

Women Leading Healthy Change: A Reciprocal Learning Experience for Women in the Sex Trade and Medical Students

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Abstract

Introduction: Service learning can teach medical students about the social determinants of health and prepare them to better serve marginalized populations, while people in the sex trade can serve as effective educators for their peers and health professions trainees. However, service-learning projects involving medical students and people in the sex trade are currently rare. **Methods:** We modified a curriculum from an author's prior institution to provide a unique service-learning experience for medical students and peer health education for women in the sex trade in a new city and new context. Medical students partnered with a local community organization to implement a 10-week course on physical and mental health for women in the sex trade. Coled by a medical student and a woman who had utilized the community partner's services, the course's instructional methods included in-class demonstrations, group discussion, games, and worksheets. **Results:** Ten women participated in the course, and six medical students facilitated its implementation. The participants demonstrated increased knowledge in physical and mental health topics and reported being more comfortable speaking with health care providers. The coleaders developed skills and confidence to pursue additional leadership opportunities. The medical student coleader gained a better understanding of addiction and was more prepared to work with patients with substance use disorders. **Discussion:** This mutual learning experience was a valuable health education opportunity for a local underserved community and helped medical students understand the barriers women in the sex trade face when seeking health care and how physicians can better meet their needs.

Keywords

Service Learning, Community Health Education, Leadership Development, Sex Workers, Mental Health, Women's Health, Cultural Competence, Health Literacy

Educational Objectives

By the end of this course:

1. The medical student coleader will be better prepared to provide health education, treat patients with mental illness and/or substance dependence, and understand the barriers stigmatized populations face in accessing health care.
2. Medical student facilitators will be more confident navigating a community-institutional partnership, more familiar with the principles of trauma-informed care, and more understanding of what stigmatized populations may want and need from their health care providers.
3. The community coleader will demonstrate increased confidence leading and educating peers and report increased self-efficacy.
4. Course participants will have greater knowledge of common physical and mental health issues and feel more confident discussing these issues with their peers and their health care providers.

Introduction

Human trafficking is defined as the act of coercing or compelling an individual to provide labor, services, or commercial sex acts. The International Labour Organization estimated that in 2016 there were 40.3 million victims of modern slavery worldwide. Within this population, 4.8 million were victims of sexual exploitation, of whom over 99% were young girls and women.¹ Numerous studies have attempted to quantify sex trafficking in the United States, but data on its true prevalence are limited. Per data collected by the National Human Trafficking Hotline, California has consistently had the highest number of reported

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human trafficking cases in the United States, with 1,118 calls for sex trafficking in 2019.² In a Department of Justice-sponsored study in San Diego County, the underground sex economy represented an estimated \$810 million in annual revenue.³ Our community, Sacramento, California, is considered a high-risk area for trafficking because of its proximity to large cities and location at the crossroads of major freeways.

It is important to distinguish sex trafficking from commercial sex, which may be voluntary. Even so, people who have been trafficked and people engaging in commercial sex often experience multiple overlapping vulnerabilities, including social stigma, housing instability, mental illness, and substance use disorders, all of which contribute to significant health disparities.⁴⁻⁸ One key structural driver of sex work is economic vulnerability. People with limited economic resources and opportunities have been shown to be at higher risk of exploitation.³ In a review by Polaris, former sex workers frequently cited “sustained unemployment” and “unpaid debts” as significant factors for their entry into the industry.⁹ The racial wealth gap has likely contributed to the disproportionate representation of Black individuals among sex trafficking victims.^{10,11} Adverse childhood experiences increase the risk of being trafficked,^{12,13} and these personal histories of trauma and violence are frequently compounded by violence within the industry itself.¹⁴

The longstanding stigma surrounding sex trafficking and commercial sex work creates barriers to health care for women in the sex trade.¹⁵ This stigma comes not only from the communities in which these women reside, but also from the health care providers who serve them.^{6,16-19} Such bias among health professionals highlights the importance of teaching health professions trainees about the social determinants of health in a way that is inclusive of sex workers; still, curricula addressing the social determinants of health remain inadequately researched.²⁰

Service learning has been presented as one strategy for teaching the social determinants of health and typically takes the form of health education initiatives targeting underserved populations.²¹⁻²⁷ The benefit to medical students is twofold. First, participating in health education has been shown to improve medical students’ content knowledge, communication skills, and confidence in working with patients.^{21,25-28} Second, exposure to underserved populations through service learning helps students break down preconceived biases and gain a deeper, more empathetic understanding of the health challenges faced by that population—improving the quality of both medical education and future patient care.^{22-23,29} This idea of exposure as a way to

reduce stigma among health professionals and trainees has been applied to mental health stigma,^{16,30,31} but rarely to sex work stigma specifically.³²

Given the social barriers to health care that sex workers face, multiple international programs recruit sex workers as educators and support them in teaching their peers about various health topics, especially risk reduction and mental health.^{17,33-36} Such programs benefit learner and educator alike, fostering community mobilization, reduced internalized stigma, and empowerment.^{17,33-34} One of the first programs to combine peer education with service learning in medical education was pioneered by Dr. Rachel Robitz and colleagues. Founded in 2011, Women Leading Healthy Change (WLHC) is a partnership between the University of Cincinnati College of Medicine and a local community organization that provides transitional housing, education, and support to sex workers.²⁹ Its curriculum encompasses physical and mental health education, and the program has since expanded and remains active today (Meredith Meyer and Kriya Patel, oral communication, August 21, 2019).

