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Brief Training on Medication-Assisted Treatment Improves Community Mental Health Clinicians' Confidence and Readiness to Address Substance Use Disorders

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Abstract

Despite the availability and effectiveness of medication-assisted treatment (MAT) for substance use disorders (SUDs), utilization of these medications remains suboptimal, especially in public sector settings. A key limitation is clinicians' reluctance to include MAT in their routine practice due, in part, to low confidence about managing SUDs and limited awareness of the disease model of addiction. This study evaluates the impact of a one-day MAT training for community mental health clinicians using a 30-item pre- and post-training questionnaire. Of the 109 clinicians who attended the training, 107 completed the pre- and post-training questionnaires. Factor analysis of the questionnaire identified two domains: readiness to address SUDs among patients (factor 1) and understanding SUDs as diseases (factor 2). Post training, there was a significant change in both factor 1 (p= .00001) and factor 2 (p= .00003), indicating that a brief MAT training can increase clinicians' confidence and readiness to address SUDs and improve their understanding of the disease model of addiction.

Keywords

Medication-assisted treatment; community mental health; substance use disorder; addiction; training

Introduction

Substance use and related disorders are a major, growing public health problem in the United States. In 2016, over 4% of Americans aged 12 and over reported past year opioid misuse (Abuse, 2012). The 12-month prevalence of prescription opioid use disorder (OUD) almost doubled from 0.6% in 2003 to about 1% in 2013 (Degenhardt et al., 2014; Han,

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Compton, Jones, & Cai, 2015; Jones, 2013; Saha et al., 2016). The 12-month prevalence of alcohol use disorder increased by almost 50% in the United States between 2002 and 2013 (Grant et al., 2017). In 2015, 15% of US adults smoked cigarettes (tobacco being the country's leading cause of preventable disease and death), a rate above the 12% target of the *Healthy People 2020* (Jamal, 2016). Opioid-related drug overdose deaths have reached epidemic proportions in the country (Control & Prevention, 2011; Laxmaiah Manchikanti et al., 2012; Webster et al., 2011), with the age-adjusted death rate related to prescription opioids increased almost 4-fold from 1999 to 2009, and heroin-related overdose deaths increased by 36% between 2007 and 2009 (Calcaterra, Glanz, & Binswanger, 2013). By 2015, 63% of overdose deaths involved an opioid (Rudd, 2016). From 2006 through 2010, excessive alcohol use was responsible for 1 in 10 deaths among working-age adults in the US. Buprenorphine, methadone, and naltrexone have been shown to be effective in promoting recovery and reducing morbidity and mortality among people with OUD. Naltrexone, acamprosate, and topiramate reduce craving for alcohol, increase time to relapse, and improve functioning in people with alcohol use disorder. Varenicline, nicotine replacement therapy, and bupropion for smoking cessation increase the likelihood of quitting and reduce morbidity and mortality from cigarette smoking (Connery, 2015; Daniel E Jonas et al., 2014; Mattick, Kimber, Breen, & Davoli, 2008; Siu, 2015).

Despite the availability and proven benefits of these medications in treatment of SUDs, their utilization remains suboptimal (Gaballa, Drowos, & Hennekens, 2017; Kelly, Reilly, Quiñones, Desai, & Rosenheck, 2018; Tsui, Burt, Thiede, & Glick, 2018). A contributing barrier to greater utilization of medication-assisted treatment (MAT) in mental health clinical settings is clinicians' and programs' reluctance to include MAT in their routine practice. This, in part, is due to low confidence about managing SUDs and limited awareness of the disease model of addiction (Elizabeth M Oliva, Natalya C Maisel, Adam J Gordon, & Alex HS Harris, 2011). The prevailing practice among community providers and programs is referring their clients with "dual diagnosis" to "addiction specialists" or specialized SUD clinics for treatment. This approach is limiting, given the relative shortage of "addiction specialists" or SUD specialty clinics in many communities and the fact that most people do not attend or engage in specialty treatment following referral (Andrilla, Patterson, Garberson, Coulthard, & Larson, 2018; Hoffman, Ford, Tillotson, Choi, & McCarty, 2011). Furthermore, there is evidence that SUDs can potentially be treated effectively with medications in general psychiatric and medical settings (Sacks et al., 2016). Increasing community clinicians' confidence in treating addiction and enhancing their understanding of SUDs as diseases may increase their utilization of MAT. Previous studies show that targeted brief educational interventions for clinicians can improve their attitudes toward SUDs and enhance their confidence in treating people struggling with these disorders (Le et al., 2015; Vadlamudi, Adams, Hogan, Wu, & Wahid, 2008). Not much is known about the impact or effectiveness of brief educational interventions for community mental health workers focused on MAT, the disease model of addiction, and confidence and readiness to treat co-occurring SUDs among their patients. This study aimed to determine the impact of such training for community clinicians in Connecticut's Assertive Community Treatment (ACT) teams.

