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What Constitutes Effective Interprofessional Education Amongst Health Related Disciplines : A Literature Review

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Abstract

Interprofessional Education (IPE) is considered an educational strategy that has potential benefit for improving teamwork and collaboration in practice, leading to improved patient outcomes. As the development and implementation of curricula that integrate IPE requires significant resources, its adoption should be based on evidence of effectiveness. The purpose of this literature review is to identify what constitutes effective interprofessional education amongst health related disciplines. A literature search was conducted using Science Direct, BMC, Elsevier and Joint Commission Journal for the years 2009-2018. A total of 15 studies met the established inclusion criteria. The use of IPE among health related disciplines is one effective way to solve several problems, and its particularly improves patient safety. What constitutes effective interprofessional education amongst health related disciplines are possibly viewed from some aspects, such as efficiency, effectiveness, learning strategy, power, patient and learner safety and readiness to practice, interprofessional curriculum, roles and relationships, and learning outcomes.

Keyword: Interprofessional education, constitues, effective, health disciplines

Introduction

Nursing, medicine, pharmacy , and other alied health graduates are required to work both collaboratively and autonomously in complex clinical environtments (Lapkin, 2018). Currently, most of university–based health professional education is delivered in a discipline spesific mode. This approach is limited in its capacity to equip graduates with knowledge, skills or attitudes for interprofessional collaboration and for working effectively as part of a complex health care team (Garling, 2008).

It is claimed that interprofessinal education (IPE) is a strategy for addressing these concerns. Interprofessional education occurs when "learners from two or more professions learn about, from and with each other to enable effective collaboration and improved health outcomes" (Center for the Advancement of Interprofessional Education, 2002).

The fundamental premise of IPE is that if health professional students learn together they will be better prepared for interprofessional collaboration and teamwork, ultimately leading to improved patient care (Barr *et al.*, 2005).

In fact, the Joint Commission (2005) reported that staff communication was the primary cause of 65% of hospital sentinel events between 1995 and 2004. In response to the alarming number of system errors, the Institute of Medicine recommended fundamental changes in health professions education and called for interdisciplinary team training (Greiner and Knebel, 2003). Health care improvement teams and academicians, for example, have viewed the aviation industry as one model for improvement. Aviation uses both interprofessional team training and simulation; for example, pilots, stewardesses, and mechanics learn teamwork and communication skills in simulated training in order to reduce errors and improve passenger safety. Similarly, interprofessional education (IPE) and the use of simulation are becoming major foci of health profession education programs.

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primary cause of 65% of hospital sentinel eventsbetween 1995 and 2004. In the response to the alarming number of system errors, the Indtitute of Medicine recommended fundamental changes in health professions education and called for interdisciplinary team training (Greiner and Knebel, 2003).

Literature reviews of interprofessional and simulation education separately, suggest a benefit in terms of skill training, student confidence, and perceived teamwork. However, Gaba (2004) has noted the need for more methodological rigor in study design and outcomes assessment. Given the monetaryy investment for educational institutions in faculty time and training for interprofessional curricular development, combined with the costs of simulation equipment and faculty training, a review of the research related to what the constitutes effective interprofessional education amongst health related disciplines.

Background

IPE is considered an educational strategy that has potential benefit for improving teamwork and collaboration in practice, leading to improved patient outcomes (Irajpour, Norman, and Griffiths, 2006). IPE has developed rapidly in several countries, including the United States, Australia, Canada, and the United Kingdom (Herbert, 2005; Pulman, Scammell, and Martin, 2009; Whelan, Spencer, and Rooney, 2008).

The World Health Organization (WHO) has provided global support of IPE through various initiatives that began as early as 1973. Examples is the Learning *Together to Work Together for Health Report* (World Health Organization [WHO], 1988) which promoted IPE as a way to enhance collaboration and interprofessional teamwork. WHO's recently published *Framework for Action on Interprofessional Education and Collaboration Practice* led to an increased interest in IPE.

In Canada and the United Kingdom (UK) there exist a clear policy direction and substantial government funding to incorporate IPE into health professional education. The Health Counci of Canada has included a recommendation that each university health sciences program offers an IPE subject (Bandali *et al.*, 2010).

In the United States, the Institute of Medicine (2001) published the report Crossing the Quality Chasm: A New Health System for the 21st Century which recommended that "health professionals should be educated to deliver patient-centred care as members of an interdisciplinary team" (Institute of Medicine, 2001).

