A cross-cultural integrative health interprofessional practice model using innovative case study and academic hispanic community partnership approaches

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Abstract: Three graduate health science programs at a liberal arts university collaborated with a Hispanic senior community center to develop a program to address the needs of the transforming healthcare delivery system with an integrative medicine and health (IMH) and interprofessional practice (IPP) focus. The partnership resulted in a case-based IPP student experience with the goal of developing a student-authored case study to improve the health of center clients using the social determinants of health. The evaluation of student outcomes was based on qualitative analysis of written case studies and validated quantitative assessment tools, whereas client outcomes were measured by qualitative feedback. Final case studies demonstrated a range of case-study completion, with most teams including the majority of unique case-study elements. Senior community clients reported comfort with the program and recommended the program to others. After implementation, the academic-community partnership model was...
shown to be successful in implementing a strategy to prepare students for the IPP workforce in the absence of best practice recommendations.

**Subjects:** Health and Social Care; Medicine, Dentistry, Nursing & Allied Health; Medicine; Nursing; Specialist Community Public Health Nursing; Allied Health

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1. Introduction
The integrative medicine and health (IMH) model is an evolving evidence-based approach that includes both traditional medicine and complementary/integrative medicine interventions to address chronic health and wellness management. The IMH model emphasizes interprofessional (IP) practice and social determinants of health (SDH) (Academic Consortium for Integrative Medicine & Health, 2017). In order to develop an IP practice-ready healthcare workforce that uses SDH (environmental, physical, political, and cultural influences on health/survival (Lane et al., 2018)), health professional student education must adapt its pedagogical approach. Although a best practice model has not been established, case-based learning allows students to engage across disciplines and develop skills to gather information, and analyze, synthesize, and implement solutions to connect abstract concepts to real-world problems (Barkley et al., 2014). The Hispanic population, the second fastest growing population in the US (Juckett, 2013) behind the Asian population, thrives on integrative, collaborative models rooted in personal relationships (Ortiz et al., 2007). Hispanics also place a high value on the establishment of informal friendly relationships in social interactions like with a healthcare provider prior to establishing working relationships (Juckett, 2013). To date, IP education activities that focus on SDH have been piloted using a flipped-classroom approach with an emphasis on student-led concept-related activities, but have not been implemented with community partners (Lane et al., 2018). This descriptive study presents a cross-cultural IMH IP practice model using an innovative case study and academic-Hispanic community partnership approaches.

2. Background
The IMH IP practice model is a community-academic partnership between Carroll University (CU) College of Health Sciences (CHS) and the United Community Center (UCC) Senior Center. The mission of CU is to provide a superior education grounded in its liberal arts heritage to prepare all students for vocational success, lifelong learning, and service in a diverse society. The mission of the UCC is to provide programs to Hispanics of all ages in the areas of education, human services, senior services, cultural arts, recreation, community development, and health and human services. UCC’s Senior Center provides a range of social, recreational, educational, and health and wellness services to low-income Hispanic elderly, in English and Spanish, with the overall aim to improve their wellbeing. This project is supported by the Health Resources and Services Administration (HRSA) of the U.S. Department of Health and Human Services (HHS) under grant number T08HP29989 titled Primary Care Training and Enhancement. In the current collaborative partnership, UCC personnel worked with CU personnel during all stages of planning and implementation to ensure that university educational and community/center needs were considered and addressed.

3. Methods

3.1. Study design

3.1.1. Participants
One-hundred twenty first-year graduate students (20 physician assistant [PA], 73 physical therapy [PT], 27 occupational therapy [OT]) participated as part of their required program-specific fall semester curricula and were randomly placed in 15 IP teams consisting of 7 to 8 students (1–2 PA, 1–2 OT, and 4–5 PT). Fifteen community-dwelling Hispanic seniors (13 females and 2 males ranging
in age from 65 to 86) participating in daily Senior Center activities were individually approached and recruited for voluntary participation in the IP teams by UCC personnel during Senior Center programming. Each IP team was assigned a faculty advisor from the participating health sciences education programs. To facilitate communication between Spanish-speaking Senior Center clients and English-speaking IP teams, CU Spanish program students were identified by program faculty and served as interpreters.