Methods

Setting

As part of the Connecticut Opioid Response Initiative, the department of mental health and addiction services (DMHAS) sought to increase access to MAT for SUDs in the state. Our team proposed integrating MAT into existing community mental health service frameworks such as state-funded Assertive Community Treatment (ACT) programs. Initially implemented in communities in 1987 (Essock & Kontos, 1995), there are ten ACT teams across Connecticut. Each ACT team is comprised of multidisciplinary staff including physicians/advanced practice registered nurses (APRNs), social workers, registered nurses, and peer counselors. ACT services typically target individuals with severe mental illness who often struggle to navigate complex treatment systems. ACT teams deliver individualized, recovery-oriented services in the person's environment and have been shown to improve symptom management, social functioning, quality of life, housing stability, and reduce inpatient hospitalizations (Services, 2019).

Brief Educational Intervention

In an effort to lay the foundation for integrating MAT into ACT programs, DMHAS offered a one-day MAT training to clinicians from all ACT programs across the state. The training curriculum design was based on adult learning principles: focusing on the immediate relevance of the training, involving the learners in the planning and evaluation of the training, making the content problem-centered vs. content-oriented, and relating the course material directly to their clinical work in the ACT teams (Bryan, Kreuter, & Brownson, 2009). The curriculum included four, 1-hour didactic sessions and four small group exercises that provided education on the disease model of addiction and the basics of MAT. The first session covered the biological basis of addiction and the medical and behavioral consequences. The second session was on the diagnosis and medication treatment of alcohol, opioid, and tobacco addiction. The third session focused on the practical implementation of MAT in community clinical settings. And the last session explored the policy and legal framework for treatment of SUDs nationally and in Connecticut. The small group interactive sessions focused on how to screen, evaluate, treat, and support patients with SUDs within the ACT framework. Screening tools reviewed included the Alcohol Use Disorder Identification Test (AUDIT-C), the Drug Screening Questionnaire (DAST), and the Fagerstrom Test for Nicotine Dependence (Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998; Heatherton, Kozlowski, Frecker, & Fagerstrom, 1991; Yudko, Lozhkina, & Fouts, 2007). There were also segments that provided an overview of how the different medications are initiated and, in the case of buprenorphine, how it is inducted.

Sample

Participants comprised of clinicians from all ten ACT teams across the state of Connecticut and included physicians, APRNs, social workers, registered nurses, and peer counselors. Many of the clinicians had a bachelors or masters degree and multiple years of experience working in the community setting with clients with severe mental illness and co-morbid substance use disorders. All the participants were providing clinical care in the ACT model. While DMHAS offered the training to all DMHAS-funded ACT clinicians, participation in

this study was optional, and there was a complete discussion of the study with potential participants. Written informed consent was obtained from study participants after this discussion.

Data collection

The first administration of the self-report assessment instrument took place after the introduction of the faculty but prior to any training. The post-test data collection was completed at the end of the training day. No individual-identifying data were collected to preserve confidentiality and encourage candid responses.