In Australia, The Departement of Health and Ageing (DOHA) in a report titled Toward a National Primary Health Care Strategy, referred to the importance of "multidisciplinary teams" and "interdisciplinary learning" (Departement of Health and Ageing, 2008). However, these recommendations appear to have been made without strong evidance of the effectiveness of IPE.

Interprofessional Collaboration and Education

In interprofessional team, joint decision making is valued and each profesion is empowered to assume leadership on patient care issues appropriate to their expertise (World Health Organization, 2010).

Interventions that are interprofessinal have been shown to improve patient outcomes such as medication safety and length of hospital stay (Zwarenstein *et al*., 2009). IPE is purported to enhance health professionals' interpersonal and communication skills, collaboration and teamwork leading to improved patient outcomes (Carey *et al*., 2010; Stewart, 1995).

However,despite international support for IPE as a key area of health professional education, theere remains a lack of systematic evidance of its effectiveness (Braithwaite *et al*., 2007). Additionally, commentators have argued that the concept of IPE remains unclear and that the concept of IPE remains unclear and that there are multiple definitions and objectives (Finch, 2000). As the development and implementation of curricula that integrate IPE requires

significant resources, its adoption should be based on evidence of effectiveness.

Existing Reviews of IPE

In order to prevent duplication of research, a search of the literature databased was undertaken to establish whether a recent review on IPE exists. This study identified a reviews (Lapkin *et al*., 2018). According to Lapkin *et al* (2013), some understanding of the impact of IPE on health outcomes but the majority report mixed results. Additionally, the majority of the studies included in the reviews did not use rigorous research designs and validated measurement instruments, which make it difficult to draw accurate conlusions regarding the effectiveness of IPE interventions.

It is important to note that a lack of sufficient evidence of the effectiveness of IPE does not necessarily equate to evidence of ineffectiveness. Rather, this presents an oppurtunity for searching, synthesising and summarising the available evidence on the effectiveness of IPE in university programs and recommendations for future research directions.

Objective

This literature review aims to describe what constitutes effective interprofessional education amongst health related disciplines.

Methods

This literature review employed PRISMA to describe the what constitutes effective interprofessional education amongst health related disciplines.

Eligibility Criteria

The authors employed various types of research methods including quantitative and qualitative methods to describe the implementation of what constitutes effective interprofessional education amongst health related disciplines, focus on the patient's safety, effectiveness, efficiancy, learning outcomes, and learning strategy.

Search Strategy

The authors conducted some search process to gain relevant articles about the implementation of what constitutes effective interprofessional education amongst health related disciplines. During the search process, the authors used some keywords, such as; "interprofessional education," "multidiscipline health education," and "interprofessional team."

Study Selection

Four databases consisting of Science Direct, BMC, Elsevier and Joint Commission Journal were included in this study. The authors investigated some relevant articles published in the English version. After eliminating several similar studies, the authors collected relevant articles.

Synthesis of Result

The findings of this review describe and explain what constitutes effective interprofessional education amongst health related disciplines.

Results

The results of this review were described as following:

Study Description

Figure 1 illustrates the process of study selection. Four electronic databases provide 2900 references related to the topic. On the other hand, some articles are excluded because their title and abstract are not comprehensive, the topics are unrelated to this study (interprofessional education), and they are non-academic journals (letter to the editor and, short communication and not full text (only abstract). Therefore, only fifteen studies are reasonably reviewed.

Study detailed summary of the characteristics of included studies including all results is given in Table 1. The major differences between the included studies are described below.

IPE Amongst Health Related Disciplines for Patient Safety

Efficiency

Innovations such as IPE require changes at multiple levels: institutional, curricula and individual. In one study an e-learning IPE module was successfully

implemented (Becker and Godwin, 2005) with less cost and fewer logistical issues that in face-to-face methods. E-learning approaches may signal the future for IPE, particularly in situations where barriers seem to outweigh the benefits of face-toface IPE initiatives (Lapkin *et al*., 2013).

High-fidelity simulation, the most costly in terms of dollars and the time for faculty training, has the greatest potential to improve critical thinking and clinical reasoning in complex clinical scenarios (Zhang *et al*., 2011).

