Using SBIRT (Screen, Brief Intervention, and Referral Treatment) Training to Reduce the Stigmatization of Substance Use Disorders Among Students and Practitioners

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ABSTRACT: Negative attitudes and stigmatization of substance-using patients lead to treatment avoidance and poor physical and health outcomes. Research suggests that training in substance use disorders is a vital tool to abate negative attitudes among health workers. The present longitudinal study trained students and experienced practitioners from various disciplines on the evidence-based Screening, Brief Intervention, and Referral to Treatment (SBIRT) model. The study found significant improvements in the attitudes of students—but not practitioners—who were trained during the program. The paper discusses policy and implementation implications to support and complement sustained impact of training on models such as SBIRT.

KEYWORDS: Substance use, SBIRT, multidisciplinary, training, evidence-based practice, attitudes.

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Introduction

According to the National Survey on Drug Abuse and Health, in the United States, 58.7% of the population age 12 and over reported substance use in the month prior to data collection (Substance Abuse and Mental Health Services Administration[1]), with alcohol and tobacco as the 2 most common substances consumed. Alarmingly, this survey data revealed an increase in the percentage of participants who reported using an illicit substance (eg, marijuana, pain reliever medication, and hallucinogens) in the past year, from 17.8% (47.4 million) in 2015 to 21.4% (59.3 million) in 2020.

Patients with substance use disorder (SUD) have high rates of comorbidity with mental illness[2,3] and experience chronic illness at twice the rate of the general population.[3,4] They are also at greater risk of infectious and sexually transmitted diseases; involvement with the criminal justice system; employment issues; and unintentional death from accidents, overdose, or suicide.[5-7] It is estimated that the total cost of substance use in the form of health care costs, unearned living wages, and criminal behavior exceed $600 billion annually (NIDA, 2018).

Compounding the negative impact of SUD on patients, barriers exist to getting treatment. Data suggest that between 70% and 99% of people who need treatment do not get it.[8-10] Some patients who need treatment may not feel ready to stop using,[1,10] but there are also systemic issues that keep patients who are ready from getting the help they need. Barriers that prevent access to SUD treatment include the lack of understanding of SUDs and stigma around substance-using individuals by the public as well as medical providers, a lack of coordinated and integrated care, and insufficient training for practitioners on these topics.[3,8,11]

Purpose

This study sought to investigate the impact of trainings on an evidence-based model—Screening, Brief Intervention, and Referral to Treatment (SBIRT)—on perceptions of SUDs and substance-using patients among students and practitioners across disciplines. These disciplines include medicine, nursing, social work, psychology, counseling, marriage and family therapy, physical therapy, law, and criminal justice. While previous SBIRT studies have focused on increasing knowledge among students or practitioners within a specific field, this study aimed to evaluate changes in attitudes among students and practitioners in behavioral health and primary care. To our knowledge, our study is one of the few evaluations to examine the long-term impact of SBIRT training using a multidisciplinary sample.

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Literature Review

A number of systemic barriers inhibit patients' ability to seek treatment for substance use. First, treatment facilities most often exist separately from other healthcare systems and locations, such as primary care or emergency medicine. The lack of integration between healthcare and substance use treatment makes it difficult for motivated patients to know where to seek help.[8,10,11] Despite its documented benefits, standardized screening is not common in the medical facilities where substance-using patients most often seek care,[4,8,12-15] with less than one-third of patients in primary care settings being screened for substance use.[9] This fragmentation is also challenging for providers, as not knowing where to refer patients with a positive screen can inhibit more regular screening.[3,8,12,15] Integrating care for substance use into primary care and emergency medicine is an effective way to increase early intervention.[16] An integrated approach, especially one that incorporates screening and brief intervention, can not only improve health outcomes for patients and lead to decreased substance use but also reduces the cost of care and increases access to treatment.[4,8,10,15]