Measures

Participants were invited to complete a 30-item pre and post-training questionnaire. The first nine items included sociodemographic questions on age, gender, ethnicity, education, prior training or experience in addiction, and employment at DMHAS. The last 21 items assessed participants' confidence managing patients with SUDs and their beliefs about SUDs and their treatment using a Likert scale. The Likert scale was scored 1–5 with 1 being "strongly disagree" and 5 being "strongly agree:" : (10.1) Addiction is a disease that behaves like other chronic diseases; (10.2) Addiction is a choice; (10.3) Addiction is best managed with lifelong treatment; (10.4) There is little hope that people with addiction will achieve long-term sobriety; (10.5) When someone with addiction chooses to use drugs/alcohol over their family, it is because they love their drug/alcohol more than their family; (10.6) Individuals with addiction need family/friends who support their recovery; (10.7) All medical providers should be comfortable confronting a patient with an addiction; (10.8) I am confident in my ability to assess a patient with a substance use disorder; (10.9) I am confident in my ability to confront denial in a patient with substance use disorder; (10.10) I am confident in my ability to discuss with a patient the treatment options for substance use disorder; (10.11) I would enjoy working with patients with a substance use disorder; (10.12) Opioids should be prescribed liberally to control pain; (10.13) Opioid are too dangerous to be prescribed for long-term use; (10.14) Most patients who are addicted to opioids started with a prescription from a doctor; (10.15) Attendance to self-help groups like Alcoholics Anonymous (AA) or Narcotic Anonymous (NA) is a necessary component of addiction treatment (10.16) I am confident in my ability to discuss Alcoholics Anonymous (AA) or Narcotic Anonymous (NA) with a patient; (10.17) All medical providers should be able to discuss AA or NA with their patients; (10.18) AA or NA only works if the patient is religious; (10.19) AA or NA is an effective long-term treatment for the management of addiction; (10.20) I am confident in my ability to discuss relapse with my patients; (10.21) MAT like suboxone, naltrexone and methadone is a necessary component of addiction treatment. This questionnaire was adapted from a previously published study that assessed the impact of a focused addiction curriculum for medical students (Feeley, Moore, Wilkins, & Fuehrlein, 2018). The style and format for these questions were adapted from Silins et al (Silins et al., 2007).

Analysis

Chi-square tests and analysis of variance were used to identify any differences in characteristics of the participants assessed before and after the training. Factor analysis was then used to identify confidence and knowledge items that reflected common domains. Items

that were negatively worded were recorded in a positive direction for consistency. Paired sample t-tests were used to measure the significance of changes in each item on the questionnaire and in factor scale pre- and post-training. Effect sizes for changes in each factor scale were determined by dividing the coefficient associated with change from before to after the training by the standard deviation of the mean value for each factor at baseline. Finally, the effect of sociodemographic variables on the difference in pre-post test scores was analyzed using one-way analysis of variance (ANOVA).

Analysis of the data was completed using the SPSS statistical software (IBM SPSS Inc.). Statistical significance was evaluated at the 0.05 level.

This study was approved by the Yale University Institutional Review Board.

Results

All 109 trainees chose to participate in the study, out of whom 107 completed the pre- and post-training questionnaires, giving a response rate of 98%. Of the 109 participants, 74 (69.7%) were female, and 33 (30.3%) were male. About half were married (50.9%, n=55), most identified as white (61.5%, n=67). The majority (91.1%, n=99) were between the ages of 25–64. The majority of subjects had a master's degree (37.6%, n=41), followed by bachelor's degree (21.1%, n=23), some college credit (14.7%, n=16), associate degree (11.9%, n=13), and professional (8.3%, n=9), or doctorate (5.5%, n=6) degrees. Only one participant had only a high school degree.

Paired sample t-test of the pre and post-test mean scores for each item on the questionnaire demonstrated significant changes in 13/21 items (10.2, 10.3, 10.7, 10.8, 10.9, 10.10, 10.15, 10.16, 10.17, 10.18, 10.19, 10.20, 10.21). The factor analysis of the questionnaire suggested a two-factor solution: (1) readiness to address SUDs among patients (items 10.7, 10.8, 10.9, 10.10, 10.16, 10.20) and (2) understanding SUDs as diseases (items 10.3, 10.4, 10.5, 10.6, 10.15, 10.18, 10.19). Eight of the items did not fall under either factor (items 10.1, 10.2, 10.11, 10.12, 10.13, 10.14, 10.17, 10.21). Chronbach's alpha was used to evaluate the internal consistency reliability of the factors and showed a high level for factor 1 (alpha=0.85) and a more modest level for factor 2 (alpha=0.68).

