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Healthcare Professional Students' Perceptions toward Interprofessional Education

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Georgia State University

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First and above all, I thank the almighty God (Allah) for all the wisdom, strength, perseverance, and blessings bestowed upon me during this thesis as well as throughout my life. Second, I dedicate this work to two people I mention first who deserve much credit and thanks, my mom and dad. My dear parents, I am where I am because of you, and without your continuous love, support, encouragement, and prayers, I would not make it this far; Thank you so much. I also would like to extend my gratitude to my siblings for their unlimited love, support, and encouragement.

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Bandar Mohammed Faqihi

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HEALTHCARE PROFESSIONAL STUDENTS' PERCEPTIONS TOWARD INTERPROFESSIONAL EDUCATION

By

Bandar Mohammed Faqihi, BSRT

A Thesis

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2017

Healthcare Professional Students' Perceptions toward Interprofessional Education

By

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(Under the Advisement of Dr. Douglas S. Gardenhire)

ABSTRACT

BACKGROUND: The interaction among various health disciplines in a health care team using the IPE approach has received recognition as one of the most effective methods of improving the delivery of healthcare services. The perception and attitude of students toward IPE is considered one of the barriers and challenges to implement interprofessional education. **PURPOSE:** The aim of this study is to evaluate students' perceptions toward interprofessional education. **METHOD:** Data were collected through a descriptive survey using the Readiness for Interprofessional Learning Scale (RIPLS). The survey consisted of 19 items, 5-point Likert scale and grouped into four sub-scales; teamwork and collaboration, negative professional identity, positive professional identity, and roles and responsibilities. The survey was administered to a convenience sample of undergraduate and graduate students who are enrolled in nursing, respiratory therapy, nutrition, physical therapy, and occupational therapy programs at an urban university. The collected data were analyzed using descriptive statistics. **RESULTS:** The number of participants was two hundred and fifty (n= 250) students from five programs. Physical therapy students accounted for 29.2%; followed by nursing students 28.8%; respiratory therapy students 26.4%; nutrition students 8.4%; and occupational therapy students 7.2%. Female participants accounted for 71.6% of all participants while male participants accounted for 28.4%. Over half of the participants are graduate degree students while 44.4% are undergraduate degree students. Almost one third of participants reported previous IPE experience and two third of participants reported no previous IPE experience. The study findings revealed that participants have positive perception and more agreement toward IPE (M = 81.10, ± 8.16 out of 95 points). The study showed that there is insignificant correlation between age and RIPLS total scores, negative professional identity, positive professional identity, and roles & responsibilities. There is only a significant negative correlation (r_s = -0.176; P = 0.008) between students' age and teamwork & collaboration subscale. Moreover, the study findings revealed that gender and previous IPE experience have no significant effect on students' perception toward IPE. **CONCLUSION:** Results indicate that healthcare professional students value interprofessional education and have good perception toward it. Further studies with higher number of participants from various disciplines and level of education are recommended.

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Chapter I

Introduction

The interaction of members from various health disciplines in forming a healthcare team is recognized as an effective method that ensures the provision of high-quality health care services. The most cost-effective patient outcomes can be achieved when healthcare professionals learn and work together as a team (National Health Service Management Executive, 1993). Moreover, healthcare teamwork quality is positively and directly related to patient care quality (Borrill, Carletta, Carter, Dawson, Garrod, Rees, Richards, Shapiro, & West, 2000). Multi-professional teamwork is associated with lower stress and higher levels of effectiveness and innovations among the team members (Borrill et al., 2000). The World Health Organization (WHO) uses research evidence from many countries to afford ideas on approaches to applying different interprofessional education (IPE) strategies (Baker, 2010).

Studies have shown how multidisciplinary collaboration has improved care and how the driven protocols of multidisciplinary have successfully facilitated patients in the Intensive Care Unit (ICU) (Burns, Earven, Fisher, Lewis, Merrell, Schubart, Truwit, & Bleck, 2003; Dosher, Loomis, Richardson, Crowell, Waltman, Miller, Nazim, & Khasawneh, 2014). A multidisciplinary team is a crucial part for better outcomes for patients in need of mechanical ventilation (MV) as multidisciplinary team is related to major reduction in mechanical ventilator duration and a significant reduction in ICU and hospital length of stay (LOS) (Dosher et al., 2014). Similarly, the implementation of a multidisciplinary team on Outcomes Management has shown a significant reduction in MV duration, costs, LOS, and mortality (Burns et al., 2003).

There have been various methods suggested to apply multidisciplinary collaboration and to achieve positive patients' outcomes (Zwarenstein, Goldman, & Reeves, 2009). One of these

approaches is interprofessional education (IPE), which is defined as healthcare professions collaboratively learning within other disciplines to obtain knowledge, values, and skills for the team (MacDonald, McFetridge-Durdle, & Grymonpre, 2008). The positive attitudes of healthcare students toward other professionals and toward collaborative learning are directly related with effective interprofessional education implementation (Hind, Norman, Cooper, Gill, Hilton, Judd, & Jones, 2003). Thus, attitudes of students, along with many factors like differences in culture, education, language, and stereotypes between professionals, toward interprofessional education are considered to be major obstacles and barriers that can affect its implementation (Hojat, Fields, Rattner, Griffths, Cohen, & Plumb, 1997).

Statement of Problem

The interaction among various medical disciplines in a health care team using the IPE approach has received recognition as one of the most effective methods of improving the delivery of healthcare services (Varghese, Kanagaraj, Swaminathan, Vishal, Romer, & Cusack, 2012). Barriers and challenges to interprofessional education can include the perceptions and attitudes of students toward IPE (Hojat et al., 1997). Therefore, it is important to evaluate healthcare students' perceptions and readiness toward interprofessional education approach to help developing IPE in healthcare professions' curriculum.

Purpose of the Study

The aim of this descriptive quantitative study is to evaluate students' perceptions toward IPE and to provide helpful information about similar or different perceptions based on various factors such as profession and gender.

Research Questions

1. What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?
2. What is the relationship between healthcare professional students' age and IPE scores?
3. What factors influence healthcare professional students' perceptions of interprofessional education?

Significance of the Study

The significance of this study lies in its ability to provide information about the students' perceptions toward interprofessional education. This study also would be considered as one of the initial steps in developing an interprofessional education course in the curriculum to encourage shared knowledge and responsibilities among all healthcare students.

Definition of Terms

IPE: Inter-Professional Education is defined healthcare professions collaboratively learn with various disciplines to obtain knowledge, values, and skills for the team.

WHO: World Health Organization is an agency of the United Nations that is concerned with international public health.

ICU: Intensive Care Unit is a specialized unit in the hospital with specially trained team that deal with critically and seriously ill patients.

Limitations

In any study one can expect limitations that are outside the control of the researcher. The following limitations were recognized by the researcher as being viable:

1. Students used in the study are from different programs and may have different experiences.

2. Students used in the study are at different program levels and may have different experiences.
3. Students may have had IPE training in the past.

Delimitations

This study included a population of healthcare students at an urban university. The results of this study can only be generalized to this group of students. Data from the students will be utilized to satisfy the research questions.

