

# The Influence of Workshop on Health Professions Students Perceptions for the Implementation of Interprofessional Education (IPE) and Interprofessional Collaboration (IPC) in Clinical Practice

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## Abstract

The most important step in changing the development of health professional education is by arranging health education, so the students are able to get education and learning experience according to the demands of professional competence. Key to quality health care at an efficient cost is by increasing effective collaboration between health workers by introducing collaboration practices early on through the education process. The form of learning are Interprofessional Education (IPE) and Interprofessional Collaborative (IPC) learning with each professions so that it can develop collaboration between two or more health professions for optimal patient service. This study aims to find out how students perceive IPE and IPC in clinical practices at the Medan Ministry of Health Polytechnic.

This quasi-experimental design study used design one group before and after intervention design approach, which carried out in the Medan Health Polytechnic. The student population of third-level Medan Ministry of Health Polytechnic of Health at Midwifery, Nursing, Dental Nursing, Pharmacy and Midwifery Health Analysts amounted to 511 people, taking the sample number socially as of 94 people, the sample size was determined based on the inclusion criteria and random sampling. Data analysis was carried out in univariate and bivariate ways by using the T test.

The results showed that there was a significant effect of the workshop on students' perceptions of the IPE and IPC approaches in Clinical Practices were assessed from 4 aspects before and after the Team work workshop; Teamwork and collaboration  $p = 0.004$ , relationships with other professional workers  $p = 0,000$ , Professional Identity  $p = 0,000$ , Roles and Responsibilities  $p = 0.016$

Workshop influences students' perceptions of the implementation of IPE and IPC of IPE and IPC in clinical practices in the Medan Ministry of Health Polytechnic, it is expected that the Director of Medan Poltekkes facilitates clinical practices through the IPE and IPC approaches

**Keywords:** workshop, Interprofessional Education (IPE), Collaborative Interprofessional

## 1. Introduction

With the increasing prevalence of chronic diseases, advancements in health care technology, and growing complexity of health care delivery, the need for coordination and integration of clinical care through a multidisciplinary approach has become essential To address these challenges, one of the approaches to address these issues is the implementation of interprofessional education (IPE) as an important pedagogical approach for preparing health professions students to provide patient care in a collaborative team environment (Page et al., 2012).

From the national surveys in 42 countries as reported by WHO (2010) revealed that interprofessional education (IPE) with collaborative practice increased 1) access and coordination of health services, 2) appropriate utilization of specific clinical resources, 3) outcome for chronic diseases, 4) health services and patient's safety, 5) reduction of total complications of patients, 2) decreased patients' length of stay, 3) decreased working stress and conflicts among caregivers, 4) cost reduction of patients' health services, 5) reduction of medical errors, and 6) reduction of mortality of patients. Other studies also reported the appealing premise of IPE in a collaborative manner improved

patients' care (Augsberger et al., 2001; Freeth et al., 2005; Barr et al., 2005; U.S. Department of Health and Human Services, 2009; IOM 2009), enhanced the quality of patient care, reduction of costs, decreased patients' length of stay, and reduction of medical errors (Greiner & Knebel, 2003). The World Health Organization (1988) has articulated support of IPE.

IPE involves educators and learners from 2 or more health professions and their foundational disciplines who jointly create and foster a collaborative learning environment. The goal of these efforts is to develop knowledge, skills and attitudes that result in interprofessional team behaviors and competence (IOM, 2003; CAIPE, 2008; GITTP, 2009; Olenick et al., 2010; Bridges et al., 2017). The goal of IPE for students is to learn how to function in an interprofessional team and carry this knowledge, skill, and value into their future practice, ultimately providing interprofessional patient care as part of a collaborative team and focused on improving patient outcomes. An interprofessional team is composed of members from different health professions who have specialized knowledge, skills, and abilities (IOM, 2003).