The mean pre-training composite score for factor 1 and factor 2 was 23.1±4.64 and 29.2±3.95, respectively. Paired sample t-test on the sum of the items on each of the two factors revealed significant changes from pre-post test in both factor 1 (2.72± 3.47, 95% CI 1–99-3.47, p = 0.00001) and factor 2 (1.44 ±3.41, 95% CI 0.79–2.1, p = 0.00003). ANOVA revealed the effect of only one sociodemographic variable on factor scores. Males showed a greater change pre- and post-test on factor 2 (2.75±3.12, 95% CI 1.62–3.88, p = 0.009). There were no other significant effects from sociodemographic variables, including race, marital status, or education, on factor scores.

Discussion

Our results indicate that a brief but focused training on medication-assisted treatment (MAT) for substance use disorders (SUDs) for community mental health clinicians can increase

their confidence and readiness to address co-morbid SUDs and improve their understanding of the disease model of addiction. Previous studies have suggested that both of these factors are critical to improving clinicians' implementation of MAT into their routine practice (E. M. Oliva, N. C. Maisel, A. J. Gordon, & A. H. Harris, 2011). In addition to the two factors, the significant change in item 21 demonstrates the positive effect of this brief training on clinicians' attitudes toward MAT. While other barriers certainly exist, a brief but focused training that targets these factors represents low-hanging fruit and is perhaps the most readily-addressable barrier to increasing the utilization of MAT in clinical practice.

This study adds to similar studies which have demonstrated increased knowledge and acceptability of MAT with brief clinician trainings. A nationally representative sample of addiction counselors found that training on MAT for alcohol use disorder was associated with increased knowledge and improved perceptions about the effectiveness and acceptability of these pharmacotherapies (Aletraris, Edmond, Paino, Fields, & Roman, 2016). Similar results have been found for brief naltrexone training (Thomas, Miller, Randall, & Book, 2008) or buprenorphine training (Knudsen, Ducharme, Roman, & Link, 2005) for addiction counselors. Two additional studies of brief MAT training for medical students demonstrated positive changes in knowledge and confidence about treating patients with SUDs (Feeley et al., 2018; Matthews et al., 2002).

Our study is one of the few to demonstrate the effectiveness of brief MAT training for multi-disciplinary teams of community mental health clinicians. This is important given data suggesting that MAT is especially underutilized in public sector programs, with consequent poorer access to MAT for those who are often in greatest need (Knudsen, Abraham, & Roman, 2011; E. M. Oliva et al., 2011; Roman, Abraham, & Knudsen, 2011). As suggested earlier, one approach to mitigating this disparity is to incorporate MAT into existing clinical structures, such as assertive community treatment (ACT) teams. ACT teams are ideal settings for MAT implementation as they have built-in psychosocial support that can encourage continued engagement with treatment. To integrate MAT into existing clinical structures, educational interventions need to not only target prescribers but also allied health staff who are often part of the treatment team and have a direct influence on patient attitude and acceptance of MAT (Oliva et al., 2011; Webster et al, 2011). While there is evidence that training of addiction counselors and other allied health staff on MAT is associated with increased familiarity and acceptance of buprenorphine and methadone (Oliva et al, 2011; Roman, Abraham, & Knudsen, 2011; Thomas et al, 2008; Vadlamudi et al, 2008), our study is unique in that the curriculum was designed for a multi-disciplinary team of prescribing and non-prescribing clinical staff. We intentionally offered the training to all clinical staff to improve buy-in, team approach, role clarity, and the task-sharing approach in utilization of MAT for SUDs. Additionally, because of the multidisciplinary nature of our target audience, we reviewed MATs in general and specific discussions of each medication benefits, risks, side effects and interactions in a way that was accessible to both prescribers and non-prescribers. Attesting to the accessibility of the training curriculum and content, education level did not have a significant effect on pre-post scores changes. This suggests that all members of community mental health team can benefit from a well-designed training irrespective of the level of medical literacy.