Encouraged by the positive impact of the program on participants and medical students alike,²⁹ and aware of the presence of sex work in our local community, Dr. Robitz and students at the University of California, Davis (UC Davis), School of Medicine brought the program to Sacramento. As far as we are aware, our program is only the second example of a health education collaboration between women involved in the sex trade and medical students in the United States (the first being the original WLHC), and the first to target women in the sex trade who access services on a drop-in basis.³²

This curriculum also adds to the growing literature on service learning and social determinants of health curricula in medical education more broadly. While multiple prior publications offer guidance on how to engage medical students in designing their own service-learning projects,^{22,23,25} or how to incorporate service-learning opportunities into medical education,^{21,24} there are few publications of ready-to-implement curricula for community members.²⁷ Furthermore, no published curriculum has addressed the specific needs of women involved in the sex trade—encompassing sexual and reproductive health, substance use, and mental health education, all with a trauma-informed lens—and no published curriculum has combined the principles of service learning and peer education. The most similar program published to date focuses on women who have survived intimate partner violence, teaching topics such as healthy eating and exercise to them and their children.²⁷ By sharing this curriculum that is tailored to some of the most vulnerable members of our

society, we are helping create a unique and valuable learning opportunity for medical students.

We present our experience applying a revised version of the WLHC program to our city, medical school, community partner, and context (drop-in vs. residential), utilizing a more comprehensive and interactive curriculum. Of note, we use the term “*women in the sex trade*,” the language our community partner recommended, to refer to our target population, which includes women who have experienced sex trafficking, women who have experienced other forms of commercial sexual exploitation, and other women exchanging sexual services for pay. We hope that our success will inspire other institutions to bring the program to their communities as well.

Methods

Overview

Our course development and implementation process included five main steps: (1) identify a community partner (Appendix A), (2) revise the WLHC curriculum to fit our community’s needs, (3) recruit and train course coleaders, (4) implement the course, and (5) evaluate the course. The course itself consisted of two 5-week units, one on physical health and one on mental health, each consisting of four 1.5-hour classes presenting new material and culminating in a talk-back session during the fifth week of the unit:

- Physical health unit
 - Week 1: Your body and the gynecologist’s office.
 - Week 2: Sexually transmitted infections (STIs) and birth control.
 - Week 3: Human papillomavirus (HPV) and cervical cancer screening.
 - Week 4: Alcohol and cannabis: what we know.
 - Week 5: Physical health talk-back session.
- Mental health unit
 - Week 6: Mental illness is not your fault: a biological basis for mental illness.
 - Week 7: The big three: depression, bipolar disorder, and posttraumatic stress disorder.
 - Week 8: Medication management.
 - Week 9: Mental illness and stress management.
 - Week 10: Mental health talk-back session.

The curriculum (Appendix B) was designed to be stand-alone, transferable, and interactive, with worksheets (Appendix C), teaching aids and games (Appendices D and E), and recommended demonstration tools (Appendix F). The course was taught by two coleaders: a medical student and a woman

with a history of involvement in the sex trade who had utilized the community partner’s resources.

Medical Student Facilitators

Five medical students functioned as facilitators for the course, providing ancillary support that included curricular development, training of coleaders, curricular and organizational support, grant management, and evaluation management (Appendix G). These students were recruited toward the end of their first year of medical school through an information session. They represented diverse interests in women’s health, mental health, human trafficking, and community engagement. Responsibilities were divided based on interest, expertise, and availability.

Community Partner

We partnered with a local organization, Community Against Sexual Harm (CASH), whose mission is to assist women in the sex trade through peer support, education, and harm reduction services.³⁷ In selecting our community partner, we considered three main components: (1) population served, (2) location, and (3) services offered. Since this program was first developed for women in the sex trade, we chose an organization that served a similar population. In keeping with the principles of service learning, we wanted medical students to connect with and learn from their local community. Our community partner was located approximately one mile from the medical school campus, in a neighborhood where many medical students live, and had previously worked with medical students from our institution. We considered the services our community partner already offered in order to ensure that our program was complementary. Our community partner offered peer mentorship, demonstrating that they recognized the value of peer-delivered services, which fit well with our focus on peer education. Additionally, they did not have a comprehensive sexual health or mental health program, so our programming offered benefit.

Once we identified our potential community partner, we emailed their leadership to gauge interest in a collaboration. We subsequently met in person several times to better understand our target population’s needs and our community partner’s goals. Later conversations also addressed course logistics such as classroom space, expected attendance, advertising, and scheduling.

Curricular Development

Dr. Robitz, a WLHC founder and an author of this publication, provided the original, unpublished curriculum, and current Cincinnati program leaders provided worksheets. After talking with our community partner, medical student facilitators made

several revisions to the original curriculum to better meet their needs. We removed one chapter on hepatitis C that was already covered by our community partner's programming, consolidated two short chapters, and added new content on STIs, birth control, drugs and alcohol, and stress management. We also replaced weekly journaling with worksheets and developed new group activities to further engage participants. Our community partner also noted that their clients need the confidence and skills to advocate for themselves with health care providers. Accordingly, we incorporated self-advocacy as a curricular thread, encouraging participants throughout the course to discuss the barriers that prevent them from accessing health care and strategies for articulating what they need from their health care providers.

