HIP&E

Improving Interprofessional Practice and Cultural Competence with Interprofessional Education

ORIGINAL RESEARCH

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ABSTRACT

Introduction: Interprofessional education (IPE) and cultural competence (CC) training have become a staple in healthcare education programs with the ultimate goal of improving patient care. This study sought to identify the impact of a DEI IPE single-day event on the perceptions of Interprofessional Practice (IPP) and ability to provide CC care in students enrolled in Doctor of Osteopathy, Pharmacy, and Athletic Training programs.

Methods: The Interprofessional Collaborative Competencies Attainment Survey (ICCAS) and modified Tool for Assessing Cultural Competence Training (mTACCT) surveys were completed pre/post a DEI/IPE event that included, lectures, case studies, and small group discussions.

Results: Overall, IPP and CC knowledge and confidence improved after the event. ICCAS results demonstrated overall statistical significance in five items: communication, collaboration, roles, and two teamwork measures. All items on the mTACCT improved after the event.

Discussion: ICCAS results demonstrated improvements in students' perceptions of their ability to deliver IP care. While the mTACCT demonstrated overall improvement in skills, they highlighted students are consciously incompetent, where students recognize a deficiency but demonstrate a desire for understanding.

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IMPLICATIONS FOR PRACTICE

1. The combination of lecture, case studies, and small group discussion was an effective avenue to improve students enrolled in healthcare education programs knowledge and confidence in IPP and DEI.
2. IPE is an effective means of educating students on healthcare concepts that cross all healthcare professions such as DEI and cultural competence.
3. Educational programs should seek out common concepts and values across healthcare education and utilize IPE as a means of delivery and assessment.

INTRODUCTION

As healthcare continues to grow, expand, and reach new communities, it is important to uphold the tenants of healthcare. These tenants include enhancing patient experiences, improving population health, reducing healthcare costs, and improving provider satisfaction (Boehringer Ingelheim, 2021). Interprofessional education and cultural competence in healthcare providers are important to improving healthcare quality. Introduced in the 1970s, interprofessional education (IPE) didn't gain recognition until the 1990s as a mechanism to address the complexities of the healthcare system and the need for healthcare professionals to work collaboratively to improve patient outcomes (Barr et al., 2005; Paris et al., 2021). IPE brings students from two or more professions together to learn from, about, and with each other to optimize care, resulting improved team dynamics and function, sharing of knowledge, communication, and collaboration between the participants (Lachmann et al., 2013; Sergakis et al., 2016; Neocleous, 2014). Cultural competence involves an individual's ability to recognize, assess, appreciate, and respect unique backgrounds such as race, ethnicity, sexual orientation, gender, identity, religion, and age, in order to make greater informed decisions in healthcare and minimize inequities (Cartwright & Shingles, 2011). The blending of interprofessional and cultural competence education programs has the potential to optimize learning and patient-centered outcomes.

Empirical evidence demonstrates safer, and higher quality care with healthcare collaboration (IOM, 2003). Doctor of osteopathic medicine (DO) and doctor of pharmacy (PharmD) degree programs have included more IPE in curricula after the 2004 Institute of Medicine report, *Improving Medical Education: Enhancing the Behavioral and Social Science Content of Medical School Curricula,* identified a lack of communication between healthcare providers as a critical deficiency (IOM, 2004). IPE experiences are not implemented equally in all healthcare education programs, with programs such as athletic training only recently adding IPE to accreditation standards (IOM, 2004; Breitbach et al., 2015). Athletic training is a specialty in sports medicine which involves the care, treatment, rehabilitation, and prevention of acute, chronic, and emergent orthopedic injuries and other medical conditions (Prentice, 2020). Currently, athletic trainers must obtain a professional degree in athletic training, which has moved to the Master's level, in order to be eligible for certification (CAATE, 2020). Athletic Trainers work under the direction of a physician but collaborate with other healthcare professions including psychology, dietetics, dentistry, and optometry (Prentice, 2020). Though IPE has been established as important cornerstone of professional practice with professionally certified athletic trainers, education programs previously lacked the established learning standard seen in DO, nursing, and PharmD programs (Breitbach et al., 2015). IPE was added to athletic training program accreditation standards in 2015 and has an increased presence in the 2020 standards for accreditation (CAATE, 2020). In addition to athletic training programs being early in their implementation of formal IPE educational programs, there is a lack of literature demonstrating IPE that integrates students from DO, PharmD, and athletic training degree programs.

