



## Drug abuse staff and clients smoking together: A shared addiction



Joseph Gwydish<sup>a,\*</sup>, Thao Le<sup>a</sup>, Barbara Campbell<sup>b</sup>, Deborah Yip<sup>a</sup>, Suzhe Ji<sup>c</sup>, Kevin Delucchi<sup>d</sup>

<sup>a</sup> Philip R. Lee Institute for Health Policy Studies, University of California San Francisco, 3333 California St., Ste. 265, San Francisco, CA 94118, United States

<sup>b</sup> OHSU/PSU School of Public Health, Oregon Health and Sciences University, 3181 SW Sam Jackson Park Road, Portland, OR 97239-3098, United States

<sup>c</sup> Department of Neuroscience, University of Nevada, Reno, 1664 N. Virginia Street, Reno 89557, United States

<sup>d</sup> Department of Psychiatry, University of California San Francisco, 401 Parnassus Ave. San Francisco, CA 94143, United States

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### ABSTRACT

Smoking is endemic in drug abuse treatment populations, and smoking prevalence in this population appears unresponsive to existing tobacco control strategies. Clinical and policy guidelines encourage programs to address smoking among clients, and research has identified key barriers to doing so. This report explores the practice of staff and clients smoking together in drug treatment programs, and how this practice is associated with other tobacco-related measures. Clients ( $N = 1113$ ) were surveyed and program directors were interviewed in a national sample of 24 drug abuse treatment programs affiliated with the NIDA Clinical Trials Network. Clients were asked whether they observed staff and clients smoking together in their program and, using program as the unit of analysis, this measure was tested for its association with client-level and program-level tobacco-related outcomes. Higher rates of staff and client smoking together were associated with higher staff smoking prevalence ( $p = 0.006$ ), lower rates of client thoughts about quitting in the next 30 days ( $p = 0.027$ ), more negative client attitudes toward quitting smoking ( $p = 0.004$ ), and with clients receiving fewer tobacco-related services ( $p = 0.024$ ). These findings illuminate an actionable, low cost policy intervention to address smoking in drug abuse treatment, which is to prohibit the practice of staff smoking together with clients. In the interest of the health of clients whom they serve, counselors, program directors, state regulatory agencies, and federal funding agencies should act to end this practice.

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### 1. Introduction

The association between cigarette smoking and lung cancer was known, if still debated, before 1964 (Proctor, 2011). The 1964 Surgeon General's Report on Smoking and Health (Department of Health Education and Welfare, 1964) was important for its symbolism, with the U.S. Government defining smoking as a health concern, and because it motivated decades of tobacco control efforts. In broad terms, tobacco control includes strategies to educate the public about the risks of smoking through advertisements and warning labels, economic policies focused on taxation and subsidies, and regulatory policies that prohibit smoking in public places, prohibit sales to minors, and include use and purchase laws (D. C. Walsh & Gordon, 1986). The 2009 Family Smoking Prevention and Tobacco Control Act (TCA) gave the Food and Drug Administration (FDA) authority to regulate tobacco products. The FDA used this authority to ban most cigarette flavorings (excluding menthol), ban tobacco advertising using misleading terms such as "low" or "light," and restrict sale of tobacco products to children and adolescents (National Institutes of Health, 2012). Most recently, the FDA has issued a

final rule to regulate e-cigarettes starting from August 8, 2016 (FDA Deeming Tobacco Products, 2016). U.S. tobacco control efforts have achieved impressive results: adult smoking prevalence decreased from 43% in 1965 (U.S. Department of Health and Human Services, 2014) to 16.8% in 2014 (Jamal et al., 2015).