Stigma toward substance users by the public and medical professionals can also preclude patients from receiving effective preventive care and treatment.[8,11,12,14,17] Stigma is often rooted in the belief that SUD is a choice rather than a chronic illness.[11,14,18] Olsen and Sharfstein[11] explain that the "misconception [of SUD] as a moral weakness or a willful choice. . . has historically separated this illness and its treatment from the rest of health care" (p. 1393). When providers across disciplines fail to recognize SUD as a treatable disease, they may treat patients with less empathy and expertise, express negative attitudes about, and be less willing to work with patients with SUD.[8,13,14,17] When substance users internalize these negative perceptions and interactions, they are less likely to seek treatment or persist once enrolled.[19] Providers with more positive attitudes, a greater understanding of the disease, and more exposure to substance-using patients are more likely to effectively screen and treat patients.[13,14,17] Madras et al[8] assert, "Removing stigma is a critical factor in the development of high-quality treatment services needed for reducing the burden of [SUD]" (p. 6).

Bliss and Pecukonis[5] assert that content knowledge about substance use is critical for effective screening and intervention. The relationship between insufficient training, harmful provider mindsets and behaviors, and negative patient outcomes is consistent in the literature.[8,10,15,17,20] According to Madras et al,[8] "Targeted education early in training can improve the integration of care but also abate stigmatizing attitudes" (p. 7). Training on substance use has improved provider attitudes, quality of care, and job satisfaction.[14,21] Training has also been shown to improve providers' perceived value of treatment for substance-using patients[19] and their comfort in treating substance users.[22] Therefore, educating providers in a range of patient or client-serving fields on substance use and prevention strategies is critically important.[4,15,18]

Demonstrated effectiveness of SBIRT for patients, students, and practitioners

Research has shown that for effective screening and treatment, screening protocols should be client-centered as well as simple for practitioners to use and integrate into existing care protocols.[5,20] As a low-cost, easy-to-use, evidence-based prevention strategy, the Screening, Brief Intervention, and Referral to Treatment (SBIRT) model has not only been proven effective in treating binge drinking and demonstrated a moderate impact on other substance use (SAMSHA,[23] Mahmoud et al,[12] Malone et al[24]), but training on the model has also been used to influence trainees' attitudes toward substance-using individuals. Studies have found mixed results on the impact of SBIRT on students' attitudes, ranging from negligible effects[24,25] to small-to-moderate improvements in attitudes.[12,26-28] Recently, a growing number of academicians and practitioners have developed and evaluated studies that used an interprofessional education approach to deliver SBIRT. These studies have found improvements in attitudes toward SUD across multidisciplinary samples.[29]

In practice, the model utilizes another evidence-based practice—motivational interviewing—to facilitate the screening and brief intervention.[7,30] Lee et al[31] define motivational interviewing as "an addiction counseling approach . . . that helps individuals to resolve their ambivalence and increase motivation to change" (p. 2). This motivation comes from client-centered conversations in which the clinician or facilitator empathizes with the patient, encourages them to take ownership of their decisions and behaviors, allows for push-back in the conversation, and helps them explore if there is a perceived "discrepancy between where they are and where they want to be" (Smedslund et al,[32] p. 6). This practice has been shown to be highly effective in reducing substance use among patients with substance use disorders.[32]

Most often, screening conversations occur in medical settings, such as primary care centers or emergency rooms, but the model provides an opportunity for implementation in a range of other settings—including community clinics or non-clinical environments.[5,33] The motivational conversations that underlie the implementation of SBIRT do not need to be conducted by a physician; many training programs have targeted other members of team-based clinical settings, such as mental or behavioral health providers or nurses, as well as professionals in educational or human service settings to utilize their skill sets and maximize the implementation of SBIRT.[15]

There have been some findings that Motivational Interviewing is especially effective for individuals from marginalized and minoritized groups.[31] Satre et al[30] provide a set of guidelines for enhancing the cultural responsiveness of both