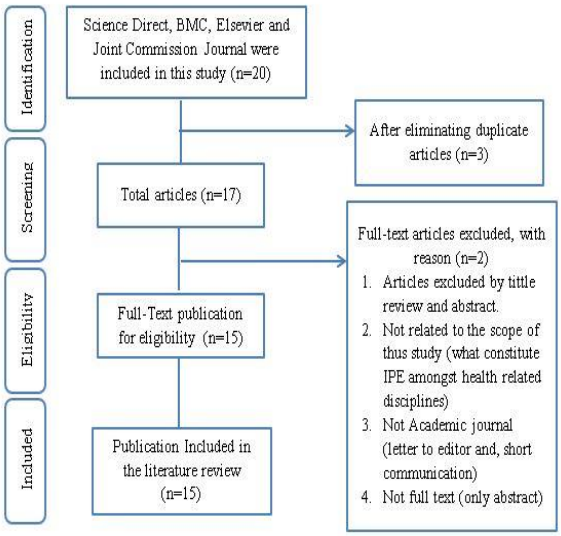

Figure 1. The study selection process of literature adapted from PRISMA (2009).

Effectiveness

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Effectiveness

Although randomized controlled trials are largely considered the gold standard for measuring effectiveness, most educational intervention and evaluation measures have not been adequately tested for use in randomized controllrd trial. Principles of quality improvement, however, offer guidance in testing educational initiatives and moving educational science to a higher level. Quality improvemnet provides a scientific foundation and offers a disciplined approach to designing and testing interventions. Quality improvement is defined as unceasing efforts to make changes to improve patient outcomes, improve health care delivery, and improve professional learning (Ogrinc and Headrick, 2008) (Zhang *et al*., 2011).

Learning Strategy

The IPE approach implementation are campus or classroom based, this might have been considered the most appropriate method to ensure delivery of IPE to large cohorts of students. However, clinically based learning from a significant component of health professional education and provide students with opportunities to integrate theoretical and practice-based skills. Only one literature implemented IPE using practice-based learning opportunities (Lapkin *et al*., 2013).

Simulated learning activities included high-fidelity training such as mock codes or complex surgical procedures implemented in mock operating rooms. Other active learning strategies included the use of low-fidelity manikins for skill training, professional actors for assessment, and role-playing to build teamwork. Most of authors used debriefing as an essential element of the simulated learning experience (Zhang *et al*., 2011). In general, simulation has been found beneficial in decreasing students' anxiety and increasing skill acquisition, self-confidence, and perception of self-efficacy (Zhang *et al*., 2011).

The Plan-Do-Study-Act cycle is similar to a pilot study and focuses in small changes that can be planned, implemented, and evaluated quickly, thereby building a foundation for testing on a wider scale. In

the *planning* phase (what to test, what education or training needs to be developed and delivered, what data need to be collected, what the desired outcomes are, and a project timeline). The *do* phase (intervention and the collecting of data, to what worked, what didn't work as planned, what unexpected events occured, and what barriers were wncountered). The *study* phase (time for data analysis and reflection. Team members should summarize lessons learned and determine what could be improved). The *act* phase (when team members decide what to do wuth the evaluated intervention, that is, to abandon, modify, or implement it on a larger scale). The cycle repeats itself, building on small successes. The majority of studies reported in this review article contained complex educational interventions (Zhang *et al*., 2011).

Power

The most prominent theme emerging from the midwifery focus group revolved around power. References were made to different types and levels of power relating to their identify as students versus the practicing health professionals (both medical and midwifery), in the context of their knowledge, experience, or their future role compared with the medical students. Overall, the medical students had a possitive experience from the midwifery students teaching them. The midewifery students expresed themselves to be in a relatively weaker situation (similar for their medical student counterparts). They also communicated a feeling of being at a similar level to the medical students, probably arising from task sharing (Kumar *et al*., 2017).

Patient and Learner Safety and Readiness to Practice

According to a study conducted by Kumar (2017), Both groups of students expressed a need for readiness to practice in clinical setting and that a baseline level- that could be facilitated through simulation- had to be achieved before encountering patients. Anxiety was expressed regarding potential "patient injury" that could be caused by student learning unless the necessary technique, knowledge, and skills had been acquired (Kumar *et al*., 2017).

Interprofessional Curriculum

Common learning objectives and overlaps in curriculum were identified by the participants through the program. These are taught in silos, and the professional groups were unware of each others' scope of pracice. Exploring interprofessional learning opportunities at the undergraduate level was emphasised on to potentially improve teamwork and clinical practice in a work-based setting (Kumar *et al*., 2017).

Roles and Realtionships

In terms of recognising and describing their own role, an emphasis was made on defining the scope of practice of individual disciplinrs. However, an interest was expressed in learning about what is beyond their own disciplines's scope of management in order to understand the role of the other professional group. On the whole, the relationship was perceived as being on an even ground, and the professional bond was seen to be strengthened as a result of the IPE (Kumar *et al*., 2017).

