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Smoking Cessation and Electronic Cigarettes in Community Mental Health Centers: Patient and Provider Perspectives

Li-Shiun Chen[1,2], **Timothy Baker**[3], **Ross C. Brownson**[4,5], **Robert M. Carney**[1], **Douglas Jorenby**[3], **Sarah Hartz**[1], **Nina Smock**[1], **Mark Johnson**[1,2], **Douglas Ziedonis**[6], and **Laura J. Bierut**[1]

[1]Department of Psychiatry, Washington University School of Medicine, 660 S. Euclid Ave., Box 8134, St. Louis, MO 63110, USA

[2]BJC Behavioral Health, BJC Healthcare, St. Louis, MO, USA

[3]Center for Tobacco Research and Intervention, School of Medicine and Public Health, University of Wisconsin, Madison, WI, USA

[4]Prevention Research Center in St. Louis, Brown School, Washington University in St. Louis, St. Louis, MO, USA

[5]Division of Public Health Sciences and Alvin J. Siteman Cancer Center, Washington University School of Medicine, Washington University in St. Louis, St. Louis, MO, USA

[6]Department of Psychiatry, University of Massachusetts Medical School, Worcester, MA, USA

Abstract

Little is known about patients' electronic cigarette use, interest in and use of smoking cessation treatments, and providers' attitude towards such treatment. We assessed patients (N = 231) and providers (45 psychiatrists, 97 case workers) in four Community Mental Health Centers. Interestingly, 50% of smokers reported interest in using electronic cigarettes to quit smoking, and 22% reported current use. While 82% of smokers reported wanting to quit or reduce smoking, 91% of psychiatrists and 84% of case workers reported that patients were not interested in quitting as the lead barrier, limiting the provision of cessation interventions. Providers' assumption of low patient interest in treatment may account for the low rate of smoking cessation treatment. In contrast, patients report interest and active use of electronic cigarettes to quit smoking. This study highlights the need for interventions targeting different phases of smoking cessation in these patients suffering disproportionately from tobacco dependence.

Keywords

Smoking cessation; Implementation; Mental illness; Electronic cigarettes

Compliance with Ethical Standards: Conflict of interest Dr. Bierut is listed as inventor on issued U.S. Patent 8,080,371, “Markers for Addiction” covering the use of certain SNPs in determining the diagnosis, prognosis, and treatment of addiction. Dr. Carney or a member of his family owns stock in Pfizer, Inc. All other authors declare no potential conflict of interest.

Introduction

Smoking causes more than 480,000 deaths annually in the U.S. (CDC 2014a, b; Danaei et al. 2009; DHHS 2004; Schroeder 2013; Thun et al. 2013; Whiteford and Baxter 2013). Successful smoking cessation without evidence-based treatment is rare (5%), but success increases (15–30%) with evidence-based treatment (CDC 2011, 2014a; Fiore et al. 2008; NCHS 2012; Tulloch et al. 2016). Approximately 18% of Americans aged 18 or older are current smokers (CDC 2011, 2014a; NCHS 2012), but smoking prevalence is three times higher among those with serious mental illness (SMI) (CDC 2014a; Garrett et al. 2011; Hartz et al. 2014; Lasser et al. 2000; McClave et al. 2010; Parks et al. 2006; Substance Abuse and Mental Health Services Administration 2012). Because one in 24—about 9.6 million people live with a SMI such as schizophrenia, recurrent major depression, or bipolar disorder (Olfson et al. 2015a, b), tobacco use in this population exacts tremendous public health costs. People with SMI die about 25 years earlier than the general population (Parks et al. 2006) and smoking shortens life expectancy by more than 10 years (Jha et al. 2013).