Motivational Interviewing practices and the SBIRT model; these include discussing the patient's family, social, and environmental context; assessing and honoring a patient's cultural background and preferences for care; providing interpretation and translation for linguistically diverse patients; and referring patients to community-based or community-led resources. Providing such patient-centered, culturally relevant screening conversations in settings that may be more frequently accessed by substance users can lead to increased motivation, and potentially, improved treatment or use outcomes for patients.[30]

Project overview

The Southern Nevada Addictive Disorders Training Project emerged when Nevada ranked as the second-highest state in the nation for rates of SUD.[34] The project was funded from 2016 to 2018 by the Substance Abuse and Mental Health Services Administration (SAMHSA) under the SBIRT Health Professions Student Training grant. The main goal of the project was to train health and human service students and practitioners in the use of the evidence-based and culturally responsive SBIRT model.

Since its inception, the project relied on interprofessional collaboration to carry out the trainings. An interprofessional team, referred to as the Behavioral Health Collaborative (BHC), included clinical and business professionals from the southern Nevada community and served as a steering committee of the project. The collaboration included representation from various disciplines (eg, medicine, social work, psychology, education, and public health). The BHC helped the project team develop and carry out a multidisciplinary approach to ensure adequate representation of a diverse sample of mental and behavioral health practitioners and those with lived experiences. The team carried out formal plans for recruiting and maintaining training participants, which included efforts such as leveraging institutional partnerships; hosting recruitment events; distributing marketing materials; connecting with students' mentors and advisors; facilitating approvals for students to receive field credit for participation; and developing an Addictions minor and graduate certificate. Each member of the BHC was an expert in team-based care, peer-to-peer instruction, and integrated health, and the team represented the trainee and service sample ethnically and culturally. The BHC helped to track progress and offered recommendations on training delivery and project sustainability.

The project ultimately trained 1395 individuals—761 students from 4 different higher education institutions in southern Nevada and 634 practitioners—from a broad range of clinical and non-clinical professional fields. The training was typically offered in a 90-minute, 3-hour, or 6-hour format, with most of the trainings being 3 hours in length. The standard curriculum covered the essentials of SBIRT, motivational interviewing, and cultural considerations. The project held an inaugural single-day Interprofessional Education (IPE) event, which positioned students with the opportunity to interact with others from different fields. Despite the success of this initial event, it proved challenging to coordinate large, cross-departmental events. As a result, most of the students' training was discipline-specific and facilitated by staff members of the project. A team of 10 rotating instructors led the trainings; each had at least a Master's degree, a professional license, and experience in a relevant field as well as with teaching adult learners at the college or professional level.

Methods

Design and data collection

Data were collected from training participants through a series of surveys that comprised 3 instruments related to the content of the trainings. These instruments included scales on knowledge and attitudes toward SUD, cultural competency, and attitudes toward evidence-based practice. A baseline and post-training survey was distributed before and after each SBIRT training, and follow-up surveys were sent 30 days and 12 months after the training event. Early into the project, data collection was done electronically by granting access to trainees via their smartphones or laptops. However, the project team realized the data collection method was problematic because of connectivity issues in some training locations and trainees' lack of familiarity with the survey platform and corresponding technology. As a result, the team opted to use pen-and-paper surveys and code data manually for the remainder of the project.

The study met the exemption criteria because it tested the effectiveness of new curricula and instructional techniques; thus, collecting participant consent was not required. Nonetheless, the University of Nevada Las Vegas' Institutional Review Board approved the use of an information form to be included in all survey materials. This form provided a summary of the project, the number of surveys participants would complete, how the data would be used and stored, the gift card compensation for students who completed their surveys, and assurance that involvement in the study was voluntary.

