The Effects of the Interprofessional Education on Readiness for Interprofessional Learning of Health Science Students

Ausanee Wanchai[1], Vannapa Prathumtone[1], Rungtiwa Wangruangsatid[1], Jaruwan Rungsiyanond[2], Piyanate Wiriyapramote[2], Somtakul Rasiri[3], Ananya Kooariyakul[4]

[1]PhD, RN, Boromarajonani College of Nursing Buddhachinaraj, Muang, Phitsanulok, Thailand, [2]MSN, RN, Boromarajonani College of Nursing Buddhachinaraj, Muang, Phitsanulok, Thailand, [3]PhD, Sirindhorn College of Public Health Phitsanulok, Thailand, [4]EdD, RN, Boromarajonani College of Nursing, Uttaradit, Thailand

Abstract

Although interprofessional program has been bloomed in developed countries, it remains unclear how should it be in developing countries? The purpose of this study was to examine the effect of interprofessional education on readiness for interprofessional learning among Thai health science students. This was a quasi-experimental design. Samples were 47 Thai health science students from nursing, Thai traditional medicine, and public health programs. The program took 5 days. Activities included: group relationship building, learning about interprofessional skills, preparing a care plan for patient, and presenting their experiences. All samples were measured readiness for interprofessional learning before and after the program. The results of the study reported that after attending the program, samples had significantly higher total scores of readiness for interprofessional learning and scores in each dimension: teamwork and collaboration; negative and positive professional identities, and roles and responsibilities. It can be concluded that the short interprofessional education program could improve readiness for interprofessional learning among health science students.

Keywords: *Interprofessional education, Readiness for interprofessional learning; Health science students*

Introduction

Interprofessional education (IPE) is an education reform method for preparing health science students to provide the overall quality of health care for patients as they know how to collaborate with other health care professionals.[1] IPE means education that occurs when students from two or more professions learn about, learn from, and learn together to achieve effective cooperation and improve the outcomes of health care.[2] IPE has benefits for learners by allowing them to be more aware and understand roles of other health professionals.[3] These in turn lead to quality of care for clients, cost reduction of patient's care, and length of patient hospitalization reduction.[1,4,5] Therefore, it is imperative that institutions should prepare health science students to have interprofessional learning experiences before graduation as interprofessional working skills are very important when they graduate and work in healthcare setting.[6]

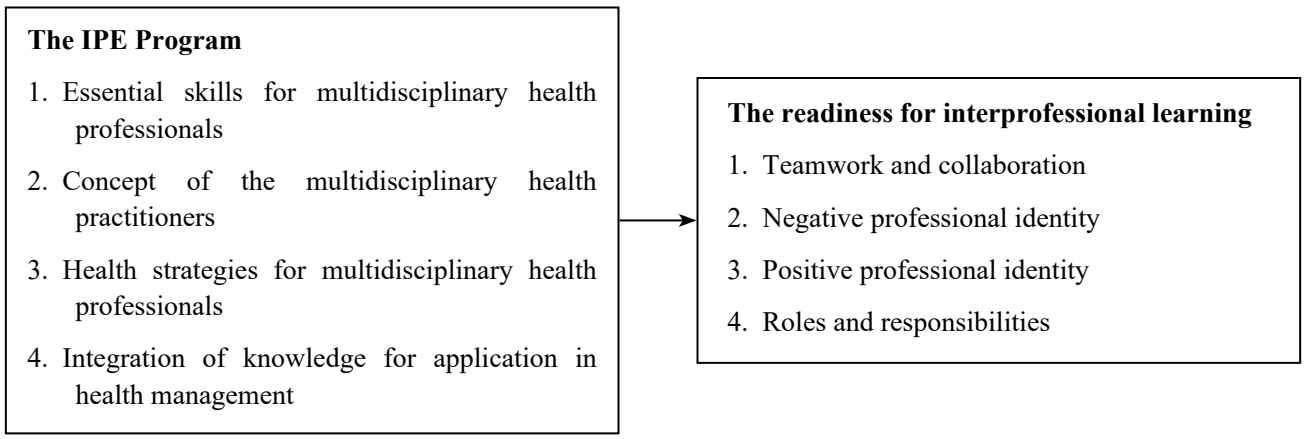
However, IPE courses for health science students have been implemented most in developed countries, but few papers found in developing countries.[7] It remains unclear how will IPE programs in developing countries should be? Therefore, as the roles of health science institutions, we developed the IPE program for used with health science students from 3 programs, including: nursing students, public health students, and Thai traditional medicine students from 3 health science institutions in the North of Thailand. The IPE program developed by the research team was consisted of 4 learning