Effective evidence-based practices for smoking cessation are identified. The 2008 US Public Health Service (PHS) Clinical Practice Guideline Panel recommends the 5A's (Ask, Advise, Assess, Assist, Arrange) to increase patients' engagement in smoking cessation treatments (Fiore and Baker 2011; Fiore et al. 2008). In general, patients with SMI benefit from evidence-based treatment such as pharmacotherapy (bupropion, varenicline) and counseling; although, less data is available in this population (Evins et al. 2007, 2005, 2014; Hickman et al. 2015; Kishi and Iwata 2015; Roberts et al. 2016; Tsoi et al. 2013; Ziedonis and George 1997). Community Mental Health Centers (CMHCs) appear to be ideal venues for the delivery of smoking cessation treatment to the SMI population. This population visits CMHCs regularly, and the providers at such settings are in an ideal position to monitor the possible side effects and psychiatric medication dose changes that might be required due to the drug–drug interaction between tobacco smoking and psychotropic medications if patients quit smoking (Evins et al. 2015; George and Ziedonis 2009). Unfortunately, research shows that patients with SMI, in general, and those seen at CMHCs in particular, are infrequently provided evidence-based smoking cessation treatments (Chwastiak et al. 2013; Glassman 1998; Mitchell et al. 2015; Price et al. 2007; Ratschen et al. 2009), an important missed opportunity in CMHC settings (Dixon et al. 2009). Further, there may be a growing trend of electronic cigarette use by smokers to reduce or replace combustible cigarette smoking (Etter and Bullen 2011), while safety and efficacy on smoking cessation is unclear (Bullen 2014). The interest and degree of electronic cigarette use for smoking cessation among patients with serious mental illness is unclear (Caponnetto et al. 2013, 2014; Tidey and Miller 2015).

Evidence is needed from both patient and provider perspectives in the same setting to help identify potential healthcare system changes needed to increase rates of treatment delivery and cessation success in patients with SMI. This study examines the interest of patients to receive and providers to offer smoking cessation treatments in the CMHC setting. Using quality initiative survey data in four CMHC clinics, we examined these research questions: (1) What proportion of patients with SMI who smoke are interested in smoking cessation treatment and what proportion receive such treatment? (2) What proportion of patients with

SMI who smoke are interested in or engaged in electronic cigarette use for smoking cessation? (3) What proportion of CMHC providers report using evidence-based smoking cessation treatments? (4) What are common perceived barriers amongst providers for implementing evidence-based smoking cessation treatments?

Methods

Samples

In an initiative to improve health care quality, we conducted a survey of smoking cessation treatment in a CMHC network of four clinics located in urban, suburban, and rural regions in Missouri in 2014. SMI is used as the CMHC admission criteria and defined by 11 diagnostic categories ("Rules of Department of Mental Health, Division 30: Certification Standards, Chap. 4: Mental Health Programs", 2012). The typical SMI diagnosis distribution are schizophrenia/schizoaffective disorders (33%), mood disorders (63%), post-traumatic stress disorder (PTSD; 11%), and borderline personality disorder (8%) based on the patient profile at the studied CMHC clinics in 2014. The current usual care for smoking includes the annual assessment of cigarette use by case workers and the treatment referral options include group counseling and cessation medications. FDA approved medications for smoking cessation (nicotine replacement patch/gum/lozenge, varenicline, and bupropion) are available at clinic pharmacies at no cost if prescribed by the patient's psychiatrist.

All front desk staff were instructed to provide the survey to every adult patient who came in for an appointment in the clinic in the month of June, 2014. With a participation rate of 80%, a total sample of 231 patients completed the patient survey across four clinics, a subset of the total clinic population of approximately 5000 adult patients receiving psychiatric care or case managements. There were 37, 73, 19, and 102 patients from each of the four clinics, reflecting similar proportions of patients from these clinics. All staff was invited to complete the provider survey and a total of 45 psychiatrists and 97 case workers completed the provider survey (similar participation rate of 90% across four clinics).

