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Students' Knowledge and Attitudes: An Interprofessional Education Workshop and Experience

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Abstract

Background: Interprofessional Education (IPE) can improve teamwork among future healthcare professionals, but the academic structural environment can be a barrier to its implementation.

Methods and Results: Students from seven professional programs (athletic training. exercise science, nursing, nutrition, public health, social work, and speech-language pathology) participated in a two-part IPE program consisting of: a web-based education module and an in-person interactive workshop. Students were administered a deidentified pre/post survey to assess changes in their knowledge and attitudes toward IPE. A total of 54 students participated in both components with 46 students completing both surveys. After participating in the IPE program, significantly more students reported changes in 10 of the 18 items on the survey, particularly differentiating the roles of each profession and the benefits of interprofessional collaboration in their future careers.

Conclusion: This program increased students' understanding of the roles of different health professions. Implementing an IPE program is beneficial for enhancing student knowledge and changing attitudes toward IPE.

Keywords

Interprofessional education; healthcare; collaborative learning

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Introduction

Interprofessional education (IPE) is important in preparing students for future practice and has become an increasing part of health and social care programs' academic curricula (Illingworth & Chelvanayagam, 2012). IPE occurs when two or more professions learn with, from, and about each other to improve collaboration and quality of care (Center for the Advancement of Interprofessional Education (CAIPE). Furthermore, IPE helps students become familiar with the roles of their respective occupation in addition to the roles of other professions. Recent research indicates that experience with IPE improves professional identities and perceptions towards teamwork (Barr, 2015; Bridges, Davidson, Odegard, Maki, & Tomkowiak, 2011; Carroll, et al., 2014; Casteneda, Islam, Stetten, Black, & Blue, 2017). While research findings support IPE, it can be hard to implement in practice because of academic structural needs. For example, the lack of flexibility to add additional coursework because of specialized accreditation and difficulties with timetabling due to the number of students involved are barriers to implementation (Neocleous, 2014).

To promote IPE, academic programs need to overcome known barriers and provide experiences for students. The aim is to blend the common core skills and values of their future professions. Helping shape undergraduate and graduate students' perceptions towards IPE during their academic curricula may influence their willingness to participate in future interprofessional practice (IPP) (Maharajan et al., 2017). It has been demonstrated that students are more likely to embrace IPP when they have positive perceptions about IPE and an understanding of the roles and responsibilities of all team members. The inclusion of IPE can enhance patient outcomes (Barr, 2015).

The Purpose of this pilot study was to identify changes in knowledge and attitudes of students participating in an IPE program. Additionally, the pilot study was designed to provide findings that may be used to facilitate future IPE work. This includes tailoring curricula to facilitate the practice within specific programs.

Methods

Participants

The setting for the pilot study was a public university in southeastern Pennsylvania. Junior and senior undergraduate and graduate students in allied healthcare and social welfare disciplines were invited to participate voluntarily in this study. A total of 54 students took part in the study. Disciplines that were represented include: (a) athletic training, (b) exercise science, (c) nursing, (d) nutrition (e), public health, (f) social work, and (g) speech-language pathology.

Instrumentation

The Interprofessional Student Attitude Scale (ISAS) was used to assess student changes in knowledge and attitudes from participation in an IPE program. This scale was developed and used in a previous study that evaluated student attitude changes toward interprofessional healthcare, professional roles, and teamwork before and after participation in a interprofessional elective course (Shrader, Thompson, & Gonsalves, 2010). The 17-question ISAS survey includes eight questions from the Readiness for Interprofessional Learning Scale (RIPLS). The

RIPLS is a 19-item scale assessing three factors: (a) teamwork and collaboration, (b) professional identity, and (c) roles and responsibilities, with a cronbach's alpha of 0.90 (Shrader et al, 2010). The ISAS (Shrader, et al., 2010) was modified by the investigators by substituting questions to assess the student's understanding of respective professional roles within an interprofessional team for the disciplines participating in the workhop. The participants in the study conducted by Shrader, et al., (2010) were members of different professions than those in the current study. The investigators wanted to ensure all professions who participated in the IPE program for the current study were accounted for; therefore, professions were adjusted for some of the questions with two additional questions representing all professions. The total number of questions for the modified surey was 19. The internal consistency of the modified ISAS used for this study was found to be acceptable with a Cronbach's alpha of .72.

