



## Original Research Article

## A mixed methods study to assess perception of interprofessional learning among pre-university students for medicine and dentistry

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## ABSTRACT

**Background:** Interprofessional education (IPE) leads to positive mutual attitudes, better understanding of professional roles in caring for patients.

**Purpose:** This study was undertaken to assess the perception of interprofessional education of pre-university students even before they enter professional courses.

**Materials and Methods:** This is a mixed methods sequential explanatory study design involving sixty-four pre-university students, who were exposed to interprofessional related activity by interacting with medical and dental students on given health scenarios. The interprofessional education and interdisciplinary education perception scale (IEPS) to measure the student's perception towards IPE. Wilcoxon Signed Rank test were calculated. The qualitative analysis was done to further analyse the quantitative data through online interviews.

**Result:** The student's perception towards competence & autonomy, perceived need for cooperation, perception of actual cooperation and understanding other's value were significantly higher from somewhat disagree of score 3 (P<0.001). Most foundation year students realized that by learning with various professional students would make them effective member of health care team and promote collaborative practice.

**Conclusion:** It can be a good idea to sensitize the pre university students to interprofessional education.

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### 1. Introduction

Training healthcare professionals through interprofessional education (IPE) can lead to positive mutual attitudes among them, they can better understand their professional roles for patient care, which reflect during their health care deliveries.<sup>1</sup> One study suggests that it is necessary to get students to start thinking about how interprofessional working happens within different organizational contexts; and, in particular, to encourage a habit of thinking creatively

about strategies for change within all situations.<sup>2</sup> For better healthcare delivery and maintaining patients' safety, the healthcare workers need to have clinical acumen & team working skills.<sup>3</sup> Literatures says that the IPE helps preparing the learners during their healthcare professional courses to work effectively in collaborative teams and become competent to perform the desired task.<sup>4</sup> The pre university students for medicine & dental courses at our institution have the opportunity of learning in small groups, but they do not have chance to interact with other professional students such as medical and dental students. Although literature describes IPE being practiced in various

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health professional courses in many Universities but hardly any try has been made to assess readiness as well as perception of IPE by the pre university students. Hence, we undertook this study to assess the readiness & perception towards IPE.

## 2. Materials and Methods

This is a mixed methods study of sequential explanatory type. Total of 64 students in foundation in science were recruited for this study. They were exposed to interprofessional related activity by interacting with medical & dental student on a given health scenario, presented their report in small groups before Faculty members from different disciplines, which were judged and scored. We used interdisciplinary education perception scale for quantitative data collection (IEPS).<sup>5</sup> There were 18 items in the scale, and it was divided into four sub-scales such as competency & autonomy (8 items), perceived need for cooperation (2 items), perception of actual cooperation (5 items) and understanding of other's value (3 items). Six-point Likert scale was used and it was ranged from 6 (strongly agree), 5 (agree), 4 (somewhat agree), 3 (somewhat disagree), 2 (disagree) to 1 (strongly disagree). Total score was also calculated for each sub-scale. Higher scores indicated better perception for interdisciplinary education.

Microsoft Excel was used for data entry and SPSS version 12 (IBM Kuala Lumpur) was used for data analysis. Descriptive statistics such as median, first and third quartiles were calculated for each item of both readiness for interprofessional learning scale and interdisciplinary education perception scale. Moreover, mean, standard deviation and range were calculated for total score of sub-scales in each measurement tool. As IPE is new concept that was introduced to our college, it was important to determine the student's readiness was different from neutral (score 3), hence, Wilcoxon Signed Rank test was calculated. Moreover, Wilcoxon Signed Rank test was also calculated to determine that the student's perception towards interdisciplinary education was different from score of 3 (somewhat disagree). The level of significance was set at 0.05.

Qualitative analyses of the semi-structured interview reports were done by coding and identifying categories and themes. Words with similar meanings were grouped into emergent major codes. The major codes were further classified into categories. These categorizations subsequently led to the emergence of major themes.<sup>6</sup>

This study was approved by the institutional research & ethics committee as per the approval number: MMMC/FOM/Research Ethics Committee – 1/2019.

## 3. Results

Table 1 shows the mean, standard deviation, minimum and maximum values of total score and sub-scales of interdisciplinary education perception scale (IEPS).

Table 2 shows the difference of student's perception towards interdisciplinary education when it was compared to score 3 of somewhat disagree. The median value of all items in interdisciplinary education perception scale ranged from 4 to 5 showing positive perception towards interdisciplinary education. Moreover, the student's perception towards competence & autonomy, perceived need for cooperation, perception of actual cooperation and understanding other's value were significantly higher from somewhat disagree of score 3 ( $P < 0.001$ ).

The average scores of group poster presentations were more than 70%.

Some of the qualitative inputs on perception of actual cooperation as follows.

1. It strengthens our communication skills and develops and evolve our way of thinking and this allows us to easily communicate with others.
2. To have a better result and decision for a specific work.
3. We can share useful knowledge and information to come out with an accurate diagnosis.
4. Because the students will be able to gain more experience and knowledge based on the sharing.
5. To deliver better patient outcome.

Few qualitative inputs in understanding other's value

1. So we treat other members of the teams with respect
2. To avoid any stereotypes and show respect which will slowly turn into trust.
3. To know where everyone stands and strategies the source of inputs by utilising the professional's strong points to come up with the best health care.
4. To have a better insight of our role so that we can contribute more to societies
5. Every professional you work with will have something beneficial to offer towards work hence trusting and working as a team improves the overall team dynamic.

