



PERCEPTIONS AND ATTITUDE ABOUT INTERPROFESSIONAL LEARNING (IPL) AMONG HEALTH CARE PROFESSIONSTUDENTS- A REVIEW

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ABSTRACT

Background: Effective collaboration and communication among health care team members are critical for providing safe medical care. An interprofessional education is considered as the basis for good team cooperation. **Methods:** An online literature/ articles search was conducted by the authors in the PubMed/Medline and Google Scholar databases to identify studies published from 2015 to 2020. **Results:** Many study results inferred that exposure to collaboration situations through Interprofessional education leads to a positive perception of interprofessional learning among health care profession students. **Conclusion:** It was found in many research articles that health care profession students show positive perception and attitude towards IPL. Interprofessional education helps to improve interprofessional collaboration and patient care among students compared to single profession education, which individuals learn merely only in their profession.

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INTRODUCTION

Interprofessional education (IPE) is a practice of teamwork between two or more students from varied health profession programs in which the students study with and learn from each other. IPE is a method of education that trains students to perform in terms of good communication and collaboration which will be beneficial for the implementation of interprofessional collaboration (IPC) at health-care settings.

Teamwork and the interprofessional collaboration of all health professions are a guarantee of patient safety and highly qualified treatment in patient care. In the daily clinical routine, physicians and nurses must work together, but the education of the different health professions occurs separately in various places, mostly without interrelated contact. Such training abets mutual misunderstanding and cements professional protectionism, which is why interprofessional education can play an important role in dismantling such barriers to future cooperation.

Search Strategy

An online literature/ articles search was conducted by the authors in the PubMed/Medline database and Google Scholar to identify studies published from 2015 to 2020 covering Interprofessional learning using key search terms such as Interprofessional learning, Interprofessional education,

Perception of Interprofessional learning among students and attitude of IPL. In the initial stages, titles, abstracts and, if needed, full articles were screened for eligibility. Then, all included articles were read and reassessed for appropriateness, and relevant data were extracted.

The central questions for this review, which incorporated literature from 2015 to 2020 were:

1. What are the benefits of interprofessional education to students?
2. What is the perception and attitude about inter professional learning among health care profession students?
3. What are the study results of the researches?
4. What recommendations were made by the authors for future research?

Inclusion and Exclusion Criteria

From the identified related articles, the inclusion and exclusion criteria were applied. The initial screening process was conducted to include only articles in English published between 2015 until 2020. Following this, the titles, abstracts and, when needed, the articles' full text were screened according to their relevance to the scope of this review. Articles that were not relevant to the scope of this study were excluded. Furthermore, studies focusing on perception of IPL among Medical, Nursing and other health care students were included. Articles reporting results from studies related to IPL on other professions were excluded. A few relevant articles

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where the full-text articles were not accessible were also excluded. This resulted in articles being included for this review from students belonging to Medical, Dentistry, Nursing, Midwifery, Pharmacy, Respiratory care, Occupational therapy, Clinical Laboratory Science, Psychology and Allied health sciences programme.

Benefits of Interprofessional Education to Students

Interprofessional education is an approach for preparing nursing students with knowledge, skills, and attitudes to achieve Inter Professional Collaboration competencies and therefore, urgently needs to become more prevalent in nursing curricula. Educators can use a variety of IPE teaching-learning activities to support students' achievement of IPC competencies in order to prepare new practitioners to engage in effective IPC in a variety of healthcare milieus. Nurse educators are encouraged to purposely integrate learning opportunities into current and future undergraduate nursing education to prepare collaborative ready graduate nurses. Team-Based Learning (TBL) is an active teaching methodology, recently implemented also in the field of nursing education [1].