The ability to work with professionals from other disciplines requires a specific set of competencies (Suter et al., 2009). To fulfill the standardized competencies, accreditation standards and guidelines from several health care professions are needed to support the value of IPE (Buring et al., 2009). Several accreditation standards and guidelines from health care professions have also addressed the necessity for the collaborative approach in education that include the Accreditation Council for Pharmacy Education (ACPE, 2006), the Liaison Committee on Medical Education (LCME, 2009), the American Association of Colleges of Nursing (AACN, 2008), the Commission on Dental Accreditation (CDA, 2007) and Association of Schools of Allied Health Professions (ASAHP, 2006).

The standardized competencies proposed for interprofessional education (IPE) relate to teamwork includes: 1) sharing information about the roles of team members, 2) determining professional responsibilities and boundaries, 3) learning about how different professions can work together towards a common goal (optimizing patient care), 4) the ability to use communication techniques to enhance team functioning and deal with barriers that interfere with communication, 5) understanding how to assess team performance and use that data to improve team members' skills and modify roles to enhance performance, 6) leadership on how to effectively facilitate an interprofessional team meeting, 7) conflict resolution and consensus by building an effective interprofessional team player, 8) learning how to identify and address the origin of team problems and implement strategies for overcoming problems and 9) working together to set common patient care goals may be considered a terminal competency for interprofessional education (Barr et al., 2005; Freeth et al., 2005; CAIPE 2008; Suter et al., 2009; GITTP 2009).

Interprofessional education (IPE) introduced at the beginning of pre-registration training for healthcare professionals provides support for introducing IPE at the start of the healthcare students' professional education to capitalize on students' readiness for interprofessional learning and professional identities, which appear to be well formed from the start (Coster et al., 2008).

In terms of the national level, Ministry of Health of the Republic of Indonesia established health policies that relate to interprofessional education in collaborative practice for the realization of outputs of qualified health workers according to the current needs of the health public. Concerning to this, Medan Health Polytechnic set health education policies for health professions through the development of clinical practices for the establishment of health professional community through clinical study practice and field study practice to embody the need of quality health services in accordance with the increase of public awareness in health. As shown in the study of Keith and Askin (2008), the key to delivering accessible, comprehensive and cost-effective care is effective collaboration among health professionals. In spite of increasing interest and commitment to collaboration, numerous barriers remain. Perceived competition, leadership struggles and confusion about the role have hindered collaboration between nurse practitioners and physicians. Increased interest in interprofessional education has given rise to improved awareness and respect for the knowledge of other disciplines, raising hopes that fostering interdisciplinary working relationships will result in better client care. The study of Sedyowinarso et al. (2011) in Indonesia revealed that 73.62% students were classified in good perception on interprofessional education (IPE) and 79.90% students had good competency on interprofessional education (IPE) of the all investigated health professions students. Results of their study are hoped to be a reference for stakeholders to develop IPE in the education of health sciences di Indonesia.

With refers to reviews of preliminary literatures, the authors of the present study intend to assess the influence of workshop on health professions students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic.

## 2. Method of the Study

### 2.1 Location and Samples of Study

This study was carried out at Medan Health Polytechnic in Medan Province for baccalaureate program professions students (Diploma III) who major several health study programs that include Midwifery Study, Nursing Study, Dental Nursing Study and Nutrition and Environment Health. The present study used the quasi-experimental design, one-group design before and after intervention (pre-workshop and post-workshop) to determine the difference of perceptions of the students before and after the workshop of IPE and IPC.

Samples were randomly selected at each study program from the total population of professions students. Sample size was determined using the Slovin formula,  $N = (n / (1 - f)) = 94$ . The anticipated dropout rate (loss of follow) of the non-adherence samples were 10%. Hence, a total of samples were 104 students.

The inclusion criteria of the study subjects were: 1) students of Midwifery Study, Nursing Study, Dental Nursing Study and Nutrition and Environment Health, 2) eager to be the study subjects and 3) learning status was on learning active. Conversely, the exclusion criteria of the study subjects were: 1) students who were on learning leave, 2) students who did not major health study programs of Midwifery Study, Nursing Study, Dental Nursing Study and Nutrition Environment Health and 3) students who major specific courses specific study programs and RPL.