Some of the keywords that emerged from the qualitative data identified the perception of IPE as cooperating, sharing, providing better solution, enhanced communication skills, teamwork, responsibilities, building trust, Words with similar meanings were grouped into emergent major codes such as teamwork, trust, cooperation, respect, sharing and autonomy. The major codes were further classified into two categories which were communication skill enhancement, teamwork and developing mutual trust. These categorizations subsequently led to the emergence of major themes such as enhancing teamwork and enhancement of collaborative learning.

**Table 1:** Descriptive statistics of interdisciplinary education perception

| Variables  | N  | Mean (SD)   | Minimum - Maximum |
|--|----|-------------|-------------------|
| <b>Interdisciplinary Education Perception Scale (IEPS)</b> |    |             |                   |
| Total IEPS (18 – 106)                                      | 64 | 83.2 (13.0) | 35 – 106          |
| Competence & Autonomy (8 – 54)                             | 66 | 38.2 (6.0)  | 16 – 48           |
| Perceived need for cooperation (2 – 12)                    | 71 | 8.7 (2.0)   | 2.0 – 12.0        |
| Perception of actual cooperation (5 – 30)                  | 70 | 23.8 (4.3)  | 9.0 – 30          |
| Understanding other's value (3 – 18)                       | 70 | 12.9 (2.8)  | 5.0 – 18.0        |

**Table 2:** Interdisciplinary education perception scale (IEPS) among students after participating IPE session

| Interdisciplinary Education Perception   | Test value | Median (Q1, Q3) | P value |
|--|------------|-----------------|---------|
| <b>Competence &amp; Autonomy</b>   |            |                 |         |
| Individuals in my profession are well-trained  | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession demonstrate a great deal of autonomy  | 3          | 5.0 (4.0, 5.0)  | <0.001  |
| Individuals in other professions respect the work done by my profession  | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession are very positive about their goals and objectives                                      | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession are very positive about their contributions and accomplishments                         | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in other professions think highly of my profession   | 3          | 5.0 (4.0, 5.0)  | <0.001  |
| Individuals in my profession trust each other's professional judgment  | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession are extremely competent   | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| <b>Perceived need for cooperation</b>  |            |                 |         |
| Individuals in my profession need to cooperate with other professions  | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession must depend upon the work of people in other professions                                | 3          | 4.0 (3.0, 5.0)  | <0.001  |
| <b>Perception of actual cooperation</b>  |            |                 |         |
| Individuals in my profession are able to work closely with individuals in other professions                          | 3          | 5.0 (4.0, 5.0)  | <0.001  |
| Individuals in my profession are willing to share information and resources with other professionals                 | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession have good relations with people in other professions                                    | 3          | 5.0 (4.0, 6.0)  | <0.001  |
| Individuals in my profession think highly of other related professions   | 3          | 5.0 (4.0, 5.25) | <0.001  |
| Individuals in my profession work well with each other   | 3          | 5.0 (5.0, 6.0)  | <0.001  |
| <b>Understanding other's value</b>   |            |                 |         |
| Individuals in my profession have a higher status than individuals in other professions                              | 3          | 4.0 (3.0, 5.0)  | <0.001  |
| Individuals in my profession make every effort to understand the capabilities and contributions of other professions | 3          | 5.0 (4.0, 5.0)  | <0.001  |
| Individuals in other professions often seek the advice of people in my profession                                    | 3          | 5.0 (4.0, 6.0)  | <0.001  |

Wilcoxon Signed Rank test

### 3.1. Thematic analysis

1. **Codes:** Cooperation, Sharing, Solution, Communication skill, Teamwork, responsibilities, Trust building.
2. **Categories:** Communication skill enhancement, Teamwork and developing mutual trust.
3. **Themes:** Collaborative learning.

### 4. Discussion

In medical education, previous literatures have been reported that IPE programs could not only improve preparation for interprofessional collaboration,<sup>7</sup> it could also help students improving knowledge<sup>8</sup> and clinical decision-making ability.<sup>9</sup> In our study, pre-medical and pre-dentistry (Foundation year) students were exposed to interprofessional related activity by interacting with medical and dental students on a given health scenario. Then the students presented their report in small groups. Our findings reflect that even majority of foundation year students realize that by learning with various professional students would make them effective member of health care team and promote collaborative practice. Moreover, IPE training through our intervention had a positive influence on students' understanding of collaboration and better attitudes in interprofessional teamwork that matches with a study report in literature.<sup>10</sup> The average poster presentation score about 70% indicative of effective presentation skill following IP type interventions by Faculty members from various discipline. Our study revealed that premedical and pre-dental students were ready for teamwork and collaboration while working in an IP team, which matches with another study, however they were reluctant to take roles and responsibilities. This might be because of fear complex working with professional students. The finding also indicates that IPE training through our intervention had a positive influence on students' understanding of collaboration and better attitudes in interprofessional teamwork that matches with a study report in literature.<sup>11</sup>

Moreover, after participating IPE sessions, our students had positive perception towards interdisciplinary education such as competence and autonomy, perceived need for cooperation, perception of actual cooperation and understanding other's value. Many studies have shown that students can learn communication skills, conflict resolution skills, leadership skills and determining professional responsibilities through interprofessional education.<sup>12–14</sup> As IPE improves students' shared learning and interdisciplinary collaboration, it is recommended to be introduced at an early stage in medical education.<sup>15</sup> This not only optimizes the future health care professional's learning experience,<sup>15</sup> but also it brings satisfactory patient outcomes.<sup>11</sup> The strength of our study was our novel approach of intervening pre-professional students, however the limitation might be low sample size.

### 5. Conclusion

They could well perceive the need for cooperation, perception of actual cooperation, and understanding other's value while working in an IP team. It can be a good idea to sensitize the pre university students to interprofessional education before they embark on professional courses.

### 6. Source of Funding

No conflict of interest.

### 7. Conflict of Interest

None.

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