Sample

Due to delays in data collection and a high attrition rate, observations in our final sample differed from the total number of trainees. For example, of the 560 students trained during the grant period, only 136 completed their 12-month survey, representing about 24% of the initial sample. The study experienced an even lower response rate of roughly 8% (n = 50) for the 12-month survey of practitioners. Most students (39.7%) indicated that nursing was their primary program of study, followed by social work (14%) and psychology (16.2%).

Table 1. Student sample demographics.

VARIABLE	N = 136	%
Sex		
Male	18	13.2
Female	117	86
Non-binary	1	0.8
Age	29.5(8.6)	1
Race/Ethnicity*		
Black	11	8
White	98	72
Hispanic	27	19.8
Asian	19	14
Pacific Islander	6	4.4
American Indian	1	0.8
Field of study		
Social work	19	14
Nursing	54	39.7
Psychology	22	16.2
Marriage & fam. therapy	20	14.7
Medicine	3	2.2
Counseling	2	1.5
Physical therapy	2	1.5
Law & criminal justice	9	6.6
Other	5	3.6

*Respondents were able to select more than one race; therefore, total percentage exceeds 100.

Table 2. Practitioners sample demographics.

VARIABLE	N = 50	%
Sex		
Male	5	10
Female	45	90
Age	40.38 (10.93)	
Race/Ethnicity*		
Black	8	16
White	39	78
Hispanic	1	2
Asian	3	6
Pacific Islander	1	2
Field of work		
Nursing	2	4
Psychology	2	4
Administrator/Manager	9	18
Social work	20	40
Health educator	1	2
Dental hygienist	5	10
Counselor	1	2
Other	10	20

*Respondents were able to select more than one race; therefore, total percentage exceeds 100.

The sample was predominantly female (86%) and primarily Caucasian (72%) (see Table 1). For the subsample of experienced practitioners, most reported being social workers (36.6%) and shared a similar racial and gender composition with the student sample (see Table 2). Although both samples experienced a high attrition rate, final samples mirror the original sample in terms of race, gender, and field of study.

Instrumentation

This paper will discuss the findings relevant to the Brief Substance Abuse Attitude survey, the scale that was used to measure trainees' attitudes toward substance use.[35] This tool has been used from an individual and organizational perspective to recognize and address misinformation and biases about substance use that could interfere with the ability to support those using or suspected of using substances. The scale consists of 25 statements where respondents note their level of agreement, selecting 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, or 5 = strongly agree. The survey includes 5 subscales: permissive beliefs in the use of substances; belief in treatment options; less belief in substance-related stereotypes; optimism toward treatment; and less moralistic views on substance abuse.[35]

Data analysis

The score for each subscale was created by computing a mean score for each set of items that load on the appropriate subscale. Some of the questions needed to be reverse scored for several factors. The study analysis focused on the long-term impact of the training; therefore, data analysis centered on differences between baseline (pre-training) and 12-month marks by employing paired samples *t*-tests using the Statistical Package for the Social Science (SPSS® 28.0 Inc, Chicago, IL). Moreover, given the multidisciplinary nature of the sample, the analysis examined subgroup changes by dividing the sample of students into 2 groups: (1) behavioral health (ie, social work, psychology, and counseling) and (2) primary care (ie, medicine and nursing). Because law and criminal justice students represented a

Table 3. Students' results by field of study.

	BASELINE				12-MONTH			MEAN DIFFERENCE	EFFECT SIZE
	N	MEAN	SD	SE	MEAN	SD	SE		
Behavioral health									
Permissiveness	63	2.63	0.73	0.092	2.77	0.78	0.098	0.143*	0.49
Treatment	61	3.58	0.56	0.072	3.45	0.57	0.07	–.131	
Nonstereotypes	63	4.03	0.44	0.056	4.11	0.56	0.071	0.085	
Optimism	58	4.18	0.48	0.063	4.23	0.49	0.065	0.048	
Nonmoralistic	61	3.58	0.58	0.074	3.76	0.54	0.070	0.184***	0.40
Primary care									
Permissiveness	59	2.44	0.62	0.08	2.55	0.70	0.092	0.114	
Treatment	59	3.91	0.48	0.063	3.92	0.63	0.082	0.006	
Nonstereotypes	57	3.85	0.50	0.066	4.04	0.49	0.065	0.187**	0.47
Optimism	59	4.04	0.44	0.058	4.17	0.47	0.061	0.133*	0.45
Nonmoralistic	59	3.29	0.48	0.063	3.53	0.48	0.063	0.23***	0.41