### 2.2 Assessment of Perceptions of the Study Subjects

Some of the empirical referents that have been used to measure and evaluate IPE delivery and outcome include the Role Perception Questionnaire (Mackay, 2008; Parsell & Bligh, 1999) modified according to the Indonesian context. Measurement of each variable (item) was done using scoring in which the lowest score was given in 1 score and the highest score was given in 4 score on the students' perceptions in the category of very good, good, moderate and poor score. Analysis of data was performed using the descriptive approach using the calculation of frequency and percentage. Analysis of data was performed using the descriptive approach using the calculation of frequency and percentage.

Statistical tests used in this present study consisted of univariate analysis and bivariate analysis. Univariate analysis is the analysis of descriptive characteristics of certain study subjects. Characteristics of descriptive variables determined in this present study were amounts of study subjects their perceptions on the influence of workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in Clinical Practices at Medan Health Polytechnic in 2018. The study used paired sample t-test by comparing two different tests (pre-workshop and post-workshop). The collected data were processed and analyzed using SPSS V.21.

## 3. Results

### 3.1 Univariate Analysis

Univariate analysis of the amounts of study subjects regarding their perceptions on the influence of workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in Clinical Practices at Medan Health Polytechnic in 2018 is shown in Table 1.

Table 1. Frequency distribution of the study subjects in the workshop of interprofessional education (IPE) and interprofessional collaboration (IPC) practice according to the study programs at Medan Health Polytechnic

No	Study Program	Number	
		F	%
1	Health Analyst	18	19%
2	Pharmacy	17	18%
3	Nursing	19	20%
4	Dental Nursing	19	20%
5	Midwifery	21	22%
<b>Total</b>		<b>94</b>	<b>100%</b>

As shown in Table 1, distribution frequencies of the study subjects almost equal according to the study program

that consist of 18 students of Health Analyst (19%), students of 17 Pharmacy (18%), 19 students of Nursing (20%), 19 students of Dental Nursing (20%) and 21 students of Midwifery (22%) respectively.

Table 2. Distribution of the study subjects according to the category of perception for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices on pre-workshop and post-workshop at Medan Health Polytechnic

Variables	Category	Pre-workshop		Post-workshop	
		f	%	f	%
Students' perceptions	Very Good	28	29.79	57	60.64
	Good	65	69.15	37	39.36
	Moderate	1	1.06	0	0
Working together (collaboration) to set common patient care goals	Very Good	55	58.51	83	88.30
	Good	38	40.43	11	11.70
	Moderate	1	1.06	0	0
Conflict resolution and consensus by building an effective interprofessional team player	Very Good	35	37.23	83	88.30
	Good	54	57.45	11	11.70
	Moderate	5	5.32	0	0
Professional role identification	Very Good	18	19.15	62	65.96
	Good	69	73.40	31	32.98
	Moderate	7	7.45	1	1.06
Professional responsibilities and boundaries	Very Good	7	7.45	26	27.66
	Good	33	35.11	50	53.19
	Moderate	49	52.13	18	19.15
	Poor	5	5.32	0	0

In Table 2, students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices on pre-workshop at Medan Health Polytechnic in the category of very good, of good, and of moderate amounted to 28 students (29.79%), 65 students (69.15%) and 1 student (5.9%) respectively. Conversely, students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices on post-workshop in the category of very good, of good, and of moderate accounted for 57 students (29.79%), 37 students (69.15%) and no student (0%) respectively.

Students' perceptions pertaining to the function of working together (collaboration) to set common patient care goals in the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices on pre-workshop in the perception category of very good, of good, and of moderate amounted to 55 students (58.51%), 38 students (40.43%) and 1 student (1.06%) respectively. Conversely, perceptions of students regarding the function of working together (collaboration) to set common patient care goals on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop in the perception category of very good, of good, and of moderate accounted for 83 students (88.30%), 11 students (11.70%) and no student (0%) respectively.

Students' perceptions concerning the function of building an effective interprofessional team player on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop in the perception category of very good, of good, and of moderate amounted to 35 students (37.23%), 54 students (57.45%) and 5 students (5.32%) respectively, whereas, perception of students regarding the function of building an effective interprofessional team player on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop in the perception category of very good, of good, and of moderate accounted for 83 students (88.30%), 11 students (11.70%) and no student (0%) respectively.