The safety of hospitalized patients in the intensive care units (ICUs) is threatened due to incidents like medication errors. A quasi-experimental study (2017) was conducted with an aim to investigate the effect of the interprofessional education of medication safety program on medication errors of physicians and nurses in the ICUs of Isfahan University of Medical Sciences, Central Iran. Participants were 50 members of the health-care team (physician, nurse, and clinical pharmacist) with at least 1 year of work experience in the ICUs. The reports of physicians, nurses, and clinical pharmacist reveals that, the medication error 1 month after implementation the interprofessional education of medication safety program was significantly lower than before its implementation. It is evidenced that interprofessional education of medication safety program can reduce medication error and promote patient safety in the ICUs [2].

A pilot project report in interprofessional education involving both medical and nursing explains how nursing topics and anatomy lectures can be combined for interprofessional learning in an early phase of training. Evaluation of the course showed that the students were highly satisfied with the collaborative training and believed interprofessional education (IPE) as an important experience for their future profession and understanding of other health professionals. The results showed that the IPE teaching concept, which combines anatomy and nursing topics, provides an optimal setting for learning together and helps nurses and doctors in training to gain knowledge about other health professionals' roles, thus evolving mutual understanding [3].

Service-learning and interprofessional education can have an effect on nursing students' learning experiences, attitudes, transcultural knowledge, and on patient outcomes. Interprofessional education is a method in which healthcare students learn their different roles and responsibilities, and understand the benefit from the collaborative process [4].

Little data is available on the effects of interprofessional education on measurable outcomes for patients. A study was conducted with an objective is to determine to what extent student feedback leads to a change of in-patient nutritional

management for a selected internal medical ward. In this teaching project based on the method of research-oriented learning, medical and nursing students conducted an analysis of the nutritional situation of patients and developed individual treatment plans. The feedback from the results of student interprofessional cooperation led to a sensitization of decision-makers and enabled new measures to improve nutritional management, which can increase patient safety [5].

Perception and Attitude about Interprofessional Learning

The aim of IPE is to instruct healthcare students how to learn with, from, and about healthcare professionals from diverse careers to encourage effective collaboration to provide safe and high-quality patient care. A study to confirm the effectiveness of IPE by comparing students' attitudes toward interprofessional learning before and after simulation-based interprofessional education, the perception of teamwork and collaboration between physicians and nurses, and the self-reported competency differences among students in interprofessional practice was conducted. The participants were 37 (5th-year medical students) and 38 (4th-year nursing students). The results showed after interprofessional education, student awareness of interprofessional learning and self-competency in interprofessional practice improved. There was no significant change in the perception of the role of other professions among either medical or nursing students. The authors observed that IPE cultivated self-confidence and recognized the importance of interprofessional collaboration between medical professions[6].

Interprofessional learning occurs through healthcare professionals' learning processes and improves the quality of patient care. A study was conducted with an aim to demonstrate the attitudes of students in respiratory care (RC) as well as nursing and clinical laboratory sciences (CLS) during their last semester prior to graduating. A total of 67 students (25 RC, 14 nursing, 28 CLS) participated. All participants were never exposed to IPE or any other professional experience earlier. Students' readiness to interactively engage with other students as well as shared learning were assessed. The participants included 49% males, and 51% females. The response rate was 100% from RC students; 21% from Nursing; and 42% from CLS. CLS scored the highest among all disciplines 74.6 (79%), while RC scored the second highest with 71.4 (75%) and nursing the lowest with 66.9 (70%). There was a highly significant difference among the three groups' mean scores for overall attitudes. A post hoc Bonferroni comparison indicated that the overall RIPLS scores for CLS were statistically higher than those of nursing. It was concluded by the authors that the healthcare students appear to be ready for the implementation of IPE[7].

A National cross-sectional study was conducted in 2016 among 95 Bachelor of Nursing Sciences programmes in 27 Italian Universities with an objective to explore nursing students' interprofessional educational (IPE) experiences during their most recent clinical rotation and to explore the factors supporting IPE experiences. The results showed that 9607 out of 10 480 students participated. A total of 666 (6.9%) students perceived not having had any IPE experience, while 3248 (33.8%), 3653 (38%) and 2040 (21.3%) reported having experienced IPE opportunities 'only a little', to 'some extent' or 'always', respectively. Male students (gender) were negatively associated with the perception of having had IPE experiences.

