Journal of Substance Abuse Treatment 86 (2018) 78–85

Contents lists available at ScienceDirect

Journal of Substance Abuse Treatment

Utilization of outpatient medical care and substance use among rural stimulant users: Do the number of visits matter?

Michael A. Cucciare [a,c,d,*], Kristina M. Kennedy [a,b], Xiaotong Han [a,c], Christine Timko [e,f], Nickolas Zaller [g], Brenda M. Booth [a]

[a] Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA
[b] Department of Psychology and Counseling, University of Central Arkansas, Conway, AR 72035, USA
[c] Center for Mental Healthcare and Outcomes Research, Central Arkansas Veterans Affairs Healthcare System, North Little Rock, AR 72205, USA
[d] VA South Central Mental Illness Research, Education, and Clinical Center, Central Arkansas Veterans Healthcare System (CAVHS), North Little Rock, AR 72205, USA
[e] Center for Innovation to Implementation, Veterans Affairs (VA) Health Care System, Menlo Park, CA 94025, USA
[f] Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA 94304, USA
[g] College of Public Health, Department of Health Behavior and Health Education, University of Arkansas for Medical Sciences, Little Rock, AR 72205, USA

ARTICLE INFO

Article history:
Received 19 September 2017
Received in revised form 27 October 2017
Accepted 3 January 2018
Available online xxxx

Keywords:
Outpatient medical care
Rural substance use
Drug and alcohol use

ABSTRACT

Rural substance users are less likely than their urban peers to use formal substance use treatment. It is therefore important to understand how the utilization of potentially more appealing care options, such as outpatient medical care (OMC), may affect substance use over time. This study sought to examine whether the number of OMC visits, after controlling for important covariates, was associated with days of alcohol, crack and powder cocaine, and methamphetamine use among a sample of rural stimulant users over a three year period. Data were collected from a natural history study of 710 stimulant users living in rural communities in Arkansas, Kentucky, and Ohio. Participants were adults, not in drug treatment, and reporting stimulant use in the last 30 days. In terms of alcohol use, for participants with higher employment-related problems, having 3 or more OMC visits (relative to none) was associated with fewer days of alcohol use. The results for days of cocaine and methamphetamine use were mixed. However, we did find that for participants reporting at least one substance use treatment or mutual help care visit in the past 6-months, having 1–2 OMC visits (compared to none) was associated with fewer days of crack cocaine use. Regarding methamphetamine use, results showed that for participants without medical insurance, having 3 or more OMC visits (compared to none) was associated with significantly fewer days of methamphetamine use if they also reported greater than or equal to a high school education. The findings from this study may help us begin to understand some of the characteristics of rural drug users, who utilize OMCs, associated with reductions in substance use. These findings may help health care administrators better plan, coordinate, and allocate resources to rural OMCs to more effectively address substance use in this population.

Published by Elsevier Inc.

Rural substance users are less likely to utilize substance use treatment relative to their urban peers (Compton, Thomas, Stinson, & Grant, 2007; Curran, Ounpraseuth, Allee, Small, & Booth, 2011). Specifically, rural drug users utilize drug treatment at lower rates (24% in the past three years; Curran et al., 2011) than drug users living in urban communities (37% in the past year; Compton et al., 2007). In addition to less geographical access to treatment options, rural drug users report more negative views toward available substance use care including lower perceived affordability, effectiveness, acceptability, and need than drug users living in urban communities (Borders, Booth, Stewart, Cheney, & Curran, 2015). This finding is particularly concerning as it suggests that even when substance use treatment is available in a rural community, rural drug users may be less likely to access it.

Outpatient medical clinics (OMCs) may be a more appealing setting for rural substance users to access treatment services (Barry, Epstein, Fiellin, Fraenkel, & Busch, 2016; Cucciare et al., 2017; Epstein, Barry, Fiellin, & Bush, 2015; Gryczynski et al., 2011; Madras et al., 2009). Providers in OMC settings such as primary care, sexual health, and community health clinics can help identify (Timko, Kong, Vittorio, & Cucciare, 2016) and treat (Gryczynski et al., 2015; Jonas et al., 2012; Rogers, Johnson, Yu, Cuoco, & Blank, 2015; Roy-Byrne et al., 2014; Saitz et al., 2014; Schwartz et al., 2015; Yu et al., 2016) substance use (Samet, Friedmann, & Saitz, 2001). OMC providers can help support patients

* Corresponding author at: Division of Health Services Research, Department of Psychiatry/Psychiatric Research Institute, College of Medicine, University of Arkansas for Medical Sciences, 4301 West Markham Street, Little Rock, AR 72205, USA.
E-mail address: macucciare@uams.edu (M.A. Cucciare).

https://doi.org/10.1016/j.jsat.2018.01.004
0740-5472/Published by Elsevier Inc.

with substance use to better manage associated mental and physical health comorbidities through continued screening and monitoring of symptoms over time (Samet et al., 2001). Furthermore, OMC providers including general practitioners and family physicians are relatively more accessible than specialists such as substance use treatment providers in rural communities (Rosenblatt & Hart, 2000). Therefore, OMCs are a potentially viable care context for substance users in rural communities, and especially among those substance users who may have negative views toward formal substance use treatment options. However, little is known about the clinical outcomes of OMCs experienced by rural substance users utilizing these services (Cucciare et al., 2017) and no studies have examined "dosage" or number of OMC sessions utilized in relation to patterns of substance use in this population. This line of research may help us better understand the potential role(s) of OMCs in addressing substance use in rural communities, and how to most appropriately use OMC resources (financial, staff time and expertise) to target this health problem in this population.

