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Implementing SBIRT for adolescents within community mental health organizations: A mixed methods study

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Abstract

Objective: Many adolescents with substance use problems remain untreated, leading to increased risk for the development of substance use disorders. One response is Screening, Brief Intervention, and Referral to Treatment (SBIRT)—an evidence-based, early intervention that can be tailored for adolescents. This mixed methods study examined the implementation of SBIRT across 27 community mental health organizations (CMHOs) serving adolescents.

Methods: Organizations completed surveys on the adoption of SBIRT and implementation barriers during the study period. Quantitative data were analyzed to examine the frequency of screening, brief intervention, and referrals. Qualitative data were coded using an iterative process that focused on barriers categorized according to the Conceptual Framework for Implementation Research (CFIR) constructs.

Results: A total of 2873 adolescents were screened for alcohol and drug use with 1517 (52.8%) receiving a positive drug or alcohol screen. Positive screens that received brief intervention (BI)/referral to treatment (RT) had a significantly greater mean drug score and overall scores at baseline. The most salient implementation barriers were adaptability and complexity of SBIRT, policies related to funding and licensing, staff turnover, and implementation climate.

Discussion: Nearly half of the adolescents scored positive for problematic substance use demonstrating the unmet need among this population. Future implementation efforts should focus on coordinating program demands, securing funding, integrating SBIRT into clinical workflows, retaining staff, and improving referral to treatment processes.

Keywords

Implementation; SBIRT; Integrated health; Adolescents; Brief intervention; Prevention

1. Introduction

Substance use among adolescents is highly prevalent in the United States; in 2016, 56% of 12th graders reported past year alcohol use and 38% reported past year illicit drug use

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Conflict of interest

None.

(Johnston et al., 2017). Despite this, substance use services continue to be underutilized. According to the 2015 National Survey of Drug Use and Health, only 6.3% of adolescents meeting criteria for a substance use disorder (SUD) during the past year received treatment (Center for Behavioral Health Statistics and Quality, 2016). Unaddressed substance use among adolescents is a serious public health problem associated with poor mental health, early pregnancy, sexually transmitted disease, and increased risk of injury (Hingson & Zha, 2009; Miller, Naimi, Brewer, & Jones, 2007; Odgers et al., 2008). Substance use during adolescence significantly increases the risk of developing an SUD in adulthood, indicating a need for preventive approaches (Substance Abuse & Mental Health Services Administration, 2014). Most childhood mental health disorders increase the risk of developing an SUD, further emphasizing the need for early identification and intervention for vulnerable youth (Groenman, Janssen, & Oosterlaan, 2017).

In response, the American Academy of Pediatrics (2016) recently published a policy brief that endorsed the use of Screening, Brief In-tervention, and Referral to Treatment (SBIRT) with adolescents. SBIRT is an evidence-based approach to delivering early intervention services for individuals with problematic substance use or for those at risk of developing SUDs. The model targets all types of substance use and is based on the notion that use occurs along a continuum and that interventions should be calibrated according to severity. SBIRT begins with a universal screening (S) for risky drug or alcohol use through validated self-report questionnaires; a positive screen is followed by a brief in-tervention (BI) and/or referral to treatment (RT), depending on the severity of risk (Babor et al., 2007; Mitchell et al., 2016). BI is often based on behavioral change models such as motivational interviewing, a person-centered counseling style designed to increase motivation for behavioral change (Yuma-Guerrero et al., 2012). RT occurs when severe use or dependence is detected, necessitating a higher level of care (Center for Integrated Health Solutions, n.d.b).

Among adults, studies show that SBIRT reduces health care costs, decreases the frequency and severity of substance use, reduces the risk of trauma, and increases the percentage of people who enter specialized substance use treatment (Bray et al., 2009; Estee, Wickizer, He, Shah, & Mancuso, 2010; Gentilello, Ebel, Wickizer, Salkever, & Rivara, 2005; Miller & Wilbourne, 2002). When adopted for adolescents, the evidence base is more limited. Tanner-Smith and Lipsey's (2015) meta-analysis of brief alcohol interventions delivered to adolescents and young adults found significant but modest effects for up to one year. A systematic review assessing the effectiveness of BI in reducing nonmedical drug use and associated harms found insufficient evidence to make conclusions about the effectiveness of SBIRT (Young et al., 2014). Mitchell, Gryczynski, O'Grady, and Schwartz' (2013) review of 13 randomized controlled trials of SBIRT services for adolescents found preliminary evidence to support its effectiveness but concluded more research is needed. Finally, Yuma-Guerrero et al.'s (2012) review of randomized controlled trials measuring the effectiveness of BI for alcohol use among adolescents in acute care settings also found inconclusive results.

