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OPIOIDS: Cultivating Interprofessional Collaboration to Find Solutions to Public Health Problems

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Abstract

This study evaluated perceived effectiveness of an interprofessional case-based activity that allowed medical and pharmacy students to engage in problem-solving around the role of social determinants of health (SDOH) in opioid misuse. Students participated in a case-based activity, and then completed a post-activity survey that included five open-ended questions and the Interprofessional Collaborative Competency Attainment Survey. Twelve pharmacy students (100%) and 47 medical students (75%) completed the post-activity survey. Results indicate the activity resulted in a statistically significant increase in student ability to: 1) recognize interprofessional team members' knowledge, skills, and contributions to the interprofessional team; 2) communicate effectively across professions; and 3) learn with, from, and about interprofessional team members to develop a patient care plan. Students also reported enhanced understanding of treatment considerations with opioid misuse, the role of SDOH, and recognition of the value of interprofessional collaboration in their future practice. This interprofessional case-based activity appeared to promote collaboration among students from different professional programs as they engaged in problem-solving around a contemporary public health issue that intersects their future practices. This activity may serve as a model for health professional programs, practitioners, healthcare systems, and communities that seek interprofessional solutions to combat opioid misuse.

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Declaration interest

None of the authors have conflicts of interest related to this work.

Keywords

interprofessional education; social determinants of health; health and social care; shared problem solving; opioids

Introduction

Drug overdose and opioid-involved deaths continue to increase in the United States, and the majority of drug overdose deaths involve an opioid (Rudd, Seth, David, Scholl, 2016). According to the Centers for Disease Control and Prevention (CDC), the number of overdose deaths involving opioids quadrupled between 1999 and 2015 (CDC, 2016). Drug overdose deaths related to heroin mirror significant increases in heroin use across the country and are closely tied to opioid pain reliever misuse (Jones, Logan, Gladden, Bohm, 2015).

Opioids include prescription medications used to treat pain, such as morphine, oxycodone, methadone, hydrocodone, and fentanyl, as well as illegal drugs such as heroin. Opioids work by binding to specific receptors in the brain, which minimizes the body's perception of pain. Stimulation of opioid receptors in the brain can also affect other areas of the body, such as those responsible for breathing and blood pressure. Opioid overdoses may occur when an individual purposefully misuses an opioid, unintentionally takes an opioid dose that is too high, or combines opioids with other medications or alcohol (Substance Abuse and Mental Health Services Administration, 2013).

There are biological, environmental, social, psychological and genetic factors that are associated with substance abuse. Some of these factors, which include social determinants of health (SDOH), encompass gender, race and ethnicity, age, income level, educational attainment, sexual orientation, geographical location, and socioeconomic status; these factors shape risk behavior and the health of drug users (Galea & Vlahov, 2002; Jones et al., 2015).

Public health interventions that aim to improve the physical and mental health of drug users must address SDOH that can both accompany and exacerbate the health conditions of drug users (CDC, 2016; Galea & Vlahov, 2002). Substance use is also strongly influenced by interpersonal, household, and community dynamics. Because opioid abuse and misuse are so strongly related to SDOH, successful solutions to the opioid abuse epidemic must include attention to SDOH. Therefore, including curriculum related to SDOH and its relationship to addiction in health professional training is critical.

Background

Pharmacy and medical students at the University of Minnesota, Duluth campus have minimal opportunities to work on interprofessional cases exploring SDOH or opioid misuse. There is a gap in the literature addressing these issues across professional learners (Monteiro, Dumenco, & Collins, 2017). Opportunities that engage students in interprofessional dialogue while exploring critical public health issues are necessary for

students to collaborate with each other to find solutions to address the opioid epidemic. This study describes the evaluation of an interprofessional activity designed at the University of Minnesota that was designed to address all of the above considerations. This study sought to evaluate the effectiveness of an interprofessional case-based activity that allowed medical and pharmacy students to engage in problem-solving around the role of SDOH in opioid abuse and misuse. The study sought to determine if the interprofessional activity objectives were met and identify what students learned related to opioid misuse, role of SDOH, and application of learning to future practice.

Interprofessional activity

The activity took place as a part of the second-year medical students' required Social and Behavioral Medicine course. Twelve pharmacy students from years one through four of the Pharm.D. professional program volunteered to participate in the interprofessional activity. Students were organized into six groups of approximately eleven medical students and two pharmacy students. The groups were organized by the rural communities students had visited together at the start of their first year of training. These rural community bus trips focused on assessing rural community health needs because addressing these rural health needs is part of the regional campus mission.