Procedures

The study was approved by the University Institutional Review Board. A convenience sample of students were invited to participate in the study via electronic mail by the faculty leading the IPE program. The goal was to have between five to ten students from each discipline. This number was chosen to facilitate the logistics (such as location, group size, etc.) of conducting the IPE program. In the invitation, instructors defined the expectations of participation and indicated that participation was voluntary and would not influence any course or course grade. A total of 60 students from all seven disciplines were invited to participate in the study by the instructors teaching within the specific disciplines.

There were two segments to the program; a web-based IPE education module and an interactive IPE in-person workshop. Any student who was not available to participate in both components was excluded; leaving 54 students able to participate. Written consent to participate in the study was obtained from all 54 participants. Participants were reminded that they could withdraw at any point and that involvement in the study was not connected to a course grade or academic standing of their respective program. A pre- and post-test survey was administered online to assess for change in students' knowledge and attitudes (see Table 1 for the survey). Students were instructed to complete the survey prior to beginning the web-based IPE module. The survey included 19 questions. A majority of the questions were from the ISAS (Shrader et al., 2010). The only additional questions were included to identify all the disciplines within the current study. Responses were measured by a Likert-type scale with 5- strongly agree, 4- agree, 3- neutral, 2- disagree, and 1- strongly disagree. Question topics included: (a) working in an interprofessional healthcare team, (b) how it would help them become more effective members of the team, and (c) knowledge about the respective disciplines involved in the program. Demographic data collected, included gender, program of study, and year in school (junior, senior, and graduate). All surveys were completed anonymously, de-identified by a unique code generated by their birth date and were not connected to the students' e-mail or name upon submission. The same survey was administered online after completing the second segment of the interactive IPE in-person workshop. Students were provided time at the end of the IPE in-person workshop to complete the survey.

Table 1. Student Attitudes Survey with Added Questions about Knowledge of the Roles/Responsbilities of the Disciplines involved in the IPE Workshop and Experience (Shrader S, Thompson A, Gonsalves W., 2010)

1. Clinical problem-solving skills should only be learned with students from my own discipline. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
2. I have to acquire more knowledge and skills than other students in other healthcare disciplines. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
3. There is little overlap between my role and that of other students belonging to other health disciplines. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
4. I have worked with students from other health professions in an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
5. I am confident in my abilities to effectively work within an interprofessional healthcare team to develop a realistic and appropriate patient care plan. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
6. I understand the respective role of social workers within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
7. I understand the respective role of nurses within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
8. I understand the respective role of registered dietitians within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
9. I understand the respective role of athletic trainers within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
10. I understand the respective role of public health professionals within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
11. I understand the respective role of exercise scientists within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
12. I understand the respective role of speech-language pathologists within an interprofessional team. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
13. Shared learning and working within an interprofessional team will help me communicate better with patients and healthcare professionals.

Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
14. Shared learning and working within an interprofessional team will increase my ability to understand clinical problems. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
15. Shared learning and working within an interprofessional team will help me be a more effective member of a healthcare team in the future. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
16. Shared learning and working within an interprofessional team will help me understand my own limitations. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
17. Patients ultimately benefit if students and healthcare professionals work in interprofessional teams to solve patient problems. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
18. Using interprofessional teams to deliver quality healthcare is essential for the future. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5
19. I am going to work in an environment that fosters interprofessional teamwork to deliver patient care in the future. Strongly Disagree Disagree Neutral Agree Strongly Agree 1 2 3 4 5