Only a few studies have specifically evaluated the implementation process of SBIRT with adolescents (Mitchell et al., 2016; Sterling et al., 2015). Sterling et al.'s (2015) randomized trial compared the implementation of SBIRT among pediatricians, behavioral health care

practitioners, and treatment as usual (TAU) in primary care settings. Adolescents receiving care in the pediatrician or TAU arms were more likely to be referred out for substance use problems than those in the behavioral health care arm, indicating that pediatricians may be less equipped than behavioral health care providers to address substance use problems. Preliminary research on SBIRT uptake has found that barriers may include differences in provider training and background, discomfort discussing stigmatizing topics, time constraints, and confidentiality policies specific to adolescents (Sterling, Kline-Simon, Wibbelsman, Wong, & Weisner, 2012). Clark and Moss (2010) point to the need for financial and administrative support, increased provider information about local treatment options for adolescents, and more feasible S and BI procedures. More research on SBIRT for adolescents is needed to assess the full SBIRT model and its implementation in a broad range of settings (Mitchell et al., 2013; Patton et al., 2013).

Researchers have been paying increasing attention to contextual factors that influence the translation of evidence-based practices. The field of implementation science has provided numerous conceptual frameworks to map the complex set of factors that occur at policy, organizational, and provider levels (Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Proctor et al., 2009). One of the most commonly utilized frameworks is the Conceptual Framework for Implementation Research (CFIR), which categorizes implementation factors according to five domains: intervention characteristics, outer setting, inner setting, characteristics of the individuals involved, and the implementation process (Damschroder et al., 2009). Within those domains, 39 constructs have been found to influence the adoption of a new practice. To address these factors, strategies have been identified that can facilitate new implementation efforts (Powell et al., 2015).

As SBIRT is disseminated, more work is needed to understand the contextual factors that can impede and facilitate the implementation of SBIRT for adolescents, especially in settings that have yet to be fully evaluated. Such settings may target a vulnerable adolescent population in a context marked by unique funding and administrative challenges. One example is community mental health organizations (CMHOs), which are particularly subject to budget cuts during economic recessions (Crowley & Kirschner, 2015). In addition, the mental health system has a shortage of providers, especially in rural parts of the United States, and many states have strict confidentiality laws that limit the sharing of behavioral health information (Crowley & Kirschner, 2015). These funding and privacy challenges place considerable strain on organizations and impact the implementation of evidence-based practices like SBIRT.

This mixed methods study is one of the first to examine the implementation of SBIRT for adolescents within CMHOs. This study took place across multiple states and provided organizations with training and technical assistance (TA) via a learning community which is de-fined as a group of like-minded organizations committed to improving health outcomes through cooperation and information sharing (Center for Integrated Health Solutions, n.d.a). The aims of the study are to: 1) describe the implementation of SBIRT within CMHOs; and 2) under-stand the self-reported barriers to implementing SBIRT and when these barriers occurred in the implementation process.

2. Materials and methods

2.1. Study sample

The study sample was 27 CMHOs across six states. The organizations were selected to participate in the National Council for Behavioral Health's Reducing Adolescent Substance Abuse Initiative (RASAI), a learning community aimed at supporting the implementation of SBIRT. The National Council is a membership organization that represents > 2800 community behavioral health organizations, networks, states, counties, managed care companies, and advocacy associations across the country. To be eligible to participate, organizations must have been a member of the National Council. To recruit participants into the learning community, the National Council sent out a request for proposals to 2100 organizations, received 60 applications, and selected 27 participants based on organizational capacity, target population, service provision, and overall commitment to project goals and vision. Specifically, participants had to demonstrate understanding of need, commitment to participate in mandatory activities, ability to enact organizational change, and capacity to provide appropriate services to an adequate number of adolescents. This capacity included the ability to make referrals to specialty care by either maintaining an in-house license to provide comprehensive substance use treatment to adolescents or having an established relationship with an external specialty substance use treatment organization. All participants were public or private non-for-profit CMHOs that received the majority of their funding from Medicaid. The agencies were equally divided between urban and rural settings.

2.2. SBIRT implementation

All participating organizations were expected to implement SBIRT with adolescents aged 15 to 22. The SBIRT model involved screening adolescents with either CRAFFT or UNCOPE instruments and, based on the results, delivering a BI and/or an RT when appropriate. Fig. 1 depicts the SBIRT algorithm that organizations used to guide the screening process and determine youth at risk for an SUD. Organizations had flexibility in who conducted the initial screening but follow-up screenings, referrals, and brief interventions must have been conducted by the adolescent's primary counselor.

The National Council provided TA and support across the learning community. Each organization created a core team of six members who participated in learning community activities and took primary responsibility for integrating SBIRT into their existing care models. The core implementation teams consisted of one person from leadership, a project lead, a data lead, a clinical lead, and clinician(s) who were selected from case workers, counselors, social workers, program managers, and quality improvement staff. The project lead, data lead, and clinicians attended the majority of the learning activities.

The training began with each of the six represented states receiving one in-person full day training on the SBIRT model, the structure and goals of the learning community, and the submission of evaluation data. Each agency's core implementation team attended these in-person trainings. Afterwards, each site received bimonthly TA calls with an assigned coach, which lasted 30 min to 1 h. The TA calls began in November 2014 and occurred on a

monthly basis for the first three to four months; they were then bi-monthly until late 2015; after that time, calls took place as requested by the organizations.