In addition to healthcare curricula introducing IPE into accreditation standards, formal education in cultural competence (CC) has become a standard requirement in most healthcare degree programs (Hamilton, 2011). Pharmacy and medical degree programs in the US and Canada include educational content on CC and health literacy, however these programs need to be expanded and more uniformly integrated in the curriculum (Chen et al., 2021; Kripalani et al., 2006). Additionally, most athletic trainers providing clinical care or engaged in education, feel undereducated in diversity and inclusion despite education requirements being integrated into the accreditation standards (Grove & Mansell, et al., 2020).

Due to the lack of documented IPE activities between students enrolled in DO, PharmD, and MAT degree programs and the lack of CC integrated into IPE activities,

we planned a one-day IPE-CC conference (McElfish et al., 2018). The impact of the educational intervention on the knowledge, skills and behaviors of the participants was assessed utilizing a pre- and post-test survey to determine differences in confidence and knowledge of both interprofessional education and cultural competence.

METHODS

Students enrolled in a Doctor of Osteopathic Medicine, Doctor of Pharmacy, and Master of Athletic Training degree programs from two midwestern universities were selected for the study. An experimental design utilizing pre- and post-test measures of IPE and CC knowledge through the use of a one-day DEI/IPE conference as the intervention. The pre- and post-test surveys were compared on the same set of students through one time period. Students took a pre-test survey as baseline measure. All students were subject to the same intervention. At conclusion of the conference, students took the same survey on the same day. Assessment of IPE knowledge was measured through the Interprofessional Collaborative Competencies Attainment Survey (ICCAS), and CC knowledge was assessed through a CC survey modified from the Tool for Assessing Cultural Competence Training (TACCT). An institutional review board approved this research (reference number 2021036).

INTERVENTION

Students from the three healthcare programs participated in a one-day DEI/IPE conference with the intent of bringing awareness to collaboration between disciplines and raising awareness to underrepresented and/or marginalized communities. The day was broken into three separate sections: introducing healthcare professions, cultural competence and patient-centered care, and small group application. Students were initially introduced to the different healthcare professions, education standards, skillsets, and certification requirements through short presentations and a question/answer session with faculty from each of the professions.

This was followed by two presentations on cultural competence and patient-centered care. The first presentation focused overall understanding of the overall concepts of patient-centered care and cultural competence. The second presentation focused on improving cultural competence to reduce healthcare disparities in priority populations framed from the public health perspective.

The final component saw students broken up into small groups where each program was represented by a minimum of one student from each program and was facilitated by a faculty member of one of the programs. Facilitators were provided a facilitators guide that included all of the presentations provided to students, the case presentations, and discussion prompts. The small groups were provided two separate cases featuring patients from different cultural, ethnic and socioeconomic groups that required students from the different disciplines to collaborate to provide optimal healthcare to a patient.

INSTRUMENTATION

Interprofessional Collaborative Competencies Attainment Survey

The ICCAS is a tool used to assess interprofessional collaboration-related competencies in healthcare students in a pre- and post-test IPE training test intervention. (Archibald, Trumpower, MacDonald, et al., 2014). It is a 20-item self-report survey that measures communication, collaboration, roles and responsibilities, collaborative patient-family-center approach, conflict management/resolution, and team functioning skills within IPE. It uses a Likert-type scale with answer ranging from 1–7, strongly disagree to strongly agree. The results allow researchers to assess effectiveness of IPE interventions and establish reflection within participants of how their training impacts competency in healthcare teams (Archibald et al., 2014). Each item is observed separately from others; no specific summing or scoring of each construct is described by the authors (Archibald et al., 2014). The survey has excellent pre-and post-test reliability, with a Cronbach's alpha of α = 0.97 pretest, and α = 0.95 posttest (Violato & King, 2019).

Cultural Competence Measure

We chose the TACCT as a model for understanding CC in our sample. The TACCT was developed to examine CC education in the curriculum of medical schools (AAMC, 2005). It is a 67-item self-administered assessment tool to examine CC efforts in medical school curricula using 6 different domains. The original tool has a Chronbach's alpha of α = 0.96 (Lie et al., 2008). We modified the TACCT in our investigation to have a greater pre-/post-test gauge. We chose 3 of the 6 domains and asked participants to rate their ability of each construct on a Likert scale of 1-7, with "1" being "strongly disagree" and "7" being "strongly agree."