P values *$P < .05$, **$P < .01$, ***$P < .001$.

small part of the sample—only 9 observations—we excluded them from the analysis as we could not make cross-group comparisons. Dividing the student sample prevented one group of students from influencing the overall study results and allowed us to track changes between baseline and 12 months within each group. A *t*-test was performed to detect any differences between behavioral health and primary care students at baseline. Subgroup analysis was limited to the student sample only due to the small sample size of experienced practitioners and the lack of variation in their fields of work.

Results

Data analysis revealed significant differences between behavioral health and primary care students at baseline. For example, primary care students reported a higher level of agreement with substance use treatment options ($M = 3.91$, $SD = 0.48$) compared to behavioral health students ($M = 3.58$, $SD = 0.55$), $t\ (119) = 3.48$, $P < .001$. Behavioral students displayed higher nonmoralistic attitudes ($M = 3.58$, SD = 0.58) toward SUD or substance-using patients relative to their primary care counterparts ($M = 3.29$, SD = 0.49), $t\ (118) = 2.9$, $P = .004$. Behavioral students also reported higher nonstereotypical attitudes ($M = 4.03$, SD = 0.44) toward SUD than primary care students ($M = 3.84$, SD = 0.50), $t\ (119) = 2.07$, $P = .04$.

Baseline and 12-month comparisons yielded significant changes for several survey domains (see Table 3). The SBIRT training appeared to moderately impact students' attitudes based on Cohen's guidelines (Sawilowsky[36]). Both student groups reported less moralistic (high nonmoralistic) attitudes a year of training completion. On average, behavioral health students moderately improved their nonmoralistic attitudes, $M_{difference} = 0.184$, $t\ (60) = 3.53$. $P < .001$. Primary care students had a moderate improvement in their nonmoralistic attitudes, $M_{difference} = 0.23$, $t\ (58) = 4.33$, $P < .001$. Primary care students appeared to benefit the most from the SBIRT training by increasing their nonstereotypical attitudes with an improvement of 0.187, $t\ (56) = 2.99$, $P = .004$. The optimism of treatment intervention also increased slightly among primary care students ($P = .027$). Behavioral health students also displayed a higher level of permissiveness toward substance use at the 12-month mark ($M_{difference} = 0.143$, $t\ (62) = 2.298$ $P = .025$. Neither group reported a significant change for the category of treatment belief, which could suggest that the program did not have an impact on perceptions of the viability of SUD treatment.

While both groups experienced significant changes in their scores for the item of nonmoralism, their mean scores remained statistically different at 12 months ($P = .007$). The sample of experienced practitioners had no statistical changes between baseline and 12-month scores.

Discussion

Having a small sample size of practitioners made it more difficult to obtain statistical power to examine the impact of the SBIRT training. However, another factor that could explain the lack of significant progress among this population across survey domains is resistance to change. For instance, the sample of experienced practitioners was characterized as an older audience with many years of professional experience, which could make trainees more resistant to new information on SUD, especially if it conflicts with their current practices.[37] It could be the case that experienced practitioners have developed

interactions with substance-using patients and connected these interactions to a system of beliefs and values that is not as easy to influence than an emerging student who has limited knowledge or experience on the topic. Perhaps more intense training with constant reinforcement is more suitable for a more experienced audience.