Throughout the training period, the National Council provided in-person presentations and webinar trainings on specific topics requested by participating agencies. Training topics included Screening and Brief Intervention, Referral Best Practices, Motivational Interviewing, Pathways to Adolescent Treatment, and Adolescent Substance Abuse Treatment. Seven in-person trainings were conducted, which lasted 4 to 8 h and were attended by a total of 230 staff. Twelve webinar trainings were conducted, which lasted 1 to 1.5 h and were attended by a total of 1132 staff.

Trainees also received resources including guides, examples of clinical workflows, eNewsletters, one-pagers, and fact sheets. Webinars and other virtual trainings were recorded and made available. The frequency and sequence of the learning activities as well as the manner in which organizations chose to integrate SBIRT into their existing care models varied considerably, reflecting organizational differences among the participating organizations. All the sites participated in the learning community and submitted evaluation data to the National Council. They did not receive compensation for their participation.

2.3. Study design

The study used a mixed methods design to concurrently collect quantitative and qualitative evaluation data at seven points during the 18-month study period. Quantitative and qualitative data were collected simultaneously to provide a triangulated explanation of the implementation process with a specific focus on implementation barriers (Decuir-Gunby & Schutz, 2017). The quantitative data were aggregated over time to summarize the SBIRT implementation at the conclusion of the study period; the qualitative data were analyzed longitudinally to understand when implementation barriers occurred. The study protocol was approved by the New York University Institutional Review Board.

2.4. Data collection procedures

Each organization submitted separate quantitative and qualitative reports on their SBIRT implementation at quarterly intervals over a period of 18 months. The sites reported quantitative patient-level data and qualitative organizational-level data. The response rate among participant organizations was 96% for the quantitative patient-level form and 92% for the qualitative organizational-level form.

The RASAI Patient Level Tracking Form was a structured form re-*porting* on the number of patients who received SBIRT, patient demo-*graphics* (i.e., gender, race/ethnicity, age), smoking status (i.e., current smoker, former smoker, or never smoked), behavioral health diagnosis (e.g., depression, anxiety, bipolar disorder, etc.), initial alcohol/drug screening result, alcohol and drug use frequency, and actions taken after the screening (i.e., whether a treatment referral was made [yes or no] and whether the patient attended treatment [yes or no]). Information on alcohol/drug screening included which screening instrument was used (CRAFFT or UNCOPE), whether the score warranted a BI and/or an RT, and whether the warranted action occurred. Organizations had the option of using the CRAFFT (Knight, Sheritt, Shrier, Harris, & Chang, 2002) or the UNCOPE (Hoffmann, Hunt, Rhodes, &

Riley, 2003) screening instruments. Many states required the CRAFFT for reimbursement and thus used this instrument for screening. Only one state used the UNCOPE screening instrument.

The CRAFFT or UNCOPE screening instrument was administered to adolescents who were 15 to 22 years of age and received services from the program in which SBIRT was being implemented. The CRAFFT is a six-item screening instrument specifically developed for adolescents (Knight et al., 2002). The higher the score, the greater the likelihood of meeting diagnostic criteria for having an SUD, according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR; APA, 2000). Regardless of age, adolescents with a score of one were considered for BI; those with a score of two or higher were considered for both BI and RT. The CRAFFT has been found to have good discriminative properties for determining high risk of SUDs in adolescents aged 14 to 18 years old in primary care settings (Knight et al., 2002).

Based on DSM-IV criteria, the UNCOPE screening instrument consists of three components: a three-item alcohol use scale, a one-item drug use scale, and the six-item UNCOPE screen (Hoffmann et al., 2003). Adolescents who were under the age of 21 years with a score of one or higher and those older than 21 years with a score of two or higher were considered for BI. Regardless of age, both BI and RT were considered for all adolescents who scored four or more points; three or more points and items six and eight were positive; or three or more points and items five and seven. The alcohol and drug use scales are described in more detail below. The UNCOPE has been shown to have good internal consistency and comparable sensitivity (88% and 85%) (Campbell, Hoffmann, Hoffmann, & Gillaspie, 2005; Hoffmann et al., 2003).

All adolescents who were screened using either the CRAFFT or UNCOPE instruments were administered two alcohol and drug use scales (Hoffman, n.d.). The alcohol use scale consisted of three questions: 1) How often do you have a drink containing alcohol? (0 = Never, 1 = Monthly or less, 2 = Two to four times per month, 3 = Two or three times per week, and 4 = Four or more times per week); 2) How many drinks containing alcohol do you have on a typical day when you are drinking? (0 = One or two, 1 = Three or four, 2 = Five or six, 3 = Seven to nine, 4 = Ten or more); and 3) How often do you have five or more drinks on one occasion? (0 = Never, 1 = Less than monthly, 2 = Monthly, 3 = Weekly, and 4 = Daily or almost daily). The alcohol use items were totaled, with possible scores ranging from 0 to 12. The drug use scale consisted of one item: How often do you use marijuana, prescription medication, or any other drug to get high? (0 = Never, 1 = Monthly or less, 2 = Two to four times per month, 3 = Two or three times per week, and 4 = Four or more times per week). The higher the scores on the alcohol and drug use scales, the more potentially harmful the level of use (Hoffman, n.d.).

