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Staff Knowledge, Attitudes, and Practices Regarding Nicotine Dependence Differ by Setting

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Abstract

This study examined smoking-related knowledge, beliefs, self-efficacy, smoking cessation practices, and barriers to providing smoking cessation services in a workforce sample. The 11 participating clinics (N=335 staff) included substance abuse treatment and HIV care clinics categorized into three types: Veterans Affairs Medical Center (VAMC) clinics, hospital-based clinics, and community-based clinics. Staff in both VAMC and hospital-based settings shared characteristics that may predict smoking-related knowledge, beliefs, and practices (higher education level, low smoking rates, fewer staff in recovery, and location in hospital-affiliated environments where there was greater emphasis on physical health). However, staff in VAMC settings outperformed those in both hospital-based and community-based clinic settings on measures of smoking-related knowledge, beliefs, self-efficacy, and practices. Well-developed procedures to support VAMC clinicians in addressing smoking may account for these findings. Findings suggest that both reductions in staff smoking, and development and implementation of smoking policy are needed to support staff in better addressing nicotine dependence in community-based treatment settings.

Introduction

Smoking prevalence among adults in the U.S. has decreased from 40% in 1964 to 20% currently (Centers for Disease Control and Prevention [CDC], 2008). While this represents a significant public health success, the benefits of lower smoking prevalence are not shared equally by all segments of the population, as persons with mental health, substance abuse and HIV diagnoses continue to smoke at elevated rates. One widely-cited study estimated that 44% of all cigarettes sold in the U.S. are smoked by persons having a current mental health diagnosis, including substance use disorders (Lasser et al., 2000). Compared to the

general population, persons with substance abuse disorders have higher smoking prevalence (Sullivan & Covey, 2002), smokers with a history of alcoholism appear more heavily dependent on nicotine compared to those without such a history (Hughes, 2002), and smokers in alcohol treatment may find it harder to quit smoking as compared to non-alcoholic smokers (Drobes, 2002). Studies of persons entering treatment for alcohol as well as opioid dependence suggest that these populations are more likely to die from smoking-related causes than other substance abuse-related causes (Hser, McCarthy, & Anglin, 1994; Hurt et al., 1996). A smaller literature is available related to smoking and HIV, but studies suggest that smoking prevalence is elevated among HIV-affected persons (Craib et al., 1992), that smoking is related to HIV-related medical problems in this population (Diaz et al., 2000), and that quitting smoking is recommended for persons living with HIV (Hirschtick et al., 1995).

Some data suggest that, for persons engaged in substance abuse treatment, traditional smoking cessation strategies yield poor results. Prochaska, Delucchi, and Hall (2004), in a meta-analysis of smoking cessation studies in substance abuse populations, found generally low successful quit rates in the studies they reviewed. Looking across 11 studies of smoking cessation among person who were enrolled in substance abuse treatment, Prochaska et al. (2004) reported cessation rates ranging from 0% to 33%. For 8 of the 11 studies, however, post-intervention smoking quit rates were below 10%. At least two studies have now observed an approximate 10% smoking cessation rate among persons enrolled in drug treatment where no specific smoking intervention was provided (Chun, Guydish, & Delucchi, in press; Kohn, Tsoh, & Weisner, 2003). Smoking cessation interventions that achieve only a 10% rate for persons enrolled in substance abuse treatment may be reflecting only ongoing background quit attempts in this population.

Program and organizational factors may contribute to the poor smoking cessation outcomes observed to date among persons enrolled in substance abuse treatment. In an early study of program factors related to smoking in drug treatment settings, Bobo and Gilchrist (1983) surveyed alcohol treatment staff regarding their attitudes toward providing smoking cessation to clients. Responses were received from 311 staff in 23 clinics; 40% of respondents were smokers, and staff who smoked were less likely to encourage smoking cessation among clients. Since Bobo and Gilchrist (1983), several papers have applied survey methods to explore prevalence of smoking among drug abuse treatment staff and to identify barriers that may hinder efforts to address smoking among clients. In a recent review of such papers, staff smoking prevalence ranged from 14% to 40%, and the three most commonly reported barriers were lack of staff knowledge or training, the belief that smoking cessation concurrent with other drug or alcohol treatment may create a risk to sobriety, and that many staff are themselves smokers (Guydish, Passalacqua, Tajima, & Manser, 2007). The authors commented that while staff smoking prevalence appears elevated in many settings, it is not elevated in all settings. Specifically, smoking prevalence may be lower where staff is more educated or professionally trained, and may be higher in community-based drug treatment programs.