Chapter II

Review of the Literature

The following literature review consists of research that is focused on interprofessional education and healthcare professions in terms of interprofessional education. Medicine and nursing professions dominate the majority of published articles concerning interprofessional education. Physical therapy, occupational therapy, respiratory therapy, and radiology are also participating in interprofessional education. Internet databases used in this review include: CINAHL, PubMed, EBSCOhost, and Google Scholar.

The search keywords were: interprofessional education, interdisciplinary education, multiprofessions, multidisciplinary, interprofessional collaboration, multiprofessionals collaboration, effectiveness of interprofessional education, allied health, nursing, medical, medicine, occupational therapy, physical therapy, and respiratory therapy. The research results showed numerous published articles that highlighted interprofessional education and its effectiveness on different healthcare professions. This chapter is organized as follows: definition of IPE, history of IPE, evaluating IPE, IPE learning models, IPE in medicine and health sciences, and summary.

Interprofessional Education (IPE)

Definition of IPE

The Framework for Action on Interprofessional Education and Collaborative Practice highlights the complexity and the weaknesses of the healthcare systems (Baker, 2010; WHO, 2010). Accordingly, the World Health Organization (WHO) is supporting the application of IPE to develop a cooperative practice as a way to reduce the effect of healthcare workers' shortage and to improve patients' needs and outcomes (WHO, 2010). IPE has many concepts that form it

but the main concept is shared learning (Ni Mhaolrúnaigh, 2001). Shared learning is supported by WHO to improve a collaborative work and patients' outcomes (WHO, 2010). In 1994, (Leathard) has stated fifty-four terms used to explain conditions when different disciplines study and work together. After that, Hugh Barr and Shaw (1995) narrowed down the descriptions for 'learning together' to two main terms that were arising from the articles in different areas like United Kingdom, United States, and Europe. The two main terms are Interprofessional and multiprofessional Education (Hugh Barr & Shaw, 1995).

Interprofessional education has slight differences from multiprofessional education in terms of the definition. Interprofessional education occurs when two or more professions study about, from, and/or with each other for promoting collaborative practice and improving the care quality (H Barr, 1997; Hugh Barr, Hammick, Koppel, & Reeves, 1999; Hugh Barr & Shaw, 1995). On the other hand, multiprofessional education is defined as the initiatives that involve two or more disciplines learn alongside for whatever the reason (H Barr, 1997; Hugh Barr & Shaw, 1995; WHO, 1988). Therefore, the goal and approaches of interprofessional education are different compared to multiprofessional education. In multiprofessional education, the education methods is not identified whereas in interprofessional education, the learning rely on interacting method for allowing various disciplines learn about, from, and with each other (H Barr, 1997; Mackay, 2002).

In conclusion, interprofessional education includes students or providers from different disciplines learning and working together to share objectives, knowledge, and responsibility of patient care. Moreover, interdisciplinary education uses the method of collaborative learning to acquire proper communication skills and cooperation between various professions to achieve common learning goals (Lam, Plein, Hudgins, & Stratton, 2013).

History of IPE

The concept of interprofessional education is not new in health education, and the history of examining the requirement for healthcare providers to learn and work collaboratively for better outcomes began over fifty years ago (Carr, 2015). The main national organizations like Institute of Medicine and National Center for Interprofessional Education and Practice have recognized the importance of IPE and then promoted an extended understanding of IPE in learning and practice (Baker, 2001; Fitzpatrick, 2010; Greiner & Knebel, 2003). For further elaboration of IPE history, the following paragraphs will be presented as timeline design, which will provide detailed historical events on IPE.

1900-1950

At the beginning of 1900, India's mission hospitals sent health teams consisting of physicians, nurses, and auxiliaries to deliver healthcare assistance to remote areas and communities (Fendall, 1972; Royer, 1978). In the 1920s, the interest in IPE decreased in the United States, but studies on IPE continued in Canada (Royer, 1978). During the same decade, the "team approach" in health care and the foundation of health centers were supported and advocated in Great Britain (Baldwin Jr, 2007). In World War II, various professions were involved in rehabilitation, surgery, and long-term care (Baldwin Jr, 2007). In 1948, Martin Cherkasky, who was responsible for interprofessional teams' development in primary care at Montefiore Hospital, New York, provided home care services within local communities with teams consisting of physicians, nurses, and social workers (Cherkasky, 1949).

1951-1980

In the 1960s, the teamwork concept had developed in primary healthcare as the Office of Economic Opportunity funded health services and sponsored team seminars which concentrate

on healthcare training, development, and utilization (Kindig, 1975; Royer, 1978). After that time, there were continuous global advancements regarding the role of interdisciplinary teams and the delivery of health care seeking to reduce medical errors in 1970s (Baldwin Jr, 2007). The first conference of the Institute of Medicine in 1972 titled as "Education for the Health Team" discussed the importance of creating constant relationships between healthcare professions' educational programs supported (Institute of Medicine 1972). This conference supported the idea of interprofessional education for health sciences at the level of faculties, students, or both (Baldwin Jr, 2007; Institute of Medicine 1972). In 1978, the World Health Organization (WHO) determined IPE was an essential and valuable element of primary health care which initiated a period of great progress in the area of IPE (Baldwin Jr, 2007; Royer, 1978).

1981-2000

In 1986, the Journal of Interprofessional Care was established to emphasize collaboration in practice, education, and research for social and health care and to disseminate information from published articles to the global IPE communities (Baldwin Jr, 2007; Carr, 2015). Primary and hospital care, public health, and health education are some examples of areas of practice that covered by the Journal of Interprofessional Care. Another beneficial step for creating and supporting IPE was establishing the Center for the Advancement of Interprofessional Education (CAIPE) in 1987 in the United Kingdom. CAIPE cooperates with faculty and student members for better collaborative practice and advocates the health care quality through learning and working together for better patient outcomes (Baldwin Jr, 2007).

In 1990s, the Canadian Interprofessional Health Collaborative (CIHC) was established to continue promote IPE, patient-centered care, and collaboration in healthcare practice. CIHC's goals are knowledge sharing with policy members and helping healthcare teams and

organizations with the necessary resources to implement interprofessional and patient-centered method (Carr, 2015). In 1999, a conference conducted by the Institute of Medicine reported the importance of global effort to develop the safety in different healthcare areas. One of the recommendations is to increase the help with funding to spread the knowledge, communication, and collaboration approaches' development in order to develop patient safety (Kohn, Corrigan, & Donaldson, 1999). Another recommendation is to establish programs for interprofessional teams like simulation to provide verified methods of team training (Kohn et al., 1999). These recommendations affected the IPE to enhance initiatives in healthcare and academic programs.

2001-2010

In 2001, a report by the Institute of Medicine suggested six goals for essential changes to health care organizations to improve patients care quality and safety (Baker, 2001). The six goals are as follows: safe (avoiding patients' injuries resulting from the care), effective (services based on scientific knowledge), patient-centered approach, timely (decreasing waits and delayed times), efficient (reducing the waste of equipment, ideas, and energy), equitable (providing equal care quality). Recommendations for increased interprofessional learning and practice to improve patient care quality and safety were included in the previous six goals (America, 2001; Baker, 2001). Another recommendation from the Institute of Medicine in 2003 suggested IPE as a method for better healthcare cooperation, communication, and patient outcome. The Institute of Medicine highlighted the importance of interprofessional collaboration for quality outcomes' achievement for health care improvement, emphasized the need of competencies'' development, and supported the idea to integrate the interdisciplinary practice into educational programs (Greiner & Knebel, 2003).