Students' perceptions regarding the function of professional role identification on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop in the perception category of very good, of good, and of moderate amounted to 18 students (19.15%), 69 students (73.40%) and 7 student (7.45%) respectively. Conversely, perception of students regarding the function of professional role identification on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop in the perception category of very good, of good, and of moderate accounted for 62 students (65.96%), 31 students (32.98%) and 1 student (1.06 %) respectively.

Students' perceptions regarding the function of professional responsibilities and boundaries on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop in the perception category of very good, of good, of moderate and of poor amounted to 7 students (7.45%), 33 students (35.11%), 49 students (52.13%) and 5 students (5.32 %) respectively. Conversely, students' perceptions regarding the function of professional responsibilities and boundaries on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop in the perception category of very good, of good, of moderate and of poor accounted for 26 students (27.66%), 50 students (53.19%), 18 students (19.15%) and 0 student (0 %) respectively.

Table 3. Students' perception scores pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop and post-workshop at Medan Health Polytechnic

Variable	n	Mean	Score	
			Lowest	Highest
Students' perceptions				
Pre-workshop	94	72.90	57.00	91.00
Post-workshop	94	78.43	57.00	94.00
Working together (collaboration) to set common patient care goals				
Pre-workshop	94	25.18	17.00	30.00
Post-workshop	94	26.36	22.00	30.00
Conflict resolution and consensus by building an effective interprofessional team player				
Pre-workshop	94	12.17	5.00	17.00
Post-workshop	94	13.08	8.00	15.00
Professional role identification				
Pre-workshop	94	22.91	18.00	32.00
Post-workshop	94	28.75	14.00	35.00
Professional responsibilities and boundaries				
Pre-workshop	94	9.56	5.00	14.00
Post-workshop	94	10.32	7.00	14.00

As shown in Table 3, the mean score of students' perceptions at pre-workshop pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 72.90 with the highest and lowest values are 91.00 and 57 respectively. Conversely, the mean score of students' perceptions at post-workshop pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 78.43 with the highest and lowest values are 94.00 and 57 respectively.

The mean score of students' perceptions at pre-workshop regarding working together (collaboration) to set common patient care goals at pre-workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 25.18 with the highest and lowest values are 17.00 and 30.00 respectively. Conversely, the mean score of students' perceptions at post-workshop regarding working together (collaboration) to set common patient care goals on the implementation

of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 26.36 with the highest and lowest values are 22.00 and 30.00 respectively.

The mean score of students' perceptions at pre-workshop regarding conflict resolution and consensus by building an effective interprofessional team player at pre-workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 12.17 with the highest and lowest values are 5.00 and 17.00 respectively. Conversely, the mean score of students' perceptions at post-workshop regarding conflict resolution and consensus by building an effective interprofessional team player on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 13.08 with the highest and lowest values are 8.00 and 15.00 respectively.

The mean score of students' perceptions at pre-workshop regarding professional role identification at pre-workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 22.91 with the highest and lowest values are 18.00 and 32.00 respectively. Conversely, the mean score of students' perceptions at post-workshop concerning professional role identification on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 28.75 with the highest and lowest values are 14.00 and 35.00 respectively.

The mean score of students' perceptions at pre-workshop regarding professional responsibilities and boundaries at pre-workshop on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 9.56 with the highest and lowest values are 5.00 and 14.00 respectively. Conversely, the mean score of students' perceptions at post-workshop concerning professional responsibilities and boundaries on the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 10.32 with the highest and lowest values are 7.00 and 14.00 respectively.

### 3.2 Results of Bivariate Analysis

Results of paired sample t-test by comparing two different tests (pre-workshop and post-workshop) for the all investigated variables pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic 2018 are shown in Table 4.