Learning Outcomes

Mixed result related to the learning outcomes of IPE such as improved clinical decision-making ability, knowledge score and patient care objective score (Lapkin *et al*., 2013). Student satisfaction and perception of learning are high when students are engaged in interprofessional simulated activities. The use of an evaluation framework to define outcomes and a quality improvement model to structure a disciplined approach to scientific foundation for measuring effectiveness of simulation-based IPE (Zhang *et al*., 2011).

There was evidence of attitudinal changes in three of the studies reviewed. It reported from some evidence: significant changes in attitudes towards IPE in nursing students only, significant improvements only in the attitudes of the male participants in the experimental group, and students' attitudes toward IPE improved post-

intervention for the interprofessional groups (Lapkin *et al*., 2013).

Student's attitudes towards interprofessinal collaboration and clinical decision-making ability may be enhanced through IPE. However, little evidence exists in regard to whether the gains attributed to IPE can be sustained over time. Additionally, the evidence for using teach interprofessional communication skills, patient care objectives and clinical skills such as resuscitaion is inconclusive and needs further investigation (Lapkin *et al*., 2013).

Changes in provider behavior are difficult to obtain and may be mediated by the organizational, social, financial, and/or cultural context. Quality improvement work offers insights regarding what educational interventions work best for whom and under what conditions fosters a body of evidence-based, educational practice knowledge capable of being transferred to other settings and tested inlarger studies. Quality improvement work relies on small studies, use pre-post test designs, and is based in the Plan-Do-Study-Act cycle (Zhang *et al*., 2011).

Discussion

According to Zhang *et al*. (2011) a review and synthesis of studies that combine both IPE and simulation learning strategies was conducted. Although possitive affects of simulation-based IPE were revealed, a wide range of educational interventions used outcome measures that were investigator-developed questionnaires lacking psychometric testing. Given these findings, the authors suggest that the use of an evaluation framework that defines outcomes and a quality improvement model to structure a disciplined approach to desinning and testing an intervention could provide the scientific foundation for measuring effectiveness of simulation-based IPE (Zhang *et al*., 2011).

A study conducted by Reid (2018) explains that IPE is an important part of the training of all health and social care professionals and the study revealed many benefits of this approach. Hoowever, we should be sensitive to the possibility of inadvertently perpetuating negative stereotypes as a consequence of IPE activities. All participants reflected an understanding of healthcare as hierarchical, and many expressesd concerns that nursing was perceived to be of lower status than medicine. The event offered the opportunity to share and potentially challenge assumptions and stereotypes about other professions, wheter these were received ideas from previous generations, observations of professional behaviour in placement or from other sources (Reid *et al*., 2018).

The effectiveness of facilitaion proved a key factor in how this was challenged and discussed. Despite ensuring the training of facilitators and co-facilitators of each group, a minority of facilitators were complicit in perpetuating stereotypes which left some students feeling vulnerable. For examples, some radiography students felt that their role was being undermined and this does not seem to have been effectively challenged by the facilitators in this group (Reid *et al*., 2018). Consequently, the lectures may have had many experiences of working in interprofessional healthcare team at a time when the culture was more hierarchical and a blame culture existed.

What constitutes effective interprofessional education amongst health related disciplines are possibly viewed from some aspects, such as efficiency, effectiveness, learning strategy, power, patient and learner safety and readiness to practice, interprofessional curriculum, roles and relationships, and learning outcomes.

Strengh and Limitations

This study review many previous studies to explore what constitutes effective interprofessional education amongst health related disciplines. The result provides valuable information to improve the patient safety. However, some of the limitations discussed in the application of the IPE. The impact of IPE, by the nature of such enquiry, even on one individual student provides food for thought, particularly where there is evidence of negative impact (Reid *et al*., 2018).

The limitation of promoting collaborative practice which equally values all professions is limited by the wider infrastructure and context. We would encourage sensitivity towards this when developing IPE and a cautionary approach, particularly with students in the early years of their programme. At this point student identify is in transition (Andrew *et al*., 2009; Helmich *et al*., 2012) and a safe, supportive environment is required to build their confidence in dealing with the realities and challenges of working (Reid *et al.*, 2018).

Conclusion

The use of IPE among health related disciplines is one effective way to solve several problems, and its particularly improves patient safety.

Conflicts of Interest

Given the timescale from educational intervention to professional practice and the numbers of other influrncing factors that come into play over that period, it is necessary to conduct studies that fully explore the transferability of IPE outcomes to clinical practice. The authors declare no conflict of interest in this manuscript. The funding sponsors also have no role in the writing of the manuscript or the decision to publish this manuscript.

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