In 2005, a project called Quality and Safety Education for Nurses (QSEN) was supported by the Robert Wood Johnson Foundation to help promote approaches that develop effective educational strategies to guide future graduate students in developing teamwork, collaboration, and competencies in patient-centered care (Cronenwett, Sherwood, Barnsteiner, Disch, Johnson, Mitchell, Sullivan, & Warren, 2007; Cronenwett, Sherwood, & Gelmon, 2009). In 2006, the World Health Organization Study Group, which consists of practice, policy, and educational experts, was developed to create teams on collaborative practice, interdisciplinary education, and supportive systemic structures. These teams work internationally to evaluate and facilitate the interprofessional education and collaborative practice (WHO, 2006).

In 2009, for collaborative learning and practice, a group of six national education associations of health disciplines schools were formed to advocate the importance of interdisciplinary education to help healthcare professionals for improved team-based practice (Panel, 2011). Additionally, this group, which represents higher education in medicine, nursing, public health, pharmacy, and dentistry, developed core competencies for interprofessional practice (Panel, 2011). To point out the status of IPE globally, the WHO in 2010 suggested that policy-makers can apply framework of action and the collaborative team mechanisms within their local health system to ensure successful interprofessional education and collaborative practice (WHO, 2010).

In the same year, the Institute of Medicine suggested the integration of interdisciplinary practice into health educational programs and to let healthcare students learn an interprofessional training team early. The Institute of Medicine recommended that IPE should consist of effective communication, knowledge of professional roles, shred decision making among professionals, and more students' engagement with other health professional student by using team-based

learning like simulation (Fitzpatrick, 2010). The American Nurse Association (ANA) in 2010 revised the nursing standards to enhance the collaboration in nursing profession, which indicate the interprofessional teams that increase cooperation and knowledge exchanging among professionals and improve understanding of each other's role (Association, 2010).

In 2011, thirty-eight core competencies were released by the Interprofessional Education Collaborative (IPEC) with four main domains, which are values of interprofessional practice, teamwork, interdisciplinary communication, and roles & responsibilities, to provide high quality of patient care (Panel, 2011).

Evaluating IPE

Collaboration in education, shared learning, multiprofessional learning, and multiprofessional education are examples of many different names of interprofessional education (Barnsteiner, Disch, Hall, Mayer, & Moore, 2007). In order to realize the students' learning outcomes in the framework of interprofessional education, several measurement tools have been developed to evaluate the student's outcomes and readiness towards interprofessional education. The first instrument is the Attitudes to Health Professionals Questionnaire. It assesses how the different components of interprofessional attitudes can be changed by education over time (Lindqvist, Duncan, Shepstone, Watts, & Pearce, 2005).

Another instrument, the Interdisciplinary Education Perception Scale (IEPS), was developed in 1990 (Luecht, Madsen, Taugher, & Petterson, 1990). This tool assesses interprofessional learning and adds dimensions of assessing professionally oriented perceptions. (Luecht et al., 1990). It lacked in its stability and reliability, and it revised again for better stability and reliability (McFadyen, Maclaren, & Webster, 2007).

Parsell and Bligh (1999) established a measurement tool titled the Readiness of Interprofessional Learning Scale (RIPLS) that assesses the students' readiness to engage with other students from different professions to share knowledge and learning. The instrument has been used in many studies with positive correlations between the discipline type, shared learning, engagement, and the teamwork skills gaining (Baxter, 2004; Hind et al., 2003; Horsburgh, Lamdin, & Williamson, 2001). (McFadyen, Webster, Strachan, Figgins, Brown, & McKechnie, 2005) revised the RIPLS tool for better internal consistency. In 2006, test-retest reliability was evaluated with three acceptable reliability components out of four which are as follows: (1) professional identity, (2) teamwork and collaboration, and (3) patient centeredness (McFadyen, Webster, & Maclaren, 2006).

IPE learning Models

In allied health education, there are several education methods such as problem-based learning (PBL), simulation, and case studies that interprofessional teams can use separately or in combination (Christenson, 2014). Interdisciplinary teams of students using PBL or case studies education models will enhance their abilities to improve attitudes towards team working, communication skills, and learning in a practice education situation (Cahill, O'Donnell, Warren, Taylor, & Gowan, 2013; Eccott, Greig, Hall, Lee, Newton, & Wood, 2012). The following paragraphs will explain PBL, simulation, and case studies method.

Problem-based Learning (PBL) is an education model with a comprehensive and realistic clinical problem, which includes various topics from multiple disciplines or one specific discipline, where students can develop their critical thinking and skills for solving problems. Through the PBL method, students will make an extensive knowledge and data base to apply learning as the students develop their skills in critical thinking, problem solving, and being

effective collaborators (Billings & Halstead, 2015). Moreover, combining IPE with PBL is an efficient and useful method for students from different disciplines to develop their skills in teamwork and communication (Billings & Halstead, 2015; Eccott et al., 2012). In 2012, a group of five faculty members, representing medicine, nursing, pharmacy, physical therapy, and occupational therapy, developed and implemented a model called Interprofessional Problem Based learning (IP-PBL) focusing at the beginning on a realistic clinical case (Eccott et al., 2012). The goal was to assess the content, learning, process, outcomes, and practical issues themes. After placing the pre and post questionnaires to the students, the results showed positive attitudes towards the IP-PBL, better understanding of the teamwork method, and more confidence in cooperating with other professionals (Eccott et al., 2012).

Another educational model is simulation. Simulation is a type of education that uses experimental learning aids to replicate clinical scenarios to achieve educational goals (Adamson & Kardong-Edgren, 2012; Christenson, 2014). Simulation has become a popular method in many educational programs (Tullmann, Shilling, Goeke, Wright, & Littlewood, 2013). Using simulation with the IPE method has very good teaching results as this combination can improve critical thinking and IPE behaviors (Dow, DiazGranados, Mazmanian, & Retchin, 2013). Simulation uses physical models like mannequins to represent patient and experience to evaluate the student's performance. Therefore, using simulation will bring the clinical experience to the educational environment which helps prepare students for clinical settings (Christenson, 2014). In 2013, a report that published by the Journal of Interprofessional Care highlighted an IPE and simulation project called Simulation-Enhanced Interprofessional Education (SIM-IPE) which was developed to assess the students' learning outcomes (Tullmann et al., 2013). Although the

project remains unproven, it can positively affect the students' performance, learning, and attitudes (Tullmann et al., 2013).

Case studies are utilized to help share real-life cases to understand and realize the specific topic to stimulate their critical thinking and recall (Adamson & Kardong-Edgren, 2012; Billings & Halstead, 2015). In 2012, a tool called Team Reasoning Framework was developed to test the case study method and its ability to help teaching students in IPE to develop IPE learning method that can be used with case studies (Packard, Chelal, Maio, Doll, Furze, Huggett, Jensen, Jorgensen, Wilken, & Qi, 2012). Additionally, clinical case studies help students move from theoretical knowledge to the application of the student's skills that simulate real-life situations (Packard et al., 2012).

