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Original article

Pediatrician and Behavioral Clinician-Delivered Screening, Brief Intervention and Referral to Treatment: Substance Use and Depression Outcomes

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A B S T R A C T

Purpose: Early intervention for adolescent substance use and mental health problems may mitigate potential harm. We examined patient outcomes from a pragmatic trial of two modalities of delivering screening, brief intervention, and referral to treatment (SBIRT) and usual care (UC) in pediatric primary care.

Methods: All clinic pediatricians (n = 52) were randomized to three arms: (1) pediatrician-only, in which pediatricians were trained to deliver SBIRT; (2) embedded behavioral clinician (BC), in which pediatricians were trained to refer eligible adolescents to a BC who administered SBIRT; and (3) UC. Using electronic health record data, changes in past year substance use and depression symptoms between the index visit and next screening visit were examined across treatment arms.

Results: Among patients who endorsed substance use and/or depression symptoms or were eligible for further assessments, brief interventions, and referrals based on clinician assessment at the index visit, 648 patients (mean age = 15.2 [standard deviation = 1.2]) were rescreened at a follow-up visit between 6 months and 2 years later. Among all patients, self-reported substance use rates did not differ over time or across arms, and depression symptoms increased over time. The embedded BC arm had lower odds of having depression symptoms at follow-up than the physician-only arm, and lower odds than the UC arm although not significant; we found no differences between the pediatrician-only and UC arms.

Conclusions: The increase in depression symptoms over time highlights this population's vulnerability and the importance of developing appropriate interventions. An embedded BC in pediatric primary care trained in SBIRT may benefit patients with depression symptoms.

IMPLICATIONS AND CONTRIBUTION

Although substance use outcomes did not differ across modalities in this trial of SBIRT for adolescents in primary care, depression symptoms were lower for those receiving SBIRT from a behavioral clinician, suggesting that they may be more effective than pediatricians in addressing depression symptoms in primary care.

Substance use and depression are among the most common pediatric health conditions in the United States [1], and they frequently co-occur. Early intervention may mitigate their harm, and primary care provides excellent opportunities for detection and treatment. Support for the integration of substance use and mental health interventions into primary care has grown [2,3]. Still lacking is a thorough understanding of effective implementation methods,

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as well as population-based evidence on integrating interventions into pediatric workflows.

Screening, brief intervention, and referral to treatment (SBIRT) refers to systematic screening for substance use risk using evidence-based instruments, a brief patient-centered intervention, and referral to specialty treatment if needed. Numerous health and medical organizations have endorsed SBIRT [4,5], and the literature on brief, integrated behavioral health care for adolescents, including SBIRT, includes evidence of effectiveness [6–8].

A recent meta-analysis found that integrated behavioral health/medical care produced better behavioral health outcomes for children and adolescents than usual care [9]. Early studies of SBIRT in pediatric primary care had inconsistent results [10,11], but newer studies suggest potential benefits. A study in pediatric clinics in the United States and the Czech Republic, for example, found reduced alcohol use in the United States and reduced cannabis use in the Czech Republic [12]. In both samples, those using substances increased cessation, and those not yet using had lower rates of initiation. Trials of brief interventions (BI) in a Federally Qualified Health Center found that receiving a BI was related to lower rates of cannabis initiation and other drug use among cannabis-naïve adolescents [13], and to reduced cannabis-related consequences and driving while intoxicated [14].

Studies of integrated pediatric depression care are also promising [15]. A trial in private and public primary care found that patients receiving integrated care reported fewer symptoms, and better quality of life and greater treatment satisfaction with integrated care compared with usual care, with improvements persisting at 12 and 18 months [16]. In another trial, adolescents receiving collaborative care had lower depression scores and higher remission rates at 12 months than those in usual care [17].