Of note, one of the goals of the mental health unit was to reduce mental health stigma by encouraging nonjudgmental discussion of common mental health issues, combating myths about mental illness, and reflecting on how we can help ourselves and others who may be struggling. Just as we began with anatomy and biology in the physical health unit, we began the mental health unit with a brief discussion of the biology of the brain (week 6). For example, this discussion touched on neurochemistry as a potentially destigmatizing explanation for some mental illnesses, as well as on brain plasticity as a potentially empowering way to think about learning to cope with mental illness.

We believe our curriculum is more comprehensive and more easily applied to diverse target populations than the original curriculum. Nonetheless, we would expect anyone adapting this curriculum to their own program to embark on a similar iterative process of revision to ensure that the community partner's needs are met, as this is a core component of service learning.

Coleaders

We selected a first-year medical student to be coleader. We recommend utilizing first-year health professions trainees because they are more likely to have limited health education experience and therefore have more to gain from this opportunity. Involving a first-year student also cultivated future leadership for the program. Our community partner recommended a community coleader based on her participation in their programming and the responsibility and leadership potential she demonstrated. We compensated the community coleader at an hourly rate for her time, including trainings, independent preparation, and class time.

Course Implementation

Two medical student facilitators trained coleaders prior to each 5-week unit. The training reviewed the leaders' guide,

worksheets, and teaching aids. Coleaders also practiced using the demonstration tools and rehearsed the interactive components of the course.

Our community partner advertised the course broadly through bulletins, and medical students distributed flyers at a local student-run clinic. We worked with our community partner and coleaders to schedule the weekly 1.5-hour classes, which took place in a classroom on-site, overlapping the classes with the community partner's drop-in hours to facilitate participant recruitment. New participants were welcomed to join only during the first and second weeks of each unit to foster trust and camaraderie among participants. To encourage attendance, participants received small incentive gifts and raffle tickets during each class. We awarded one raffle prize at the end of each unit in accordance with our community partner's recommendations.

Each unit culminated in a talk-back session that took place in a classroom on the medical school campus. In addition to the coleaders and participants, these sessions included medical student facilitators and a gynecologist (physical health unit) or psychiatrist (mental health unit). The goals of these talk-back sessions were threefold: (1) increase participants' comfort with interacting with physicians and asking them health-related questions; (2) allow medical student facilitators to interact with participants, thereby expanding mutual learning; and (3) gather feedback from participants about the course.

Course Delivery

The course used an in-person, interactive format. The medical student and community coleader met before each class session to discuss roles and responsibilities. Sessions combined interactive activities, games, models, discussion, and mini-lectures. Posters, whiteboards, teaching aids, and models were used instead of slide presentations or videos to facilitate participant interaction and discussion. We avoided technology-based teaching tools because our classroom did not have a computer or projector, and we wanted this curriculum to be useable in resource-limited settings.

Trauma-Informed Approach

Principles of trauma-informed care were integrated throughout planning and implementation of the program. Trauma-informed care is based on an understanding of the signs and symptoms of trauma, its harmful impact, and its pervasiveness. It involves recognizing the potential for both recovery and retraumatization. There are six key principles to a trauma-informed approach: (1) safety; (2) trustworthiness and transparency; (3) peer support;

(4) collaboration and mutuality; (5) empowerment, voice, and choice; and (6) cultural, historical, and gender issues.³⁸

To address the principle of safety, the course took place at our community partner's drop-in center, a location that was private, familiar to participants, and secure. The drop-in center was in an unmarked building that can only be accessed by women seeking the organization's services. Trustworthiness and transparency were fostered in our collaborative relationship with our community partner. From when we first pitched the idea of implementing this program to ongoing program development, we worked together with our community partner to develop a shared vision and ensure that the program met the needs of their clients. This program was built on the principle of peer support. The community coleader was a peer selected from among our community partner's clients. The principle of collaboration and mutuality was highlighted by the decision to have a medical student and a community member colead the course. This partnership sought to address power differences by having coleaders lead side-by-side, recognizing the unique value that each brings to the partnership. Similarly, the principle of empowerment, voice, and choice was embodied by fostering frequent class discussions and recognizing that each participant and coleader possessed individual strengths and experiences that they could build on and learn from together. The final principle of trauma-informed care—cultural, historical, and gender issues—involved addressing racial and cultural stereotypes and biases and offering gender-responsive services. The discussion-based class format allowed the multicultural and multiracial group of coleaders and participants to engage in discussions about their experiences of race, culture, and gender.

Evaluation

Participants completed two types of evaluations:

- Short pre- and postclass quizzes (Appendix H) that assessed content knowledge with three true/false questions.
- Longer pre- and postunit surveys (Appendix I) that assessed confidence with health topics and self-advocacy in health care settings with 11-12 questions based on 6-point Likert scales.

Coleaders also completed two types of evaluations:

- Surveys (35 questions for the community coleader and 10 questions for the medical student coleader) given before the course and after each unit that utilized a 4-point Likert scale to assess empowerment (Appendices J and K).