The authors concluded that many nursing students experienced either 'never' or 'only a little' IPE opportunities, thus suggesting that nursing education tends to remain within the nursing profession [8].

A study was conducted with a purpose to develop an interprofessional education (IPE) program for medical, nursing, and pharmacy students and to analyse the effectiveness among 116 final year students (41 medical, 46 nursing, and 29 pharmacy students) using pretest-posttest control group design. Perceptions towards Interprofessional Education (PIPE), Self-Efficacy for Interprofessional Experiential Learning (SEIEL), and Perception towards Interprofessional Competency (PIC) were the tools used. The results showed that PIPE tool revealed that the scores of the intervention group were significantly higher than those of the control group. The SEIEL study also indicated the intervention group scored significantly higher than the control group. Pharmacy students' scores were found to be not significant. The intervention group scored significantly higher than the control group in the PIC. A concluding survey of the intervention group indicated that most students were satisfied with the IPE program. The authors hope that this study would provide useful information for designing and improving IPE programmes [9].

In 2015, 76 trainees consisting of internal medicine interns and senior-level nursing students participated in an interactive patient safety workshop that used a flipped classroom approach integrating team-based learning (TBL) and interprofessional simulated application exercises. The workshop trainees demonstrated an increase in knowledge specifically related to patient safety core concepts on the Team Readiness Assurance Test (TRAT) compared to the Individual Readiness Assurance Test (IRAT). A majority (90%) of the trainees agreed that the safety concepts learnt would likely improve the quality of patient care [10].

Self-efficacy is an important factor in determining the ability of students to execute tasks or skills needed in the implementation of IPL. A descriptive cross-sectional study (2018) was conducted among 336 students from nursing, medicine, dentistry, pharmacy and allied health sciences at the International Islamic University, Malaysia with an aim to identify levels of self-efficacy with regards to IPL skills among undergraduate healthcare students and to investigate differences according to gender, programme of study and year of study. There were significant differences in self-efficacy scores for the interprofessional interaction subscale. Pharmacy students scored significantly lower than allied health students. There was a significant difference in self-efficacy scores for the interprofessional interaction subscale according to year of study, with first-year students scoring significantly lower compared to fifth-year students. The authors concluded that these findings may contribute to the effective implementation of IPL education in healthcare facilities [11].

Interprofessional education (IPE) is essential especially for medical students. A study was carried out to determine whether participation in IPE can increase medical students' readiness for interprofessional learning. Second-year medical students (126) and healthcare professions students (18) participated in a combined IPE program conducted by two universities. The response rate of medical students was 88.9%. The RIPLS (Readiness for Interprofessional Learning Scale)

total score increased to a greater extent in the multi-professional groups than in the uni-professional groups. The authors concluded that learning in multi-professional groups increased medical students' readiness for interprofessional learning in an IPE program using TBL [12].

The Final year students' opinions of an interprofessional learning (IPL) course in the Bachelor of Pharmacy program at The University of Auckland was assessed. Pharmacy students participated in the 2nd day of a two-day simulation-based course, alongside medical and nursing students in an acute care, hospital ward setting. Significant differences were found among the students' responses regarding the prioritization of care, systematic assessment of patients, and communication strategies. The overall responses were positive. Some of the themes that emerged among the pharmacy students' responses included: learning communication tools, being assertive in communicating with other health care professionals, and understanding their own and others' roles in the health care team. It was concluded that an IPL experience in an acute patient care setting demonstrated beneficial learning outcomes for pharmacy students, especially in regards to communicating and understanding their roles [13].