This study presents outcomes from a cluster-randomized, hybrid implementation and effectiveness trial of SBIRT in a general pediatrics clinic at Kaiser Permanente Northern California (KPNC). All adolescents who screened positive were included as potential participants. Pilot studies of well-visit screening found that many adolescents initially endorsed emotional distress, and only in later assessments disclosed substance use [18]. The frequent comorbidity of substance use and mental health problems [19] and the relationship between these outcomes [20] supported including both self-reported substance use and depression symptoms as sufficient risk factors to warrant an SBIRT intervention. Similarly, we examined both substance use and/or depression symptoms as outcomes in this study. This intervention approach was innovative, because adolescent SBIRT studies generally have examined substance use alone.

The interventions tested were also innovative and included two modalities of SBIRT delivery: one using SBIRT-trained pediatricians, the other using pediatricians trained to assess and refer at-risk patients to an embedded behavioral clinician (BC), and usual care (UC). Prior studies have found that both pediatricians [21] and embedded BCs [22] can effectively provide behavioral health interventions. We hypothesized that patients in both intervention arms would have lower odds of substance use and depression symptoms at follow-up than in UC because of the pediatricians' SBIRT training and the BC's additional time and clinical expertise. We also hypothesized that patients in the embedded BC arm would have lower odds than those in the pediatrician-only arm, because BCs have professional behavioral health training and generally longer appointment times.

Methods

Study participants

KPNC is an integrated health-care delivery system of 4 million members. The study was conducted from November 1, 2011 to October 31, 2013 in KPNC's Oakland Pediatrics Department, which treats a racially and socioeconomically diverse population. All clinic pediatricians (n = 52) were randomized to one of three study arms: (1) **pediatrician only**: pediatricians trained to assess substance use and depression symptoms using evidence-based screening tools, to deliver BIs, and to refer patients to specialty substance use or mental health treatment; (2) **embedded BC**: pediatricians trained to assess and refer patients to an embedded BC for further assessment, BI, and referral to treatment; and (3) **UC**: care as usual (no SBIRT training or access to the embedded BC, but with access to EHR screening tools and patient screening information). Patients aged 12–18 were eligible. The study had no exclusion criteria. Provider assignment to study arm was not blinded. Consistent with other comparative effectiveness studies, we used EHR measures to examine outcomes, and patients were not recruited to the study or informed of which study arm included their pediatrician. We were not required by the Institutional Review Boards to obtain consent from patients or pediatricians, and the study was approved by the IRBs of KPNC and the University of California, San Francisco.

Pediatricians in both intervention arms were offered on-site trainings (three 60-minute sessions in the pediatrician-only arm, and one 60-minute session in the embedded BC arm) for which they received lunch and continuing education credit. In the pediatrician-only arm, 64% of pediatricians attended at least two trainings; in the embedded BC arm, 75% of pediatricians attended the training. Trainings in the pediatrician-only arm covered adolescent substance use and mental health prevalence, comorbidity, and consequences; assessment; BI strategies for substance use (e.g., motivational interviewing skills [23], decisional balance exercises, and goal-setting) and depression (e.g., empathic listening, psychoeducation, problem-solving, behavioral activation, stress reduction, and exploration of challenges in interpersonal relationships) [24]; and protocols for referring patients to specialty substance use and psychiatric treatment. Pediatricians in the pediatrician-only and UC arms incorporated any SBIRT elements they used into their normal clinical workflow during the well-visit appointment times (typically 15–30 minutes). Training in the embedded BC arm covered similar elements, but focused less on intervention delivery and more on how to assess severity and refer patients to the BC. This training approach has been used in prior studies and has been associated with sufficient skill acquisition [25]. The BC (N = 1) was a licensed clinical psychologist who received 10 hours of motivational interviewing-based SBIRT training, and had depression and substance use treatment experience. She provided brief cognitive behavioral therapy-based treatment and crisis management for substance and mood problems, spending from 30 to 60 minutes on SBIRT activities, and received weekly clinical supervision with the study intervention trainer, an experienced clinical psychologist. Pediatricians in the treatment arms received supplemental recordings and slides, and research staff was available for technical assistance.

As in prior SBIRT implementation studies [26–28], feedback on SBIRT rates (in the pediatrician-only arm) and referral to BC rates (in the embedded BC arm) were discussed quarterly with pediatricians at feedback meetings, including a review of SBIRT