At least three studies have examined other organizational factors related to the availability of smoking cessation services in drug abuse treatment settings. Richter, Choi, McCool, Harris, and Ahluwalia (2004) surveyed clinic leadership in all U.S. outpatient methadone clinics. While 73% of clinics had provided brief advice to clients to quit smoking in the 30 days preceding the survey, 18% had offered group or individual smoking cessation counseling and 12% had prescribed nicotine replacement therapy (NRT). Clinics with written guidelines to address smoking, those that were public (rather than private for-profit), and those with staff training in nicotine dependence were more likely to provide a broader range of nicotine dependence services. Fuller et al. (2007) surveyed both treatment unit directors

and program staff in 388 treatment units participating in the NIDA Clinical Trials Network. Fewer than a third (31%) of treatment units offered smoking cessation intervention, and predictors of the presence of such intervention were staff attitudes toward treating smoking, the number of medical and mental health services offered in addition to drug abuse treatment, and the presence of a residential detoxification service. Staff in Veterans Affairs Medical Centers (VAMCs) were more likely to demonstrate positive attitudes toward addressing smoking. Last, Friedmann, Jiang, and Richter (2008) analyzed data from a national sample of outpatient substance abuse program directors and clinical supervisors. More than one-third of programs (41%) offered smoking cessation intervention, and organizational factors associated with such services were hospital affiliation, the breadth of services (defined as the sum of services provided from a list of 22), emphasis given to physical health, and whether the program offered addiction medications other than methadone (i.e., buprenorphine, naltrexone, antabuse). These reports suggest that substance abuse programs in VAMCs and those with greater hospital or medical affiliation are more likely to offer smoking cessation services.

The current study investigated differences in smoking related constructs as reported by staff in different types of settings. Staff in nine drug abuse treatment clinics and two HIV care clinics were surveyed about knowledge of smoking risks, attitudes toward treating nicotine dependence, practices used to address smoking with clients, counselor self-efficacy in providing such services, and barriers to providing such services. Participating clinics were classified according to whether they were VAMC settings, hospital-based settings, or community-based settings. Hypotheses were that staff smoking rates would be higher, and that beliefs about treating smoking, self-efficacy to provide such treatment, and actual practices provided would be lower in community-based settings as compared to VAMC or hospital-based settings.

Methods

Selection of Clinics

Analyses reported here are based on data from two studies. In the first study, two intervention clinics (one substance abuse treatment clinic and one HIV care clinic) participated in clinical trials for smoking cessation. Three additional clinics (two substance abuse and one HIV care) were recruited as control clinics (Chun et al., in press). All of the clinics were either VAMC substance abuse treatment clinics or hospital-based HIV care clinics. In its original design the parent study included five clinics, and all of those clinics are included in the present analysis. However, to enable additional comparisons with a broader sample of clinics, data collection was expanded to three additional clinics.

The second study tested the effectiveness of a manualized tobacco cessation intervention designed to facilitate the integration of drug abuse and nicotine dependence treatments. The tobacco intervention was implemented at three residential community-based drug abuse treatment clinics located in Oregon, Ohio, and Massachusetts. The intervention uses a 12-step approach to implementation, and core strategies such as preparation for the intervention and formation of an agency workgroup specifically for tobacco-related issues (Ziedonis et al., 2007). In its original design, this parent study included a total of three clinics, and all of those are included in the present analysis.