- Individual, semistructured interviews lasting 30-45 minutes at the end of the course (Appendix L). Interviewers took notes during the interviews, and interviews were not recorded.

Participants also had informal opportunities to provide feedback throughout the course. Coleaders placed index cards and a collection jar on the table during each class and invited participants to write any questions, feedback, or reflections on the cards and submit them anonymously. Course coleaders and medical student facilitators reviewed these cards on a weekly basis and prepared supplemental curricular material as needed to address gaps in the curriculum in real time (Appendix M). During the two talk-back sessions, facilitators solicited feedback from participants and coleaders about which topics were most and least helpful and which activities were most and least engaging. Facilitators took notes during these sessions for curricular improvement purposes. Medical student facilitators were not interviewed or evaluated with this iteration of the course.

During the first session, participants were given a document on informed consent to read and asked to provide verbal consent. In order to protect anonymity, participants used pseudonyms on pre- and postunit surveys. Informed consent and completion of surveys were not required to participate in the course. The UC Davis Institutional Review Board approved these evaluation methods as exempt, as all data were deidentified.

Results

Ten women, all of whom signed up while utilizing the community partner's services, participated in at least one class during the program. Participants ranged in age from 21 to 60; four identified as White/Caucasian, four identified as Black/African American, and two identified as mixed/other. Two participants attended all 10 weeks of the course. Class size ranged from three to six participants, with an average of four and a mode of three participants.

Pre- and postclass quizzes showed a positive trend in the number of correct answers across all classes except for the week 6 class, when all participants scored 100% on both quizzes. Results were analyzed in aggregate, with the total number of correct answers on preclass quizzes compared to the total number of correct answers on postclass quizzes for each unit. For the physical health unit, the preclass total score was 27 of 45 (60%) and the postclass total score was 33 of 48 (73%). For the mental health unit, the preclass total score was 37 of 45 (77%) and the postclass total score was 46 of 48 (96%).

Participants' pre- and postunit surveys also demonstrated positive trends. These surveys gauged confidence and comfort level with various topics pertinent to the respective unit, based on 6-point Likert scales. Average scores pre- and postunit were calculated for each question, and all questions showed an increase in average score. The greatest score increases in the physical health unit were confidence in protecting themselves from HPV and cervical cancer (3.0 points), understanding what a doctor or nurse does during a pelvic exam (2.0 points), and feeling comfortable asking their doctor or nurse for a pelvic exam (1.8 points; Table 1). The mental health unit survey showed the greatest score increases in comfort talking about mental health problems with their doctor or nurse (2.6 points), comfort talking to their doctor or nurse about changing the way they take their medications (2.6 points), and comfort talking to their doctor or nurse about psychiatric medications (2.5 points; Table 2). Statistical tests of comparison were not performed due to low power from a small sample size.

Coleaders' empowerment surveys showed modest improvements. Based on a 4-point Likert scale measuring agreement, the medical student coleader showed a 1-point increase in being a leader, leading a group of their peers, educating a group of their peers, understanding the struggles faced by someone living with addiction, being prepared to serve patients living with addiction, and being prepared to serve patients with mental illness. The community coleader survey was more extensive and measured empowerment across several different areas. Improvements were seen in items addressing self-esteem and self-efficacy in community activism and autonomy. In their interviews, both coleaders

discussed the positive impact the experience had on their personal development:

- "I just feel stronger as a leader and as a role model Actually jumping in with both feet, I feel much more confident I won't be as timid or shy to [take on leadership opportunities]" (community coleader).
- "It helped me see the kind of doctor that I want to be I think it's made me be more open and mindful realizing that it is so complicated, and things mesh with each other being sensitive of that and not making assumptions" (medical student coleader).

The community coleader also noted how the experience shifted how she related to her peers: "It was great being able to get to know the ladies [at CASH] on a different level . . . Learning how to share with discretion, kindness, and respect—that was a big lesson for me, too" (community coleader).

The medical student coleader highlighted the empathy and admiration she gained for participants' dedication and strength in their substance use recovery process: "Being able to hear their experiences, how they got involved in it . . . them having to work through recovery . . . how much dedication it takes . . . was a different thing that I've never [experienced before]" (medical student coleader).

Each coleader also expressed profound appreciation for the other coleader, emphasizing the necessity and value of coleading with someone from a very different background.

Discussion

This service-learning project accomplished many of the same goals that Dr. Robitz and colleagues outlined when they founded

Table 1. Physical Health Pre- and Postunit Survey Results

Question	Preunit <i>M</i> (No. = 6 ^a)	Postunit <i>M</i> (No. = 3 ^a)	Score Increase
How well do you understand your female body parts and their purposes? ^b	4.3	5.7	+1.4
How well do you understand what a doctor or nurse does during a pelvic exam? ^b	3.7	5.7	+2.0
How well do you understand the reasons to get a pap smear? ^b	4.7	5.7	+1.0
How comfortable do you feel talking about your female body parts with your doctor or nurse? ^c	3.8	5.3	+1.5
How comfortable do you feel asking your doctor or nurse for a pelvic exam? ^c	3.5	5.3	+1.8
How confident are you that you would get a pelvic exam regularly? ^d	3.3	4.7	+1.4
How confident are you in protecting yourself from sexually transmitted infections? ^d	4.5	5.0	+0.5
How confident are you in protecting yourself from HPV and cervical cancer? ^d	2.7	5.7	+3.0
How confident are you that your doctors and nurses are supportive and on your side during medical visits? ^d	3.7	5.3	+1.6
How confident are you that you would speak up for yourself in a medical situation if you felt that something was not right? ^d	4.8	5.0	+0.2
How confident are you discussing women's health topics with your peers? ^d	4.2	5.3	+1.1

Abbreviation: HPV, human papillomavirus.