The RASAI Quarterly Report was a semi-structured form reporting on the SBIRT implementation from an organizational perspective. Organizations were asked to give a narrative report on their progress towards implementing SBIRT, identifying barriers to implementation and describing TA needs. These reports were completed by the team project leads, the majority of whom were clinicians.

2.5. Data analysis

2.5.1. Quantitative analysis—All statistical analyses were performed using Stata/MP 14.0 (StataCorp, 2015). We aggregated data (i.e., demographics, clinical, and alcohol/drug screening data) collected on adolescents aged 15 to 22 years between December 2014 and March 2016. We excluded missing data on CRAFFT and UNCOPE scores, which accounted for approximately 6.5% of all adolescents screened. We also excluded missing data on follow-up actions (i.e., whether BI/RT was pursued), comprising approximately 7.4% of adolescents who screened positive. Comparisons made between the missing and non-missing observations for the screening scores and follow-up actions revealed no significant differences on key demographic variables (i.e., age, gender, and race/ ethnicity) among the total adolescents screened and those who screened positive, respectively. Follow-up data on alcohol and drug outcomes were incomplete and thus not included in the current analysis.

Bivariate analyses were conducted to compare demographic and clinical characteristics of adolescents with positive and negative screenings. In addition, among adolescents who screened positive, we compared those who received and did not receive BI or RT. Two-tailed t-tests were used for continuous variables, and Pearson's chi-square tests were used for categorical variables. An alpha value of $p < .05$ was used to assess statistical significance.

2.5.2. Qualitative analysis—The qualitative data were analyzed longitudinally to understand the process of the implementation and the frequency of reported barriers over time. The CFIR framework guided the coding strategy (Damschroder et al., 2009), using the framework's domains and constructs to identify and categorize the implementation barriers. Two researchers conducted the coding. We analyzed the narrative quarterly reports with a three-step coding approach. The first step involved open coding of the reports, conducted independently by the two coders to allow for emergent themes related to implementation barriers. A consensus-driven, iterative process of coding was then used to refine the codes through merging and deleting. Twenty-one codes were retained and reflected barriers related to issues such as staffing, financing, and workflow.

In the second step of the coding process, we utilized a deductive approach and categorized the codes according to the CFIR domains and constructs. Three of the five CFIR domains were identified in the data; within these domains, we identified five constructs to characterize barriers to implementation in the study. The first domain was intervention characteristics. This included two constructs: adaptability, which is whether the intervention can be adapted to local needs; and complexity, which is the perceived difficulty of the intervention and potential disruption to ongoing operations. The second domain was the outer setting. This domain had one construct: external policies and incentives, which were the policies and regulations enacted by governments to spread an intervention (e.g., funding mechanisms). The third domain was inner setting. This domain had two constructs: structural characteristics, which is the age, size, and maturity of an organization; and implementation climate, which is the capacity and willingness of an organization to absorb a new practice into its day-to-day operations.

The third step was to create a content analytic matrix mapping the occurrence of barriers longitudinally across the seven reporting time points, organizing them according to the CFIR

domains and constructs identified in the analysis. The purpose of a content analytic matrix is to cluster data together from multiple cases for exploratory analysis (Miles Huberman, 1994). The matrix provided an interpretive tool to identify patterns in the occurrence of barriers encountered by each organization over time, providing insight into the implementation process longitudinally. Each data point within each time period re-presented the reporting of that barrier by a unique organization. The percentage of organizations reporting the barrier was then calculated to give the frequency at time point across organizations.

3. Results

3.1. Sample characteristics

Between December 2014 and March 2016, 2873 adolescents were screened (Table 1). Among all adolescents screened, more than half (55.1%) were female. The average age of adolescents was 16.6 years ($SD = 1.61$). Most were White (52.8%), 27% were Hispanic, 14.4% were Black, and 5.7% identified as other. About 30.8% of adolescents reported being a current or former smoker, and the most prevalent mental health diagnosis was depression. Among all adolescents, the average alcohol and drug use scores at baseline were 1.05 ($SD = 2.05$) and 0.92 ($SD = 1.47$), respectively. The average CRAFFT and UNCOPE scores at baseline were 1.34 ($SD = 1.82$) and 4.10 ($SD = 1.82$), respectively.

3.2. Rates of alcohol and drug use screenings

Among all adolescents, 52.8% had a positive alcohol and drug screen ($n = 1517$), reporting problematic alcohol or drug use in the past 12 months (see Table 1). Adolescents with positive screens were 53.3% female, 50.7% White, 29.6% Hispanic, and 13.9% Black. Compared to negative screens, a greater percentage of positive screens were current or former smokers (46.9% versus 12.1%) and had a mental health diagnosis of depression (47.4% versus 41.7%). Adolescents with positive screens had an average alcohol score of 1.83 ($SD = 2.46$) and average drug score of 1.63 ($SD = 1.67$) at the time of screening. The average CRAFFT and UNCOPE composite scores for adolescents with positive screens were 2.45 ($SD = 1.93$) and 4.27 ($SD = 1.73$), respectively.