Corresponding Author:
Ausanee Wanchai
PhD, RN, Boromarajonani College of Nursing Buddhachinaraj, Muang, Phitsanulok, Thailand
e-mail: ausanee@bcnb.ac.th; wausanee@hotmail.com

units: 1) essential skills for multidisciplinary health professionals, 2) concept of the multidisciplinary health practitioners, 3) health strategies for multidisciplinary health professionals, and 4) integration of knowledge for application in health management. Activities included active learning, visiting patients in the community, and planning care plans for patients, as well as sharing learning experiences together with mentors.

The purpose of the study was to examine the effect of IPE program on readiness for interprofessional learning of health sciences students. The readiness for interprofessional learning of health sciences students referred to state of students with all aspects of multidisciplinary learning,based on the concept of McFadyen, et al.[8] It was consisted of 4 sub-components:1) teamwork and collaboration, 2) negative professional identity, 3) positive professional identity, and 4) roles and responsibilities. The researchers expected that we will receive the guidelines for developing the effective IPE program for health science students. Our research hypothesis was that after attending the IPE program, the scores of readiness for interprofessional learning among health sciences students would be higher than those before attending the IPE program.

Research framework:



Materials and Method

Materials: Tools used in this research included 1) the IPE program, developed by the research team, consisted of 4 learning units, namely: 1.1) essential skills for multidisciplinary health professionals, 1.2) concept of the multidisciplinary health practitioners, 1.3) health strategies for multidisciplinary health professionals, and 1.4) integration of knowledge for application in health management; 2) the Readiness for Interprofessional Learning Scale (RIPLS) developed by McFadyen et al.[8] and were translated in Thai by Rakrung, et al.[9] The RIPLS is a 19-item tool that is divided into 4 subgroups: 1) teamwork and collaboration, 2) negative professional identity, 3) positive professional identity, and 4) roles and responsibilities. The questionnaire is graded on 5-point scale, from strongly agree, agree, moderate, disagree and strongly disagree.

Quality of tools: The IPE program and the RIPLS in Thai version were validated by 5 experts. Then, the RIPLS reliability was analyzed by Cronbach's Alpha Coefficient. Its reliability was 0.82.

Population and Samples: Population used in this study included of 397 undergraduates in the 4th year of the health science programs from 3 health educational institutions in Thailand. Samples were selected by the purposive random sampling method, consisted of 20 nursing students, 15 public health students, and 15 Thai traditional medicine students. The inclusion criteria were: 1) consciousness and were able to communicate in Thai language, 2) had never attend the IPE program, and 3) were willing to participate in the research project. The exclusion criteria were: 1) had not participate in all educational activities and 2) resigned or terminated from the study due to severe illness. When the research ended, it was found that data of the sample group were incomplete for 3 cases. Therefore, there were 47 samples used for data analysis, representing for 94.00%.

Research design: A quasi-experimental with one group pretest-posttest design was used as the design of this study. This research was conducted in 3 health institutions in Thailand.

Data collection procedures: Data were collected over period of 2 months. Each sample completed the RIPLS two times before and after the IPE program. The IPE program was conducted on two phases.

Phase 1: Took about 3 days. First day: group relationship activity. Goal was to create relationships among students. Second day: instructors taught about IPE skills, including: 1) essential skills for multidisciplinary health professionals, 2) concept of the multidisciplinary health practitioners, 3) health strategies for multidisciplinary health professionals, and 4) integration of knowledge for application in health management. Third day: instructors divided students into 5 groups with 10 students in various fields in each group. Then, each group visited selected patient at home to collect data and set a care plan for patient and their family members by using knowledge of each profession. Each group had mentors from health science institution and from health service setting.

Phase 2: Took about 3 days. First day: Each group implemented the planned project or innovation for their patients at home. Second day: Students presented the results of the project that were implemented and shared ideas with mentors. Mentors discussed the learning results with students so that they could clearly understand roles of each profession while working together. After that, the researchers collected research data by asking sample to do all the questionnaire.

Data analysis: Demographic data were analyzed using frequency and percentage. The RIPLS scores were analyzed by means and standard deviation. The RILPS scores before and after attending the IPE program were compared by paired t-test statistics.