^aThree of the six participants completed a preunit survey but did not complete a postunit survey.

^bRated on a 6-point Likert scale (1 = *do not understand at all*, 6 = *fully understand*).

^cRated on a 6-point Likert scale (1 = *very uncomfortable*, 6 = *very comfortable*).

^dRated on a 6-point Likert scale (1 = *not confident at all*, 6 = *very confident*).

Table 2. Mental Health Pre- and Postunit Survey Results

Question	Preunit <i>M</i> (No. = 6 ^a)	Postunit <i>M</i> (No. = 5 ^b)	Score Increase
How well do you understand how mental health problems are related to changes in the brain? ^b	3.5	4.8	+1.3
How embarrassed would you feel if you had a mental health problem? ^c	4.5	5.2	+0.7
How comfortable would you feel talking about mental health problems with your doctor or nurse if you felt that it was necessary? ^d	3.2	5.8	+2.6
How comfortable would you feel talking to your doctor or nurse about psychiatric medications if you had any questions or concerns about them? ^d	3.3	5.8	+2.5
How comfortable would you feel talking to your doctor or nurse if you wanted to change the way you took your medications? ^d	3.0	5.6	+2.6
How important is it to you to understand why someone may need a psychiatric medication? ^e	4.8	5.2	+0.4
How important is it to you to understand the side effects of psychiatric medications? ^e	5.3	5.6	+0.3
How important do you feel setting goals is for helping you take better care of your health? ^e	5.2	5.8	+0.6
How confident are you that you could achieve the goals that you set for taking care of yourself? ^f	4.7	5.8	+1.1
How confident are you that your doctors and nurses are supportive and on your side during medical visits? ^f	4.8	5.4	+0.6
How confident are you that you would speak up for yourself in a medical situation if you felt that something was not right? ^f	4.5	5.6	+1.1
How confident are you discussing mental health topics with your peers? ^f	3.7	4.4	+0.7

^aOne of the six participants completed a preunit survey but did not complete a postunit survey.

^bRated on a 6-point Likert scale (1 = *do not understand at all*, 6 = *fully understand*).

^cRated on a 6-point Likert scale (1 = *very embarrassed*, 6 = *not embarrassed at all*).

^dRated on a 6-point Likert scale (1 = *very uncomfortable*, 6 = *very comfortable*).

^eRated on a 6-point Likert scale (1 = *not important at all*, 6 = *very important*).

^fRated on a 6-point Likert scale (1 = *not confident at all*, 6 = *very confident*).

WLHC in 2011, including educating women about physical and mental health topics, developing a community coleader’s leadership skills and confidence, and preparing medical students to better serve patients affected by mental illness and substance use disorders as future physicians.²⁹ Our project advanced the mission of WLHC by demonstrating how the program can be successfully adapted to a new city, medical school, and community partnership. We believe that the curriculum can be applied with relative ease to other partnerships between medical schools and local community organizations, whether serving people in the sex trade or other vulnerable populations with similar needs.

Impact

Among medical students, the medical student coleader was likely the most profoundly impacted. The medical student coleader had the most interaction with participants and the community coleader, and through those interactions was able to recognize personal biases and increase knowledge about the social determinants of health affecting this population. The medical student coleader reflected on the importance of “not making assumptions,” respecting the “dedication” required to recover from a substance use disorder, and ultimately becoming more “open and mindful.” Furthermore, the medical student coleader developed the confidence and leadership skills to become the primary leader of this program in the subsequent year.

The medical student facilitators benefitted from two different types of service learning: (1) direct learning from their interacting with community members, and (2) experiential learning from implementing a community-institutional program. For example, students who attended talk-back sessions learned the characteristics participants would like to see in a health care provider and how physicians can better meet their needs. Similarly, students who trained the coleaders came to appreciate the unique knowledge set the community coleader brought to the table. Meanwhile, medical students who participated in curricular development and program support gained experience in navigating this type of partnership to produce a deliverable that benefitted everyone.

Challenges and Lessons Learned

In forging this community-institutional partnership, we were fortunate to have a community partner whose goals aligned with those of the program. The community partner was local, experienced with and enthusiastic about working with medical students, and had needs we could realistically meet with revisions to the WLHC curriculum. Most importantly, they served a population that medical students would encounter in clinical training and beyond and did not feel adequately prepared to treat by the standard medical school curriculum. Nonetheless, launching this program was not without its challenges, the most ubiquitous being that this was our first iteration of the course. We navigated this challenge with a relationship of

trustworthiness and transparency throughout our collaboration. By being forthcoming about what we could offer and following through with our promises, we earned our community partner's confidence, and they in turn offered the flexibility we needed to make the program a success.