Both studies were conducted by the same study team and using the same instrument, enabling the comparative analyses reported in this paper. Taken together, the analyses presented here included survey data collected from 11 clinics during the period of April 2005 through October 2007. Of the 11 agencies, 3 were VAMC substance abuse outpatient clinics, 3 were hospital-based clinics (2 HIV care, 1 methadone clinic), and 5 were

community-based treatment substance abuse clinics (2 outpatient non-methadone, 3 residential). Importantly, the 3 VAMC settings and the 5 community-based settings were all drug treatment clinics, while the hospital-based settings included one drug treatment clinic and two HIV care clinics.

Survey Participants

In each clinic, all paid staff (clinical and administrative) were eligible for inclusion. Volunteer staff, ex-employees, and members of the Board of Directors were excluded. Across all clinics, 384 staff met eligibility criteria and were invited to participate; 363 (94.5%) responded, although a few of those declined to participate, and 335 (88%) completed the survey. Response and completion rates did not differ across the three setting types.

Measures

The self-administered survey covered questions concerning tobacco use, dependence, and treatment, and questions concerning staff knowledge, attitudes, and practices in regards to tobacco dependence treatment with clients.

Demographic, Smoking, and Employment Characteristics

Participants were asked to report their gender, whether they were of Hispanic or Latino descent, and their race in six categories (these were collapsed to African-American, White, and Other in analyses). Education was assessed as highest degree held (e.g., no high school degree, high school degree, some college, Associate, Bachelor, Master, or Doctoral degree), and this was dichotomized to no Bachelor degree or or at least a Bachelor degree. Smoking status was assessed by self-report ("Do you currently smoke cigarettes?"). Those responding "yes" to this question were considered current smokers, and those responding "no" were asked further "Have you ever smoked cigarettes?" Those responding "yes" were categorized as former smokers while all others were categorized as never smokers.

Participants reported their discipline or profession using a check list including 17 categories. Those who identified in any of 7 categories were collapsed into a single variable reflecting a medical profession: physician (primary care, psychiatry, other specialty), nurse (RN or LPN/LVN), or nursing assistant or physician's assistant. Examples of the remaining categories—considered non-medical professions—are psychologist, psychological technician, social worker, addictions or other counselor, vocational rehabilitation, and student. Participants reported whether they were currently certified or licensed in the addictions field (yes/no), whether they considered themselves in recovery from substance abuse (yes/no), the number of years they had worked in their field (either addictions or HIV care), and the number of direct patient contact hours they had in a typical week. Participants also reported their primary job title. Those who identified as a clinician, counselor, assistant counselor, or case manager were classified as clinicians. Staff in all other job descriptions were classified as non-clinicians (e.g., program director, administrator, training coordinator, or research titles).

Smoking Knowledge, Attitudes, and Practices (S-KAP)

The staff survey of smoking knowledge, attitudes, and practices (S-KAP) was developed by the study team in the context of the two parent studies described earlier. The aim was to develop a survey instrument to assess how these constructs may change over time when clinics participate in smoking-related research studies or organizational interventions. The S-KAP includes approximately 50 questions selected from prior surveys (Borrelli et al., 2001; Goldstein, DePue, & Monroe, 1998; Velasquez et al., 2000). To assemble these questions the research team consulted with tobacco researchers and reviewed and selected the items

from the CDC Adult Tobacco Survey (CDC, n.d.), California Adult Tobacco Survey (California Department of Health Services, 2004), and the National Cancer Institute's Four A's approach to smoking cessation (Glynn & Manley, 1989), an earlier version of the Five A's approach (Fiore et al., 2000; Fiore et al., 2008).

In prior studies of staff smoking-related knowledge, attitudes, and practices in drug treatment settings, analyses have relied on comparisons of individual survey items to assess changes in these constructs. However, scales offer more robust and stable measures of underlying constructs. An exploratory factor analysis examined the underlying structure of the items revealing five factors that were labeled as knowledge, beliefs, self-efficacy, practices, and barriers (Delucchi, Tajima, & Guydish, in press). Cronbach's alpha coefficients for these five scales were, respectively, .85, .74, .72, .91, and .81. The scales are described briefly below, and items in each scale are reported in Delucchi et al., (in press).