Results

Demographic data: The respondents were predominantly female (78.72%) with a mean aged of 22.27±1.28 years old. The majority of respondents were Buddhist (97.87%). The cumulative GPA was 2.88±0.36 (2.50-3.00). The range of income was 4,001 - 6,000 baht a month.

The readiness for interprofessional learning of samples before and after attending the IPE program: The results of the study showed that after attending the IPE program, samples had significantly higher RIPLS scores than those before attending the IPE program ($p < .001$). When considering in each dimension, the results of the study showed that the RIPLS scores in all aspects were significantly higher than those before attending the IPE program ($p < .001$). (Table 1).

Table 1: Compare the RIPLS scores of samples before and after attending the IPE program

RIPLS	Before		After		Paired t-test
	χ	S.D.	χ	S.D.	
Teamwork and collaboration	35.55	0.85	39.6	0.19	6.211***
Negative professional identity	10.2	0.15	11.68	0.69	3.284***
Positive professional identity	15.13	1.33	17.23	0.18	5.102***
Roles and responsibilities	8.30	1.72	9.57	1.64	4.336***
Total	**69.23**	**2.96**	**78.09**	**2.83**	**6.751*** **

***p < .001

Discussion

The results of the study revealed that health science students had higher scores of readiness in interprofessional learning after attending the IPE program. This showed that the IPE program could increase students' positive perceptions regarding their readiness to be working with multidisciplinary team. This might be because many activities in the IPE program allowed these students to learn from and learn about other health disciplines. These activities included 1)

group relationship when they first met; 2) the facilitation of learning about interprofessional skills by experienced interprofessional educators; 3) a requirement for multidisciplinary group to prepare care plan for patient; and 4) presentation and sharing their success with peers and mentors. More specifically, while visiting patient at home together, students in each health discipline must share their ideas about how they act as their roles so that a care plan for patient would be more suitable and appropriate. The findings of study were congruent with a previous study showed that an eleven-hour IPE program could increase attitudes towards interprofessional teams, interprofessional learning, and ability to function with an interprofessional team.[10] The interprofessional learning experiences will foster them to gain more understanding about how other professions are valuable in terms of improving quality of patient care and how to collaborate with other healthcare professions.[3]

In terms of teamwork and collaboration, the results of the study also showed increasing scores among health science students after attending the interprofessional program. This might imply that the respondents had positive attitudes towards interprofessional education and shared learning.[11] The findings of the study confirmed a previous paper which reported that the interprofessional education is essential in improving collaborative practice and teamwork skills of health care providers, which in turn, it will improve patient outcomes.[5] The findings were congruent with a previous study showed that compared to the control group, the trainees who attended the protocol-driven training program about Parkinson's disease had significantly higher scores of understanding roles of other disciplines ($p < 0.001$) and attitudes toward health care teams scale ($p < 0.001$).[12]

With regarding to the negative and positive professional identity scores, the samples also had higher scores after attending the IPE program. Although some previous paper reported that the IPE course for undergraduates might not be able to strengthen professional identities,[13] the finding of this study showed that the short IPE program could improve students' perceptions regarding professional identities. According to one previous paper, professional identity in health professions has been developed through socialization.[14] However, it is a complex process in the real world. Therefore, preparing experiences during pre-qualification training will be helpful for these health science students. In addition, this might be related to Thai culture. Thai culture has its own specific way of honoring other people because they believe that showing respect towards other people is a duty and the basis of good manners.[15] Therefore, the IPE program in the context of Thai culture might enhance health science students to strengthen individual professional identities and also understand of identities of others.

Finally, the results of the study reported that after attending the IPE program, samples had higher of roles and responsibilities. This could imply that they perceived their roles and other health professions' roles better after attending the IPE program. It can be explained by the fact that activities in the IPE program, such as setting a care plan for patient together as a whole aspect could enhance students to gain more understanding about their roles as well as other health professions.[7] The findings of the study were congruent with a previous study showed that students in the interprofessional teams had higher scores in role clarification than those in the intraprofessional teams.[7] Another previous study reported that significant improvements scores were found in the subscale of teamwork, roles, and responsibilities for three program students, including: occupational therapy, physical therapy, and physician assistants.[16]

There are several practical implications for the IPE program for health science students that we have learned from this study. First, 2-phase IPE sessions with total 5 days period can provide a positive learning experience for graduates from various health science programs. Therefore, although it has been recognized that it is challenging to organize and implement a successful IPE program for multiple health science professions, it may be possible to start with a short IPE program for these undergraduates before they graduate. Secondly, when setting a case visiting requirement, it should be appropriately selected with knowledge level of students. For example, in our study, we selected patients with non-communicated disease, such as diabetes or hypertension for each group because these students were the 4th year students. They had learned about how to manage patient with non-communicated disease. Therefore, they would not be stressed too much when visiting these patients in the communities. Lastly, mentors were also important persons for the key success factor of IPE program implementation. Before implementing the IPE intervention, all mentors from all health science programs should plan together on how to advise their students so that no confusion occurs while performing the IPE program.