ANALYSIS

Survey data was entered in IBM SPSS 24.0 for analysis. The initial design was meant to be a repeated measure analyses of variance statistical approach. However, due to uneven sample sizes in the pre- and post-test, and violations of normality and homogeneity of variance, Kruskal Wallis

tests were used to assess differences in the intervention. Forty-six separate Kruskal Wallis tests were conducted, comparing the pre-test of each item, to the post-test of each item. Significance is measured at $\alpha = 0.05$. Cronbach's reliability analyses were conducted for each of the scales for the present study: the ICCAS had a reliability of $\alpha = 0.96$ pre-test, and $\alpha = 0.98$, post-test, while the CC measure had a reliability of $\alpha = 0.97$ pre-test, and $\alpha = 0.98$ post-test, both demonstrating excellent reliability.

RESULTS

After all statistical assumptions were met, 205 students successfully completed pre-testing and 200 successfully completing post-testing. Tables 1 (pre-test) and 2 (post-test) display the frequencies of program dispersion. Five items, communication 2, collaboration 7, roles 12, team 19, and team 20 demonstrated significance for the ICCAS pre and post, displayed in Table 3. All items with the CC measure demonstrated statistical significances between pre and post measures, displayed in Table 4. This includes Disparities 8, Bias 1, Bias 4, and Communication 4. Collectively, the data demonstrates an increase in confidence from the intervention in the significant items.

	FREQUENCY	PERCENT
DO	136	66.3
MAT	10	4.9
DPharm	59	28.8

Table 1 Pre-Test Participant Distribution.

	FREQUENCY	PERCENT
DO	154	75.1
MAT	14	6.8
Dpharm	32	15.6
Total	200	97.6

Table 2 Pre-Test Participant Distribution.

DISCUSSION

Interprofessional education and cultural competence training have become a staple in healthcare education programs with the ultimate goal of improving patient care (Paris et al., 2021). Previous research has indicated that most healthcare degree programs integrate IPE into their curriculum, and cultural competence training is a key component in most healthcare curricula (Greer et al., 2014). Research has indicated that communication and cooperation between healthcare providers increases after an IPE intervention (Keller et al., 2013; Balogun et al., 2015). Similarly, greater comprehension and care are achieved with cultural competence training in healthcare education (Oikarainen et al., 2019).

As expected, the results of our one-day Diversity and Inclusion Conference align with previous research, demonstrating significance from pre- to post-test in multiple items (Keller et al., 2013; Balogun et al., 2015; Oikarainen et al., 2019). The outcome of comparing pre- to post-test of the ICCAS demonstrated significance with 5 items, where most participants indicated "slightly agree" pre-test, and indicated "strongly-agree" in post-test. The CC measure demonstrated statistical significance in all 26 items, where most participants indicated a lack of confidence by selecting "slightly disagree" or "neutral" in pre-test and indicating "strongly agree" in the post test.

ICCAS

The ICCAS demonstrated significance with 5 items. In communication 2, Participants state their opinion of "actively listening to IP team members' ideas and concerns" increased. Similar to communication is observed with collaboration 7, participants opinion of "working effectively with IP team members to enhance care" opinion

ITEM	X^2	DF	SIG
Communication 2: Actively listen to IP team members' ideas and concerns	9.23	2	0.01
Collaboration 7: Work effectively with IP team members to enhance care	10.42	2	0.01
Roles 12: Recognize how others' skills and knowledge complement and overlap with my own	10.53	2	0.01
Patient 13: Use an IP team approach with the patient to assess the health situation	12.51	2	0.01
Team 19: Develop an effective care plan with IP team members	17.16	3	0.00
Team 20: Negotiate responsibilities within overlapping scopes of practice	15.72	3	0.00

Table 3 Chi Square Results for ICCAS.

ITEM	X^2	DF	SIG
Disparities 1: Define race, ethnicity and culture	12.26	4	0.02
Disparities 2: Identify patterns of national data	18.15	5	0.00
Disparities 3: Describe patterns of health disparities	24.56	4	0.00
Disparities 4: Identify key areas of disparities	39.24	4	0.00
Disparities 5: Discuss barriers to eliminating health disparities	56.87	5	0.00
Disparities 6: Concretize epidemiology of disparities	32.42	5	0.00
Disparities 7: Gather and use data	32.64	4	0.00
Disparities 8: Critically appraise literature on disparities	28.17	5	0.00
Disparities 9: Recognize disparities amenable to intervention	28.78	4	0.00
Disparities 10: Value eliminating disparities	42.19	4	0.00
Bias 1: Identify how race and culture relate to health	31.15	4	0.00
Bias 2: Identify healthcare provider bias and stereotyping	45.45	4	0.00
Bias 3: Demonstrate strategies to address/reduce bias	34.19	4	0.00
Bias 4: Describe strategies to reduce provider bias	40.74	5	0.00
Bias 5: Show strategies to reduce bias in others	48.86	4	0.00
Bias 6: Value the historical impact of racism	57.59	4	0.00
Communication 1: Recognize patients' healing traditions and beliefs	51.32	4	0.00
Communication 2: Describe cross-cultural communication	57.68	4	0.00
Communication 3: Discuss race and culture in the medical interview (history)	44.17	4	0.00
Communication 4: Elicit a culture, social, and medical history	56.08	5	0.00
Communication 5: Use appropriate assessment tools	68.89	4	0.00
Communication 6: Elicit information in family-centered context	69.52	4	0.00
Communication 7: Use negotiating and problem-solving skills	75.97	4	0.00
Communication 8: Assess and enhance adherence	65.39	4	0.00
Communication 9: Respect patient's cultural beliefs	128.98	3	0.00
Communication 10: Nonjudgmental listening to health beliefs	146.74	3	0.00