Knowledge Scale

Items ask about the health effects of smoking and whether the respondent agrees that the risks of smoking are now demonstrated.

Beliefs Scale

Participants were asked about the degree to which smoking cessation counseling was a part of their agency's mission, whether client smoking was a clinical concern, and when might be the best point to address smoking with clients in their clinic setting.

Self-Efficacy Scale

Participants assessed their own skill level in addressing smoking with clients, whether clients were likely to follow their advice regarding smoking cessation, and whether they knew where to refer patients for additional support in quitting.

Practices Scale

Staff were asked how frequently in the past month,they had used the Four A approach with their clients (ask, advise, assisted, arrange follow up), and how frequently they encouraged patients to reduce or stop smoking, or to use NRT.

Barriers Scale

This is an eleven item scale asking participants various reasons that might limit the capacity to offer smoking cessation treatment (e.g., lack of time, training, or patient materials to support smoking cessation). Specific items are listed in Delucchi et al. (in press).

Survey Procedures

Program directors at each clinic designated one staff member to serve as liaison to the study. The liaison provided the study team with a list of staff meeting inclusion criteria, and coordinated the staff meeting where the study was explained and surveys were distributed. As the survey was confidential, each staff member was assigned a unique ID number and surveys were coded with the ID prior to distribution. Lunchtime meetings were scheduled to maximize attendance and lessen disruption of clinic activities. Lunch was provided and survey packets were distributed during the meeting. Consent procedures requirements varied by clinic. In most clinics, an information sheet describing study procedures was adequate. Other clinics required a signed consent form detailing study procedures. Participants also checked a box indicating whether they agreed to participate or to opt out of the survey. Those who were present at the meeting either filled out the survey and returned it to the researchers after completion, or mailed it later using a provided self-addressed and stamped

envelope. On completion of the survey, participants received a $25 giftcard from a local vendor. All study procedures were approved by the Institutional Review Board of University of California, San Francisco.

Data Analysis

We first compared demographic characteristics (e.g., gender, race/ethnicity, education, whether the respondent had medical training or addiction certification/licensure, smoking status, personal history of addiction recovery, and years in the field) between the three types of settings (VAMC, hospital-based, community-based). Participants were also classified as to whether or not they had clinical responsibilities. Non-clinical staff reported a non-clinical title in the agency (administrator, program director, training coordinator, intake administrator, any research title, or "other"), and reported weekly client contact hours less than or equal to five. For the subset of staff having patient care responsibility (n = 239), we compared patient contact hours per week.

As staff within a clinic cannot be considered completely independent of each other from a statistical standpoint, failure to correct for this effect underestimates the variance and the biases of the p-values downward as well as all statistical models controlled for the clustering effect using Generalized Estimating Equation (GEE) procedures (Liang & Zeger, 1986). These comparisons included all staff survey respondents (N = 335).

Our interest was in the pairwise comparisons among the three types of clinic setting. To control Type I error we applied a Bonferroni correction, dividing the alpha .05 among the 3 contrasts. Specifically, the alpha had to be lower than .0167 in order to be statistically significant.

Second, GEE analyses were used to assess differences in the five S-KAP scales (i.e., knowledge, beliefs, barriers, self-efficacy, and practices) across the three setting types. As in comparing demographic characteristics, we examined pairwise comparisons for each scale, applying the more stringent (.0167) significance level. Some of the smoking related construct measures (e.g., knowledge, barriers, and beliefs) can have meaning for all staff, both clinical and non-clinical, and these constructs may reflect the organizational culture of the clinic with respect to smoking. At the same time, self-efficacy and practice scales are more meaningful when applied to staff with clinical responsibilities. For these reasons, comparisons of scales between setting type were conducted first including all staff (N = 335) and again including only staff having clinical responsibilities (n = 239).

