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Does Interprofessional Education Change Student Attitudes about Interprofessional Learning and Patient Safety?

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Abstract

INTRODUCTION The Fort Wayne Area Interprofessional Education Consortium (FWAIPEC) evaluated the outcomes of its educational initiative with a pre and post assessment utilizing the Readiness for Interprofessional Education tool (RIPLS). The seminar series was designed as a longitudinal team building experience to foster competency toward interprofessional collaborative practice.

METHODS Participants from pharmacy, physician assistant, nurse practitioner, nurse educator, nurse executive, medical and family practice residency programs were surveyed as part of the curriculum assessment.

RESULTS Primarily reflecting the required attendance of the pharmacy and physician assistant students, 122 participants completed both assessments (89.7% response rate). Wilcoxon signed rank tests were conducted on the 19 RIPLS items. Contrary to the goals of the program, there was a statistically significant change on six of the nineteen items which should have theoretically improved.

CONCLUSIONS The RIPLS did not capture the results from informal qualitative reporting that included debriefing sessions, program level debriefing, or and program journaling assignments. To that end, FWAPIEC is in process of piloting a new pre/ post assessment tool in an effort to capture its outcomes.

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Introduction

Interprofessional practice is being recognized as essential to quality patient outcomes in an evolving health care system (Schmitt, Gilbert, Brandt, & Weinstein, 2103). The shape of the health care workforce is moving towards more collaborative models of patient care. Mutual respect and understanding of roles and responsibilities are essential for effective collaboration and teamwork with hopes of improved quality care (Evans, Henderson & Johnson, 2012).

If health care providers are expected to work together to provide safer patient care, their education should include preparation on how to collaborate and share expertise as a team. Interprofessional education (IPE) occurs when two or more disciplines learn with and about one another's role in patient care so that collaboration occurs and patient outcomes are enhanced (WHO, 2010). National organizations including the American Association of Colleges of Nursing (AACN), American Association of Colleges of Pharmacy (AACP), Physician Assistant Education Association (PAEA), and the American Dental Association (ADA) endorse the Institute of Medicine (IOM) position that health care professionals should be engaged in interprofessional care (AACN, 2011; AACP, 2011; ACGME, 2011; CODA, 2014; PAEA, 2011). The need for educational experiences for future health care providers in an interprofessional setting is essential to the future of health care in the US (Duley et al., 2012).

This paper describes the analysis of the 2012-2013 academic year curriculum of the Fort Wayne Area Interprofessional Education Consortium (FWAIPEC) to evaluate changes in learner perceptions and attitudes regarding interprofessional learning after participating in a three-part seminar series. Health care learners from five distinct health care education institutions representing the following programs: pharmacy, physician assistant, nurse practitioner, nurse educator, nurse executive, medical student, and family practice residency were surveyed as part of the curriculum assessment of an IPE seminar series that was developed and initiated with the overall goal of providing a longitudinal team building experience leading to competency in interprofessional collaborative practice.

Literature Review

The Readiness for Interprofessional Learning Survey (RIPLS) is a tool that is often used to measure interprofessional learning and is validated for use in the postgraduate setting to assess attitudes towards interprofessional learning. RIPLS is a 19-item scale in which participants rate their level of agreement for readiness for interprofessional learning using a five-point Likert scale (strongly agree=5, strongly disagree=1) (Reid, Bruck, Allstaff & McLernon, 2006). The RIPLS questions are related to teamwork and collaboration, negative professional identity, and positive professional identity and roles. The RIPLS assessment has been shown to have good reliability with a Cronbach's alpha between 0.84-0.90 (McFadyen, Webster, Strachan, Figgins, Brown, & McKechnie, 2005; Parsell & Bligh, 1999).

Wakely, Brown and Burrows (2013) conducted a pilot study of a department of rural health interprofessional learning modules (ILM) with pre- and post-test using the (RIPLS) tool. The participating disciplines included nursing, physiotherapy, occupational therapy, nutrition and dietetics, medicine and medical radiation science. Results indicated an improvement in student attitudes as a result of interprofessional learning in the domains of teamwork, collaboration, and professional identity; however, there was no change in the domain of understanding roles and responsibilities. Wakely, Brown and Burrows felt it was difficult to determine effects of the ILMs due to the low participant numbers and the varying levels in program year of study.