3.3. Rates and characteristics of positive screenings

Among adolescents with positive screens, 87.3% received brief intervention (BI) and/or referral to treatment (RT) (see Table 2). Approximately 65% of adolescents with positive screens who received BI/ RT received only BI ($n = 800$), while 25% received both BI and RT ($n = 306$) and 9.7% received only RT ($n = 119$). Among adolescents who were referred to treatment, 57.4% attended follow-up alcohol/ drug treatment ($n = 244$).

A greater percentage of Hispanic (32%) and Black (14.9%) adolescents were represented among adolescents who received BI/RT compared to those who did not. The main differences between the two groups were the baseline drug use and overall screen scores. Positive screens who received BI/RT had a significantly greater mean drug score and overall score at baseline.

3.4. Implementation barriers

Barriers were identified in three of the five CFIR domains and were related to five of the constructs within these domains (see Table 3). The most frequent barrier reported was related to external policies and regulations (n = 67), which peaked at the mid-point of the implementation period and then declined by the conclusion of the study. Barriers related to adaptability (n = 54) and complexity (n = 62) were also frequent and increased as the implementation progressed. This was particularly true for the complexity barrier, which peaked at the mid-point of the implementation period. Implementation climate (n = 56) was also a frequent barrier, particularly during the startup and mid-point of implementation period. The following describes the barriers and their occurrence during the implementation process.

3.4.1. Adaptability and complexity—The barriers related to intervention characteristics were adapt-ability and complexity, which occurred throughout the study period. Organizations found it difficult to adapt the SBIRT model to their settings, due to issues of confidentiality and integration into their electronic health record (EHR). The barriers related to adaptability occurred fairly consistently throughout the study period, though they became slightly more frequent at the mid-point. The most predominant concern in this category was how to integrate the SBIRT process into an EHR. Related closely to issues of workflow, organizations cited a major delay in implementing SBIRT due to needed revisions to their EHR. These changes involved adding provider prompts to complete SBIRT components and text fields to enter screening information directly onto the record. Organizations struggled to track data on screening and follow-up activities, which was cause for concern that SBIRT was actually occurring but not being recorded. Related to this were challenges in how to code SBIRT activities for billing purposes, as there were multiple codes that could be used and providers were not consistent in their use of codes. Organizations used a variety of EHR software and as a result, had different challenges in working with their respective vendors to customize their records in a way that did not overwhelm the clinicians. One organization reported, *“Our issues have focused on being able to capture multiple service interventions of clinicians to include SBIRT, prevention/intervention, and therapy in our EHR system without creating multiple notes or additional work for clinicians.”* With the increased demand to expand the use of EHRs, organizations were already implementing new EHR systems and therefore, found it difficult to accommodate yet another change when they were only just becoming familiar with their existing systems. However, organizations expressed a commitment to providing the services despite barriers related to documentation and billing and described developing workarounds to maintain the delivery of SBIRT while technical issues were being resolved.

Related to documentation, there were concerns around how to maintain confidentiality when adolescents revealed substance use during the screening process and many were unsure of their legal position in terms of informing parents of this substance use. One organization even spoke about resorting to the option of providing services “pro bono” to preserve their confidentiality.

Another key concern around intervention characteristics related to the complexity of the SBIRT model—specifically, how to complete BI and RT components and how to integrate these activities into the clinical workflow. This barrier intensified for organizations as the implementation effort progressed and continued until the end of the study period. For some organizations, distinguishing what constituted a BI was a challenge; one organization reported, “*Clinicians are frequently having these conversations but may not recognize and document them as brief interventions.*” Also, even if providers did identify their activity as a BI, they would not always record the activity. In terms of the RT component of SBIRT, organizations found that adolescents were either not prepared to seek treatment or the organizations had difficulty locating substance use services for adolescents. Several organizations described a shortage of referral services for this population, one of which stated, “*the girls’ substance abuse residential program was closed down this year, limiting more intensive services for adolescent girls with substance abuse.*” When RTs did occur, providers were often unable to initiate or maintain communication with the SUD counselor to follow up. Sometimes, organizations would refer a consumer to substance use services internally but this would not be documented as an RT. This related to overall difficulties with integrating SBIRT activities into clinical workflows. One organization described the need to make SBIRT an “*automatic*” process rather than being seen as an additional step that was often forgotten. This involved formalizing the procedures; as one organization wrote, “*the need to establish written protocols remains an objective to be accomplished.*”

3.4.2. External policies and incentives—The barriers that emerged in the outer setting related to external policies and incentives. These were government policies and regulations that set the requirements for securing reimbursement from funding streams such as Medicaid. These barriers were frequently reported in the start-up and midpoint of the implementation period, tapering off towards the end of the study period. The large majority of the barriers related to financing were not being able to identify billable options for SBIRT activities and having to delay implementation. They could not secure additional Medicaid funding for SBIRT because these activities were already billed as part of the intake and therapy re-imbursements. Some states agreed to Medicaid reimbursement for screening during intake if specific tools such as the CRAFFT were used, but others were denied. One participant recalled, “*We have recently started billing for SBIRT screenings, however, the claims been submitted have been denied by Medicaid. We are currently in the process of exploring rea-sons for the denial.*”

Some organizations worked with community partners such as schools to provide SBIRT in non-traditional settings, but due to the setting Medicaid reimbursement was denied. Delays in implementation occurred as organizations worked to identify the correct billing codes, prompting requests for TA in this area. Overall there were concerns about the impact of Medicaid cuts, which several states experienced during the implementation, specifically the defunding of Health Homes, which was one strategy for securing funds for SBIRT. However, by the end of the study 25 of the 27 organizations reported securing Medicaid funding for SBIRT, with some organizations also securing funding from state block grants.