Last, to more directly assess the relationships between staff characteristics, type of setting, and S-KAP scales, we conducted a series of regression analyses, one predicting each of the five S-KAP scales. Included in each analysis were 10 staff characteristics listed in Table 1, reflecting demographic characteristics, employment variables, and the respondent's recovery status and smoking status. Setting type (VAMC, hospital-based, or community-based) was also included. Hispanic ethnicity was not included in this last analysis because there were very few persons of Hispanic ethnicity in the VAMC settings, and so Hispanic ethnicity was confounded with setting type. We sought to assess which of these variables may be related to smoking-related knowledge, attitudes, and practices, while controlling for other predictors.

Results

Comparison of Staff Characteristics across Settings

Table 1 displays staff characteristics for each of three setting types (VA setting, hospital-based setting, and community-based setting) in each of the first three columns. To aid

interpretation of contrasts, these settings are also labeled a, b, c, respectively. The last three columns of the table provide the *p* values for pairwise contrasts between VAMC and hospital-based settings (a, b), hospital-based and community-based clinic settings (b, c) and between VAMC and community-based clinic settings (a, c). The *p* values are reported for each paired contrast, and those meeting the Bonferroni-corrected alpha (.0167) are designated by asterisk.

Values in the a,b column show that VAMC settings were different from hospital-based settings on two variables. VAMC staff included fewer persons of Hispanic ethnicity, and reported higher mean years in the field (12.8 vs. 11.5) compared to hospital-based program staff. Values in the b,c column show several differences between staff in the hospital-based settings and those in community-based settings. Compared to staff in community-based settings, those in hospital-based settings more often had medical training (47% vs. 4%), reported lower rates of current smoking (13% vs. 40%), were less likely to report being in recovery from addiction themselves (19% vs. 64%), and reported higher mean number of years in their field (11.5 v. 8.1). Last, mean number of patient contact hours per week was higher among clinical staff in the community-based settings compared to those in the hospital-based settings. Most of the differences in b,c also carry through to the a,c contrasts, with the exception of mean number of client contact hours per week. In addition, values in the a,c column show that VAMC staff were more likely to have some college-level training (75% vs. 40%). In summary, staff in community-based settings, compared to those in both VAMC and hospital-based settings, were less likely to have medical training, had higher smoking rates, were more likely to be in recovery, and had worked in their field for fewer years.

Comparison of Smoking Related Measures across Settings

Means and standard deviations for each of the five smoking related construct scales are shown in Table 2, broken out according to each of three setting types (VAMC, hospital-based, community-based). As in Table 1, the first three columns are labeled a, b, c, and the last three columns provide the *p* value for pairwise contrasts between the three types of setting. The *p* values marked with an asterisk are those meeting the Bonferroni-corrected alpha (.0167). Scale values can range from 1-5, and generally a higher score reflects a higher level of knowledge, more positive beliefs about treating nicotine addiction, greater sense of self-efficacy in treating smoking, and the use of more practices to address smoking among clients. The exception is the barriers scale, where a higher score reflects higher barriers to addressing smoking in the clinic setting. Analyses reported in Table 2 were run twice, first including all staff respondents ($N = 335$) and again including only those with clinical responsibilities ($N = 239$). As the pattern of results was nearly identical in both analyses, Table 2 includes data for all respondents.

Values in the a,b column show that measures of smoking related knowledge, beliefs about treating smoking, self-efficacy, and use of practices to address smoking with clients were higher in VAMC than in hospital-based settings. Values in the b,c column show that there were no significant differences (at alpha= .0167), for any of the scales between hospital-based and community-based clinic settings. Values in the a,c column show significant differences for all scales such that, compared to community-based clinics, staff in VAMC clinics reported higher knowledge, more positive beliefs, lower barriers, higher self-efficacy, and greater use of practices to address smoking with their clients. When repeated with the respondent subsample having clinical responsibilities, only one result differed. The comparison of practices between hospital-based and community-based clinics was significant, such that hospital-based staff reported higher practice scores (mean = 2.6, $SD = .94$) than did community-based staff (mean = 2.2, $SD = .85$, $p = .0103$).