Assessments

The clinic quality initiative included two assessments. One was a 7-item waiting room patient survey given to adult patients while they were waiting for their appointments. The patient survey assessed (1) self-reported smoking status, (2) smoking quantity, (3) history of quit attempts ("Have you tried to quit smoking in the past year?"), (4) interest in quitting, (5) interest in cessation treatment ("Would you be interested in taking these to quit smoking—multiple checkboxes with each box for Medications, Counseling, and E cigarettes?"), (6) current treatment ("Are you currently using these to quit smoking—multiple checkboxes with each box for Medications, Counseling, E cigarettes?"), and (7) whether the patient discussed smoking with their providers. Patients were instructed to bring the completed survey to their appointments for discussion with their providers and to return it to the front desk afterwards for filing in medical records.

The second was an anonymous 13-item provider survey given during the clinic medical staff and all staff meetings. The provider survey assessed (1) self-reported treatment practices

using questions such as “In the past month, how frequently did you ask your patients whether they smoked?” on a Likert scale (never, occasionally, often, very often, and always), and (2) perceived barriers to treatment implementation using questions such as “Please rate the importance of the following that might limit your smoking cessation treatment practice?” on a Likert scale (not at all important, only slightly important, somewhat important, very important). Providers were allowed to choose multiple barriers and providers rated each item separately. The survey assessed the use of the 5A's (Ask, Advise, Assess, Assist, Arrange) (Fiore and Baker 2011; Fiore et al. 2008), cessation medication use, and barriers, adapted from the S-KAP practice and barriers scales (Delucchi et al. 2009). The S-KAP instrument measured the knowledge, attitudes, and practices among staff at substance abuse treatment programs (Delucchi et al. 2009). The psychometric properties of S-KAP were established in previous reports (Guydish et al. 2012a, b; Miller-Thomas et al. 2014).

Statistical Analyses

The overall prevalence of smoking behaviors across the four clinics and different diagnostic groups was examined by using generalized linear models for both categorical and continuous variables. Two diagnostic groups were defined as (1) patients with schizophrenia spectrum and other psychotic disorders, n = 70 versus (2) patients with other primary diagnoses, n = 161. Confidence intervals for the proportion of patients interested in treatments and currently using treatments were provided. Differences between any two groups were compared by means of two-sample t tests for continuous variables and z tests for categorical variables. A homogeneity z test was used to test whether the proportion of patients interested in treatments was higher than the proportion of patients currently using treatments (Chen et al. 2000).

IRB Approval

This protocol was approved by the institutional review board of Washington University.

Results

Overview

The demographic distribution of the patient sample is representative of the clinic patient population: 59% were female, mean age was 42.8 (SD = 13.5), 79% were White and 21% Black. The patient survey confirmed a high percentage of current smokers similarly across four clinics: 57% were current smokers, 21% were former smokers, and 22% were never smokers. Of the current smokers, most smoked heavily, with the average cigarettes smoked per day = 15.9 (SE = 0.83). Many of these patients had made a recent quit attempt within the past year (59%). Provider surveys were conducted with 45 psychiatrists (including 17 resident psychiatrists) and 97 case workers in four CMHC clinics. Amongst the providers, 50% were female, 68% were White, and 32% were Asian.

Patient Perspectives

More Patients were Interested in Smoking Cessation Treatment than are Receiving It—Among smokers (N = 131), 44% (95% CI 36–52%) reported interest in taking smoking cessation medication, but only 13% (95% CI 7.1–19%) of smokers reported

currently using it. Similarly, 25% (95% CI 18–32%) of smokers reported interest in receiving smoking cessation counseling treatment, but only 5.4% (95% CI 1.5–9.3%) of smokers reported currently receiving it. More patients were interested in smoking cessation treatment than were receiving it and these discrepancies were statistically significant ($z = 5.68$, $p < 0.00001$ for medication; $z = 4.50$, $p < 0.00001$ for counseling). Additionally, only half of the smokers reported ever discussing smoking with their doctors or case workers.