Although we developed this curriculum with our specific target population in mind, its content is relevant to a broader audience. This curriculum has been expanded to an organization serving women experiencing homelessness in Cincinnati, and we believe it could also be taught to women with substance use disorders or women with limited health education with little to no modification. The course's focus on cisgendered female anatomy and related health issues, however, makes the current curriculum less relevant to trans women. Furthermore, the success of similar health education projects founded on partnerships between health professions students and community organizations, both across the country and abroad, is encouraging, and we hope more institutions will take advantage of the mutual learning opportunity such partnerships provide.^{27,39-41}

As with any service-learning project, we sought to ensure that the experience truly was mutually beneficial for students and community members. We accomplished this in part by developing a quality curriculum tailored to our target population's needs. We also felt strongly about compensating the community coleader for her time. We recommend that the community partner help to determine a competitive hourly rate. The course would not be nearly as successful without the community coleader's expertise and participation, and compensating her appropriately helped to establish the relationship as professional and empowering rather than exploitative.⁴¹

One important difference between our program and the original WLHC program was that our community partner operated on a drop-in rather than residential basis. We were concerned that the drop-in model would make retention a challenge, especially since our community partner warned that work schedules and the need for childcare could limit participants' availability. Even so, we maintained a class size of three to six participants each week. The incentive gifts were enthusiastically received and likely helped with retention. While our current site did not allow for childcare, we would like to provide this service in the future. Our experience showed that this program can be conducted in both residential and drop-in settings.

Following this first iteration of the program, coleaders and participants offered helpful feedback on areas for improvement.

The first item of feedback was that substance use education should include not only alcohol and marijuana, but also cocaine, methamphetamine, heroin, and prescription painkillers. This feedback highlighted the importance of familiarity with the needs of our audience. The second area of feedback was that an exercise that involved reading parts of a book about the brain was too advanced. This was a reminder to ensure the curriculum is accessible to a population unused to reading scientific texts. Lastly, they shared that not everyone could relate to the chapters on mental illness. This unit needs to be relevant to a broader audience, perhaps by discussing how adverse childhood experiences, poverty, violence in the home, and other social determinants of health affect our well-being.

The interactive activities and games, meanwhile, were extremely popular among participants and coleaders alike. With each iteration of the course, we elicited feedback on the curriculum, discussed potential changes with our community partner and faculty advisors, and revised accordingly, thereby continually making the curriculum more interactive, accessible, and relevant to our target population.

Participants' pre- and postunit surveys were also helpful in illuminating some of the strengths and weaknesses of our curriculum. For the physical health unit, participants showed the greatest increase in confidence with regard to HPV and cervical cancer prevention, whereas increased confidence in sexually transmitted infection prevention was more modest (Table 1). This difference could be attributed to having an entire class on the former but only half of a class on the latter. In the mental health unit, participants reported the greatest increase in confidence with discussing mental health issues with their health care providers (Table 2). This finding could be attributed to the participation of a psychiatrist in both the medication management class and the mental health talk-back session. Participants showed a smaller increase in confidence with discussing mental health with their peers (Table 2); however, it was unclear whether this was due to insufficient knowledge or mental health stigma among their peers.

Limitations

This project had several limitations. Due to its small scale, it will likely take several iterations of the course to produce enough data for a more robust analysis of the course's impact—an analysis that might otherwise be helpful in securing funding for the project. Similarly, additional opportunities for improvement may be identified in future iterations. While designed to require minimal financial resources, the program required a

modest annual budget to cover the community coleader's stipend, classroom rental, incentive gifts, and printing costs. We received a 2019 Helping Hands grant from the American Psychiatric Association to cover start-up costs and fund the first year of this project, and we were recently awarded a 2020 Helping Hands grant to support the program for another year.

Future Directions

Of note, the number of medical students involved per year was relatively small. In the program's first year, five second-year medical students and one first-year medical student participated; currently, it is being managed by five second-year medical students, with guidance from two third-year medical students, and hopes to recruit at least one first-year student. The small number of medical students required to implement the project makes it both easily replicable and sustainable, though it also means the impact on the medical student body is somewhat narrow. Moving forward, we plan to offer the full 10-week course twice per year, which will provide more opportunities for medical students to get involved. Additionally, we will consider interviewing medical student facilitators to better understand the impact of this service-learning program on those students who participated but were not coleaders.

Our initial findings suggested that this program can help prepare medical students to better serve patients in the sex trade and patients affected by mental illness and substance use disorders. However, we recognize that not all medical students have adequate background knowledge of these topics coming into the program. Although many of the medical students who participated in the program attended a training session on human trafficking prior to participating, the training session was not a requirement for participation. To ensure that medical students are well prepared and get the maximum benefit from the program, we plan to develop a short curriculum for medical students to be added to future program iterations. This curriculum will address topics such as human trafficking, trauma-informed care, and substance use.

We hope that in demonstrating the reproducibility and benefits of the WLHC program, we encourage other institutions to form similar, mutually beneficial partnerships with community organizations serving people in the sex trade or other vulnerable populations. We are also pleased to contribute to the growing literature supporting the social determinants of health curricula in medical school—something we feel is important in fostering empathetic, socially aware future physicians.