Six unique cases were developed based on actual (de-identified) patients. Each case was placed in the context of the assigned community and consisted of background information and a series of ten to thirteen questions to which students were expected to respond. Each case was designed to focus on specific SDOH and opioid misuse factors that may be encountered in practice (e.g., SDOH - literacy/education, access/transportation; opioid prescribing and dispensing challenges and liabilities).

Prior to the activity, student groups were emailed their assigned case and were asked to prepare to discuss case questions in class; they were also instructed to explore health care and community-based resources in the community where the case occurred. Students were directed to the Association for Prevention Teaching and Learning (APTR) and Healthy People 2020 websites for additional resources that would familiarize them with concepts pertaining to SDOH and substance abuse. During the session, groups spent thirty minutes discussing the case and answering the questions, and then each group reported out their findings during a 60-minute debrief. The activity was designed and facilitated by pharmacist faculty members from the College of Pharmacy and a psychologist faculty member from the School of Medicine.

Methods

Data collection

Students participated in a case-based activity and completed a post-activity paper survey that included both five open-ended questions and the interprofessional Collaborative Competency Attainment Survey (ICCAS) (Archibald, Trumpower, MacDonald, 2014), organized into composite measures aligned with the three learning objectives below. The ICCAS is a 20-item retrospective pre-post Likert-scale tool (1 = strongly disagree, 4 =

neutral, 7 = strongly agree).¹ The open-ended questions were included to identify any additional key student learning that may not have been anticipated or included in the original learning objectives.

Activity objectives linked to ICCAS items:

1. Communicate effectively across professions. (ICCAS 1, 2, 3, 5, 16, 17)
2. Learn with, from, and about interprofessional team members to develop a patient care plan. (ICCAS 7, 8, 13, 19)
3. Recognize interprofessional team members' knowledge, skills, abilities, and contributions to the interprofessional team. (ICCAS 9, 11, 12).²

Open-ended questions in post-survey asked students about a range of topics including: what they learned from working on an interprofessional basis; what they found interesting about treatment of opioid misuse; how the session enhanced their understanding of the impact of social determinants of health on individual and/or population health outcomes; and how the activity may have changed the way they plan to practice as a physician or pharmacist in the future.

Data analysis

ICCAS summary statistics were calculated separately for pharmacy and medical students and for all students combined. The pre-post item change p-values were calculated by the Wilcoxon signed rank test using Statistical Analysis Software (v. 9.3; SAS Institute, Cary, NC; $p < 0.05$ statistically significant). The internal consistency of all ICCAS items, and subscale items were assessed by Cronbach's α .

The data from the open-ended questions was analyzed using the principles of consensual qualitative research (CQR). Two coders (KH, LP) reached consensus among domains and themes based on the research question and study aims. The 'auditor', a separate research partner knowledgeable about CQR (HB), provided feedback throughout the process. Sixteen domains, later categorized into three major themes, were identified in this analysis (Table 1).

Ethical considerations

The University of Minnesota Institutional Review Board determined this study was exempt from review.

¹-Following the activity, students rated their perceived competence levels both before and after the activity, which allows for self-calibration. An example item is:

sample item is:

	Before participating in the learning activities I was able to:								After participating in the learning activities I am able to:							
Communication	1	2	3	4	5	6	7	na	1	2	3	4	5	6	7	na
1. Promote effective communication among members of an interprofessional (IP) team*	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

²-ICCAS items not specifically targeted include 4, 6, 10, 14, 15, 18, 20 because the educational activity was not designed to impact these items.

Results

Twelve pharmacy students (100%) and 47 medical students (75%) completed the post-activity survey. The Cronbach's alpha for ICCAS total scale at pre-survey is 0.96, and is 0.97 at post-survey. For ICCAS subscales, the Cronbach's alpha ranged from 0.87 to 0.94. The activity resulted in a statistically significant increase in student ability to 1) recognize interprofessional team members' knowledge, skills, abilities, and contributions to the interprofessional team: median changed from 6 (IQR: 5.7 – 6.7) to 6.7 (IQR: 6.0 – 7.0) with signed rank statistics (S) = 214.5 and $p < 0.001$, 2) communicate effectively across professions: median changed from 6.2 (IQR: 6.0 – 6.8) to 6.7 (IQR: 6.0 – 7.0) with $S = 208$ and $p < 0.001$, and 3) learn with, from, and about interprofessional team members to develop a patient care plan: median changed from 6 (IQR: 5.5 – 6.5) to 6.5 (IQR: 6.0 – 7.0) with $S = 293$ and $p < 0.001$.