A qualitative descriptive study was done in South Korea with a purpose to describe the development and implementation of an interprofessional simulation-based education (IPSE) for undergraduate nursing and medical students, their perceptions of the impact of IPSE and identify their changes in attitudes toward each other's health professions after participating in IPSE. Positive experience, positive learning outcomes and benefits to patients of interprofessional collaborative practice were the three themes emerged after analysis. Before the IPSE experience, most medical students perceived the nurse as nightingale and syringe, and nursing students perceived the doctor as order, expert, and knowledge. After their IPSE experience, both nursing and medical students viewed each other as colleagues. These results suggest that the use of high-fidelity team-based simulation in IPE is effective in practicing and developing undergraduate nursing and medical students' interprofessional collaboration through hands-on experience [14].

Interprofessional Education (IPE) can be a basis for Interprofessional collaboration, as it is becoming increasingly important in health care. A study was conducted in the University of Bern and Bernese educational Institutions to find out how medical (MS) and nursing students (NS) think about their own and other professions, what they know about each other, how strong their willingness to embrace IPE is, and what forms of IPE they believe useful. When assessing their own occupational group in the IEPS, the MS attributed "competence and autonomy" to themselves significantly more frequently. MS knew significantly less about the training of other health professionals. NS showed a significantly higher willingness to embrace IPE. In both groups a majority of the students welcomed IPE; Both groups feared that IPE leads to heightened stress during the study. A subgroup of MS feared a lowering of academic level. The results of this survey concerning IPE provide important information for the planning and implementation of IPE [15].

The establishment of Tsurumi-Meijo IPE, including interprofessional education and practice (IPEP) and video-teaching materials, was conducted in collaboration with school

of medicine/nursing in Nagoya University and Fujita Health University. Pharmacy, medicine, and nursing students interviewed simulated patients (SP) together or separately and practiced team-based care through Tsurumai-Meijo IPEP. This study examined whether Tsurumai-Meijo IPEP, and video-teaching materials were useful for understanding importance of team-based care. More than 83% of students indicated that Tsurumai-Meijo IPE is useful on future clinical practice. This suggests that the program and materials are beneficial to the medical student education. Some clinical pharmacists, who had participated in Tsurumai-Meijo IPE before graduation, applied it in their work and it facilitated their work related to team-based care. Tsurumai-Meijo IPE collaborating with SP is likely to contribute to provide high quality and safe team-based care by taking advantage of specialized professional ability of healthcare professionals [16].

The perceptions of 286 medicine and health profession students on IPE was studied in five health profession programs at Universitas Syiah Kuala, Indonesia. The results showed that more than half of the students (51.4%) in this study had a positive perception toward IPE. Upon exploration of students' perceptions separately for each study program, only a minority of medical students responded with a positive perception toward IPE (37%). In contrast, the majority of students from dentistry, psychology, nursing, and pharmacy study programs showed a positive perception of IPE, with the pharmacy study program being the program with the highest proportion of students who showed a positive perception (62.5%, 53.5%, 56.4%, and 75%, respectively). The majority of medical students show a negative perception toward IPE in contrast to students from other health profession programs at Universitas Syiah Kuala. The pharmacy study program shows the highest proportion of students with a positive perception among all other students [17].

Problem-solving skills and learner-centred approaches provide students with the ability to solve health challenges by placing them in simulated situations. A quasi-experimental study to determine the effect of inter-professional learning based on problem-solving on critical thinking (CT) and satisfaction with learning experience in nursing and midwifery students was conducted among 20 undergraduate nursing and 28 final year midwifery students. The research intervention was interprofessional learning based on problem-solving conducted in five 2-h training sessions. The findings of this study indicated that the mean score of students' CT before the intervention was poor, while it statistically significant increased after the intervention. IPE based on problem-solving has been able to significantly enhance the overall critical skills of students, especially in the dimensions of analysis, inference and deductive reasoning. Students' satisfaction with learning experience was also highly increased [18].

