Meanwhile, the dental students preferred most to learn together with the dental technician (87%), medical (68%) and radiography students (65%) (Figure 2).

Discussion

In order to provide patient-centred care and better quality of care, health care professionals should collaborate together as an inter-professional team. Therefore, inter-professional education is encouraged to be incorporated in the curriculum for

all the health care programs, to enable the students to gain the experience and to develop the shared learning and team spirit.^{14,15} In order to incorporate the IPE into the existing curriculum, the students should understand and accept the concept of IPE first, to reduce the obstacles while implementing the IPE in their study programs.⁹ The RIPLS is an instrument to measure the readiness of the health care students to participate in the IPE.¹²

The readiness of the students will determine the success of the implementation of IPE in their programs, which will ultimately lead to the inter-professional practice in their future career. In this study, the overall RIPLS score was 74.66 ± 7.84 and it can be considered as a favourable attitude towards IPE. This finding is similar with the study conducted in another private university in Malaysia, where the overall RIPLS score was 75.08 ± 2.69 among medical students and 76.85 ± 2.29 among dental students.¹¹ The mean score was higher in that study compared to this study, which might probably be attributed to the participants' previous experience in IPE. In that study, approximately 40% of the participants had previous exposure in IPE¹¹, meanwhile, only 4.7% of participants had previous exposure in our study. Exposure and participation in the IPE during the undergraduate program have an impact on positive attitudes towards IPE.¹⁶

Teamwork and collaboration subscale in the RIPLS could assess the students' attitude and belief on the benefits of shared learning and collaboration.⁹ In this study, the mean score for the teamwork and collaboration subscale was 37.67 ± 4.62 . The finding was similar to the other studies in Malaysia, where the teamwork and collaboration subscale score was 36.2 ± 5.5 (12) and 38.62 ± 3.67 (11) among the medical students. Talwalkar JS, et al. conducted a similar study in the US, where the score was 38.89 ± 4.49 among the health care students.¹⁷ The participants' attitudes towards the shared learning were favourable in our study, with the highest score for the item on the importance of trust and respect for each other (item No.7).

Academic professional identity is usually maintained within the academic disciplines.⁹ Goldie J mentioned

that medical educators should help the students to cultivate the development of their professional identity in their respective contexts.¹⁸ However, strong retention of professional identity might cause a conflict with their readiness for the shared learning with other students from different disciplines.¹⁹ Teamwork and shared learning need to blur the boundaries between the different professions.²⁰ The higher score on the professional identity indicates the students' positive attitude towards IPE, as this strategy can improve communication with the other health care team members, to excel in problem-solving.¹³ According to McFadyen (2005), the professional identity subscale was more stable when it was divided into negative and positive professional identity subscales.¹⁰ In this study, the female participants had significantly higher negative professional identity scoring compared to the male participants. It indicated that the female participants had lower negative professional identity compared to the male participants. Wilhelmsson et al. found that the female students had higher positive insight towards team spirit, including positive professional identity compared to the male students in general.²¹ Another Swedish study also revealed similar findings that the females had more positive attitudes towards collaboration.²² Some researchers mentioned that 'The males value the competitive environment', whereas, 'The females value the collaborative environment.'²³ In addition, the learning style is different between the genders and the female excels in understanding people, identifying problems, brainstorming and prefers hands-on experiences to learn.²³ Meanwhile, male students prefer the analytic approach to learn.²³ Therefore, the female students may favour the collaborative learning environment.

Effective teamwork in health care services is essential as chronic diseases and co-morbidities are increasing globally.²⁴ In addition, the shortage of health care workers is a challenge and can overcome with effective teamwork.²⁴ Since the study participants had exposure to both the hospital and clinical settings, they appreciated the importance of teamwork and shared learning before qualification to become a better team worker in their future career. Therefore, 'Shared learning before qualification will

help me become a better team worker' attained the highest score in the positive professional identity subscale.

Binienda J (2015) described that high score in roles and responsibility subscale reflected that 'The students have an unclear or distorted perception of one's own role and that of others.'¹³ Roles and responsibilities subscale had a total score of 9.85 ± 1.85 in our study. This finding was in line with another study conducted in Malaysia.¹¹ Our study participants agreed that the role of the allied health care personnel was mainly to provide support to doctors. Therefore the item 'The function of nurses and therapists is mainly to provide support to doctors' was rated highest in this subscale. Similar attitudes were observed in other studies and it might be a hurdle while implementing the IPE with the other health care professionals.^{12, 25} In our study, the students with previous experience with IPE were found to have lower roles and responsibilities mean score compared to those who did not have any experience with IPE. Although the finding was not significant, the exposure to IPE might have an impact to change the perception of their roles in relation to the other health-care professions. The exposure to IPE might enhance a clearer sense of team members' professional roles in IPE. A study conducted in the US exposed that the previous exposure to IPE had changed the students' readiness towards IPE.²⁶

The readiness for the IPE might change over time along with the study year and experience. However, there was no significant difference in the total RIPLS scoring in different study year in this study. This finding was contrary to other studies where the students' attitude changed with the study year 1 to 5.¹¹ On the contrary, the selection of the study year might influence the findings. In our study, the students were recruited from 4th and 5th year, who had already been exposed to the clinical setting in the clinics and hospitals. For that reason, they did not have a significant difference in readiness for IPE. Meanwhile, the junior years have less exposure to the clinical setting and the attitude might change over time throughout the study years. The finding of Talwalkar JS, et al. (2016) reported that the students

from the advanced degrees had higher scores as they had been exposed to the clinical settings and had a better understanding on the contributions of multi-professional team members in providing patient care.¹⁷

The preference of the study participants, to learn together with the other health care program students, was investigated in this study. The most preferred students selected by the medical students were radiography, nursing and physiotherapy students. The study participants were in their senior years and had exposure to the clinical settings in the clinics and hospitals. This experience led them to have a preference to study together with radiography, nursing and physiotherapy students. A study conducted by Butterworth K, et al. in Canada exposed that the clinical nursing rotation changed the medical students' view on the nurses as the collaborative patient's care provider and inter-dependent role in their profession.²⁷ Exposure in the clinical setting improved the medical students' mutual respect, teamwork, collaboration and communication with the nurses.²⁷

The dental students participated in this study selected the dental technician, medical and radiography students as the most preferred students to learn together in the IPE. Although IPE was yet to be implemented in the study setting, the students were learning at the dental clinics and hospitals. In the clinical setting, they had more exposure and communication with the dental technician, medical and radiography professionals, which might be the reason for selecting these students as the most preferred to study within IPE. While the educators are planning for IPE, it is worth to enquire the students' perception and preference to learn together with other health care students and take these into consideration when implementing the IPE.

Limitation

Our study was a cross-sectional study and it revealed the snapshot at a particular point of time and was not able to observe changes over a period of time. A qualitative study should be conducted to explore more on the students' perceptions and preferences towards IPE.

Conclusion

This study provided medical and dental students' readiness and preference for shared learning before the implementation of IPE. The overall RIPLS score was favourable towards IPE and was similar to the previous studies conducted in Malaysia. The preference to study with other health care students showed a difference between the medical and dental participants. This might be a reflection of their learning environment and study context. The students' attitudes towards the IPE is propitious and therefore, it is a favourable finding for the educators who wish to incorporate IPE in the existing curriculum to develop the multi-disciplinary team spirit, to improve the communication skills, to cultivate the mutual respect and to have a better understanding of the other professional roles.

Ethical approval

The proposal for this research was submitted to the Medical Research Ethics Committee at the study institution. The committee reviewed and approved the conduct of this study.

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