The web-based IPE module involved viewing six 5-minute videos about each healthcare profession asynchronously (i.e., stored on Desire2Learn learning management system and available on demand) before attending the 2-hour IPE application-based workshop. All videos were created by the professors from the disciplines that led the IPE program. Approximately three weeks after the web-based module was completed, the students attended the in-person workshop and collaboratively worked on interdisciplinary case studies, simulating real life scenarios, developed by the investigators (see Figure 1 for a case example). The students worked in small groups of eight to ten with all disciplines represented. Following the small group work, each group presented results to the larger group.

Figure 1

Group Case Study 1

Manuel Hernandez is a 68-year-old Latino male. HT: 6’0” WT 190 pounds

Manuel lost his wife about 5 years ago to cancer. Spanish is his primary language. He lives in a large, publicly subsidized continuing care retirement community (CCRC). He has support from a daughter and two daughters-in-law who look in on him regularly. He has chronic atrial fibrillation treated with digoxin (0.25

mg daily). When last seen 3 months ago, by his primary care provider (PCP), was noted to be in good health. However, his daughter is concerned about her father as he recently fell and hit his head. Mr. H. states all is well, that he just has a bump on his head and some right-sided weakness. Shortly after his last PCP visit, his son died and he has been very sad and tearful. He denies poor appetite, but a decrease of 9 pounds has occurred since his last visit. During the interview, he seems to fixate on his son's death and how difficult it is for him to accept. He stated "I will just have to adjust". His daughter is concerned, and she notes increasing isolation, weight loss, and forgetfulness, which have worsened since the death of his son. There is a congregate meal program in the facility, but he refuses to eat there. Even the food they bring him goes uneaten. However, at his family members' homes his appetite is good and his spirits are much better. He is recreationally active, he states he accumulates approximately 100 minutes of walking per week. However, he does get short of breath during the walks which is attributed to his atrial fibrillation. He is not opposed to exercise or a structured exercise program. He mentioned that prior to moving to the CCRC, he attended church on a regular basis and was always comfortable with speaking with his parish priest. Mr. H. has been invited to live with his daughter. However, he refuses to leave his own apartment and is insistent about remaining independent.

Group Case Study 2

Jaime Smith is an 18-year old bi-racial female. HT: 5'5", WT: 110 pounds BMI 18.3 kg/m^2

Jaime, a college freshman, received an athletic scholarship to run cross-country. The college is close to her home, so she commutes to school for financial reasons. Jaime is bi-racial (African American and Caucasian) and the youngest of seven children. She is the first person in her family to attend college. Her parents do not have health insurance; however, she purchased a policy through the college to participate in intercollegiate athletics. During her first semester of running she reported difficulty breathing while participating in cross-country events. She stated that she could not catch her breath. She is also having trouble maintaining her weight. Jaime indicates her appetite is good but feels she would perform better if she weighed less. She also reveals that she has limited access to food to appropriately nourish the body. Her previous medical history reveals treatment for asthma.

Discussion Questions for both Case Studies

Identify the healthcare professionals who may be involved with this case.

Outline each professional's role in working with Jamie. Indicate the other professionals who may become involved with her care and how these professionals may work with one another to ensure optimal health outcomes.

What additional pieces of information do we need from each professional?

From each of your roles as healthcare providers consider the social determinants of health that must be considered.

Data Analysis

Wilcoxon Signed Rank Tests were used to compare the pre- and post-survey responses of the participants. The Wilcoxon Signed Rank Test was chosen because the participants were from a single sample, pre- and post-survey responses were recorded as matched pairs, response data were a small-range likert-type scale for each question resulting in ordinal data that were not normally distributed, and there was symmetry of the different scores. Data were analyzed using SPSS version 22.