The recent emphasis on the importance of interprofessional education (IPE) in healthcare fields has increased the interest in IPE introduction in South Korea. A cross sectional study using a survey was conducted with a purpose to examine the differences in perceptions of medical, nursing, and pharmacy students regarding IPE. The study also aimed to identify the priority rankings of educational needs by analyzing the differences between students' perceptions of the importance level and the present level for each interprofessional competency. The participants were 559 medical, 393 nursing, and 96 pharmacy students. The response rate was 1,084

(72.3%). Majority of the students (89.6%) did not know the meaning of IPE. The difference in students' perception of IPE was not significant by grade. The level of IPE perception was higher for female than male students and for students who knew the meaning of IPE than those who did not. The nursing students' perception of the importance, preference, and effectiveness of IPE was the highest, whereas medical students' perception was the lowest. All students perceived their present level to be lower than the importance level for each interprofessional competency. The authors believe that these results will serve as baseline information for developing IPE programs in South Korea [19].

IPE prepares health professionals for their collaborative role in the healthcare system. A study was conducted to investigate: Students' readiness for IPE in an Asian context, the most important factors influencing students' perceptions of IPE, the reasons underlying such perceptions and the factors mitigating or promoting their sense of readiness. Students from medicine, nursing, midwifery and dentistry programmes participated. The results showed that medical students seemed to be the most prepared for IPE. Focus groups further revealed that Students were generally favourable to IPE, appreciating the opportunity it offered them to improve their interprofessional leadership, collaboration and communication skills[20].

Recognizing the need for interprofessional education for trainees, the University of Kansas Schools of Nursing (SON) and Medicine (SOM) created interprofessional procedure workshops to foster collaboration, communication, and learning with and from other disciplines. The first workshop focused on venipuncture and peripheral intravenous catheter (PIV) insertion. The survey results showed that most students felt the program beneficial and met the learning objectives. After the sessions, the learning objectives were met by each group. One goal of this curriculum was to achieve higher graduate competencies in procedural skills and interprofessional practice[21].

Participation in simulation-based interprofessional education (sim-IPE) may affect students' attitudes towards interprofessional learning and their professional identity. This was examined in two questionnaire studies among students from four universities in two areas of the UK. Data was collected among 194 medical and 266 nursing students before and after students took part in a sim-IPE session consisting of three acute scenarios. In both studies RIPLScore increased for all groups following participation in sim-IPE. Nursing students had consistently higher RIPL Score scores than medical students at one site. It was concluded by the authors that participation in a sim-IPE session can improve attitudes towards interprofessional learning. It also enhances professional identity, particularly as related to emotional aspects of group membership, with possible benefits for wellbeing[22].

The relationship between medical student readiness for interprofessional learning and interest in community medicine prior to incorporating community-oriented interprofessional education into the curriculum was investigated among students at Nagasaki University School of Medicine in Japan during each of three consecutive years. Eighty-four percent (1891/2244) of students responded. The RIPLS score was highest in school year 1, followed by year 6, year 5, year 3, and years 4 and 2. It was concluded by the author that

Community-oriented interprofessional education has the potential to improve attitudes towards interprofessional learning[23].

A progressive interprofessional education simulation program incorporating both faculty and interprofessional student collaboration would improve medical students' knowledge retention, comfort with procedural skills, positive teamwork and meaningful interaction between students. An Obstetrics and Gynecology IPSE for medical and nursing students (NS) was developed in collaboration between a school of medicine and a school of nursing. The program trained 443 medical and 136 NS. Medical students' knowledge, comfort, and interest increased significantly post simulation. No significant differences were found between medical and NS self-assessment or faculty-assessment scores regarding IUD insertion, cervical examination, or contraception quiz scores. Medical and NS learned skills in a collaborative environment and in role-specific situations. Medical students had the opportunity to learn from NS. Positive teamwork and respectful interaction occurred between the students[24].