3.1.2. IP case-based model in the community
In collaboration with the University of Minnesota Center for Health IP Programs, CU and UCC HRSA project personnel developed a case-study template entitled “The Case is Clear: A Guide to Interprofessional Case Development” (Uden & Hess, 2016). The template, based on an IMH framework and SDH, provided the strategies and techniques for gathering information about their Hispanic senior client, the UCC, and the Hispanic community in Southeastern Wisconsin. The template also outlined 27 unique elements of an IMH case study focused on four elements to be included in the final case study: background/setting, client narrative, timeline, and opportunities to enhance well-being. The case-study information was used by the team to develop three intervention strategies to enhance the senior’s IMH focused on the three categories of SDH: physical environment (i.e., safe water, clean air, safe housing); social/economic (i.e., social support networks, income); and individual (i.e., behaviors, culture, genetics).

The IP teams met face-to-face biweekly for one hour six times during the semester at the UCC Senior Center gathering the above information. Spanish interpreters were identified to facilitate communication between Spanish-speaking Senior Center clients and students. On alternate weeks the student team members met on the CU campus for one hour to prepare for subsequent team meetings and to develop the written case study.

Student teams were self-directed in obtaining and analyzing both community and client data. The faculty advisors reinforced IP practice and IMH elements to support team progress. CU and UCC project personnel met weekly to coordinate activities and monitor progression.

3.2. Data collection
Faculty advisors and CU/UCC personnel evaluated the submitted case-study reports using a standardized case-study evaluation rubric that included background/setting, client narrative, timeline, and opportunities to enhance well-being elements. One-on-one senior interviews were conducted by UCC staff at the end of the semester experience. Questions were open-ended (for example, “How helpful were the meetings and conversations with your Carroll student team?”) and focused on the organization/interpretation of and client satisfaction with the student–client interactions. Anonymous aggregate responses were disseminated by the UCC staff to CU faculty and students in narrative form.

PA, PT, and OT students’ self-perceptions related to IP practice were gathered before and after the semester using two valid and reliable assessment tools. The Inter-professional Collaborative Competency Attainment Scale (ICCAS) assesses communication, collaboration, roles, and responsibilities, collaborative patient/family-center approach, conflict management/resolution, and team-functioning abilities on a 7-point scale (1 = Strongly Disagree and 7 = Strongly Agree) (Archibald et al., 2014). The Readiness of Inter-professional Learning Scale (RIPLS) assesses student teamwork and collaboration, professional identity, and roles and responsibilities readiness on a 5-point scale (1 = Strongly Disagree and 5 = Strongly Agree) (Parsell & Bligh, 1999).

3.3. Data analysis
Quantitative data analysis was performed for ICCAS and RIPLS data using the program R (R Development Core Team, 2011). Comparison of pre-test and post-test data across the three disciplines was analyzed using repeated-measures ANOVA with a pairwise comparison of pre- to post-test scores using a paired T-test. Significant difference between groups was defined as
p = <0.05. Qualitative data analysis was used to identify common themes within the case study and client interview data.

4. Results
The 120 student participants were 23.0 ± 2.6 years old and 70% identified as female. The majority of students, 90.0% (108 students), were non-Hispanic Caucasians. Additional participants identified as: 4 Hispanic and Caucasian (3.3%); 5 Asian (4.2%); 1 two or more races (0.8%); 1 non-resident alien (0.8%) and 1 did not report (0.8%).

4.1. Case studies
Faculty advisor review of the 15 IP team case studies revealed that no team successfully included all of the 27 case-study elements. The 15 team element completion rate ranged from 37% (10/27) to 85% (23/27) with the average completion rate of 70% (19/27). Rubric outcomes were combined for the 15 teams into a comparative table (Table 1). No single case-study template element was included by all 15 teams. IP teams included more client-focused elements from the case-study template, with less focus and inclusion of community and systems-related elements.

4.2. Client interviews
All 11 interviewed UCC Senior Center clients stated that they would recommend the program to others and that they were comfortable or very comfortable with their IP team. Eighty-two percent (9/11) of interviewed seniors reported the program as very well organized. Forty-five percent (5/11) of interviewed seniors recommended that future programming includes light movement, exercise, or games in their sessions.