IPE in Medicine and Health Sciences:

Articles have supported the idea that Interprofessional Education program's intervention can play an important role in healthcare education and clinical practice. Through various modes of delivery, IPE helps to improve knowledge intake, communication skills, attitudes towards IPE, perceptions of teamwork, and understanding of other professionals' roles.

Anderson, Thorpe, Heney, and Petersen (2009) performed a controlled study on 199 medical students to assess their perception of IPE and to evaluate their knowledge earned after engaging in either a uni-professional workshop (control group) or a interprofessional workshop (experimental group). Both groups increased their knowledge ($p=0.001$), but the interprofessional group (medical students with other professions) built up more appreciation and good perceptions of team-working roles. For the same goals, Ateah, Snow, Wener, MacDonald, Metge, Davis, Fricke, Ludwig, and Anderson (2011) conducted a controlled before and after study to discover interprofessional education's effectiveness on students' knowledge and skills.

A total of fifty-one undergraduate students from seven various health professions (medicine, nursing, occupational therapy, and physical therapy) were assigned into three groups. The first group, the control group, (n=17) underwent orientation of IPE only. The second group, the first experimental group, (n=16) went through orientation and interprofessional learning. The third group, the second experimental group, (n=18) experienced orientation, interprofessional learning, and interprofessional clinical experience. The results showed significant improvement in knowledge, attitudes, and skills about collaboration for the first experimental group. The second experimental group's results showed further significant improvement in knowledge, values, and perceptions of teamwork ($p<0.05$) (Ateah et al., 2011). Becker and Godwin (2005) conducted a pretest-posttest study to evaluate students' learning outcomes and attitudes after IPE intervention. One hundred fifty-three students from respiratory care, occupational therapy, and physical therapy were grouped into control IPE module group and experimental IPE module group. The data, after using IEPS questionnaire, showed that students in the experimental module group improved their learning outcomes and had better positive attitudes towards IPE.

Interprofessional education has the ability to enhance communication skills among health care students and practitioners. Brown, Boles, Mullooly, and Levinson (1999) conducted a randomized controlled study and applied IPE for physicians and nurse practitioners to assess its effectiveness on communication skills. Brown and colleagues stated that although the training program did not improve patient satisfaction scores, the self-reported rating of communication skills moderately improved. Another randomized controlled trial performed by Just, Schnell, Bongartz, and Schulz (2010) in Germany to investigate the impact of IPE on communication and patient care. Forty undergraduate students from medical and nursing programs participated in this study and were place in either interprofessional control group, who only received written

materials with silent studying, or interprofessional experimental group, who was taught using many teaching methods like case studies, presentations, and role-play with interactive studying. The authors reported more significant improvement in communication style and patient care for the experimental group than the control group.

Interprofessional education can be used in many different modalities such as case studies, group simulation, presentation, and practice-based learning to improve the students' attitudes towards interprofessional education and collaboration. In the United Kingdom, Bradley, Cooper, and Duncan (2009) examined the effects of IPE on students' teamwork, leadership, attitudes, and performance of life support courses. A controlled before and after study was performed on medical and nesting students assigned to either the uni-professional group (control group) or the interprofessional group (experimental group). The results reported that the interprofessional group had significant score increases in attitudes, teamwork, and role responsibilities. Similarly, Street, Eaton, Clarke, Ellis, Young, Hunt, and Emond (2007) conducted a randomized controlled trial to evaluate the effectiveness of using case studies of disabled children in interprofessional education. Medical and nursing students participated in the study as they worked together in pairs. Participants from both professions showed significant positive attitudes towards IPE. By using quasi-experimental design with pretest-posttest study, Mohaupt, van Soeren, Andrusyszyn, MacMillan, Devlin-Cop, and Reeves (2012) examined the effectiveness of using interprofessional simulation programs on students' attitudes towards interprofessional collaboration. Final year students (n=84) from different disciplines (nursing, paramedics, physical therapy, occupational therapy, and pharmacy) participated in this study as they were engaged in simulation workshops. The results from the IEPS survey displayed significant improvement in students' attitudes to IPE. In addition, Wamsley, Staves, Kroon, Topp, Hossaini,

Newlin, Lindsay, and O'Brien (2012) stated that IPE group-simulation significantly improved the students' attitudes toward interprofessional teams.

Knowledge and awareness of other professions' roles is one of the important factors for effective interprofessional healthcare education and practice (MacDonald, Bally, Ferguson, Murray, Fowler-Kerry, & Anonson, 2010). Buckley, Hensman, Thomas, Dudley, Nevin, and Coleman (2012) conducted a study to evaluate the effectiveness of developing interprofessional education through simulation. The study used undergraduate students from five professions, i.e. medicine, physical therapy, radiology, nursing, and operation department practice. The pre and post surveys showed that role-play interprofessional simulation sessions significantly improved the understanding of other professional roles with positive interaction confidence. Likewise, Titzer, Swenty, and Hoehn (2012) used sessions of IPE, role-play group simulations, and post-simulation for students from respiratory therapy, nursing, radiologic technology, and occupational therapy to assess the effectiveness of interprofessional shared learning model. The sessions of IPE interventions that involved simulation led to a better understanding of the roles of other professions with effective collaboration appreciation. The understanding of other professions roles can be achieved or improved by using IPE through small-group discussions (Cameron, Rennie, DiProspero, Langlois, Wagner, Potvin, Dematteo, LeBlanc, & Reeves, 2009; Watt-Watson, Hunter, Pennefather, Librach, Raman-Wilms, Schreiber, Lax, Stinson, Dao, & Gordon, 2004), large-group discussions (Wellmon, Gilin, Knauss, & Linn, 2012), online learning methods(Davies, Harrison, Clouder, Gilchrist, McFarland, & Earland, 2011), or practiced-based case scenarios (Eccott et al., 2012; Gaudet, Shekter-Wolfson, Seaberg, Stulla, Cohoon, Kapelus, Goldman, & Reeves, 2007).

Summary

Interprofessional Education is a way of education that includes students from several disciplines learning and working together to share knowledge, objectives, and responsibilities. It is not a new concept of learning in health education. It has been created and developed through the past decades. IPE can be presented by several methods like PBL, simulation, and case studies. In the previous review, it was clear that IPE plays an important role in improving healthcare education and clinical practice. IPE method helps to improve attitudes towards IPE, knowledge intake, communication skills, perceptions of teamwork, and understanding of other professionals' roles. The positive attitudes of healthcare students toward other professionals and toward collaborative learning are related with effective interprofessional education implementation (Hind et al., 2003). Therefore, exploring the attitudes of students toward interprofessional education, along with different factors, would be helpful in implementing IPE.

Chapter III

Methodology

In this descriptive study, the researcher explored the perceptions of undergraduate and graduate students from various health disciplines at an urban University toward interprofessional education. Additionally, information was gathered about perceptions based on various factors related to profession, gender, and level of education. This chapter contains a description of the methods and procedures that was used in this study.