Results

54 students participated in the IPE program. Of the 54 participants, 8 completed the presurvey only and 46 completed both pre- and post-surveys. Data analysis was conducted on the 46 pre/post survey pairs. Of the 46 pre/post survey pairs, 86% were women and 14% were men, 66% were undergraduate students [juniors (22%) and seniors (44%)], 34% were graduate students, and the discipline of social work had the largest representation at 22% (see Table 2). The survey used a 5-point Likert-type scale to measure participant responses.

Table 2. Percentage of participants by profession (N = 46)

Profession	Participants n(%)
Social Work	10(22)
Athletic Training	20 (n=1010(22)
Exercise Science	16 (n=7)7(20)
Nursing	16 (n=7)7(16)
Nutrition	14 (n=6)6(14)
Speech-Language Pathology	10 (n=5)5(10)
Public Health	2 (n=1)1(2)

There were statistically significant changes in 10 of the 18 items (see Table 3). Median (M) scores significantly decreased on the Likert-type scale from pre to post-survey in the following items: “there is little overlap between my role and that of other students belonging to other healthcare discipline” ($z = -3.24$, $p < 0.001$, M pre = 2, M = post 1) and “shared learning and working within an interprofessional team will help me be a more effective member of a healthcare team in the future” ($z = -2.14$, $p=0.03$, M pre = 5, M post = 5). M scores increased on the Likert-type scale from pre to post in the following items: “I have worked with students from other health professionals in an inter-professional team” ($z = -4.06$, $p < 0.001$, M pre = 2, M post= 4), “I am confident in my abilities to effectively work within an interprofessional healthcare team to develop a realistic and appropriate patient care plan” ($z= -2.60$, $p=0.01$, M pre = 4, M post 4,), “I understand the respective role of social workers within an interprofessional team” ($z = -4.49$, $p < 0.001$, M pre = 4 , M post = 5), “I understand the respective role of nurses within an interprofesssional team” ($z = -3.62$, $p < 0.001$, M pre = 4, M post = 5), “I understand the respective role of dietitians within an interprofesssional team” ($z = -3.64$, $p < 0.001$, M pre = 4, M post = 4.5), “I understand the respective role of athletic trainers within an interprofesssional team” ($z = -3.25$, $p < 0.001$, M pre = 4, M post = 5), “I understand the respective role of public health professionals within an interprofesssional team” ($z = -3.57$, $p < 0.001$, M pre = 3, M post = 4), and “I understand the respective role of exercise scientists within an interprofesssional team” ($z = -3.63$, $p < 0.00$, M pre = 4, M post = 4). Eight questions did not change significantly after the intervention; including questions 1, 2, 13, 14, 16, 17, 18, and19. See Table 1 for the complete survey.

Table 3. The 10 statistically significant survey questions from pre to post, z-scores, *p*-values, median (Md)scores at pre and post, and effect sizes (N = 46)

Survey Questions	**z-score**	***p*-value**	**Median pre**	**Median post**	**Effect size (*r*)**
There is little overlap between my role and that of other students belonging to other healthcare discipline.	-3.24	<0.001	2	1	0.34
I have worked with students from other health professionals in an interprofessional team	-4.06	< 0.001	2	4	0.42
I am confident in my abilities to effectively work within an interprofessional healthcare team to develop a realistic and appropriate patient care plan.	-2.60	=0.01	4	4	0.27
I understand the respective role of social workers within an interprofessional team.	-4.49	<0.001	4	5	0.47
I understand the respective role of nurses within an interprofessional team.	-3.62	<0.001	4	5	0.38
I understand the respective role of registered dietitians within an interprofessional team.	-3.64	<0.001	4	4.5	0.38
I understand the respective role of athletic trainers within an interprofessional team.	-3.25	<0.001	4	5	0.34
I understand the respective role of public health professionals within an interprofessional team.	-3.57	<0.00 1	3	4	0.37
I understand the respective role of exercise scientist within an interprofessional team.	-3.63	<0.00	4	4	0.38
Shared learning and working within an interprofessional team will help me be a more effective member of a healthcare team in the future.	-2.14	=0.03	5	5	0.22

The discipline of speech-language pathology participated in the study, but the question involving the respective roles of speech-language pathologists was inadvertently not included in the survey administered to the participants; therefore, no results are available.