Table 4 Chi Square Results for Cultural Competence.

increased. In item 12, participants opinions increased with "recognizing how others' skills and knowledge complement and overlap with my own." In the final portion, team function, both items demonstrated increases in opinion, with 19 being "developing an effective care plan with IP team members," and 20 "negotiate responsibilities with overlapping scopes of practice." The pre-and post-test scores of each reflect a greater level of comprehension in the three healthcare professions. Though the items are of different areas of emphasis, they all have a great deal of overlap. For example, collaboration cannot exist without communication and teamwork. Skill and knowledge base are aided with the effect of these constructs as well. Previous research has highlighted the importance of communication between healthcare professionals; lack of communication between team members is one of the most common causes of adverse outcomes in healthcare (Lee, 2015). Proper communication, collaboration, and teamwork between healthcare professionals has demonstrated improved patient outcomes, and improved patient and staff satisfaction (Paris et al., 2021). Finally, collaboration between healthcare teams can foster mutual respect and improve ability to optimize care decisions (Ansa et al., 2020). No matter how small the intervention, Paris et al (2021), suggest that institutions of higher learning include IPE in their curricula, students have a greater opportunity

for collaborative learning experiences, building greater skill, communication, knowledge, and teamwork, rather than being isolated in a silo of their individual healthcare degree program. Previous research suggests that simulation-based learning delivers higher quality IPE, resulting in greater learning outcomes in the students (Ansa et al., 2020). Our intervention did include some simulations, however further IPE educational events should include greater amount of simulation-based learning (Ansa et al., 2020).

Although we were unable to discern differences among and between the difference healthcare programs, and had a small portion of significant outcomes, we still consider our intervention a success, especially regarding the mix of programs and lack of research regarding the co-learning between DO, PharmD, and MAT students. The authors of the ICCAS suggest the lack of significant measures may be due to three hypotheses: 1. Learners are early adopters who already have a positive attitude toward IPE and rate themselves highly at pre-rest, leaving little room for improvement in post-test 2. Learners responses are based on what they believe are acceptable answers rather than their true attitude 3. Learners lack of a true understanding of IPE, and therefore rating themselves highly on pretest (Macdonald et al., 2010). These hypotheses and our results suggest a level of unconscious incompetence and may be why only 5 of the 20 items were significant (Conger & Mullen, 1981). Performing a "post-post test" where learners are asked to reflect on their current and prior level of competency regarding IPE at the end of the intervention may increase sensitivity and decrease unconscious incompetence (Macdonald et al., 2010). It is suggested that with the "post-post test" design learners will have a greater understanding of the nuances of IPE therefore will be better able to identify their weaknesses (Macdonald et al., 2010).

CULTURAL COMPETENCE

The cultural competence measure demonstrated significance with all 26 items. However, unlike the ICCAS, many of the participants demonstrated an awareness of their lack of training in this area. Additionally many selected "slightly disagree" or "neutral" in the pre-test, while selecting "slightly agree" or "strongly agree" in the post test. This would suggest conscious incompetence, which is an integral part of the learning process that allows the learner to desire for greater understanding to achieve conscious competence (Conger & Mullen, 1981). The three domains observed include health disparities, bias/stereotyping, and communication. The measure of health disparities included constructs as defining race, ethnicity, and culture, understanding key areas of disparities, gathering data and critically appraising research, and identifying barriers to eliminating disparities. Part of this construct is recognizing that racial and ethnic minorities experience high rates of health disparities, with 56.4% of Americans belonging to a racial or ethnic minority group by 2060 (Colby & Ortman, 2015).