Despite reduced smoking in the general population, smoking prevalence remains high in some groups. Smoking is more prevalent among American Indians/Alaskan Natives, 18–24 year olds, people living in poverty, and those with less education (Centers for Disease Control and Prevention, 2002). Smoking prevalence is 25% for persons with anxiety disorders, 30% for those with depressive disorders (Grant, Hasin, Chou, Stinson, & Dawson, 2004), 50–80% for those with schizophrenia (Prochaska, Hall, & Bero, 2008; Schroeder, 2009), and about 70% among persons who receive treatment for other substance abuse problems (Gwydish, Yu, Le, Pagano, & Delucchi, 2015). Lasser et al. (2000) estimated that 44% of all cigarettes smoked in the U.S. were consumed by persons with mental health or substance abuse diagnoses.

For the estimated 4 million persons who receive some substance abuse treatment each year (Substance Abuse and Mental Health Services Administration, 2009), smoking prevalence has changed little over time. One review identified papers reporting smoking prevalence among persons enrolled in U.S. substance abuse treatment programs,

\* Corresponding author.

E-mail address: joseph.gwydish@ucsf.edu (J. Gwydish).

taking the mean of all reports found each year from 1987 to 2009. Annual drug abuse treatment client smoking prevalence summarized in the review ranged from a 65% to 87.2%, with a median of 76.3% (Guldish et al., 2011a). A study of smoking among all admissions to drug abuse treatment programs supported by the New York State Office of Alcoholism and Substance Abuse Services (OASAS) found annual smoking rates ranging from 69.5% in 2007 to 71.2% in 2012 (Guldish et al., 2015). Last, a 2014–15 survey of clients ( $N = 1113$ ) enrolled in a national sample of 24 substance abuse treatment programs reported a smoking prevalence of 77.9% (Guldish et al., 2016b). These findings suggest that, from 1987 to 2015, there was no observable decrease in smoking prevalence among persons enrolled in substance abuse treatment.

The need to treat tobacco use among persons in substance abuse treatment appears in clinical practice guidelines (Fiore et al., 2008) and position statements of professional organizations (American Public Health Association, 2003; American Society of Addiction Medicine, 2008; NAADAC, n.d.). At least two reviews have shown that either smoking cessation while in drug treatment is associated with improved drug use outcomes (Prochaska, Delucchi, & Hall, 2004) or has no effect on other drug use outcomes (Thurgood, McNeill, Clark-Carter, & Brose, 2016). Research has explored the barriers to providing tobacco intervention in these settings (Guldish, Passalacqua, Tajima, & Manser, 2007; Pagano, Tajima, & Guldish, 2016), has commented on the need for change in drug treatment culture (Bowman & Walsh, 2003; Campbell, Wander, Stark, & Holbert, 1995; Stuyt, Order-Connors, & Ziedonis, 2003), and has called for development and enforcement of tobacco policies in state-level treatment systems (Krauth & Apollonio, 2015).

Publicly funded drug abuse treatment programs represent about 2/3 of the current national drug treatment infrastructure (Mark et al., 2007; Mechanic, Schlesinger, & McAlpine, 1995). In this treatment system, there is a tradition of hiring staff who are also in recovery from substance abuse. This practice offers employers a dedicated workforce available at lower cost, offers recovering persons a way to re-enter the workforce and use their own recovery skills on the job, and reflects values of peer based intervention in the recovery community. As smoking prevalence among drug treatment clients is higher than that in the general population, smoking prevalence among drug treatment staff may also exceed that in the general population (Cookson et al., 2014; Guldish et al., 2007). Staff smoking has been reported as one barrier to provision of smoking cessation services to clients (Guldish et al., 2007), although one study reported that staff smoking was not associated with adoption of smoking cessation services (Knudsen, Studts, Boyd, & Roman, 2010). Although the practice of staff and clients smoking together is noted in commentaries (Substance Abuse and Mental Health Services Administration, 2011; Ziedonis, Guldish, Williams, Steinberg, & Foulds, 2006), we found no data-based reports on this issue. For example, among 42 papers exploring different aspects of smoking among persons enrolled in drug abuse treatment (Guldish et al., 2011a), none measured the practice of staff and clients smoking together. The current paper reports on the practice of staff and clients smoking together in a national sample of 24 publicly-funded substance abuse treatment programs, and examines associations of staff and clients smoking together with both client-level and program-level tobacco-related outcomes.