This brief and focused training could increase clinicians' utilization of MAT in several ways, including promoting positive perceptions of MAT, combating the stigma and misconceptions associated with MAT, increasing confidence in one's ability to prescribe MAT, increasing appreciation for the harm reduction approach to addiction, and increasing understanding of the medical model of addiction (E. M. Oliva et al., 2011). The design of our focused MAT training was in line with previous recommendations that training should target clinician misconceptions about the safety and effectiveness of MAT and the medical model of addiction (E. M. Oliva et al., 2011). Moreover, Thomas et al. (2008) found that educational interventions for MAT training had greater impact on knowledge if they included didactic and interactive instruction as opposed to static written training materials (Thomas et al., 2008).

It is important to note that while MAT training may improve provider confidence about treating patients with SUDs, it may not be sufficient to effect behavior change or prescriber practice habits. One study of buprenorphine certification trainings in the Veterans Health Administration found that, while all 29 respondents reported feeling competent to treat opioid use disorder and prescribe buprenorphine at the end of the trainings, only two physicians were prescribing buprenorphine at nine-month follow up (Gordon et al., 2008). This suggests that other barriers exist, and provider trainings should be viewed as only one component of a larger strategy to increase utilization of MAT in existing clinical structures. Implementing MAT may require investment in additional administrative and clinical resources, support systems, formal protocols, community resources, and provider education (D. E. Jonas et al., 2014). A comprehensive strategy must target barriers at the patient, provider, and system level. These barriers include lack of licensed prescribers, access to laboratory testing, lack of parity in insurance coverage, complex rules regarding Medicaid coverage, lack of pharmaceutical industry support, patient misconceptions about effectiveness and safety of MAT, and the stigma of MAT (E. M. Oliva et al., 2011). With these in mind, our team has continued to provide post-training support with scheduled monthly consultations and educational support for all participating DMHAS-funded ACT teams. The goal is to continue to reinforce key aspects of the training, answer technical questions about implementing MAT in their teams, and provide support around the state's policy on MAT. Additionally, our team has obtained DMHAS institutional review board approval to utilize administrative data to study the teams' MAT implementation over a one-year period post training.

Our study had several limitations that are important to consider. The sample was a relatively small, convenience sample of clinicians in state-funded community mental health teams. As a result, the findings may not be generalizable to all community mental health providers. However, if further studies shows sustained effectiveness of this approach it can have wide impact since most state agencies have similar setting for community mental health care. Additionally, our study only measured clinicians' attitude and confidence in managing SUDs and not necessarily factual knowledge. However, given their general level of professional education and experience, their factual knowledge can be assumed to be adequate. As discussed previously, another limitation of our study is that it focused on attitudinal outcomes immediately after the training rather than on practice change. While we are not able to say at this time whether these attitudinal changes were sustained for a period of time

after the training or whether the training influenced MAT prescribing, we are currently collecting implementation and clinical outcome data to evaluate the effect of this brief educational intervention on team screening and identification of SUDs, utilization of MAT, and clinical outcomes one year after the training. Finally, although we used likert-type scale to collect the pre- and post-test data and thereafter used paired sample t-tests to compare the pre- and post training data, a scale of continuous scoring may have been more suitable for paired sample t-tests. However the style, format and analysis of our survey items was based on previously published work(Feeley et al., 2018; Silins et al., 2007). As we expand our training to other community mental health programs, we anticipate larger sample sizes and further validation work of the items.

Conclusion

A brief and focused MAT training for multidisciplinary teams of community mental health clinicians can enhance their confidence and readiness to address co-morbid SUDs in their patients and improve their understanding of the disease model of addiction. This model of integrating medications for SUD treatment into community mental health services by enhancing treatment capacity of exisiting teams can potentially increase access to SUD treatment for underserved populations.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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