Another policy that affected organizations’ ability to bill related to licensing regulations. Specifically, states required that masters level clinicians engaged in SBIRT services be

licensed to provide substance use services. As SBIRT was often being implemented by clinicians who were only licensed to provide mental health services, this meant they could not bill for services. Organizations sought to increase their numbers of dually-licensed providers, but this delayed implementation. As one organization describes, “*there is also a lack of licensed staff in the area to provide substance abuse treatment if warranted to make referrals to after screening. Those staff that have dual licenses in the agency are already quite booked and hard to get in to see.*”

3.4.3. Structural characteristics and implementation climate—The structural characteristic of organizations that proved most salient in the implementation of SBIRT was staffing. Throughout the implementation period, organizations struggled with staffing challenges. Firstly, organizations could not get staff trained due to not having sufficient coverage to release people for training. Then, once trained, it was challenging to find the time for staff to meet and discuss implementation. Organizations had difficulty finding available trainings that fit with staff schedules and keeping up with training as new staff were hired. Some organizations reported that additional support was needed to monitor the translation of SBIRT to direct practice with fidelity. The limited availability of clinical supervision to carry out these tasks meant organizations could not provide this support internally. Among the staff who had been trained, some left their organizations or went on extended leaves, which delayed implementation and disrupted continuity once SBIRT had been initiated. One organization described “*losing momentum*” in their implementation of SBIRT, due to the staff attrition; another reported, “*staff turnover and the need for maintaining staff proficiency in conducting SBIRTs is an area of concern for sustainability.*”

Barriers related to implementation climate were particularly prevalent in the beginning stages of this implementation. A key part of capacity was the need for training in all facets of the model. Areas that organizations most identified were related to conducting BI and motivational interviewing. Organizations also indicated a need for training that targeted their unique populations in terms of race and ethnicity and several requested SBIRT materials in Spanish. Another issue that emerged within some states was how to handle the legalization of marijuana—specifically, trainings in how to address the increasing perception among adolescents, driven partly by legalization, that marijuana use is harmless.

Another important aspect of implementation climate is “relative priority,” which is how staff perceives this implementation effort compared to other efforts that are being implemented and their ongoing work. Organizations did report the challenge of “*competing priorities*,” referring to other initiatives that were being rolled out concurrently. For instance, one organization wrote, “*one of the hurdles has been...the amount of new initiatives that [organization name] is involved in.*” These demands, combined with being short-staffed, led some to worry that they could not commit the time necessary to implement the SBIRT model. Other organizations expressed being burdened by new regulatory demands from state or local authorities, which led to “*resistance*” to the SBIRT model.

4. Discussion

The findings from this study, one of the first to examine SBIRT implementation in community mental health settings, showed that nearly half of the adolescents who received services from a CMHO and were screened also scored positive for problematic substance use. Although there is limited comparable research, one study examining the efficacy of SBIRT among patients with depression in an integrated behavioral health program found a similar rate of positive screenings, although the sample population was adults (Chan, Huang, Bradley, & Unützer, 2014). Another three-arm randomized trial testing the effectiveness of SBIRT among adolescents using two different modalities – embedded behavioral health clinicians versus pediatric clinicians – compared to usual care in a pediatric primary care clinic found that 36% of youth screened positive to either a substance use or mental health condition (Sterling et al., 2017). The high rates of positive screenings also align with previously reported prevalence estimates of co-occurring substance use and mental health conditions among adolescents in clinical settings, ranging from 55% to 64% (Grella, Hser, Joshi, & Rounds-Bryant, 2001; Sterling & Weisner, 2006), suggesting the importance of screening in mental health settings. Of those who screened positive for an alcohol or drug use disorder, the majority went on to receive a BI and another half of those received an RT to address the need for more intensive substance use services. However, it is important to note that the estimates reported here are likely conservative given the documentation and reporting challenges described by staff during the implementation period.

While most organizations did adhere to the SBIRT model, the quantitative findings revealed some gaps in the implementation. Not all those who screened positive received a BI and some received an RT without a BI. In addition, although RTs were given to many of the adolescents, only about half of those referred actually followed up with this treatment. The referral and attendance rates found in this study are similar to rates reported in non-mental health settings, such as primary care and emergency departments. For example, a study implementing a BI to adolescents at risk for SUDs in an emergency department reported that 47% and 32% of those receiving a BI at the 4- and 12-month follow ups, respectively, attended treatment in the community (Tait, Hulse, & Robertson, 2004; Tait, Hulse, Robertson, & Sprivulis, 2005). A recent study of SBIRT implementation in a pediatric primary care setting found that approximately 36% of all adolescents screened were considered for further assessment, BI, or RT (Sterling et al., 2017). Rates of treatment initiation were highest among patients who received SBIRT delivered by a behavioral health clinician versus pediatrician only or usual care (Sterling et al., 2017) demonstrating the value of integrated care models.