To date, several studies indicate that urban substance users who have even minimal contact (1–2 visits over a 6-month period) with an OMC show greater improvements in addiction severity (Friedmann, Zhang, Hendrickson, Stein, & Gerstein, 2003), higher rates of abstinence (Saitz, Horton, Larson, Winter, & Samet, 2005; Weisner, Mertens, Parthasarathy, Moore, & Lu, 2001), and fewer hospitalizations (Laine et al., 2001) than those who do not utilize these services. These prior studies mostly focused on urban drug users with few studies being conducted on rural substance users. Previously we reported that, among rural stimulant users, participants reporting at least one OMC visit (compared to none) in the prior 6-months had greater reductions in the number of days using alcohol, crack cocaine, and methamphetamine over a three year period (Cucciare et al., 2017). To our knowledge, this is the only study in the literature that has examined the potential association between use of OMCs and substance use in rural substance users. One important limitation of this prior work is that it did not explore the association between number of OMC visits and substance use among rural substance users which may have important clinical implications for determining the optimal number of visits associated with a positive effect on substance use and/or how to optimally utilize OMCs to best address unhealthy substance use in rural communities.

Understanding how to optimally utilize OMCs in addressing unhealthy substance use in rural communities is particularly important given negative views toward substance use treatment in rural settings and the relatively little time OMC providers have to spend on mental health and lifestyle topics. For example, the median length of an OMC visit in the United States is 16 min with the median number of topics covered during the visit being six (Tai-Seale, McGuire, & Zhang, 2007). Further, the longest amount of time spent on any topic during an OMC visit is about 5 min (topics deemed less important are devoted about 1 min; Tai-Seale, McGuire, Colenda, Rosen, & Cook, 2007). Topics considered to be mental health or lifestyle oriented are typically covered in 2 min, even among populations who indicate a heavy burden of mental health or lifestyle problems (Tai-Seale, McGuire, Colenda et al., 2007).

In summary, although OMCs can serve as a feasible and effective context for addressing unhealthy alcohol and drug use in rural substance users (Cucciare et al., 2017), research is needed to determine to what extent the amount of contact (e.g., number of visits) is associated with changes in substance use over time. To explore this research question, we examined whether the number of OMC visits, after controlling for important covariates that can affect substance use severity (Borders et al., 2015) and health care use (Anderson, 1995), was associated with days of alcohol, crack and powder cocaine, and methamphetamine use among a sample of rural stimulant users over a three year period. Findings from this study may have important implications for how to optimize OMC resources to improve the care of rural persons engaging in substance use.

1. Method

1.1. Sample, eligibility, and recruitment

Data were collected from an observational study of 710 rural stimulant users living in Arkansas, Kentucky, and Ohio (Booth, Leukefeld, Falck, Wang, & Carlson, 2006). Participants were eligible for the study if they were: not in drug treatment or mutual-help groups within the past 30 days; 18 years of age or older; had used methamphetamine, crack cocaine or powder cocaine in the past 30 days; and had a verifiable address within one of the study counties.

Participants were recruited using Respondent-Driven Sampling (RDS), a type of snowball sampling (Heckathorn, 1997; Wang et al., 2004). Staff from the study sites met with local drug treatment providers, distributed study business cards to individuals who might know drug users, and visited places frequented by drug users to identify potential "seeds" for the study. Participants who completed the baseline interview were asked to refer people they knew who used drugs to participate. They received $10 each for up to three participants that they referred who were eligible and enrolled in the study.

1.2. Study procedure

The study was approved by the institutional review boards at each of the investigators' universities, and the study researchers received a Certificate of Confidentiality from the National Institute on Drug Abuse (NIDA). Study participants provided informed consent prior to completing the baseline interview. Trained research assistants conducted face-to-face baseline interviews and follow-up interviews were conducted at 6-month intervals for 36-months (seven interviews) using computer-assisted personal interview software. Follow-up interviews consisted of the same general questions as asked in the baseline interview (see below). Study staff also collected demographic information and updated the participants' contact information at each interview to improve the likelihood of locating the participants for subsequent follow-up interviews. This approach resulted in a 73% follow-up participation rate at the final 36-month interview.

1.3. Measures

1.3.1. Dependent variables

Dependent variables included the number of days in the past 30 days that the participant used alcohol, methamphetamine, powder cocaine, and crack cocaine, separately. At baseline, the interviewer asked participants whether they used each specific substance in their lifetime. If lifetime use of any substance was endorsed by the participant, the interviewer asked the number of days the substance was used in the prior 30-days at baseline. Use of all substances of interest was assessed at each follow-up interview to capture new onset drug use.

1.3.2. Independent variables

Independent variables included the number of OMC visits. At baseline, participants were asked, "Not including hospitalizations, emergency room visits, or outpatient surgeries, in the past 12 months have you received care from a medical doctor, nurse, medical or STD clinic?" Participants were also asked a follow-up question to assess frequency of OMC visits during these timeframes, "If yes, how many times?" This item was adjusted to fit the 6-month timeframe for each follow-up interview. The frequency of OMC visits was further categorized as 0, 1–2, or 3 + visits due to the fact that most of the participants reported zero visits. This approach to grouping was an attempt to categorize the frequency of OMC visits in a comparable manner, especially for the 1–2 and 3+ categories. At baseline, the majority (62%) of participants reported 0 visits, 22% reported 1–2 visits, and 16% reported 3 + visits.