Hayahi, et al. (2012) assessed interprofessional student learning using the RIPLS and a modified attitudes toward health care teams scale (ATHCTS) and found that programs introduced early in undergraduate curriculum helped prevent stereotyped perceptions for other health professions and suggested that a comprehensive curriculum may result in profound attitude changes among health care students.

Saini and colleagues (2011) used RIPLS and two other instruments to assess learning about asthma health promotion in an interprofessional learning module and workshop. After completing the education modules, medicine, nursing and pharmacy students taught

high school students using an interprofessional team approach. Pre- and post- RIPLS showed significant change in the domains of teamwork and collaboration but not in the other domains. Sani et al. suggest that single interventions typically produce limited results in team behavior and understanding.

While the RIPLS tool can provide specific information regarding IPE assessment, researchers note other tools need to be developed to provide more in-depth assessment information.

Methods

Health profession learners from the five institutions were invited to participate in the Fort Wayne Area Interprofessional Education Consortium three-session seminar series (LaBarbera, Kiersma, Yoder, Maldonado, & Poling, 2012). Pharmacy (PharmD) and physician assistant (PA) students were required to participate, while nurse practitioner (NP), nurse educator, nurse executive, medical students and family practice residents electively participated. Learners were surveyed pre- and post-seminar series using the Readiness for Interprofessional Learning Survey (RIPLS) (Reid, Bruck, Allstaff & McLernon, 2006) to evaluate changes in attitudes after participating in the seminar series.

Educational Sessions

During the introduction educational session in September 2012, learners registered and were systematically assigned by profession to a ten-member team which was their team for all three sessions. Learners were asked to complete the pre RIPLS. After a brief orientation to IPE, teams were assigned different health care professional careers to determine qualifications, education requirements and roles. Learners utilized portable mobile devices to search the Internet for the information. Each team summarized their findings and selected a spokesperson to share key findings with all attendees.

The second session, held in November 2012, began with a brief presentation by a psychologist who explained the BATHE (Background, Affect, Trouble, Handling, and Empathy) Model of Psychosocial Interviewing (Searight, 2009) to the teams. In triads, learners used the BATHE technique in a prearranged role play activity taking turns as a patient, a provider, and an observer would provide constructive feedback to the provider using a rubric. Examples of cases included a homeless person, a student, and a retired schoolteacher. Once the activity was completed, teams reconvened from their triads, and a team spokesperson reported what they learned. The clinical psychologist was available to answer learner questions about the interview process during the roleplay session and the debriefing.

The third educational session, held in January 2013, followed the same format as the previous sessions. The root cause analysis (RCA) method of problem solving (Fassett, 2011) was introduced to teams in a brief lecture. RCA was applied to the case of a young teenager, Lewis Blackman, who died after a routine surgery, primarily, as a result of lack of collaboration among health care team members (QSEN, 2010). Team discussion included identifying and prioritizing potential factors that needed to be considered in relation to optimal patient care and safety. Each team spokesperson presented a key initiative to all attendees. The post RIPLS was administered to the learners. Table 1 (following page) describes the educational sessions, objectives, and activities.

Analysis

All data was entered into Microsoft Excel, and analyses were performed utilizing IBM® SPSS v.22.0 (Armonk, NY). An a priori level of α=0.05 was utilized for determining statistical significance. Demographic information was analyzed using descriptive statistics. Since the survey data was Likert-type and not normally distributed, non-parametric tests were utilized. Pre-post changes of the RIPLS were evaluated using the Wilcoxon Signed Ranks test.

Results

Demographics of the 122 respondents with paired data (N=136, 89.7% response rate) are detailed in Table 2 (page 5). Some learners did not attend all sessions and therefore did not complete both the pre- and post-RIPLS assessment. Of those responding, 67.2% (n=82) were female; 73.8%, Caucasian (n=90); and 54.9% (n=67), over the age 24 years. Fifty-five learners (45.1%) were in their first professional year of pharmacy school.