4.3. ICCAS
Student pre-test and post-test mean scores ranged from 2.45 to 6.83 (M = 5.02, SD = 0.90) and 2.15 to 7.00 (M = 5.65, SD = 0.80), respectively. Analysis of amount of change from pre- to post-test demonstrated a significant increase in total average ICCAS scores across all students with no significant differences between programs (M = 0.61, SD = 0.85), t(119) = 6.39, p < 0.001, d = .71).

4.4. RIPLS
Student pre-test and post-test mean scores ranged from 3.11 to 5.00 (M = 4.20, SD = 0.41) and 2.68 to 5.00 (M = 4.02, SD = .52), respectively. Analysis of amount of change from pre- to post-test shows significant evidence to support a decreased trend in total average RIPLS with no significant differences between programs (M = −0.15, SD = 0.47), t(119) = 3.22, p < 0.002, d = .32).

5. Discussion
Study outcomes demonstrate that the application of this innovative case-based educational model in an underserved Hispanic community senior population can be successfully implemented as a pedagogical strategy to address the need to prepare IP practice-ready health professionals. In contrast to a similar case-based approach from Cahill et al. (2013), this study brought students into the community for eight months to work with a community-dwelling client. Whereas Lane et al. (2018) did not address community partnership, this study found that the inclusion of both academic and community players during the planning and implementation phases through regular contact and equal voice is necessary to ensure that stakeholder needs are represented and considered throughout. The overall decrease in RIPLS scores may suggest that students developed a better understanding of the complexity and challenges of IP practice. However, there has also been literature to suggest that the RIPLS scale has weak internal consistency (Mahler et al., 2015) and other IP initiatives have shown similar results (Segal-Gidan et al., 2014). The lack of evidence to support significant positive RIPLS change did not interfere with perceived ability to perform on an interprofessional team, which students reported improved significantly.

Challenges addressed during the design of this study included scheduling difficulties for students and clients, as well as ensuring the needs of each side of the community-academic partnership were
Table 1. Integrative medicine and health interprofessional practice case-study template completion outcomes: faculty review of 15 teams

| Details of Healthcare Organizations & Systems in Client’s Community | % | Local Resources | % | Description of Community | % | Characters—Main Client | % | Characters—Other | % | Timeline | % | Opportunities to Enhance Wellbeing |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mission of primary care organizations | 80 | Key assets in community | 73 | Population/demographics | 87 | Story, history | 93 | Family/friends integral to client’s story | 87 | Organized timeline by day, year, decade | 93 | Social and economic intervention idea | 67 |
| Connections between facilities and systems | 73 | Organizations, community groups, or locations important in client’s life or not yet accessed | 87 | Industries, employment status | 60 | Key life transitions | 87 | Healthcare providers with relationship with client | 33 | Includes either overall or healthcare-related events or transitions | 87 | Physical environment intervention idea | 80 |
| Staffing | 47 | State of housing | 53 | Strengths & assets of overall health and wellbeing | 80 | | | | | | Individual characteristics and behaviors intervention idea | 93 |
| Strengths of organizations | 73 | | | Health conditions | 93 | | | | | | | |
| Challenges of organizations | 27 | | | Progress of conditions over time | 67 | | | | | | | |
| Demographics of clients served within organization | 73 | | | Medications | 73 | | | | | | | |
| Payment models | 33 | | | Insurance status | 27 | | | | | | | |

(Continued)
Table 1. (Continued)

| Background/Setting | Client Narrative | Timeline | Opportunities to Enhance Wellbeing |
|--------------------|------------------|----------|----------------------------------|
| Details of Healthcare Organizations & Systems in Client’s Community | % | % | % | % | % |
| Local Resources | | | | | |
| Description of Community | % | % | | | |
| Characters—Main Client | % | | | | |
| Characters—Other | % | | | | |
| Timeline | % | | | | |
| Opportunities to Enhance Wellbeing | % | | | | |

Details related to social determinants of health  60

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being met. Limitations included a lack of comparable control groups to differentiate between growth attributed to IP activities and other program curricula and activities. Areas for recommended future study include longitudinal assessment of student attitudes towards and perceived skills for IP practice and assessment of IP team and client outcomes following implementation of an identified wellness intervention. This study adds to the body of literature supporting the inclusion of SDH and IMH into health professional curricula to train students for collaborative IP practice, specifically addressing the health needs of the Hispanic senior population. This innovative IP student-generated case-study model is useful in response to a lack of pedagogical best practice in achieving these aims.

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