Research Questions

1. What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?
2. What is the relationship between healthcare professional students' age and IPE scores?
3. What factors influence healthcare professional students' perceptions of interprofessional education?

Instrumentation

The instrument used in this study was Readiness for Interprofessional Learning Scale (RIPLS) which was developed by Parsell and Bligh (1999) and revised by McFadyen et al. (2005). This scale was originally created and published by Parsell and Bligh in 1999 to assess the students' readiness for interprofessional learning (Parsell & Bligh, 1999). The original questionnaire had nineteen items that were grouped into three main sub-scales; teamwork and collaboration, professional identity, and roles and responsibilities (Parsell & Bligh, 1999). For seeking to improve the scale's internal consistency, McFadyen et al. (2005) developed a revised version of the original survey. This new version consists of 19 items, 5-point Likert scale and grouped into four sub-scales; teamwork and collaboration (items 1-9, total possible score 45),

negative professional identity (items 10-12, total possible score 15), positive professional identity (13-16, total possible score 20), and roles and responsibilities (items 17-19, total possible score 15) (McFadyen et al., 2005). According to the RIPLS terms of use, the author stated that the instrument is available in the public domain; therefore, the author's permission for using it is not required.

Teamwork and Collaboration factor assesses students' attitudes toward the effect of shared learning with students from other health disciplines along with other qualities like respect and trust. A high score indicates that students agree with cooperative learning and the other qualities (Parsell & Bligh, 1999). Negative Professional Identity factor provides negative items regarding working with other students. A high point in this factor tells that students do not value shared learning with students from other healthcare professions (Parsell & Bligh, 1999). Positive Professional Identity scale has positive items regarding cooperative learning like better communication, teamwork skills, and problem solving. A high score indicates that students values the cooperative learning with other students from different professions (Parsell & Bligh, 1999). Roles and Responsibilities scale provides statements that ask about the student's own role and roles of other health practitioner. While higher scores on all subscales and the overall RIPLS indicate greater readiness for interprofessional education, the items in the Negative Professional Identity and Roles & Responsibilities subscales are "reverse coded" so that a higher score correlates with more readiness for interprofessional learning (McFadyen et al., 2005).

Reliability defines the consistency of an instrument that provide consistent measurements over time (Portney & Watkins, 2015). Internal consistency for the instrument had been done using Cronbach Alpha measurement of the total scale and reported at 0.89 and varied between 0.43 to 0.88 for the four subscales (McFadyen et al., 2005). Validity describes the truthfulness of

an instrument as it measures what it is supposed to measure (Portney & Watkins, 2015). The scale has high and strong content validity (Parsell & Bligh, 1999). The chair and committee members met and discussed every element of the instrument. Some of the elements' keywords were modified using a Q-sort method to suit the convenient sample utilized for the study (see appendix A).

Research Design

This study will use an exploratory descriptive design to assess students' attitudes toward interprofessional education. Self-reporting survey will be used to conduct this study. A survey is one of the most commonly used types of descriptive research as it conducting information by responding to questions and/or interviews (S. J. Brown, 2013). The survey was designed to gather data from undergraduate and graduate students from various healthcare professions to evaluate their attitudes toward interprofessional education. Using survey research has many advantages like gathering large amount of information from many participants by using only one instrument and it is cost effective as it can be performed by using new technologies to gather high number of participant (Portney & Watkins, 2015).

Sample

A convenience sample will be used in this study as participants are chosen on the basis of availability. The population will be from undergraduate and graduate students who are enrolled in nursing, respiratory therapy, nutrition, physical therapy, and occupational therapy programs at an urban university.

Protection of Human Subjects

The study proposal will be submitted to Georgia State University Institutional Review Board (IRB) for approval. Methods for human subjects' protection were implemented. Study

participation will be voluntary with consent assumed on return of a completed survey. Confidentiality will be implemented as no names or personal identifying information will be used for data collection.

Procedure

After obtaining IRB approval, the researcher will distribute the survey packets, which consists of a cover letter and the survey instrument. The researcher will distribute the survey packets to students to decrease bias. To ensure the anonymity of the participant, there will be no identifying information on the survey packet.

Data Collection and Analysis

Data will be collected and analyzed by using the statistical program of Statistical Package for the Social Sciences (SPSS) version 22. Descriptive statistics will be used in this study to measure frequency and percentage, which are used to identify differences in the demographic data of the sample. Moreover, descriptive statistics will be used to measure mean scores and standard deviation for the four subscales of the survey. For data analysis, The survey's Likert scale will be converted to numerical scale with 1 being strongly disagree and 5 being strongly agree.

Cover Letter

The development of the cover letter occurred after reviewing various styles of previous similar published surveys (Portney & Watkins, 2015). The cover letter was created and sent to the thesis chair for review and examination.

Chapter IV

Results

The purpose of this study was to evaluate students' perceptions toward IPE and to provide helpful information about similar or different perceptions based on various factors such as gender and IPE experience. Demographic information of the sample and results of the descriptive statistical analyses are provided. Statistical analysis was conducted using Statistical Package for the Social Sciences 22 (SPSS 22).

Research Questions

1. What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?
2. What is the relationship between healthcare professional students' age and IPE scores?
3. What factors influence healthcare professional students' perceptions of interprofessional education?

Demographic Findings

The study was conducted at Georgia State University, at the school of nursing and health professions. This study included a convenience sample of 250 students from five programs; nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy. The majority of participant were physical therapy students n=73 (29.2%); followed by nursing students n=72 (28.8%); respiratory therapy students n=66 (26.4%); nutrition students n=21 (8.4%); and occupational therapy students n=18 (7.2%). Female participants were 179 (71.6%) and male participants were 71 (28.4%). The students' age ranges between 20 to 52 years, and their mean age and standard deviation (SD) were (25.99 ± 5.41). (See table 1).

Table 1. Participants' characteristics

	Gender					
	Total	**Nursing**	**Nutrition**	**RT**	**PT**	**OT**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Male	71 (28.4)	10 (13.9)	1 (4.8)	28 (42.4)	30 (41.1)	2 (11.1)
Female	179 (71.6)	62 (86.1)	20 (95.2)	38 (57.6)	43 (58.9)	16 (88.9)
Total number	250 (100)	72 (28.8)	21 (8.4)	66 (26.4)	73 (29.2)	18 (7.2)
	Age					
	Total	**Nursing**	**Nutrition**	**RT**	**PT**	**OT**
Age range	20-52	21-48	22-52	20-50	22-44	21-33
Mean age (SD)	25.99 (5.41)	25.61 (5.79)	27.05 (6.67)	26.55 (5.78)	25.96 (4.69)	24.33 (2.95)

RT= Respiratory Therapy PT= Physical Therapy OT= Occupational Therapy SD= Standard Deviation

The graduate degree students (MS and Doctorate) accounted for 55.6% (n=139) while 44.4% (n=111) were undergraduate students (BS). The participants' level of program they enrolled in was as follows: Bachelor degree n=111 (44.4%), Master degree n= 66 (26.4%), and Doctorate degree n=73 (29.2). Most of the participants were in their first year in program n=118 (47.2); followed by second year in program n=103 (41.2); and third year in program n=29 (11.6). (See table 2).