There were some limitations in our study. First, long-term effect of the IPE program on the readiness for interprofessional learning was not examined. Secondly, this was a quasi-experimental research with one group pretest-posttest design. So further studies with rigorous design are needed to confirm the effect of the IPE program.

Declaration of interest: Authors report no conflicts of interest relative to this manuscript.

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References

1. Buring SM, BhushanmA, Broeseker A, Conway S, Duncan-Hwewitt W, Hansen L, Westberg S. Interprofessional education: Definitions, student competencies, and guidelines for implementation. Am J Pharm Educ, 2009;73(4), 1-8.
2. World Health Organization. Framework for action on interprofessional education & collaborative practice. 2010, Retrieved from https://apps.who.int/iris/bitstream/handle/10665/70185/WHO_HRH_HPN_10.3_eng.pdf;jsessionid=6A28A816395BA060149F309FB855D5F9?sequence=1
3. Guraya SY, Barr H. The effectiveness of interprofessional education in healthcare: A systematic review and meta-analysis. Kaohsiung J Med Sci. 2018;34(3):160-165.
4. Anderson ES. Evaluating interprofessional education: An important step to improving practice and influencing policy. J Taibah Univ Medical Sci. 2016;11(6), 571-578.
5. Reeves S. "Why we need interprofessional educaqtion to improve...." the delivery of safe and effective care. Interface (Botucatu). 2019; 20(56):185-196.
6. Marcussen M, Nørgaard B, Arnfred S. The effects of interprofessional education in mental health practice: Findings from a systematic review.Acad Psychiatry. 2019; 43(3):200-208.
7. SoubraL,Badrb S, Zahrand EM, Aboul-Seoudf M. Effect of interprofessional education on role clarification and patient care planning by health professions students. Health Prof Educ. 2018; 4:317–328.
8. McFadyen AK, Webster V, Strachan K, Figgins E, Brown H, McKechnie J. The readiness for interprofessional learning scale: A possible more stable sub-scale model for the original version of RIPLS. J Interprof Care. 2005;19(6):595-603.
9. Rakrung K, Rakrung K, Tanjan K, Ketschool K, Netwong K, Pokpipat K, Janmak, K, Phokhwang W. Readiness for inter professional learning of sophomore and junior nursing students at Boromarajonani College of Nursing, Suratthani. Proceedings in the 6th National Academic Meeting "Active Learning", 26-27 March 2018, Walailak University.
10. Darlow B, Coleman K, McKinlay E, Donovan S, Beckingsale L, Gray B. The positive impact of interprofessional education: A controlled trial to evaluate a programme for health professional students. BMC Medical Education. 2015;15:98.
11. Soriano GP. Readiness of health science students towards interprofessional learning. Int J Nurs Educ. 2019;11(3):74-79.
12. Cohen EV, Hagestuen R, González-Ramos G, Cohen HW, Bassich C, Book E, et al. Interprofessional education increases knowledge, promotes team building, and changes practice in the care of Parkinson's disease. Parkinsonism Relat Disord. 2016; 22:21-27.
13. Stull CL, Blue CM. Examining the influence of professional identity formation on the attitudes of students towards interprofessional collaboration. J Interprof Care. 2016;30(1):90-96.
14. Joynes V. Defining and understanding the relationship between professional identity and interprofessional responsibility: Implications for educating health and social care students. Adv in Health Sci Educ. 2018;23:133–149.
15. Klinchan N. Thai culture that ASIAN students should know. Mahachula Acad J. 2015;4(1):188-203.
16. Kim YJ, Radloffb JC, Stokesc CK, Lysaghtdet CR. Interprofessional education for health science students' attitudes and readiness to work interprofessionally: A prospective cohort study. Braz J Phys Ther. 2018;23(4):337-345.