A study using mixed method was conducted with a purpose to describe the development, administration and outcome measures of an education programme to teach principles of interprofessional care for older adults in the context of falls prevention. Students (n=237) from three academic institutions representing 12 health disciplines took part in the education programme over 18 months. Results of this study indicated that active interprofessional education can result in positive student attitude regarding interprofessional team-based care, and satisfaction with learning. The authors concluded that effective models to teach falls prevention interventions and interprofessional practice are not yet established. Hence, this education model is recommended for its easy replicability and can use in teaching interprofessional teamwork competency skills in falls and other geriatric syndromes [25].

A study was conducted to evaluate the perception of 85 registered nurse (RN) students and occupational therapy (OT) students jointly participating in an interprofessional education (IPE) patient simulation learning experience. Students engaged in a 3-hour IPE patient simulation in an acute care hospital setting. Findings indicated a qualitative feedback about students' experience and a significant change in interprofessional socialization for RN and OT students after engaging in the IPE patient simulation learning experience was observed[26].

In Indonesia, both medical students and midwifery students should have an interprofessional education training together during their professional education, using a community-based learning approach. A Pre-experimental study was conducted among 15 medical and 19 midwifery students with an aim to investigate the effect of a community-based interprofessional educational learning on collaborative competencies, collaborative patient-centred approach, the team functioning, and conflict management. The finding showed significant increase in IPE competencies before and after the 4-week course. IPE community-based learning had the strongest effect on the team's functioning competence, while collaborative patient-centred approach competence had a moderate effect. The authors concluded that IPE community-based learning had positive impact with increasing collaborative competencies for both medical and midwifery students [27].

An anatomy interprofessional near-peer learning activity (AIP-NPLA) between nursing and medical students was piloted to assess its applicability. A total of 59 medical and 179 nursing students participated in the AIP-NPLA whereby medical students were asked to facilitate and lead group discussions with their nursing students' colleagues on an anatomical topic using a donor cadaver. The findings of this study suggest that early implementation of IPE activities outside of a clinical setting are beneficial and can foster both learning from one another and positive perceptions of interprofessional roles when carefully designed [28].

An interventional program was carried out among 24 students to explore student's readiness for IPL and determine whether participation in high fidelity interprofessional education resulted in higher levels of readiness for interprofessional learning. Each team participated in a high-fidelity IPE module designed to teach the clinical management of an adult patient experiencing acute anaphylaxis. It was found that students exhibited positive attitudes towards teamwork, enhanced communication skills, and improved respect and trust for team members. The findings from this study show a higher level of readiness for high fidelity interprofessional learning using human patient simulators among senior undergraduate medicine, nursing, and pharmacy students hence suggested to be used in undergraduate education programs [29].

Student perceptions of an interprofessional collaboration pharmacokinetics simulation on the Interprofessional Education Collaborative (IPEC) 2016 Core Competencies was investigated using a simulation activity among 5491 senior undergraduate nursing and second-year pharmacy students using medium-fidelity manikins. Nursing students completed head-to-toe assessment and pharmacy students gathered necessary information and calculated empiric and adjusted doses. Themes from survey responses revealed meaningful perceptions in all IPEC competencies. Students reported learning effectively from the simulation experience[30].

CONCLUSION

Based on the literature discussed in this review, it is clear that Interprofessional Learning and Education provide a lot of benefits and have positive perception among the health care profession students. The skills of interprofessional teamwork, such as collaboration, team management, and interprofessional communication skills, should be initiated in the early stages of health profession education and continued throughout the career. All health care professionals and stakeholders in healthcare and education find interprofessional teamwork to be crucial for today's complex healthcare. Consequently, students must prepare themselves for future collaboration with other professions.

Students perceive IPS (Interprofessional simulation) as highly relevant and that different health care professions can engage together in clinical scenarios. IPS also strengthens future interprofessional competence. Hence, with all these evidences, and to equip students with broader interprofessional experience and competence, Interprofessional learning should be integrated in professions, where team learning is applicable and possible. This application and implementation could have a positive outcome in health care systems.

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