## 2. Methods

### 2.1. Sampling design

In a study of tobacco use among persons enrolled in substance abuse treatment, we developed a random sample of treatment programs involved in the National Institute on Drug Abuse (NIDA) Clinical Trials Network (CTN) in 2013. Eligible for inclusion were 48 CTN-affiliated programs that a) were publicly-funded, b) had at least 60 active clients, and c) had a program director willing to assign a staff liaison to

coordinate data collection with our research team. From these, 33 programs were randomly selected and contacted by the research team. The final sample included 24 programs (7 outpatient, 10 residential, 7 methadone) located in 14 states (CA, CT, FL, HI, NC, NY, OH, OR, PA, SC, SD, TX, WV, VA). Details of sampling design, and program selection and recruitment, are reported elsewhere (Guldish et al., 2016b).

### 2.2. Participants and procedures

Each participating program was visited by the research team between May 2014 and February 2015. Clients were eligible to complete the survey if that were in the treatment program on the day of the site visit, and if they had been in treatment at the program for at least 10 days. In each program, one staff member was identified to coordinate all site visit logistics and activities with visiting research team. In residential programs, participants were recruited into multiple time slots during the day; in methadone programs, clients were recruited during morning dosing hours; and in outpatient programs, clients were recruited either at the beginning or end of group counseling sessions. For those clients who were interested in participating, the research staff explained the study and completed consent procedures, and participants then completed the surveys using iPads. Because residential program clients live in their program, and methadone clients generally visit their program once a day, data collection site visits in these programs usually lasted only one day. Site visits lasted 2–3 days in outpatient clinics, because most clients visit the clinic on weekly basis, and recruitment of up to 50 participants took more than one day. The number of participants recruited per clinic ranged from 28 to 53, with a median of 50. Each client completing the survey received a \$20 gift card, and each program participating in the study received a \$2000 incentive. Each program director was interviewed by phone, following the site visit, to assess tobacco-related policies and services in the program. Details of client recruitment and data collection are reported in Guldish et al. (2016b), and details of the program director interviews are reported in Pagano et al. (2016). All study procedures were approved by the University of California, San Francisco, Institutional Review Board.

### 2.3. Measures

#### 2.3.1. Client demographic characteristics and use of tobacco products

Participants reported their age, gender, education level, race/ethnicity, and the type of treatment where they were recruited (outpatient, residential, methadone). Smoking status was reported by each client, and current smokers were those who reported having smoked > 100 cigarettes in their lifetime and also self-identified as current smokers. Only current smokers reported number of cigarettes smoked per day (CPD), and readiness to quit smoking, which was assessed using the item: “Are you seriously thinking of quitting smoking?” with possible responses categorizing stage of change as: pre-contemplation (not thinking of quitting in the next 6 months), contemplation (thinking of quitting in the next 6 months), and preparation (thinking of quitting within the next 30 days) (DiClemente, Prochaska, Fairhurst, & Velicer, 1991).

All participants were asked “Do staff and clients ever smoke together,” with response codes of “yes” or “no.” The proportion of respondents reporting “yes” was used as a single measure for each clinic, with values ranging from 2.6% to 90.5%.

#### 2.3.2. Client smoking knowledge, attitudes, and services

All participants reported attitudes toward quitting smoking as measured by the Smoking Knowledge Attitudes and Services (S-KAS) survey (Guldish, Tajima, Chan, Delucchi, & Ziedonis, 2011b). In this analysis we used the S-KAS Attitude subscale and the Program Service subscale, each comprised of 8 items. Attitude scale items ask, for example, whether clients in the program want to quit smoking, whether counseling for quitting smoking is an important part of the program's mission, and

whether quitting smoking is part of their individual treatment plan. Program Service scale items ask, for example, whether the current program had provided the respondent with advice on how to quit smoking, educational materials about quitting, referral to a smoking cessation specialist, or medication to help quit smoking. For both scales, items are scored from 1 to 5, and a higher scale score (the mean of the item scores) reflects more positive attitudes toward smoking cessation and, for the Program Service scale, receipt of more tobacco-related services. Prior research demonstrated acceptable reliability ( $\alpha = 0.75$ ) for the Attitude scale and high reliability ( $\alpha = 0.82$ ) for the Program Service scale (Guydish et al., 2011b).