Appendices

- A. Identifying a Community Partner.docx
- B. Leaders Guide.docx
- C. Worksheets.docx
- D. Learning Boards.docx
- E. Teaching Card Decks.docx
- F. Supply List.docx
- G. Roles and Responsibilities.docx
- H. Participant Pre-Post Quizzes.docx
- I. Participant Pre-Post Surveys.docx
- J. Community Coleader Pre-Post Survey.docx
- K. Medical Student Coleader Pre-Post Survey.docx
- L. Interview Questions.docx
- M. Curriculum Supplements.docx

All appendices are peer reviewed as integral parts of the Original Publication.

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None to report.

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Ethical Approval

The University of California, Davis, Institutional Review Board approved this study.

References

1. Walk Free Foundation. *Global Estimates of Modern Slavery: Forced Labour and Forced Marriage*. International Labour Organization; 2017.
2. *2019 Data Report: The US National Human Trafficking Hotline*. Polaris Project; 2019.
3. Carpenter A, Gates J. *The Nature and Extent of Gang Involvement in Sex Trafficking in San Diego County*. United States Department of Justice; 2016.
4. Aldridge RW, Story A, Hwang SW, et al. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet*. 2018;391(10117):241-250. [https://doi.org/10.1016/S0140-6736\(17\)31869-X](https://doi.org/10.1016/S0140-6736(17)31869-X)
5. Puri N, Shannon K, Nguyen P, Goldenberg SM. Burden and correlates of mental health diagnoses among sex workers in an urban setting. *BMC Womens Health*. 2017;17:133. <https://doi.org/10.1186/s12905-017-0491-y>
6. Aberdein C, Zimmerman C. Access to mental health and psychosocial services in Cambodia by survivors of trafficking and exploitation: a qualitative study. *Int J Ment Health Syst*. 2015;9:16. <https://doi.org/10.1186/s13033-015-0008-8>
7. Dinos S. Stigma creating stigma: a vicious circle. *Psychiatr Bull (2014)*. 2014;38(4):145-147. <https://doi.org/10.1192/pb.bp.114.048124>
8. Lederer LJ, Wetzel CA. The health consequences of sex trafficking and their implications for identifying victims in healthcare facilities. *Ann Health Law*. 2014;23(1):61-87.
9. *Sex Trafficking in the US: A Closer Look at US Citizen Victims*. Polaris Project; 2015.
10. Kochhar R, Fry R. Wealth inequality has widened along racial, ethnic lines since end of Great Recession. Pew Research Center. December 12, 2014. <https://www.pewresearch.org/fact-tank/2014/12/12/racial-wealth-gaps-great-recession/>
11. Banks D, Kyckelhahn T. *Characteristics of Suspected Human Trafficking Incidents, 2008-2010*. US Department of Justice, Office of Justice Programs, Bureau of Justice Statistics; 2011.
12. Schilling EA, Aseltine RH Jr, S Gore. Adverse childhood experiences and mental health in young adults: a longitudinal survey. *BMC Public Health*. 2007;7:30. <https://doi.org/10.1186/1471-2458-7-30>
13. Naramore R, Bright MA, Epps N, Hardt NS. Youth arrested for trading sex have the highest rates of childhood adversity: a statewide study of juvenile offenders. *Sex Abuse*. 2017;29(4):396-410. <https://doi.org/10.1177/1079063215603064>
14. Deering KN, Amin A, Shoveller J, et al. A systematic review of the correlates of violence against sex workers. *Am J Public Health*. 2014;104(5):e42-e54. <https://doi.org/10.2105/AJPH.2014.301909>
15. Lazarus L, Deering KN, Nabess R, Gibson K, Tyndall MW, Shannon K. Occupational stigma as a primary barrier to health care for street-based sex workers in Canada. *Cult Health Sex*. 2012;14(2):139-150. <https://doi.org/10.1080/13691058.2011.628411>
16. Papish A, Kassam A, Modgill G, Vaz G, Zanussi L, Patten S. Reducing the stigma of mental illness in undergraduate medical education: a randomized controlled trial. *BMC Med Educ*. 2013;13:141. <https://doi.org/10.1186/1472-6920-13-141>
17. Benoit C, Belle-Isle L, Smith M, et al. Sex workers as peer health advocates: community empowerment and transformative learning through a Canadian pilot program. *Int J Equity Health*. 2017;16:160. <https://doi.org/10.1186/s12939-017-0655-2>
18. Nakagawa JT, Akpınar-Elci M. Medical students' knowledge and attitudes toward female sex workers and their occupational risk factors. *Int J Med Stud*. 2014;2(3):104-108. <https://doi.org/10.5195/ijms.2014.97>
19. Rajaram SS, Tidball S. Survivors' voices—complex needs of sex trafficking survivors in the Midwest. *Behav Med*. 2018;44(3):189-198. <https://doi.org/10.1080/08964289.2017.1399101>
20. Doobay-Persaud A, Adler MD, Bartell TR, et al. Teaching the social determinants of health in undergraduate medical education: a scoping review. *J Gen Intern Med*. 2019;34(5):720-730. <https://doi.org/10.1007/s11606-019-04876-0>
21. Gimpel N, Kindratt T, Dawson A, Pagels P. Community action research track: community-based participatory research and service-learning experiences for medical students. *Perspect Med Educ*. 2018;7:139-143. <https://doi.org/10.1007/s40037-017-0397-2>
22. Fredrick N. Teaching social determinants of health through mini-service learning experiences. *MedEdPORTAL*. 2011;7:9056. https://doi.org/10.15766/mep_2374-8265.9056
23. O'Brien MJ, Garland JM, Murphy KM, Shuman SJ, Whitaker RC, Larson SC. Training medical students in the social determinants of health: the Health Scholars Program at Puentes de Salud. *Adv Med Educ Pract*. 2014;5:307-314. <https://doi.org/10.2147/AMEP.S67480>
24. Borges NJ, Hartung PJ. Service learning in medical education: project description and evaluation. *Int J Teach Learn High Educ*. 2007;19(1):1-7.