The qualitative findings gave insights into the barriers to implementation, both in terms of initial adoption and sustainability. Many difficulties lay in integrating the screening into clinical workflows to prompt clinicians to conduct SBIRT and have this activity documented. Particularly challenging was how to characterize a BI in a way that clinicians could distinguish it from other clinical activities. The challenges of integrating SBIRT into their workflows often manifested itself in difficulty related to their EHR, with organizations having to customize their records. For some organizations this occurred at the same time that they were making other changes to their EHRs. This barrier was ongoing throughout the

implementation period, indicating that these issues were not easily resolved. Also, the discrepancy between those receiving positive screens and those receiving BIs may have been due to organizations not being able to capture this activity in their documentation. Furthermore, internal referrals were not documented as consistently as referrals to external services, due to misinterpretation of the definition of RT. RTs proved difficult both in locating appropriate programs for adolescents and motivating them to follow through on these referrals. However, overall organizations perceived the pressing clinical need for SBIRT, making every effort to figure out short-term workarounds to maintain implementation while they worked on long-term solutions to workflow and documentation issues.

Securing funding streams was an initial barrier for organizations as they negotiated the rules around reimbursement for their particular state. Requirements that providers be licensed substance use treatment providers proved difficult for these CMHOs and demonstrated the on-going challenge of providing integrated health care regulated by a system that is still bifurcated in terms of substance use and mental health services. However, nearly all organizations managed to secure funding by the end of the study (the majority of which came from Medicaid), indicating that this challenge is more intense during the start-up period. The differing experiences among organizations in securing Medicaid was due in most part, to variations at the state level regarding reimbursement for both screening and brief interventions. Despite the fact that they secured funding, many organizations still expressed concerns around funding cuts in general and whether this would undermine the sustainability of initiatives such as SBIRT. Our findings mirror obstacles identified by Clark and Moss (2010), who point to the need for increased support for settings implementing SBIRT as well as more systematic information on local treatment options to assist with RTs.

No barriers were reported in the domain of the implementation process, referring to the steps that organizations took to enact change. This suggests that the support they received through participation in a learning community (i.e., TA and mutual support) was a successful implementation strategy. But while organizations felt supported in SBIRT implementation, many described the burden of multiple initiatives and staff turnover that undermined their capacity to implement SBIRT successfully.

4.1. Limitations

There were several notable limitations to this study. The organizations were selected to participate through a competitive process, which may have biased the selection towards more motivated and effective organizations. The total population of youth served across the sample of CMHOs is unknown. Although organizations strived to assess all youth clients receiving services, data were not collected systematically on the total pool of adolescents served by the organizations, including the missed screenings due to youth refusal, dropping out of treatment, or no show. Missing data and other excluded observations from our analyses may bias our results, although no significant differences were found in key demographic variables between missing and non-missing observations. Data were also based on self-report rather than objective measures, with organizations being subject to social desirability or errors in their reporting. In addition, the data collection forms were limited.

For example, we do not have information about the treatment referral (e.g., internal or external specialty treatment) or the extent of participation in specialty treatment among those who were referred and attended treatment. Furthermore, one person in each program was responsible for writing the qualitative reports and may not have reflected the perspectives of all those involved in the implementation. No validating interviews were conducted with the person who completed the quarterly RASAI qualitative reports to verify the findings. However, participation in the learning community was based on mutual support, motivating organizations to accurately report their progress and needs.

4.2. Conclusions

The study findings confirm the urgent need for SBIRT for adolescents served within CMHOs and the potential for these organizations to provide increased access to intervention and treatment. However, all the organizations faced challenges related to implementation. At the outset, finding funding streams was a widespread implementation barrier, which suggests a need for upfront TA tailored to local and state funding policies. Throughout the implementation process, organizations struggled in how to integrate SBIRT into their clinical workflows and EHR, echoing previous implementation studies that stressed the importance of aligning organizational policies and procedures (Clark & Moss, 2010; Muench et al., 2015). However, in real world settings many organizations have to develop these systems at the same time that they are implementing them, requiring a certain amount of flexibility and creativity during the adoption period. Despite high rates of treatment referrals, there were particular challenges related to adolescents following through with the recommended treatment. Possible solutions are using telehealth options to increase access to substance use services and peer models to motivate adolescents to seek treatment. Larger concerns related to the currently under-resourced environment for organizations that expressed the burden of being asked to do more with less, resulting in burnout and staff turnover. This reflects the need for policy makers to look beyond individual implementation initiatives to coordinating program demands and funding in ways that support and sustain CMHOs.

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Fig. 1.
SBIRT algorithm.

Table 1

Sample characteristics, by total and screening status among youth and young adults, 15–22 Years ($N = 2873$).