### 2.3.3. Program director interviews

As part of the program director interview, directors were asked, “about what percentage of your staff are current smokers?” Program directors’ estimates of staff smoking prevalence have been used in prior research on tobacco use in drug abuse treatment (Knudsen et al., 2010). Program Directors were also asked about tobacco policies in their clinic (Pagano et al., 2016). For the study reported here, two raters independently read and rated each interview to assess whether the program did (1) or did not (0) have a tobacco-free grounds policy, defined as a ban on smoking both inside and outside, and including anywhere on program grounds. Inter-rater reliability for this measure was good ( $\kappa = 0.73$ ), and disagreements were resolved through discussion with a third rater.

### 2.4. Data analysis plan

We were interested in the association between staff and client smoking together (predictor) and client-level and program-level outcomes. The unit of analysis was the clinic ( $N = 24$ ), limiting sample size. To limit risk of Type I error we selected a set of 6 outcomes a priori, each calculated at the clinic level. Four client-level outcomes were client smoking prevalence as reported by clients, mean CPD among clients who smoked, the proportion of client smokers who thought they may quit smoking in the next 30 days, and the mean S-KAS Attitude scale score. Two program-level outcomes were the mean S-KAS Program Service scale scores, which reflects services received by clients in the program, and staff smoking prevalence as reported by the program director.

The small sample size also limited the number of control variables included in the model because adjusting for control variables results in reduced power, over-specification of the model, and reduced generalizability. We selected 5 potential control variables: Age, gender, education, race/ethnicity, and the type of treatment program where participants were recruited (outpatient, residential, methadone). The first four of these are associated with smoking prevalence in the general population (Centers for Disease Control and Prevention, 2015; Garrett et al., 2011) and with regards to the drug treatment population, smoking is more prevalent among persons enrolled in methadone treatment (Guydish et al., 2016a). For analyses at the clinic level, these variables were operationalized as mean age of clients surveyed in the clinic, percent of men in the clinic, percent White in the clinic, percent with education greater than high school, and three program types (outpatient, residential, methadone).

To limit the number of control variables in any single model, we first correlated the 5 control variables with the 6 outcomes, and then developed models using two criteria. First, if a control variable was correlated with  $> 1$  of the 6 outcomes at  $p \leq 0.10$ , then that variable was included in all models tested. Age, education and ethnicity met this criterion. Age was positively correlated with both the S-KAS attitude scale ( $r = 0.45$ ,  $p < 0.05$ ) and intent to quit smoking in the next 30 days ( $r = 0.35$ ,  $p < 0.10$ ). Education was inversely correlated with staff smoking prevalence ( $r = -0.34$ ,  $p = 0.11$ ) and with client smoking prevalence ( $r = -0.41$ ,  $p < 0.05$ ). White Race was positively correlated with CPD

( $r = 0.67$ ,  $p < 0.001$ ), and inversely correlated with S-KAS attitude ( $r = -0.53$ ,  $p < 0.01$ ) and service scales ( $r = -0.57$ ,  $p < 0.01$ ), and with intent to quit smoking in the next 30 days ( $r = -0.43$ ,  $p < 0.05$ ). Second, if the control variable was correlated with only 1 of the 6 outcomes, then that control variable was included in the model only for the outcome to which it was related. Program type and gender met this second criterion. Program type was correlated only with client smoking prevalence ( $r = -0.53$ ,  $p < 0.01$ ) and was included only in the model testing the client smoking outcome. Gender was positively correlated only with staff smoking prevalence ( $r = 0.39$ ,  $p = 0.05$ ) and was included only in the model testing the staff smoking outcome. All analyses adjusted for age, education, and race/ethnicity. The 24 programs were located in 14 states, so that some states (CA, CT, FL, NC, PA) included more than one program. Participants from programs located in the same state may not represent statistically independent observations. To adjust for this lack of independence, all models controlled for nesting of programs within state. In addition, the model testing client smoking prevalence included program type as a control variable, and the model testing staff smoking prevalence included gender as a control variable.