With respect to the student sample, particularly at baseline, behavioral students presented higher scores for the items of nonmoralistic and nonstereotypical attitudes compared to their primary care peers. This could be attributed to the exposure to mental health training that behavioral health students receive as part of their academic coursework, increasing their awareness and understanding of SUD and its role in mental health. Understanding SUDs and their connection with mental health disorders could make behavioral health students more empathetic toward substance-using individuals. Interestingly, at baseline, primary care students reported a higher score in their belief in treatment options and early intervention than behavioral health students. This result is likely due to the role of primary care settings as a gateway to referrals or services, which could influence the perception of treatment options for primary care students.

Overall, student data yielded results that suggest that the SBIRT training had a moderate impact on several survey factors a year after training completion. After a year, both groups appeared to benefit from the SBIRT training, with primary care students experiencing more notable outcomes. Both groups increased their nonmoralistic attitudes toward SUDs, resulting in a more empathetic view of substance-using individuals and increasing their willingness to work with this population. Though the effect size is moderate, the analysis suggests that primary care students benefited the most from the SBIRT training—as evidenced by changes in several survey domains—by decreasing their negative stereotypes and moralistic views on SUD and increasing their overall optimism in SUD treatment. Results on treatment optimism indicate that students expressed more positive attitudes toward treatment and its effectiveness after training. This finding aligns with previous SBIRT evaluations where trainees display an optimistic view of substance abuse treatment usefulness and effectiveness following training.[38] After the 1-year mark, behavioral health students also displayed a statistically significant, moderate increase in their permissiveness toward substance use. Students' scores for the category of nonstereotypes and nonmoralism changed over time; nonetheless, changes in attitudes could also be attributed to factors other than the SBIRT training, such as contact with substance-using patients through field placements or additional SUD training.

The impact of the SBIRT training on students' attitudes before and after training differs from a previous SBIRT study piloted on a small group of students in interprofessional workshops, which saw improved communication skills and knowledge about SUD but no statistically significant changes in attitudes toward SUD.[25] Though changes in students' attitudes observed in the current study are promising, the effect size of the SBIRT training was only moderate. Training and knowledge durability could be affected by a lack of training reinforcement in the workplace or field experiences where students eventually practice their skills and where the project had limited influence.

Limitations and strengths

The study presented several limitations, including the low response rate across both subsamples, even when offering gift cards to encourage survey completion. Missing data can introduce bias to our study, as participants with strong opinions of the training are more likely to provide feedback about the project and its impact than those who may opt not to complete the surveys. Due to the absence of a control group, it is difficult to attribute the changes in students' attitudes and knowledge solely to the SBIRT training.

Despite the study limitations, the training project was, in general, successful in several ways. First, it helped establish a communication line between agencies and providers who were unaware of their potential role in addressing substance use disorders prior to their involvement in the project. A large number of service providers and community members who reached out to the BHC collaborative seeking to be part of the training demonstrated the interest and need for substance use and intervention training. Another strength of the project was the design, planning, and execution of the training, which included voices from an interprofessional team that understood the topic from the vantage point of their discipline and provided valuable input to the project.

Implications for Practice

Increasing the knowledge and awareness of the healthcare workforce

In order to reduce the stigmatization of substance-using individuals, it is essential to change the attitudes of practitioners having direct contact with them. Our study showed that primary care students, mainly in the field of nursing, responded more empathetically toward substance-using individuals and expressed a higher level of treatment optimism up to a year after SBIRT training. However, the effect size of the training was slightly moderate. It is important that educational organizations and workplaces reevaluate their organizational culture to detect practices that could foster SUD stigma and undermine the initial SBIRT training. Organizations should also create mechanisms that reinforce the SBIRT training, such as brief training sessions that facilitate interprofessional interactions, technology-based support, and ongoing development of positive attitudes toward SUD and the potential effectiveness of this evidence-based practice to treat it. As practitioners and researchers reassess SBIRT training and the many different forms

available to deliver its content, practitioners and researchers should explore the potential benefits and opportunities for growth when the SBIRT training is part of an interprofessional framework. For example, practitioners across fields could collaborate to design and monitor these types of trainings—as was the case for the project in this study—or perhaps find ways to overcome the barriers to true interprofessional training that the team in our project faced.