Table 4. Students' perception scores for the all investigated variables pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop and post-workshop at Medan Health Polytechnic

All Variables	Mean	SD	Mean Difference	P-Value	SD of pre-workshop and post-workshop
Pre-workshop	72.90	6.83	5,53	0.00	9.77
Post-workshop	78.43	6.94			

As shown in Table 4, the mean value of students' perception at pre-workshop for the all variables that include students' perceptions, working together (collaboration) to set common patient care goals, conflict resolution and consensus by building an effective interprofessional team player, professional role identification and professional responsibilities and boundaries of all students ( $n = 94$ ) was  $72.90 \pm 6.83$ , whereas the mean value of students' perception at post-workshop for the all variables that include students' perceptions, working together (collaboration) to set common patient care goals, conflict resolution and consensus by building an effective interprofessional team player, professional role identification and professional responsibilities and boundaries of all students ( $n = 94$ ) was  $78.43 \pm 6.94$ . On average, there was a significant difference of students' perceptions for the all variables simultaneously that include students' perceptions, working together (collaboration) to set common patient care goals, conflict resolution and consensus by building an effective interprofessional team player, professional role identification and professional responsibilities and boundaries of all students ( $n = 94$ ) pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices between pre-workshop and post-workshop at Medan Health Polytechnic 2018. with  $p$ -value was  $0.00 < 0.05$ .

Results of the present study are consistent with the study of Coster et al. (2008) the need to support for introducing IPE at the start of the healthcare students' professional education to capitalize on students' readiness for interprofessional learning and professional identities.

Table 5. Students' perception scores for the each investigated variable pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop and post-workshop at Medan Health Polytechnic

Each variable	Mean	SD	Mean Difference	P-Value	SD of pre-workshop and post-workshop
Working together (collaboration) to set common patient care goals					
Pre-workshop	25.18	3.58	1.18	0.004	4.66
Post-workshop	26.36	2.47			
Conflict resolution and consensus by building an effective interprofessional team player					
Pre-workshop	12.17	1.69	0.91	0.00	2.11
Post-workshop	13.08	1.50			
Professional role identification					
Pre-workshop	22.91	2.24	5.84	0.00	3.92
Post-workshop	28.75	3.32			
Professional responsibilities and boundaries					
Pre-workshop	9.56	2.00	0.76	0.016	3.02
Post-workshop	10.32	1.79			

In Table 5, the mean value of students' perception at pre-workshop for the variable of working together (collaboration) to set common patient care goals of all students ( $n = 94$ ) was  $25.18 \pm 3.58$ , whereas the mean value of students' perception at post-workshop for the variable of working together (collaboration) to set common patient care goals of all students ( $n = 94$ ) was  $26.36 \pm 2.47$ . On average, there was a significant difference of students' perceptions independently for the variable of working together (collaboration) to set common patient care goals of all students ( $n = 94$ ) pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices between pre-workshop and post-workshop at Medan Health Polytechnic 2018. with  $p$ -value was  $0.004 < 0.05$ .

#### 4. Discussion

The key to delivering accessible, comprehensive and cost-effective care is effective collaboration among health professionals. In spite of increasing interest and commitment to collaboration, numerous barriers remain. Perceived competition, leadership struggles and confusion about the role have hindered collaboration between nurse practitioners and physicians. Increased interest in interprofessional education has given rise to improved awareness and respect for the knowledge of other disciplines, raising hopes that fostering interdisciplinary working relationships will result in better client care (Keith & Askin, 2008). Through effective incorporation of interprofessional education into curricular and practice settings, optimal patient-centered outcomes can potentially result as effective and highly integrated teams facilitate and optimize collaborative patient care and safety (Olenick et al., 2010).

As indicated in Table 5 the mean value of students' perception at pre-workshop for the variable of conflict resolution and consensus by building an effective interprofessional team player of all students ( $n = 94$ ) was  $12.17 \pm 1.69$ , whereas the mean value of students' perception at post-workshop for the variable of conflict resolution and consensus by building an effective interprofessional team player of all students ( $n = 94$ ) was  $13.08 \pm 1.50$ . On average, there was a significant difference of students' perceptions independently for the variable of conflict resolution and consensus by building an effective interprofessional team player of all students ( $n = 94$ ) pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices between pre-workshop and post-workshop at Medan Health Polytechnic 2018. with  $p$ -value was  $0.00 < 0.05$ .