Table 2. Participants' educational level

	Level					
	Total	**Nursing**	**Nutrition**	**RT**	**PT**	**OT**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Bachelor	111 (44.4)	72 (100)	-	40 (60.6)	-	-
Master	66 (26.4)	-	21 (100)	26 (39.4)	-	18 (100)
Doctorate	73 (29.2)	-	-	-	73 (100)	-
	Year					
	Total	**Nursing**	**Nutrition**	**RT**	**PT**	**OT**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
First	118 (47.2)	-	21 (100)	40 (60.6)	39 (53.4)	18 (100)
Second	103 (41.2)	43 (59.7)	-	26 (39.4)	34 (46.6)	-
Third	26 (10.4)	26 (36.1)	-	-	-	-

RT= Respiratory Therapy PT= Physical Therapy OT= Occupational Therapy

In regard to the survey's item asking students if they have had a previous experience of interprofessional education, 63.2% (n=158) of students haven't had experience of interprofessional education, while only 36.8% (n=92) of students have had a previous experience of interprofessional education. (See table 3).

Table 3. IPE experience

	Total	**Nursing**	**Nutrition**	**RT**	**PT**	**OT**
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Yes	92 (36.8)	21 (29.2)	7 (33.3)	26 (39.4)	30 (41.1)	8 (44.4)
No	158 (63.2)	51 (70.8)	14 (66.7)	40 (60.6)	43 (58.9)	10 (55.6)

RT= Respiratory Therapy PT= Physical Therapy OT= Occupational Therapy

Findings Related to Research Question 1

The first research question asked, "What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?" Table 4 shows survey responses for the RIPLS overall and its four subscales' scores for all participants. Data results were calculated, tabulated, and presented in table 4, which includes item numbers for the survey, the range of possible points a participant can get, means scores, score ranges, and standard deviation. Table 4 breaks down all participants' responses for "RIPLS total", which consists of 19 items with possible points ranges between 19 to 95 points, with total mean score of M = 81.10 out of 95 points, standard deviation of (SD ± 8.16), and score ranges between 54 to 95 points. It also demonstrates all participants' responses for the fours subscales as follows: (1) teamwork & collaboration, which consists of 9 items with possible points ranges between 5 to 45 points, with total mean score of M = 40.52 out of 45 points, standard deviation of (SD ± 4.41), and score ranges between 26 to 45 points, (2) negative professional ID, which consists of 3 items with possible points ranges between 3 to 15 points, with total mean score of M = 12.71 out of 15 points, standard deviation of (SD ± 2.04), and score ranges between 3 to 15 points, (3) positive professional ID, which consists of 4 items with possible points ranges between 4 to 20 points, with total mean score of M = 17.08 out of 20 points, standard deviation of (SD ± 2.48), and score ranges between 6 to 20 points, (4) roles & responsibilities, which consists of 3 items with possible points ranges between 3 to 15 points, with total mean score of M = 10.78 out of 15 points, standard deviation of (SD ± 1.53), and score ranges between 6 to 15 points. (See table 4).

Table 4. RIPLS subscales for all students completing the RIPLS questionnaire

RIPLS subscales	Item Numbers	Range of possible points	N	Mean (SD)	Range
Teamwork & Collaboration	1-9	5-45	250	40.52 (4.41)	26-45
Negative Professional ID	10-12	3-15	250	12.71 (2.04)	3-15
Positive Professional ID	13-16	4-20	250	17.08 (2.48)	6-20
Roles & Responsibilities	17-19	3-15	250	10.78 (1.53)	6-15
RIPLS Total	1-19	19-95	250	81.10 (8.16)	54-95

Other Findings Related to Research Question 1

This section explains in details the students' responses in each program for the RIPLS total and its four subscales: teamwork and collaboration, negative professional identity, positive professional identity, and roles & responsibilities. There were no significant differences between healthcare programs on all subscales and the overall RIPLS. (See table 5).

Table 5. RIPLS scores for all programs

	Nursing **n= 72**	Nutrition **n= 21**	RT **n= 66**	PT **n= 73**	OT **n= 18**	
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	*P*
Teamwork & Collaboration	39.65 (5.08)	42.48 (2.94)	40.47 (4.59)	40.58 (3.95)	41.67 (3.19)	0.171
Negative Professional ID	12.49 (2.13)	13.24 (1.51)	12.33 (2.48)	12.97 (1.69)	13.50 (1.09)	0.161
Positive Professional ID	16.42 (2.81)	17.57 (1.96)	17.24 (2.64)	17.26 (2.19)	17.78 (1.62)	0.153
Roles & Responsibilities	11.08 (1.53)	10.52 (1.77)	10.45 (1.66)	10.88 (1.28)	10.67 (1.49)	0.240
RIPLS Total	79.64 (9.34)	83.81 (6.16)	80.50 (8.83)	81.68 (6.98)	83.61 (5.81)	0.259

Table 5 shows nursing students' responses for RIPLS total with total mean score of M = 79.64 out of 95 points and standard deviation of (SD ± 9.34). The four subscales results are as follows: (1) teamwork & collaboration with mean score of M = 39.65 out of 45 points and standard deviation of (SD ± 5.08), (2) negative professional identity with mean score of M =

12.49 out of 15 points and standard deviation of (SD ± 2.13), (3) positive professional identity with mean score of M = 16.42 out of 20 points and standard deviation of (SD ± 2.81), (4) roles & responsibilities with mean score of M = 11.08 out of 15 points and standard deviation of (SD ± 1.53).

Nutrition students have completed the RIPLS questionnaire with total mean score of M = 83.81 out of 95 points and standard deviation of (SD ± 6.16). The four subscales results are as follows: (1) teamwork & collaboration with mean score of M = 42.48 out of 45 points and standard deviation of (SD ± 2.94), (2) negative professional identity with mean score of M = 13.24 out of 15 points and standard deviation of (SD ± 1.51), (3) positive professional identity with mean score of M = 17.57 out of 20 points and standard deviation of (SD ± 1.96), (4) roles & responsibilities with mean score of M = 10.52 out of 15 points and standard deviation of (SD ± 1.77). (See table 5).

Respiratory therapy students have responded to the RIPLS questionnaire with total mean score of M = 80.50 out of 95 points and standard deviation of (SD ± 8.83). The four subscales results are as follows: (1) teamwork & collaboration with mean score of M = 40.47 out of 45 points and standard deviation of (SD ± 4.59), (2) negative professional identity with mean score of M = 12.33 out of 15 points and standard deviation of (SD ± 2.48), (3) positive professional identity with mean score of M = 17.24 out of 20 points and standard deviation of (SD ± 2.64), (4) roles & responsibilities with mean score of M = 10.45 out of 15 points and standard deviation of (SD ± 1.66). (See table 5).