Table 1. *Fort Wayne Area IPE Consortium education series*

Educational Session	Session objectives	Session activities
1. Exploring Health Professions	• Define interprofessional education • Describe the goals and associated elements of interprofessional education • Explain why interprofessionalism is important for patient-centered care • Express the motivation, intention and necessity for incorporation of interprofessional education • Collaborate with other health professionals to explore health care and related professions • Discuss how health professionals and patients may utilize and understand the role of various providers and services	• Pretest RIPLS • Create interdisciplinary teams • Mini lecture to introduce IPE and faculty • Activity: research healthcare member as a team • Present findings and debrief with all students

2. BATHE model	• Apply the elements of the BATHE communication model to a mock patient interview
	• Assess a mock interview and respectfully critique team members using an established rubric that includes:
	  ○ Establishing rapport
	  ○ Displaying empathy
	  ○ Using verbal and non-verbal communication skills
	  ○ Encouraging patients to share concerns, and
	  ○ Patient-centered interviewing including answering questions in an informative, respectful and nonjudgmental manner
		• Clinical psychologist explains BATHE model
		• Role play guided by BATHE questions.
		• Learners provide feedback
		• Debrief with question and answer session with psychologist

3. Root Cause Analysis	• Apply the elements RCA model retrospectively to a real patient scenario • Delineate the issues associated with a scenario using a fishbone diagram • Develop potential solutions by identifying factors associated with a scenario • Employ and improve personal communication skills to convey and accept professional knowledge as part of an interprofessional team • Demonstrate principles and values of team dynamics to successfully function in various team roles.	• Introduce RCA and case • Teams apply RCA to scenario to delineate and debate issues surrounding the case • Teams create solution • Teams present solutions and debrief • RIPLS post test

Table 2. *Demographics of FWAIPEC Participants (N=122)*

Variable	Category	N (%)
Health Profession	Family Practice Resident	3 (2.5)
	Medical student	3 (2.5)
	Nursing student, undergraduate	3 (2.5)
	Nurse practitioner student	32 (26.2)
	Other graduate nursing student, non-nurse practitioner	3 (2.5)
	Pharmacy student	55 (45.1)
	Physician assistant student	23 (18.9)
Gender	Male	40 (32.7)
	Female	82 (67.2)
Ethnicity	Caucasian	90 (73.8)
	African American	8 (6.6)
	Asian/Pacific Islander	2 (1.6)
	Other	5 (4.1)
Age (in years)	20	5 (4.1)
	21	2 (1.6)
	22	14 (11.5)
	23	20 (16.4)
	24	14 (11.5)
	Older than 24	67 (54.9)

The distribution and demographic of the respondents reflected IPE participants by their program size and make up for those requiring attendance at the seminar series.

Pre-Post Changes in Learner Readiness for Interprofessional Learning

Table 3 (following page) shows the Wilcoxon Signed Ranks statistical analysis of all RIPLS items. Learners' readiness for interprofessional learning significantly decreased on five items that intuitively should have improved: 1) Shared learning with other health care students/professionals will increase my ability to understand clinical problems decreased (median of 5 to 4, p=0.024); 2) Shared learning will help me to understand my own professional limitations (median 4.5 to 4, p=0.026); 3) Learning between health care students before qualification and for professionals after qualification would improve working relationships after qualification/ collaborative practice (median 5 to 4, p=0.032); 4) Shared learning will help me think positively about other health care professionals (median from 5 to 4, p=0.027); and 5) I would welcome the opportunity to work on small group projects with other health care students/professionals (median 4 to 4, p=0.017). Another statistically significant negative change, in which the score should have further