The findings of the present study are compatible with the study of Buring et al. (2009) that objectives related to conflict resolution and consensus building are essential to building an effective interprofessional team player. Learning how to identify and address the origin of team problems and implement strategies for overcoming these

issues are objectives that build toward competence in resolving conflict. Working together to set common patient care goals may be considered a terminal competency for interprofessional education. The present study is also compatible with the study of Dina Zakiyyatul Fuadah, et al that interprofessional training using simulation method proved significantly the readiness of students of nursing, midwifery and nutrition in conducting an effective interprofessional team player in antenatal care.

As indicated in Table 5, the mean value of students' perception at pre-workshop for the variable of professional role identification of all students ( $n = 94$ ) was  $22.91 \pm 2.24$ , whereas the mean value of students' perception at post-workshop for the variable of professional role identification of all students ( $n = 94$ ) was  $28.75 \pm 3.32$ . On average, there was a significant difference of students' perceptions independently for the variable of professional role identification of all students ( $n = 94$ ) pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices between pre-workshop and post-workshop at Medan Health Polytechnic 2018. with  $p$ -value was  $0.00 < 0.05$ .

Results of these findings are in line with the those of the study of Morison et al., (2004) that students of medical, nursing and nutrition students had strong feelings related to their professions after training of IPE. Therefore, introducing IPE at the start of the healthcare students' professional education need to be conducted to capitalise on students' readiness for interprofessional learning and professional identities, which appear to be well formed from the start (Coster et al., 2008).

As shown also in Table 5, the mean value of students' perception at pre-workshop for the variable of professional responsibilities and boundaries of all students ( $n = 94$ ) was  $9.56 \pm 2.00$ , whereas the mean value of students' perception at post-workshop for the variable of professional responsibilities and boundaries of all students ( $n = 94$ ) was  $10.32 \pm 1.79$ . On average, there was not a significant difference of students' perceptions independently for the variable of professional responsibilities and boundaries of all students ( $n = 94$ ) pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices between pre-workshop and post-workshop at Medan Health Polytechnic 2018. with  $p$ -value was  $0.016 > 0.05$ .

The findings of the present study are consistent with those of the study of Lashinger et al. (1997) that the empowerment of staff nurses increased with greater responsibilities associated with job advancements and was related to the nurses' commitment to the organization, burnout, job autonomy, their ability to participate in organizational decisionmaking, as well as job strain and work satisfaction. Therefore, understanding and appreciating professional roles and responsibilities and communicating effectively emerged as the two perceived core competencies for patient-centred collaborative practice. For both competencies there is evidence of a link to positive patient and provider outcomes. These two competencies should be the primary focus of student and staff education aimed at increasing collaborative practice skills (Suter et al., 2009).

The present study proved the influence of workshop on the improvement of perception of the investigated students because the authors of the present study conducted socialization pertaining to IPE and IPC within two days before. Subsequently, the investigated students were illustrated a case study that should be resolved through discussion to understand and simulate their roles and responsibilities.

## 5. Conclusions

Based on results and discussion of the present study regarding the influence of workshop on the students' perceptions on the implementation of IPE and IPC in clinical practices at Medan Health Polytechnic in 2018 using univariate and bivariate analyses, the conclusions were drawn in the following:

- 1) Students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at pre-workshop at Medan Health Polytechnic in the category of very good, of good, and of moderate amounted to 28 students (29.79%), 65 students (69.15%) and 1 student (5.9%) respectively. Conversely, students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop in the category of very good, of good, and of moderate accounted for 57 students (29.79%), 37 students (69.15%) and no student (0%) respectively. Hence, there was increase of students' perceptions for the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at post-workshop.
- 2) Workshop showed significantly influenced the student' perceptions of Health Analyst, Pharmacy, Nursing, Dental Nursing and Midwifery pertaining to the implementation of IPE and IPC in clinical practices at Medan Health Polytechnic as shown by the mean score of students' perceptions at pre-workshop pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 72.90 with the highest and lowest values are 91.00 and 57



respectively. Conversely, the mean score of students' perceptions at post-workshop pertaining to the implementation of interprofessional education (IPE) and interprofessional collaboration (IPC) in clinical practices at Medan Health Polytechnic is 78.43 with the highest and lowest values are 94.00 and 57 respectively.