Data gathered from the open-ended questions, indicated an enhanced understanding of treatment considerations with opioid misuse, the role of SDOH, and recognition of the value of interprofessional collaboration in their future practice (Figure 1).

Discussion

This case-based activity proved useful in introducing pharmacy and medical students to treatment considerations for individuals struggling with opioid misuse as well as the role of SDOH in opioid misuse, topics that are interdependent and yet often not given the attention they deserve in professional school curricula. Students reported that this activity gave them an increased recognition of the value of interprofessional collaboration and an improved understanding of the skills and expertise that other health care professionals have to offer. Other studies have also demonstrated an increase in students' perceived attainment of interprofessional collaboration-related competencies following an interprofessional educational intervention using the ICCAS tool (Haber, et.al., 2017; Nagge, Lee-Poy, & Richard, 2017); however, this is the first to evaluate an interprofessional activity focused on opioid use disorder and social determinants of health. The assessment of the interprofessional workshop described by Montiero and colleagues (2017) focused on the knowledge gained about opioid overdose and their satisfaction with the workshop. Additionally, a study by Erickson and colleagues showed that an interprofessional mentored workshop focused on pain management skills in nursing and medical students improved medical, but not nursing, student skills (Erickson, Brashers, Owen, Marks, & Thomas, 2016). This study broadened the assessment to look at the attainment of interprofessional competencies and on the role of SDOH. Allen and colleagues showed that a workshop on chronic pain management, and specifically opioids, led to increased self-efficacy in management and in interprofessional communication; this was focused on practicing clinicians, however, and not students (Allen, Maclead, Zeicker, Chiarot, & Critchley, 2011).

There are several limitations to this study. The interprofessional activity was a one-time 90-minute intervention within the didactic setting in one institution and two professional programs, using a single measurement of self-perceived competency. Further studies in the clinical learning environment would be necessary to assess whether these perceptions

translate into collaborative behavior in the care of patients with opioid use disorder and ultimately improve patient and population health outcomes. Designing and committing resources to studies linking interprofessional education to specific desired learning, health, and systems outcomes is a critical future step to enhance the evidence base that was beyond the scope of this project (IOM, 2015).

In summary, this interprofessional case-based activity promoted collaboration among students from two different professional programs as they engaged in problem-solving around a contemporary public health issue that closely intersects their future practices. The activity not only allowed for learning on clinical topics that included appropriate pain management, substance use disorder and SDOH, but allowed health professional students to engage on a critical public health issue that challenges individuals, health care providers, and communities alike. The complexity of the opioid crisis calls for multi-modal, and multi-pronged approaches that engage interprofessional teams in collaborative processes; engaging learners in this process in their professional education is critical to ensuring that they are well-equipped and well-practiced team players that appreciate the role of SDOH. Additionally, this activity could be replicated in a health care system or community setting in which interprofessional solutions to the opioid abuse epidemic are sought.

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Figure 1.
Qualitative analysis themes

Table 1.

Relationship Between Identified Domains and Overarching Themes

Themes	Domains
Enhanced understanding of treatment considerations with opioid misuse	Practical learning on pain contracts
	Practical learning on the Prescription Monitoring Program
	Practical learning on naloxone
	Clinical learning on appropriate pain management/prescribing
	Clinical learning on how to approach patients/other providers with addiction
	Practical learning on methadone
	Discussion of own role, perspective, opinion, knowledge set
The Role of Social Determinants of Health (SDOH)	Appreciation for the complexity of addiction and relationship with SDOH
	Practical learning on resources available in the community and their appropriate for various populations
	Clinical learning on how SDOH influences individual patient and population health
	Appreciation for the value of a case to apply opioid or other SDOH concept
Recognition of the value of interprofessional collaboration in their future practice	Acknowledgment of the “other” profession’s thought process/ approach/perspective
	Appreciation for the “other” profession’s knowledge set
	Plans to collaborate with other health professionals in the future
	Collaborative practice agreements, scope, prescribing authority
	Importance of interprofessional communication