Table 3. *Pre/Post Assessment of RIPLS Items all Disciplines*

Item	Median (IQR)		P-value
	Pretest[a] *N=122*	*Posttest*[a] *N=136*	
Learning with other students/professionals will make me a more effective member of a health care team	5 (4-5)	5 (4-5)	0.738
Patients would ultimately benefit if health care students/professionals worked together	5 (5-5)	5 (4-5)	0.107
Shared learning with other health care students/professionals will increase my ability to understand clinical problems	5 (4-5)	4 (4-5)	0.024*
Communications skills should be learned with other health care students/ professionals	5 (4-5)	4 (4-5)	0.058
Team-working skills are vital for all health care students/professionals to learn	5 (4-5)	5 (4-5)	0.282
Shared learning will help me to understand my own professional limitations	4.5 (4-5)	4 (4-5)	0.026*
Learning between health care students before qualification and for professionals after qualification would improve working relationships after qualification/ collaborative practice	5 (4-5)	4 (4-5)	0.032*
Shared learning will help me think positively about other health care professionals	5 (4-5)	4 (4-5)	0.027*
For small-group learning to work, students/ professionals need to respect and trust each other	5 (3-5)	5 (4-5)	0.530
I do not want to waste time learning with other health care students/ professionals	1 (1-2)	2 (1-2)	0.030*
It is not necessary for undergraduate/ postgraduate health care students/ professionals to learn together	1 (1-2)	2 (1-2)	0.086
Clinical problem solving can only be learned effectively with students/ professionals from my own school / organization	2 (1-2)	2 (1-2)	0.962
Shared learning with other health care professionals will help me to communicate better with patients and other professionals	5 (4-5)	4 (4-5)	0.833
I would welcome the opportunity to work on small group projects with other health care students / professionals	4 (4-5)	4 (4-5)	0.204
I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health care students / professionals	4 (4-5)	4 (3-5)	0.017*
Shared learning and practice will help me clarify the nature of patients' or clients' problems	4 (4-5)	4 (4-5)	0.138
Shared learning before and after graduation will help me become a better team worker	5 (4-5)	4 (4-5)	0.330
I am not sure what my professional role will be/is	2 (1-2)	2 (1-2)	0.877
I have to acquire much more knowledge and skill than other students/ professionals in my own faculty/organization	3 (2-4)	3 (2-3)	0.141

[a] Scale of 1 (strongly disagree) to 5 (strongly agree) *Significant p-value

decreased was the item: I do not want to waste time learning with other health care students/professionals, which rose from 1.74 to 2.01 (p=0.028).

Table 4 (following page) displays the Wilcoxon Signed Ranks results by health profession learner types. For doctor of pharmacy students (n=55), three items had statistically significant results: 1) Clinical problem solving can only be learned effectively with students/ professionals from my own school/organization (p=0.029, negative direction); 2) I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health care students/ professionals (p=0.010, negative direction); and 3) I have

Table 4. *Pre/Post Wilcoxon Signed Rank Test RIPLS Results by Most Represented Professions*

	P-values		
RIPLS Item	*NP*[a] *(N=31)*	*PharmD*[b] *(N=55)*	*PA*[c] *(N=23)*
Learning with other students/professionals will make me a more effective member of a health care team	0.491	0.411	0.323
Patients would ultimately benefit if health care students/professionals worked together	1.000	0.220	0.107
Shared learning with other health care students/professionals will increase my ability to understand clinical problems	0.674	0.75	0.102
Communications skills should be learned with other health care students/ professionals	0.980	0.594	0.010* (negative)
Team-working skills are vital for all health care students/professionals to learn	0.518	0.745	0.227
Shared learning will help me to understand my own professional limitations	0.826	0.255	0.006* (negative)
Learning between health care students before qualification and for professionals after qualification would improve working relationships after qualification/ collaborative practice	0.384	0.108	0.122
Shared learning will help me think positively about other health care professionals	0.591	0.202	0.013* (negative)
For small-group learning to work, students/ professionals need to respect and trust each other	0.790	0.167	0.958
I do not want to waste time learning with other health care students/professionals	0.445	0.152	0.284
It is not necessary for undergraduate/ postgraduate health care students/ professionals to learn together	0.118	0.173	0.578
Clinical problem solving can only be learned effectively with students/professionals from my own school / organization	0.004* (positive)	0.013* (negative)	0.095
Shared learning with other health care professionals will help me to communicate better with patients and other professionals	0.801	0.884	0.363
I would welcome the opportunity to work on small group projects with other health care students / professionals	0.260	0.165	0.015* (negative)
I would welcome the opportunity to share some generic lectures, tutorials or workshops with other health care students / professionals	0.699	0.010* (negative)	0.107
Shared learning and practice will help me clarify the nature of patients' or clients' problems	0.653	0.443	0.078
Shared learning before and after graduation will help me become a better team worker	0.552	0.594	0.351
I am not sure what my professional role will be/is	0.243	0.813	0.335
I have to acquire much more knowledge and skill than other students/professionals in my own faculty/organization	0.294	0.003* (negative)	0.197