## 6. Suggestions

With refers to the conclusions pertaining to the students' perceptions on the implementation of IPE and IPC in clinical practice at Medan Health Polytechnic, the authors of the present study present the suggestions.

### Health Institutions

- 1) Formulation and implementation of policies are necessary pertaining to the improvement of interprofessional education.
- 2) Results of the present study are hoped to be used as an evaluation on the implementation of previous professional clinical practices.
- 3) Formulation of health policies for the development of IPE and IPC learning methods by training.

### Clinical Practices

- 1) Results of the presents study are hoped as constructive inputs for clinical services.
- 2) A reference in designing better clinical services through interprofessional approach.
- 3) Promotion of health services of health polytechnic institutions to increase amounts of patients' admissions as the clinical learning for health professions students using IPE and IPC approaches.

### Health Authors

Information regarding students' perceptions using IPE and IPC methods that can be used in developing IPE and IPC as the reference of future health studies.

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### Competing Interests Statement

The authors declare that there are no competing or potential conflicts of interest.

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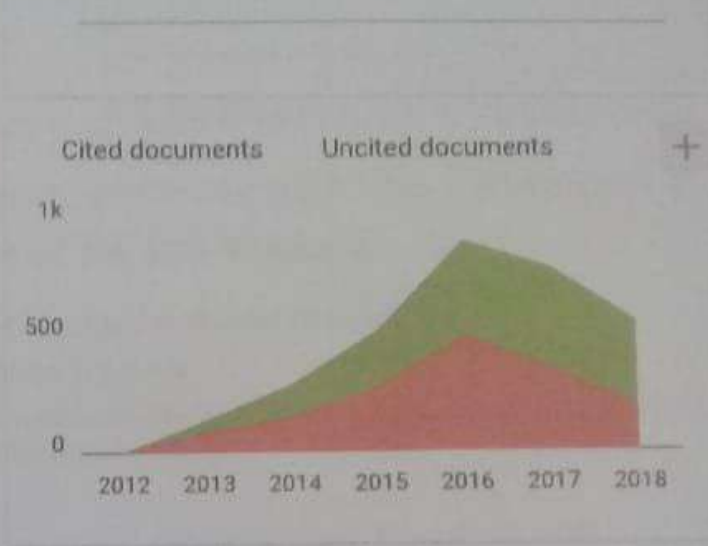
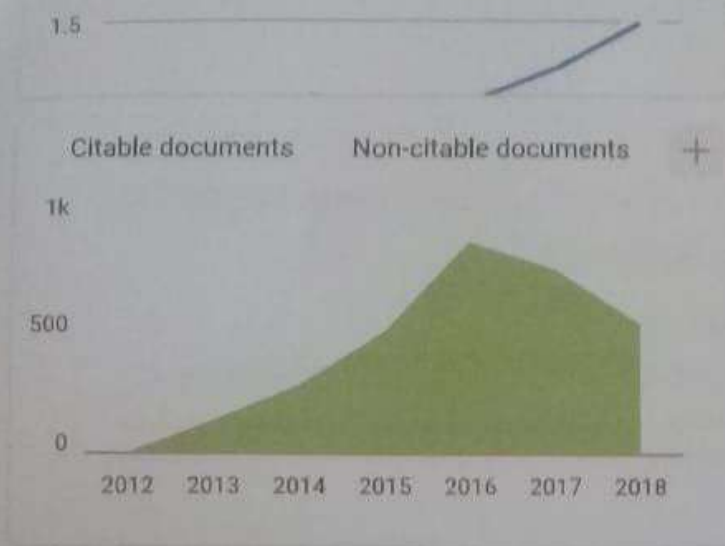
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