Electronic Cigarette Use was Common—Patients were interested and currently using electronic cigarettes. 50% of smokers reported interest in using electronic cigarettes to quit smoking, and 22% reported currently using electronic cigarettes to quit smoking, ranging from 12% in an urban clinic to 27% in suburban and rural clinics.

Variation Across Clinics and General Diagnostic Groups—The clinics differed in the rates at which patients reported current receipt of medication and counseling ($\chi^2 = 8.36$, df = 3, P = 0.039 for currently receiving medication; $\chi^2 = 8.78$, df = 3, P = 0.032 for currently receiving counseling; $\chi^2 = 10.9$, df = 3, P = 0.012 for discussing smoking with case workers). In secondary analyses, we stratified the patients into two different diagnostic groups (patients with schizophrenia spectrum and other psychotic disorders, n = 70 vs. patients with other primary diagnoses, n = 161). Smoking rate was significantly higher amongst those with schizophrenia spectrum diagnoses than the other diagnoses (67%, 95% CI 59–75% vs. 52%, 95% CI 43–61%, $\chi^2 = 11.5$, df = 3, p = 0.0094); however, the interest in quitting/reducing (77%, 95% CI 70–84% vs. 81%, 95% CI 74–88%, $\chi^2 = 0.35$, df = 1, p = 0.55) and interest in medication treatment (39%, 95% CI 31–47% vs. 42%, 95% CI 34–50%, $\chi^2 = 0.13$, df = 1, p = 0.72) did not differ between the two diagnostic groups.

Provider Perspectives

Assessment, Advice, and Offering of Evidence-Based Smoking Cessation Treatments by CMHC Providers—Among CMHC psychiatrists, 69% reported very often/always asking patients whether they smoke, 62% reported very often/always advising patients who smoke to quit, 62% reported very often/always assessing patients' motivation to quit smoking, 60% reported very often/always assisting patients with advice or treatments for smoking cessation, and 29% reported very often/always arranging a follow-up plan to discuss quitting. Self-reported rates of implementing 5As by case workers were similar.

Pharmacotherapy by Psychiatrists—When asked about FDA-approved cessation medication prescription frequency, 18% of psychiatrists reported very often/always using nicotine replacement therapy, none reported very often/always using varenicline, and 2.2% reported very often/always using bupropion for the indication of smoking cessation.

Patient Versus Provider Perspectives

We found discrepant perspectives between patients and providers regarding patient interest in smoking cessation. 82% of smokers reported interest in quitting or reducing smoking (43% were interested in quitting now, 24% were interested in quitting later, 15% were interested in reducing). Among smokers, 59% reported having made a quit attempt in the past year. In contrast, 91% of psychiatrists reported “Patients not interested” as a somewhat/

very important barrier that limited their smoking cessation treatment practice. The other barriers that were notably endorsed by psychiatrists were “Patients do not comply (84%)”, “Lack of training (62%)”, “Lack of referral resources (58%)”, and “Lack of time (49%)”. The responses by the case workers (N = 97) had a similar pattern (e.g., 84% of case workers reported “Patients not interested” as a somewhat/very important barrier that limit their smoking cessation treatment practice).

Discussion

This study identifies a continuing unmet need for healthcare service for patients with serious mental illness and identifies discrepant patient versus provider perspectives. To extend existing knowledge (Ashton et al. 2010; Hitsman et al. 2009; Price et al. 2007; Williams et al. 2015), this is the first study to directly assess patient interest in and practice of smoking cessation, and to contrast patient and provider perspectives in the same CMHC setting. The study also suggests that the perception of low motivation to quit becomes a barrier in which clinicians don't offer smoking cessation counseling treatment options designed for low motivation smokers such as Learning About Healthy Living, motivation-phase treatment, and behavioral reduction (Cook et al. 2015; Williams et al. 2009; Ziedonis et al. 2008). Almost half of these patients who smoke are currently interested in smoking cessation treatments, but only one-third of these interested patients receive them. Many (59%) of these patients have made a quit attempt within the past year; in fact, their quit attempt rate is comparable to rates among smokers in general [cf. CDC reports (CDC 2011, 2014a)]. Further, many smokers (82%) report interest in quitting or reducing smoking. Yet, the great majority of the provider psychiatrists (91%) and case workers (84%) report that low patient interest is the chief barrier limiting their delivery of smoking intervention. The differences in patient and provider reports suggest that patients may have considerably more interest in quitting than many providers believe.