	Total (2873)		Positive screening (n=1517; 52.8%)		Negative screening (n=1356; 47.2%)		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
Gender							
Female	1569	55.1	803	53.3	766	57.1	
Male	1281	44.9	705	46.8	576	42.9	
Race/ethnicity [*]							
White	1445	52.8	737	50.7	708	55.3	
Hispanic	739	27.0	431	29.6	308	24.1	
Black	394	14.4	202	13.9	192	15.0	
Other	157	5.7	85	5.8	72	5.6	
Smoking status ^{***}							
Current smoker	586	23.4	499	37.2	87	7.5	
Former smoker	183	7.3	130	9.7	53	4.6	
Never smoked	1733	69.3	712	53.1	1021	87.9	
Mental health diagnosis							
Depression ^{**}	960	44.7	537	47.4	423	41.7	
Anxiety [*]	528	24.6	259	22.9	269	26.5	
Bipolar disorder	254	11.8	133	11.7	121	11.9	
Schizophrenia	81	3.8	44	3.9	37	3.7	
Conduct disorder	271	12.6	143	12.6	128	12.6	
Learning disorder [*]	380	17.7	178	15.7	202	19.9	
Eating disorder	18	0.2	7	0.6	11	1.1	
PTSD	178	8.3	92	8.1	86	8.5	
Seasonal affective disorder ^{***}	88	4.1	82	7.2	6	0.6	
		Mean	SD	Mean	SD	Mean	SD
Age (in years) ^{***}		16.61	1.61	16.81	1.66	16.39	1.52
Alcohol score-baseline ^{***}		1.05	2.05	1.83	2.46	0.14	0.73
Drug score-baseline ^{***}		0.92	1.47	1.63	1.67	0.10	1.67
CRAFFT score-baseline (n=2686) ^{***}							
UNCOPE score-baseline (n=51) ^{**}							

Note: Asterisks indicate significant differences between positive and negative alcohol and drug screens based on chi-square analyses and *t*-tests.

^{*}
 $p < .05$.

^{**}
 $p < .01$.

^{***}
 $p < .001$.

Table 2

Characteristics of positive screenings among youth and young adults, 15–22 Years ($N = 1404$).

	Positive screens who received BI and/or RT ($n=1225$; 87.3%)		Positive screens who did not receive BI and/or RT ($n=179$; 12.8%)	
	<i>n</i>	%	<i>n</i>	%
Gender				
Female	648	53.2	90	50.3
Male	571	46.8	89	49.7
Race/ethnicity [*]				
White	551	47.2	111	63.8
Hispanic	374	32.0	34	19.5
Black	174	14.9	19	10.9
Other	69	5.9	10	5.8
Smoking status				
Current smoker	392	36.1	61	37.7
Former smoker	105	9.7	16	9.9
Never smoked	589	54.2	85	52.5
Mental health diagnosis				
Depression	430	47.7	58	42.7
Anxiety [*]	199	22.1	41	30.2
Bipolar disorder	104	11.5	18	13.2
Schizophrenia	37	4.1	3	2.2
Conduct disorder	119	13.2	14	10.3
Learning disorder ^{**}	138	15.3	34	25.0
Eating disorder	6	0.7	1	0.7
PTSD	77	8.6	12	8.8
Seasonal affective disorder	70	7.8	10	7.4
SBIRT				
Brief intervention only	800	65.3	n/a	n/a
Brief intervention & treatment referral	306	25.0	n/a	n/a
Treatment referral only	119	9.7	n/a	n/a
Treatment attendance ^a	244	57.4	n/a	n/a

	Mean	SD	Mean	SD
Age (in years)	16.78	1.65	16.64	1.54
Alcohol score-baseline	1.87	2.50	1.51	2.14
Drug score-baseline ^{**}	1.69	1.71	1.26	1.38
CRAFFT score-baseline ($n = 1,353$) ^{**}	2.41	1.88	2.07	1.68
UNCOPE score-baseline ($n = 48$)	4.27	1.73	n/a	n/a
UNCOPE score-baseline ($n = 48$) ^{***}	4.27	1.73	n/a	n/a

^aTreatment attendance among referred participants ($n = 425$)

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.

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Table 3

Implementation barriers across study period by organization.

	Start-up		Midpoint		Late		Total
	Feb 2015	April 2015	July 2015	Oct 2015	Jan 2016	July 2016	
I. Intervention characteristics							
Adaptability	9 (33%)	2 (7%)	10 (37%)	7 (26%)	10 (37%)	9 (33%)	54
Complexity	4 (15%)	3 (11%)	16 (59%)	12 (44%)	11 (41%)	8 (30%)	62
II. Outer setting							
External policies & incentives	17 (63%)	15 (56%)	14 (52%)	9 (33%)	7 (26%)	3 (11%)	67
III. Inner climate							
Implementation climate	12 (44%)	12 (44%)	7 (26%)	6 (22%)	11 (41%)	3 (11%)	56
Structural characteristics	3 (11%)	6 (22%)	5 (19%)	5 (19%)	6 (22%)	3 (11%)	30