Last, we assessed whether the program’s tobacco policy environment was associated with the rate of staff and clients smoking together. The mean rate of client and staff smoking together was calculated and compared for the programs classified as having ( $n = 7$ ) and not having ( $n = 17$ ) tobacco-free grounds.

## 3. Results

Demographic characteristics of the client sample ( $N = 1113$ ) are shown in Table 1. Mean age of participants was 38.3 (sd = 11.74), 50.2% were male, 75.8% had a high school education or greater, and 55.3% were White. Over one-third of participants (38%) were recruited from residential programs, while slightly less than one-third each were recruited from outpatient (30.9%) and methadone (31.1%) programs.

The main predictor variable (staff and clients smoking together) and the 6 selected outcome variables are summarized in Table 2, reported as the mean of the values in the 24 programs. Across the 24 programs, for example, the proportion of clients reporting that staff and clients smoked together ranged from 2.6% to 90.5%, with a mean value of 39.4% (sd = 26.16). Similarly, across the 24 programs, staff smoking prevalence ranged from 2.2% to 50%, with a mean of 22.9% (sd = 16.34).

**Table 1**  
Demographic characteristics for persons enrolled in 24 addiction treatment ( $N = 1113$ ).

Variable	Mean (SD) or n (%)
Age	38.3 (11.74)
Gender	
Male	558 (50.2%)
Female	549 (49.4%)
Other	5 (0.5%)
Education	
Less than high school/GED	269 (24.2%)
High school/GED	363 (32.6%)
More than high school/GED	480 (43.2%)
Race/ethnicity	
Hispanic	132 (11.9%)
Black/African American	211 (19.0%)
White	615 (55.3%)
American Indian/Alaska Native	54 (4.9%)
Asian/Pacific Islander	17 (1.5%)
Other/multiple	83 (7.5%)
Treatment type	
Outpatient	344 (30.9%)
Residential	423 (38.0%)
Methadone	346 (31.1%)

**Table 2**Tobacco-related measures for treatment programs ( $N = 24$ ).

Variable	Mean (SD)
Staff and clients smoke together (%)	39.4 (26.16)
Client smoking prevalence (%)	78.4 (13.81)
Client cigarettes per day (CPD)	12.9 (2.55)
Client thinking of quitting next 30 days (%)	27.8 (9.15)
Client S-KAS attitude mean (range 1–5)	3.2 (0.26)
Client S-KAS program service mean (range 1–5)	2.3 (0.50)
Staff smoking prevalence (%)	22.9 (16.34)

Results of regression analyses are reported in Table 3. The rate at which staff and client smoked together was associated with lower rates of client intent to quit smoking in the next 30 days ( $\beta = -0.201, p = 0.027$ ), with more negative attitudes toward quitting smoking among clients ( $\beta = -0.007, p = 0.004$ ), with fewer tobacco-related services received by clients ( $\beta = -0.010, p = 0.024$ ), and with higher staff smoking prevalence ( $\beta = 0.493, p = 0.006$ ). Client smoking prevalence and mean CPD among those who smoked were not associated with the rate of staff and client smoking together.

Last, the mean rate of staff and clients smoking together was lower among programs with tobacco-free grounds policies as compared to programs without such policies (18.3% v. 48.1%,  $t(22) = 3.98, p < 0.001$ ).