A large part of this is health literacy, for healthcare students, patients, and providers. Low health literacy can have a negative impact on health outcomes, especially in racial and ethnic minorities (NAAL, 2003). In regard to stereotyping and bias, many healthcare providers believe they can put their bias and/or stereotyping aside. Stereotyping has to do with thoughts, while bias occurs with feelings (Stone & Moskowitz, 2011). However, even the most culturally aware healthcare professional may still have difficulty putting these thoughts and feelings aside, because in stereotyping (thoughts) is an automatic, unconscious process (Thomas, 2003; Stone & Moskowitz, 2011). Even when one actively denies these thoughts and feelings, automatic categorization of an individual as a member of a certain ethnic group still occurs (Stone & Moskowitz, 2011). This can change the way a provider interacts with the patient and can make said patient uncomfortable and discouraged from seeking or complying with treatment (Stone & Moskowitz, 2011).

Finally, good communication between patient and provider is essential to achieving quality care. Healthcare beliefs of minority groups often follow their country of origin and/or religious beliefs, which often results in conflict with healthcare decision making between patient and provider (Brown et al., 2016). Brown et al. (2016) suggests shared decision making within the framework of cultural beliefs to aid in communicative strategies.

As discussed in the introduction, CC education in healthcare is critical to advancing global health of individuals and societies (Piggott & Cariaga-Lo, 2019). Although it has improved in 19 years since the IOM report that concluded that ethnic minorities receive lower quality of care and have higher rates of morbidity and mortality than whites, there are still large gaps between blacks and whites (19% access measures, and 75% quality measures) (IOM, 2003; AHRQ, 2018). Our data demonstrates a positive relationship from pre-to post-test, but a one-day conference cannot be the only inclusion of CC in healthcare education. Research has suggested that although CC education is needed, it can be a challenging process that requires critical reflection and multiple levels of integration are involved (Leask, 2015). It is further suggested that one-time events cannot be evidence of internalized curriculum (Leask, 2015). A study of memory of retention, demonstrated the importance for new information to be

reinforced, or practiced, for it to be converted to long-term memory, and therefore retained and recallable (Ebbinghaus, 1885). In order to increase CC, it needs to be integrated into healthcare education curricula early on, and throughout all learning objectives (Piggot & Cariaga-Lo, 2019). This can help in all dimensions, including health disparities, health literacy, bias/stereotyping, and effective communication. In pre-test, our participants most selected "slightly disagree" or "neutral" in their ability to identify bias and stereotyping in healthcare. After the intervention, they were more on the spectrum of "agree." Though our intervention was successful in terms of statistics, we know that more is needed in order to have a lasting impact. Stone & Moskowtiz's (2011) suggest that more CC stereotype and bias training in the way of social psychology is needed to reinforce this learning.

In addition to integrating CC in curricula, institutional climate plays a significant role. If the learning institutions have adopted greater diversity and inclusion efforts, there will be greater efforts in achieving these CC educational goals (Piggot & Cariaga-Lo, 2019). For institutions with less inclusive climates, programs may need to start grassroot efforts to create positive change and growth.

CONCLUSION

Our intervention provided students from three different healthcare degree programs and two institutions with educational opportunity to strengthen their collaborative efforts interprofessionally and culturally. Though our outcomes were significant, our data suggests a level of unconscious incompetence with IPE and conscious incompetence with CC. Though aspects of communication, collaboration, skills, knowledge, and teamwork had positive outcomes, it is clear more effort is need, especially with simulation and social psychological bias training, to increase collaborative efforts between healthcare programs. With regard to CC, greater integration is needed in throughout the healthcare degree program curricula. Though all outcomes were significant, programs cannot simply "check a box" and move on with what they have done in the past. Research indicates that CC needs to be weaved into multiple levels of curricula for students to have a greater understanding of it and ability to apply it to patient care. A one-day intervention is a great start to introducing CC, we need more to achieve mastery in it. In addition to program curricula, it is important to look at the climate of the university and what steps they are taking to progress further in CC, as Piggot and Cariago-Lo (2019) suggest. Greater IPE and CC efforts can only assist in improving healthcare and advancing individual patient health.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR CONTRIBUTIONS

Emily Madrak: Writing – Original Draft and Formal Analysis.

Jennifer L. Volberding: Conceptualization, Data Curation, Methodology, Project Administration, Writing – Review & Editing.

Amy Harrison: Conceptualization, Project Administration, Writing – Review & Editing.

Natasha Bray: Conceptualization, Methodology, Project Administration, Writing – Review & Editing.

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