Additionally, despite evidence of patient interest in cessation, amongst those interested, only one in three receives smoking cessation medication and only one in five receives cessation counseling (i.e., 44% are interested in medication but only 13% receive it, and 25% report interest in counseling but only 5% receive it). Patients are more interested in medication than counseling. The low rate of smoking cessation counseling among smokers in the CMHC setting demonstrates a potential disparity in health services with evidence of about 21% of smokers in general report having been counseled to quit at a prior healthcare visit (Jamal et al. 2012). There are interventions for lower motivated individuals, so even if CMHC providers perceive patients as lower motivated, treatment targeted at the motivational phase such as Learning About Healthy Living, motivation-phase treatment, and behavioral reduction (Cook et al. 2015; Williams et al. 2009; Ziedonis et al. 2008) can be offered to smokers with a serious mental illness who are either prepared to quit smoking or who are simply contemplating quitting in the future.

Further, a substantial percentage of patients use electronic cigarettes, which may reflect motivation to reduce or replace combustible cigarette smoking, since this is a commonly offered reason for using such devices (Etter and Bullen 2011). In this smoker group, 22% report actively using electronic cigarettes to quit smoking, higher than the rate (about 9%)

reported among the general smoker population (Pulvers et al. 2015). This prevalence is consistent with recent evidence that electronic cigarette use may be increasingly more common among smokers with mental illness (Cummins et al. 2014; Prochaska and Grana 2014). Smokers report using electronic cigarettes as the most common measure to quit smoking, higher than medication (22% vs. 13%). Electronic cigarettes are increasingly available for all smokers. While the potential dual use, safety, efficacy on smoking cessation is unclear (Bullen 2014), the potential utility of electronic cigarettes for smoking cessation among patients with mental illness is an active topic under investigation (Caponnetto et al. 2013, 2014; Tidey and Miller 2015).

In this patient survey, medication use refers to any cessation medication including over the counter medications such as nicotine patches, so the clinicians may be providing medication even less frequently than these data would suggest. Indeed, slightly over half of the patients report never discussing their smoking with their CMHC clinician.

As noted, there is evidence of considerable patient interest in reducing or eliminating smoking. These patients report relatively high rates of quit attempts (59% within past year), comparable to national rates [cf. CDC reports (CDC 2011, 2014a)], and a majority (82%) report interest in quitting or reducing smoking. Importantly, about 15% are interested in reducing their smoking. This is relevant because we know that nicotine replacement therapy can help reduce smoking, and that smoking reduction increases the likelihood of subsequent quitting (Carpenter et al. 2004; Moore et al. 2009).

These data strengthen existing evidence that people with SMI are often contemplating quitting within 6 months (Forchuk et al. 2002; Siru et al. 2009), by direct assessments of patient interest in not only quitting and reducing, but also their interest in and current use of specific treatments (medication or counseling). In contrast, only 69% of psychiatrists and 39% of case workers report consistently asking about cigarette smoking. This is corroborated by the patient report that many (50%) do not have a discussion on smoking with their providers. Further, these rates are lower than what is found in primary care in general (Bentz et al. 2007; Lindholm et al. 2010). It is clear that psychiatrists continue not to implement evidence-based treatments despite APA guidelines (Banham and Gilbody 2010; Rae et al. 2015; Rogers and Sherman 2014) and evidence of effectiveness in the SMI population (Evins et al. 2015). The 2008 PHS Clinical Practice Guideline offers multiple suggestions for system changes that might improve tobacco intervention rates in healthcare (Fiore et al. 2008). It may be that some of these interventions (e.g., electronic health record that prompts for smoker identification and/or referral for smoking intervention (Piper et al. 2013), enhanced training, individual provider feedback on their status with regard to best practices) would foster better performance (Adsit et al. 2014; Bentz et al. 2007; Williams et al. 2015).