Physical therapy students' responses for the RIPLS questionnaire provided a total mean score of M = 81.68 out of 95 points and standard deviation of (SD ± 6.98). The four subscales

results are as follows: (1) teamwork & collaboration with mean score of M = 40.58 out of 45 points and standard deviation of (SD ± 3.95), (2) negative professional identity with mean score of M = 12.97 out of 15 points and standard deviation of (SD ± 1.69), (3) positive professional identity with mean score of M = 17.26 out of 20 points and standard deviation of (SD ± 2.19), (4) roles & responsibilities with mean score of M = 10.88 out of 15 points and standard deviation of (SD ± 1.28). (See table 5).

Occupational therapy students have completed the RIPLS questionnaire with total mean score of M = 83.61 out of 95 points and standard deviation of (SD ± 5.81). The four subscales results are as follows: (1) teamwork & collaboration with mean score of M = 41.67 out of 45 points and standard deviation of (SD ± 3.19), (2) negative professional identity with mean score of M = 13.50 out of 15 points and standard deviation of (SD ± 1.09), (3) positive professional identity with mean score of M = 17.78 out of 20 points and standard deviation of (SD ± 1.26), (4) roles & responsibilities with mean score of M = 10.67 out of 15 points and standard deviation of (SD ± 1.49). (See table 5).

Findings Related to Research Question 2

The second research question asked, "What is the relationship between healthcare professional students' age and IPE scores?" This research question was developed later, after obtaining the data analysis, to get more knowledge about the relationship between healthcare professional students' age and IPE scores. Correlation analysis was completed on the RIPLS overall and its four subscales in relation to age. (See table 6). There is no significant relationship between age and RIPLS total scores, negative Professional identity, positive Professional identity, and roles & responsibilities. There is only a significant negative relationship (r_s = -0.176; *P* = 0.008) between students' age and the teamwork & collaboration subscale.

Table 6. Correlations between RIPLS scores and age

RIPLS Subscales	Age
Teamwork & Collaboration	-0.176**
Negative Professional ID	-0.012
Positive Professional ID	-0.059
Roles & Responsibilities	0.010
RIPLS Total	-0.091

** Correlation is significant at the 0.01 level

Findings Related to Research Question 3

The third research question asked, "What factors influence healthcare professional students' perceptions of interprofessional education?" This research question also was developed later, after obtaining the data analysis, to get more knowledge about the students' perception differences in terms of their gender and previous IPE experience. Table 7 revealed that there were no significant score differences between genders in RIPLS total, teamwork and collaboration, negative professional identity, and positive professional identity.

Table 7. RIPLS Scores by Gender

RIPLS Subscales	Male n = 71 Mean (SD)	Female n = 179 Mean (SD)	*P*
Teamwork & Collaboration	40.15 (4.17)	40.66 (4.50)	0.19
Negative Professional ID	12.46 (2.28)	12.83 (1.93)	0.27
Positive Professional ID	17.07 (2.05)	17.08 (2.64)	0.44
Roles & Responsibilities	10.65 (1.62)	10.83 (1.49)	0.43
RIPLS Total	80.34 (7.27)	81.40 (8.48)	0.13

When looking at the effect of students' previous IPE experience on RIPLS scores, table 8 below shows no significant scores differences in RIPLS total and all of the four subscales.

Table 8. RIPLS Scores for students with and without IPE experience

RIPLS Subscales	**Yes** **n = 92** **Mean (SD)**	**NO** **n = 158** **Mean (SD)**	***P***
Teamwork & Collaboration	40.87 (4.64)	40.32 (4.27)	0.21
Negative Professional ID	12.76 (2.24)	12.70 (1.91)	0.47
Positive Professional ID	17.32 (2.54)	16.94 (2.44)	0.15
Roles & Responsibilities	10.65 (1.54)	10.85 (1.52)	0.24
RIPLS Total	81.60 (8.51)	80.81 (7.96)	0.28

Chapter V

Interpretation of Findings

This chapter will present a discussion of the findings presented in Chapter IV. The chapter is divided into six major sections: an overview of the study, discussion of findings, implications for research, future research recommendations, limitations of the study, and conclusion.

Overview of the Study

The purpose of this descriptive study was to evaluate students' perceptions toward IPE . Data were collected from five healthcare programs in an urban setting. This study was guided by the following questions:

1. What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?
2. What is the relationship between healthcare professional students' age and IPE scores?
3. What factors influence healthcare professional students' perceptions of interprofessional education?

Discussion

Findings Related to Research Question 1

The first research question asked, "What are the perceptions of students in nursing, nutrition, respiratory therapy, physical therapy, and occupational therapy toward IPE overall and its four subscales?" The study findings revealed that the RIPLS total score was high indicating that students have strong readiness for IPE and positive perception toward it. This finding is consistent with studies conducted by Ahmad, Chan, Wong, Tan, and Liaw (2013), Olenick, Allen, and Smego (2010), Talwalkar, Fahs, Kayingo, Wong, Jeon, and Honan (2016), and

Lairamore, George-Paschal, McCullough, Grantham, and Head (2013), which showed that most healthcare professional students have positive perception toward IPE. Similarly, there was a generally positive perception toward IPE, positive attitude regarding shared learning, and an acceptable degree of readiness toward IPE (Al-Qahtani, 2016).

Other Findings Related to Research Question 1

The study findings revealed that there were no significant differences between healthcare programs on all subscales and the overall RIPLS. These findings supported the result of Coster, Norman, Murrells, Kitchen, Meerabeau, Sooboodoo, and d'Avray (2008), Acquavita, Lewis, Aparicio, and Pecukonis (2014), and Vafadar, Vanaki, and Ebadi (2015), who reported no significant differences between the perception of students in different health programs. On the other hand, Al-Qahtani (2016), Hertweck, Hawkins, Bednarek, Goreczny, Schreiber, and Sterrett (2012), and Keshtkaran, Sharif, and Rambod (2014) reported that there were significant differences between healthcare programs on all subscales and the overall RIPLS.

Findings Related to Research Question 2

The second research question asked, "What is the relationship between healthcare professional students' age and IPE scores?" The study showed that there is only a significant negative relationship between students' age and teamwork & collaboration ($r = -0.176$; $P = 0.008$) meaning that the older the student, the lower student scored on teamwork & collaboration. Moreover, no significant relationship noticed between age and RIPLS total scores, negative professional identity, positive professional identity, and roles & responsibilities. This is similar to Hertweck et al. (2012) and Pollard and Miers (2008) findings in healthcare professionals interprofessional education. They found that younger healthcare students scored higher than older students on Teamwork & Collaboration subscale. The description for this finding might be

that life experience has made the senior student more independent with less interest in collaborating with others. Also, IPE is relatively a new concept.

Findings Related to Research Question 3

The third research question asked, "What factors influence healthcare professional students' perceptions of interprofessional education?" With regard to gender factor, the study findings revealed that there were no significant score differences between genders on all subscales and the overall RIPLS. However, other studies showed that there are significant score differences between genders. Curran, Sharpe, Forristall, and Flynn (2008), Hertweck et al. (2012), and Woolley, Chabris, Pentland, Hashmi, and Malone (2010) found that female students scored higher on RIPLS total and had positive value of Teamwork & Collaboration subscale. Similarly, Wilhelmsson, Ponzer, Dahlgren, Timpka, and Faresjö (2011) found that medical and nursing female students were more ready for teamwork and interprofessional collaboration.