#### 4. Discussion

Smoking is a pernicious health behavior and is epidemic among persons enrolled in substance abuse treatment. Only 29% of drug treatment programs offer smoking cessation services as reported by program directors (Knudsen & Roman, 2015), citing time and training as barriers (Guydish et al., 2007; Pagano et al., 2016), and most states do not require provision of tobacco cessation services in substance abuse agencies they regulate (Krauth & Apollonio, 2015). As a result these clients are more likely to die of tobacco-related causes than of other drug-related causes (Bandiera, Anteneh, Le, Delucchi, & Guydish, 2015; Hser, McCarthy, & Anglin, 1994; Hurt et al., 1996).

Findings from the current study show that staff and client smoking together was a common practice in drug abuse treatment centers, located in 14 states, and as recently as 2015. The practice of staff and clients smoking together may relate to high rates of smoking among persons in drug abuse treatment, continued smoking among persons in recovery from other drug use, and the potential skill and economic advantages of hiring recovering persons into drug treatment staff positions. To the degree that smoking prevalence is elevated among both client and staff, smoking together may be considered normal, or even therapeutic. Yet it must be called into question whether the practice of staff and clients smoking together has any place in a professional drug treatment program that is part of a community healthcare system.

**Table 3**Association between staff and client smoking together and client and program-level tobacco outcomes<sup>a</sup>.

	Estimate		p
	$\beta$	95% CIs	
Client smoking prevalence <sup>b</sup>	0.234	−0.096, 0.564	0.121
Client cigarettes per day (CPD)	0.003	−0.041, 0.048	0.864
Client thinking of quitting in the next 30 days	−0.201	−0.370, −0.032	0.027
Client S-KAS attitude mean	−0.007	−0.010, −0.003	0.004
Client S-KAS program service mean	−0.010	−0.019, −0.002	0.024
Staff smoking prevalence <sup>c</sup>	0.493	0.217, 0.770	0.006

<sup>a</sup> All models adjusted for age, education, race/ethnicity, and for nesting of programs within state.

<sup>b</sup> Also adjusted for program type.

<sup>c</sup> Also adjusted for gender.

The current study found that, where reports of staff and clients smoking together were higher, staff smoking prevalence was also higher. Where reports of staff and clients smoking together were lower, however, client attitudes about quitting were higher, clients reported receiving more tobacco services, and client intent to quit smoking was elevated. Supporting a policy approach, programs with a tobacco-free grounds policy in place had lower rates of staff and client smoking together.

These are findings of an association between a selected practice (staff and clients smoking together) and client and program-level tobacco-related outcomes in substance abuse treatment. All data were based on client self-report, except for the estimate of staff smoking prevalence which was based on report of the program director. Analyses rely on cross-sectional data, which prohibits causal inference. The number of programs included was small, and ability to control for potential confounders was limited. The program tobacco policy measure was based on ratings of director interviews, rather than on direct observation or review of written policies. The program policy measure concerned the presence or absence of tobacco free grounds which, although it may be conceptually related, is not the same as the presence or absence of a ban on staff and clients smoking together.

There have been positive developments in recent years at regulatory, organizational and clinician levels regarding addressing smoking in substance abuse treatment. However, staff smoking together with clients models and normalizes a negative health behavior (Ziedonis et al., 2006), and undermines efforts to reduce smoking. Study findings illuminate a clear, actionable, low cost policy intervention, which is to prohibit the practice of staff smoking together with clients. There may be challenges to face in changing a practice that is culturally accepted in some programs. For example, rationales for allowing the practice include the belief that smoking together builds rapport/trust (R. A. Walsh, Bowman, Tzelepis, & Lecathelinis, 2005). Despite these challenges, there is no reason to continue the practice of staff and clients smoking together. Substance abuse counselors are advised to avoid this practice, program directors are advised to implement policies to prevent it, and State substance abuse treatment agencies are advised to prohibit this practice as a matter of licensing and regulation. The Substance Abuse and Mental Health Services Administration (SAMHSA) should recommend ending this practice in any effort to develop guidelines for addressing tobacco in behavioral health services.

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