These findings confirm existing knowledge regarding the high prevalence of smoking in patients with SMI; well over half of these patients are current smokers, consistent with other data (Cook et al. 2014). Thus, despite strong public health efforts supporting cessation (e.g., free quitline availability), and policy and legal actions that discourage smoking (e.g., clean

indoor air regulations and high tax rates), patients with SMI in this sample continue to smoke at rates that are approximately triple those observed in the general population.

These results should be interpreted in the context of several limitations. First, smoking in the samples was self-reported without biochemical confirmation. There was no verification of assessment and treatment regarding cigarette smoking based on the medical records or exit interviews. Thus, it is possible that the patient reports were inaccurate. However, there is considerable evidence supporting some of the main findings of this survey, such as other observations that SMI patients tend to be motivated to quit smoking (Ashton et al. 2015; Evins et al. 2015) and that CMHC providers do not adequately address their patients' need for smoking treatment (Johnson et al. 2009). It is also the case that there are no strong incentives for patients to deceive (Subcommittee on Biochemical Verification SRNT 2002). However, patients knew that their surveys were going to be shown to their providers, and it is unclear how this might have affected their reporting. Second, provider self-reports of their treatment practices reflects their own perception and may not reflect the actual practices. For example, these responses may suggest that the clinician uses cessation medications infrequently because few of his/her patients want them/will accept them. Or, it may mean that even when appropriate to offer and prescribe, the clinician too rarely offers/prescribes them. Future improved electronic health record (EHR) documentation will allow us to tease these processes apart. Third, there was evidence of variability across patient type in the results. In secondary analyses, we found that patients with schizophrenia spectrum diagnoses smoked more than did other CMHC patients, but they did not differ in interest in quitting and treatment, compared with the other patients. Finally, this work involved a limited sample of patients and psychiatric staff. Certainly a greater number of patients and staff, and involving additional CMHC clinics, would enhance the credibility of these results.

In summary, this research is innovative by directly assessing patient interest in treatment and synthesizing both patient and provider perspectives in the same CMHC setting. This study shows that SMI patients continue to have unmet healthcare needs with regards to smoking intervention. Patients with SMI who smoke, report comparable interest in smoking cessation and treatment as smokers in general. However, their psychiatric providers perceive them to have little motivation to quit smoking or to use evidence based treatment to do so. As a result, only a small portion of patients interested in smoking cessation treatment receive it in the clinics and patients with low motivation to quit did not receive motivational interventions. Despite increased emphasis on smoking intervention in the society and medical community, the introduction of the EHR in to the CMHC clinics, evidence continues to show that smoking is an especially concerning problem for people with SMI, leveraging the great opportunity offered by smokers making healthcare visits to CMHCs, these results require that we shift current practice by identifying interventions that enhance both provider practices and patient outcomes. To implement the evidence-based practice, we need not only healthcare system interventions to promote consistent use of 5As (Adsit et al. 2014; Curry 2000; Lindholm et al. 2010; Papadakis et al. 2010) to address the barrier ‘lack of time’ but also provider training on evidence-based intervention to address the barrier ‘lack of training’ as effective quality improvement strategies (Andrews et al. 2001; Bentz et al. 2007; Bluestone et al. 2013; Kelley et al. 2001; Nicol et al. 2011; Ostroff et al. 2014; Schmidt et al. 2012; Woo et al. 2013; Ziedonis et al. 2008). We should see this as a

significant opportunity to reduce smoking and its harms in this high-risk, underserved population.

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