Research has shown that students enjoy learning in interprofessional settings,[39] and such settings increase their empathy toward patients.[40] Clinical implementation models and the approaches that guide them might be most effective if they simulate the learning environment where team perspectives, exchanges of professional values and ideas, and peer-based coaching and encouragement are the norm. The reinforcement needed to sustain the training effect may lead us to consider the role of interprofessional partnerships, peer-to-peer coaching (cross-disciplinarily) and supporting supervisors and clinicians with shorter training intervals.

Improving the quality of care for individuals with SUD

Evidence suggests that training can improve clinical practice and patient outcomes.[13,20,24] Therefore, effective evidence-based strategies are needed to influence attitudes and behaviors toward stigmatized populations, as enhancing patient-practitioner communication can improve patients' long-term physical and mental health outcomes. As Eeghan et al[41] suggest, having a universal screening tool such as the SBIRT protocol can enhance communication about substance use between patients and healthcare professionals and improve treatment access. While longitudinal data on SBIRT utilization showed a reduction in substance use for alcohol and stimulant users,[42] the use of SBIRT or any other treatment intervention should be implemented conjointly with training that addresses negative attitudes and stigma toward SUD. Theoretically, by reducing stigma and moralistic attitudes toward substance-using patients, healthcare professionals will be more inclined to support them, and patients in return will feel more comfortable discussing substance use problems with their providers.

Implications for policy

In recent years, the United States has displayed an increased interest in promoting an integrated health modality to serve patients who would benefit from a holistic provision of health services.[4] This new work approach represents an opportunity to innovate and implement evidence-based models to mitigate or, in some cases, prevent substance use. As the country moves forward with patient-centered and team-based practices, it is also vital to continue funding research and development of interprofessional initiatives to mitigate the harmful effects of substance use. The U.S. Department of Health and Human Services has a unique position to leverage existing SBIRT research to fund the expansion of interprofessional collaborations and training on substance use. Aside from devoting efforts to increase interprofessional substance use training among emerging practitioners, federal agencies like SAMSHA and HRSA should also focus on ongoing professional development for experienced practitioners, allowing them to integrate evidence-based training into their practice.

Implications for research

Our study failed to detect any significant improvements across variables of interest for the subsample of experienced practitioners. Though previous evaluations of SBIRT training have been shown to improve attitudes for professionals in specific fields (eg, social work, medicine, nursing), the long-term impact of the SBIRT training on substance use attitudes needs further evaluation. For instance, future work should identify tools to bolster substance use training after the initial session. Furthermore, research should focus on the long-term impact of SBIRT training on patient outcomes. For example, did a decrease in negative attitudes toward substance-using patients improve patients' health outcomes?

Conclusion

Findings from our study suggest that implementing the SBIRT training can improve students' perception of SUD and substance-using individuals. Because the SBIRT training did not appear to have a large long-term impact on students' attitudes, it is crucial to reconsider institutional culture and practices that could weaken the initial impact of the training. Implementing evidence-based practices like SBIRT seems promising in improving healthcare professionals' competence on SUD, translating to better outcomes for patients/clients experiencing them. However, more work needs to be done to fully understand the best modalities and approaches for introducing this content to students and practitioners.

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Author Contributions

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recruitment, data collection and handling, report writing, manuscript conceptualization, review, and editing. These authors also wrote the grant that led to the funding and conceptualization of the project upon which this manuscript is based. Likewise, these authors wrote the IRB protocol, implemented the training program, and monitored the multi-year study from which the manuscript data are derived. Efren Gomez and Amanda Klein-Cox joined the team for the dissemination phase of the project and collaborated on the data analysis, manuscript development, and editing of the final article.

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