25. Desrosiers JE, Macpherson SA, Coughlan EP, Dawson NM. Sex, Bugs, and Rock 'n' Roll: a service-learning innovation to enhance medical student knowledge and comfort with sexual health. *MedEdPORTAL*. 2016;12:10421. https://doi.org/10.15766/mep_2374-8265.10421
26. Wong VSS, Naguwa GS. The School Health Education Program (SHEP): medical students as health educators. *Hawaii Med J*. 2010;69(3):60-64.
27. Ragavan M, Karpel H, Bogetz A, Lucha S, Bruce J. Health education for women and children: a community-engaged mutual learning curriculum for health trainees. *MedEdPORTAL*. 2016; 12:10492. https://doi.org/10.15766/mep_2374-8265.10492
28. Vijn TW, Fluit CRMG, Kremer JAM, Beune T, Faber MJ, Wollersheim H. Involving medical students in providing patient education for real patients: a scoping review. *J Gen Intern Med*. 2017;32(9):1031-1043. <https://doi.org/10.1007/s11606-017-4065-3>
29. Robitz R, Morrison L, Ventura A, Melton MC, Bennett A. Sex workers as medical student educators. *Acad Psychiatry*. 2015;39(3):329-331. <https://doi.org/10.1007/s40596-014-0214-8>
30. Happell B, Byrne L, Platania-Phung C, Harris S, Bradshaw J, Davies J. Lived-experience participation in nurse education: reducing stigma and enhancing popularity. *Int J Ment Health Nurs*. 2014;23(5):427-434. <https://doi.org/10.1111/inm.12077>
31. O'Reilly CL, Bell JS, Chen TF. Mental health consumers and caregivers as instructors for health professional students: a qualitative study. *Soc Psychiatry Psychiatr Epidemiol*. 2012;47(4):607-613. <https://doi.org/10.1007/s00127-011-0364-x>
32. Balon R, Tait GR, Coverdale JH, Beresin EV, Louie AK, Roberts LW. Stigma and empathy: sex workers as educators of medical students. *Acad Psychiatry*. 2015;39(3):239-241. <https://doi.org/10.1007/s40596-015-0338-5>
33. Menger-Ogle LM, Kaufman MR, Fisher GG, Ryan EP, Stallones L. Using peer education to promote psychosocial and occupational health and empowerment among female sex workers in Nepal. *Violence Against Women*. 2020;26(11):1445-1466. <https://doi.org/10.1177/1077801219861155>
34. Huschke S. Empowering sex workers? Critical reflections on peer-led risk-reduction workshops in Soweto, South Africa. *Glob Health Action*. 2019;12(1):1522149. <https://doi.org/10.1080/16549716.2018.1522149>
35. Reza-Paul S, Lorway R, O'Brien N, et al. Sex worker-led structural interventions in India: a case study on addressing violence in HIV prevention through the *Ashodaya Samithi* collective in Mysore. *Indian J Med Res*. 2012;135(1):98-106. <https://doi.org/10.4103/0971-5916.93431>
36. Dandona L, Benotsch EG. Evaluation of the Avahan HIV prevention initiative in India. *BMC Public Health*. 2011;11(suppl 6):I1. <https://doi.org/10.1186/1471-2458-11-S6-I1>
37. Past, present & future. Community Against Sexual Harm (CASH). Accessed July 18, 2020. https://cashesac.org/about_us
38. Substance Abuse and Mental Health Services Administration. *SAMHSA's Concept of Trauma and Guidance for a Trauma-Informed Approach*. Substance Abuse and Mental Health Services Administration; 2014. HHS publication (SMA) 14-4884. https://ncsacw.samhsa.gov/userfiles/files/SAMHSA_Trauma.pdf
39. Arndell C, Proffitt B, Disco M, Clithero A. Street outreach and shelter care elective for senior health professional students: an interprofessional educational model for addressing the needs of vulnerable populations. *Educ Health (Abingdon)*. 2014;27(1):99-102. <https://doi.org/10.4103/1357-6283.134361>
40. Rutherford GE. Peeling the layers: a grounded theory of interprofessional co-learning with residents of a homeless shelter. *J Interprof Care*. 2011;25(5):352-358. <https://doi.org/10.3109/13561820.2011.576789>
41. Lockyer S. Beyond inclusion: survivor-leader voice in anti-human trafficking organizations. *J Hum Traffick*. Published online May 3, 2020. <https://doi.org/10.1080/23322705.2020.1756122>

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