When looking at the effect of students' previous IPE experience on RIPLS scores, the study showed that there were no significant scores differences in RIPLS total and all of the four subscales. This is different from Hood, Cant, Baulch, Gilbee, Leech, Anderson, and Davies (2014) and Riva, Lam, Stanford, Moore, Endicott, and Krawchenko (2010) findings. They found that students with prior IPE experience scored more on RIPLS total and have more positive perception toward IPE than students without previous IPE experience.

Implications for Research

The findings of this study will promote the importance of interprofessional education. The positive perceptions of interprofessional education may help develop IPE in healthcare professions' curriculum.

Recommendation for Future Study

Future research is recommended due to lack of research in the subject of healthcare students' perceptions toward interprofessional education at urban universities. To validate the results of this study, replication with larger number of participants from various disciplines and level of education is recommended.

Limitations

The present study is limited by the factor that his study included a sample of healthcare students at an urban university. The results of this study cannot be generalized to all healthcare professional students at urban universities.

Conclusion

Healthcare professional students demonstrated their readiness and value for IPE, and have positive perception toward it. Also, students' age is negatively related to teamwork & collaboration. The study findings revealed that both genders have the same positive perceptions toward all subscales and the overall RIPLS. The study showed also that students' previous IPE experience has no effect of their perceptions toward IPE.

Appendix A: Attitudes toward Interprofessional Education

Readiness for Interprofessional Learning Scale (RIPLS)

Part I: Demographic Date

1. What is your age? _____
2. What is your gender?
    a. Male B. Female
3. In which healthcare professional program are you currently enrolled?
    a. Nursing
    b. Nutrition
    c. Occupational Therapy
    d. Respiratory Therapy
    e. Physical Therapy
    f. Other
4. Level of program you enrolled in:
    a. BS
    b. MS
    c. Doctorate (PhD/DPT/DNP)
5. List your specific program (example: MS Nurse Practitioner):

    _____
6. Year in program:
    a. First
    b. Second
    c. Third
    d. Other _____
7. Have you had a previous experience of interprofessional education?

    A. Yes

    B. No

Part II: Survey

Dear student:

This study aims to explore student's perception toward interprofessional education. Please check (√) according to your opinion. There are five options to mark; **SD=Strongly Disagree, D=Disagree, N= Neutral, A=Agree, SA= Strongly Agree.**

No.	Statement	SD	D	N	A	SA
1	Learning with other students will help me become a more effective member of a health care team.					
2	Patients would ultimately benefit if healthcare students worked together to solve patient problems.					
3	Shared learning with other healthcare students will increase my ability to understand clinical problems.					
4	Learning with healthcare students before graduation from my current program would improve relationships after graduation from my current program.					
5	Communication skills should be learned with other healthcare students.					
6	Shared learning will help me to think positively about other professionals.					
7	For a small group learning to work, students need to trust and respect each other.					
8	Team-working skills are essential for all health care students to learn.					
9	Shared learning will help me to understand my own limitations.					
10	I don't want to waste my time learning with other health care students.					
11	It is not necessary for healthcare students to learn together.					
12	Clinical problem-solving skills can only be learned with students from my own discipline.					
13	Shared learning with other healthcare students will help me to communicate better with patients and other professionals.					
14	I would welcome the opportunity to work on small-group projects with other health-care students.					
15	Shared learning will help to clarify the nature of patient Problems.					
16	Shared learning before graduation will help me become a better team worker					
17	The function of healthcare professionals is mainly to provide support for doctors.					
18	I'm not sure what my professional role will be.					
19	I have to acquire much more knowledge and skills than other healthcare students.					

Appendix B: Cover Letter

Georgia State University

Department of Respiratory Therapy

Informed Consent

Title: HEALTHCARE PROFESSIONAL STUDENTS' PERCEPTIONS TOWARD INTERPROFESSIONAL EDUCATION

Principal Investigator: Douglas Gardenhire, EdD, RRT-NPS, FAARC

Co-Investigator: Bandar Faqihi, BSRT

I. Purpose:

Dear student,

You are invited to participate in a study entitled "Healthcare Professional Students' perceptions toward Interprofessional Education". The purpose of this study is to explore student's attitude toward interprofessional education. As part of the requirements of the master degree, the research is being conducted by Bandar Faqihi, a master degree student from the Department of Respiratory Therapy at Georgia State University, under the advisement of Dr. Doug Gardenhire, Chair and Clinical Associate Professor. You are invited to participate because you are an undergraduate or graduate healthcare student. A total of 300 participants will be recruited for this study. Participation will require approximately 10 minutes of your time to complete the survey.

II. Procedures:

If you decide to participate, you will be asked to complete the following survey about your perception of Interprofessional Education. The survey should take approximately 10 minutes to complete. Please note that your participation in this study is strictly voluntary and you may simply refuse to participate. You may also stop taking the survey at any time without any

consequence or loss of benefits to which you are otherwise entitled; hence, you can submit the survey at any time. The survey will need to be complete one time only.

III. Risks:

In this study, you will not have any more risks than you would in a normal day of life.

IV. Benefits:

Participation in this study may not benefit you personally. Overall, we hope to gain information about health care students' perception toward Interprofessional Education. The information acquired would be considered as one of the initial steps in developing an interprofessional education course in the curriculum to encourage shared knowledge and responsibilities among all healthcare students.

V. Voluntary Participation and Withdrawal:

Participation in research is voluntary. You do not have to be in this study. If you decide to be in the study and change your mind, you have the right to drop out at any time. You may skip questions or stop participating at any time. Whatever you decide, you will not lose any benefits to which you are otherwise entitled.

VI. Confidentiality:

We will keep your records private to the extent allowed by law. Dr. Douglas Gardenhire will have access to the information you provide. Information may also be shared with those who make sure the study is done correctly (GSU Institutional Review Board, the Office for Human Research Protection (OHRP). No name or codes will be used to identify you, and surveys will be destroyed after all surveys have been collected. The information you provide will be placed and locked inside a cabinet inside the office of the PI. Only the PI will have access to the office, cabinet. Your name and other facts that might point to you will not appear when we present this

study or publish its results. The findings will be summarized and reported in group form. You will not be identified personally.

VII. Contact Persons:

If you have any questions or concerns about this study, please contact Dr. Doug Gardenhire at dgardenhire@gsu.edu or 404-413-1270, or contact Bandar Faqihi at bfaqihi1@student.gsu.edu or 404-348-3729. Call Susan Vogtner in the Georgia State University Office of Research Integrity at 404-413-3513 or svogtner1@gsu.edu if you want to talk to someone who is not part of the study team. You can talk about questions, concerns, offer input, obtain information, or suggestions about the study. You can also call Susan Vogtner if you have questions or concerns about your rights in this study.

VIII. Copy of Consent Form to Participant:

We will give you a copy of this consent form to keep.

Please note: completion and submission of this survey implies that you have read this information and consent to participate in this study. If you agree to participate in this research, please continue with the survey.

Sincerely,

Douglas Gardenhire, EdD, RRT-NPS, FAARC

Bandar Faqihi, BSRT

References

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