Effect sizes for the significant questions from pre to post ranged from medium (r = 0.47, I understand the respective role of social workers within an interprofessional team) to small (r = 0.22, shared learning and working within an interprofessional team will help me be a more effective member of a healthcare team in the future). The questions regarding roles and responsibilities of the various disciplines changed more post intervention than the questions related to working within an interprofessional team (see Table 3). This finding can be explained by the focus of the IPE workshop and case study analysis presentation. The focus was on

defining roles and responsibilities of the involved disciplines, not on working within an interprofessional team.

Discussion

The role of IPE has been regarded as an increasingly important experience for students enrolled in institutions that offer allied healthcare curricula. The Institute on Medicine (IOM, 2015) suggests that healthcare workforce preparation should include occasions when students from two or more professions learn with, from, and about one another to improve collaboration and the quality of care. This preliminary study provided students the opportunity to explore the concept of IPE, the role of other health professions, and the importance of collaboration to improve health outcomes for clients and patients.

From pre- to post-survey, the students indicated an improvement in understanding the roles and responsibilities of the disciplines and that overlap exists between many of the healthcare disciplines when working to improve clinical outcomes of patients; however, the IPE experience did not positively change attitudes of working within an IPE team. The structure of the IPE event described in this study helped students understand the roles and responsibilities of the various disciplines and that many of the roles overlap. In contrast, the IPE event did not provide enough information or application on how and why working as an IPE team member will help the students to be a more effective member of the healthcare team in the future.

The primary focus for this study was to provide an initial exposure to the concepts of IPE to multiple healthcare disciplines represented at WCU. Similar findings have been reported that providing IPE improves students' attitudes and knowledge of the roles of other health professions and the benefits of interprofessional collaborative care (Earland, Gilchrist, McFarland, & Harrison, 2011; Nitz, Davidson, McGuire, & Fox-Young , 2013; Lapkin, Levett-Jones, & Gilligan, 2014).

Limitations

This was a pilot study designed to expand IPE opportunities at the university. A number of limitations were identified. Recruitment was done by professors in each discipline via email. A limitation is the small size of the sample and under and over representation of some of the disciplines who completed the pre/post survey. There was less student participation among health and speech language pathology as compared to social work, athletic training, exercise science, and nutrition. There was no power analysis done before the execution of the study, as this was a pilot. Another potential limitation was that the survey was taken immediately following the workshop. Providing the opportunity for students to reflect on the experience and giving the survey either a third time or at later time may have strengthened the study. Providing the survey at a later or an additional time would assess for longer-term changes.

Another limitation is that students self-selected themselves for participation. Selection bias is possible due to the self-selection of the participants. The sample was a convenience sample and included primarily females (80%). Therefore, the sample may not accurately represent the population. This project was not a required component of any course.

An important limitation is the fact that of the 54 students participated, only 46 completed both the pre- and post-survey. Thus, eight students or 15% of the sample did not complete the postsurvey and the data analysis was impacted. However, this is similar to other studies utilizing this survey (Horsburgh, Lamdin, & Williamson, 2001; Parsell & Bligh, 1999).

Conclusion

Overall, the findings suggest that students' knowledge of the respective roles and responsibilities of the involved disciplines significantly improved after the educational intervention and that more intentional and expanded IPE opportunities should be implemented. Such expanded activities should include a focus on the value of IPE in facilitating more effective healthcare teams to improve patient outcomes, expanding to a two-part program and including standardized patient simulation. The authors have also considered offering incentives, such as gift cards and serving a meal to improve recruitment for the program. The IPE faculty team at the university is currently working towards implementing these next steps.

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