[a]NP= Nurse practitioner [b]PharmD= Doctor of Pharmacy [c]PA= physician assistant *Significant p-value

to acquire much more knowledge and skill than other students/professionals in my own faculty/organization (p=0.003, negative direction). For NP students (*n*=31), only one item had statistically significant results: 1) Clinical problem solving can only be learned effectively with students/professionals from my own school / organization (*p*=0.004, positive direction). For PA students (*n*=23), four items had a statistically significant results: 1) Communications skills should be learned with other health care students/professionals (*p*= 0.010, negative direction); 2) Shared learning will help me to understand my own professional limitations (*p*=0.006, negative direction); 3) Shared learning will help me think positively about other health care professionals (*p*=0.013, negative direction); and 4) I would welcome the opportunity to work on small group projects with other health care students/professionals (*p*=0.015, negative direction).

Informal qualitative data gathered from the event debriefing, post event conversations, program level debriefing, and journal assignments from students suggested that the IPE events were helpful and that students enjoyed the interactions of other health professionals. Students were eager to share ways to make the programs even more valuable for the next year.

Discussion

The educational seminar series was designed by the Fort Wayne Interprofessional Education Consortium faculty to convene graduate health care professions students for a series of team-based educational activities to foster interprofessional education.

A pre-test/post-test was conducted using the RIPLS assessment. RIPLS findings via paired tests were contradictory to the verbal accounts and other qualitative data that learners shared with faculty during seminar debriefing sessions, program level debriefing, and program level journaling, each in which learners expressed an increased understanding of other health professions' roles and the contribution to improve patient care. Scores from the RIPLS did not indicate that learners gained an appreciation of collaboration or enhanced understanding of each other's roles; i.e. RIPLS outcomes for the seminar series did not successfully capture what qualitatively appear to be post seminar series improvements.

Many researchers have used RIPLS with a belief that the tool has good evidence of content validity; however in recent years, the tool has come under criticism for a lack of reliability (McFadyen, Webster, & MaClaren, 2006). We too found it did not seem to discriminate changes that were identified qualitatively. Perhaps one reason is that the RIPLS was not intended to be a pre and post measure. That may explain its inability to find the differences. Also, FWAIPEC learners tended to start the seminar series in a generally positive way. Since the FWAIPEC use of pre and post RIPLS did not provide measurements congruent with the qualitative learner accounts, consortium members are in the process of developing a new assessment tool to evaluate the education series outcomes.

There were limitations to the formal assessment of the seminar series. One limitation is that each health profession program had different course requirements for learner attendance in which PharmD and PA required attendance while attendance was optional for other learners leading to unequal participation rates of the disciplines. Another notable limitation might be the varying levels of understanding of IPE and interdisciplinary teams. Some participants have more clinical experience that could lead to differing perspectives of IPE. Lastly, the seminar series was delimited to PharmD, PA, NP, graduate nurse, medical students, and family practice residents.

Conclusion

Health care is changing rapidly, and the next generation of clinicians will need to be prepared for the changes. The FWAIPEC IPE initiative is one effort to prepare future clinicians. The success of the FWAIPEC initiative was not captured quantitatively utilizing a pre and post RIPLS assessment methodology. FWAIPEC is developing a new tool in an effort to better assess attitudes, perception, and reflection toward interprofessional care. This tool will be piloted to an expanded learner audience that will include the required attendance of Doctor of Physical Therapy and Occupational Therapy students.

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