Relationship between Staff Characteristics, Setting Type, and S-KAP Scale scores

Results of regression analyses are summarized in Table 3. The table reports results for five regression equations predicting each of the five S-KAP scales, shown across the top of the table. Each equation included 11 predictors. These were the demographic characteristics listed in Table 1, with the exception of Hispanic ethnicity and type of setting. Tabled values are Least Square (LS) means, and significance is denoted by footnote. In the case of a variable with three levels (Race/Ethnicity, Setting, Smoker), the footnoted LS mean is significantly different from the mean of the reference category. Variables included in the table are those that showed significant relationship to at least one of the S-KAP scales. In the first row of the table, and in the Barriers column, staff who were White reported lower mean Barrier scale scores than did those in the reference category (Other race/ethnicity). Both higher education and medical training were associated with more knowledge about the risks of smoking. Education was associated with more positive beliefs about treating smoking, while medical training was associated with greater use of practices to address smoking with clients. Clinicians reported less favorable beliefs compared to non-clinicians (3.72 vs. 3.93), staff in recovery reported fewer barriers to providing smoking cessation services as compared to those not in recovery (1.89 vs. 2.08), and staff with licensing or certification were more likely to believe that treating smoking was part of their mission (3.91 vs. 3.75). Compared to never smokers, both current and former smokers were less likely to see smoking cessation as part of their mission.

However, the most robust association was between type of setting and each of the 5 S-KAP scales. Compared to staff in both community-based and hospital-based settings, those in VAMC settings reported significantly higher Knowledge, Beliefs, Efficacy and Practices. Barriers in VA settings were also significantly lower than those reported in the other settings.

Discussion

Three of the most frequently reported barriers to the provision of smoking cessation intervention in drug abuse treatment settings are lack of staff knowledge or training related to smoking, the belief that smoking cessation concurrent with other drug or alcohol treatment may create a risk to sobriety, and that many staff are themselves smokers (Guydish et al., 2007). Studies examining organizational factors found that the availability of smoking cessation services in drug treatment programs was related to staff training on nicotine dependence (Richter et al., 2004), more positive attitudes toward treating smoking (Fuller et al., 2007), and greater emphasis on physical health and hospital affiliation (Friedmann et al., 2008). In addition to being medical settings with hospital affiliation, Veterans Affairs systems have a history developing strategies to better address smoking among all patients they serve (Hamlett-Berry, 2004). Following these findings, we assessed whether key demographic characteristics of substance abuse treatment staff, and staff knowledge, attitudes, and practices related to smoking, may be different across three types of treatment settings (VAMC, hospital-based, community-based). We hypothesized that staff in VAMC and hospital-based settings would be similar on key demographics, including education level and smoking status, but that staff in community-based settings would differ on demographic characteristics, and this was generally supported. Staff in VAMC and hospital-based settings were similar on all measures except the proportion of staff who were of Hispanic ethnicity and mean number of years in the field. However, compared to both other settings, staff in community-based clinics were more often current smokers, more often in recovery, had fewer years working in their field, and fewer had medical training.

These findings are of interest for two reasons. First, they suggest that high prevalence of smoking among substance abuse treatment staff may not be a problem in all types of

settings, but is more likely a problem in community-based clinic settings. Second, among the differences observed between community-based and other types of clinics, addressing staff smoking may be the best target for intervention. Developed and effective smoking cessation interventions are available (Fiore et al., 2008). Use of strategies to increase staff readiness to quit (Prochaska et al., 2005) and making cessation intervention more accessible to staff in community-based substance abuse treatment settings would mitigate this frequently reported barrier to addressing smoking among clients in these settings.

We also expected that VAMC and hospital-based settings would perform better compared to community-based settings on measures of smoking related constructs (i.e., knowledge, beliefs, barriers, self-efficacy, and practice). This hypothesis was not confirmed. We found instead that staff in VAMC settings outperformed those in hospital-based and community-based settings on all five measures. This points to a discrepancy in findings, such that hospital-based settings were more similar to VAMC settings in terms of staff demographic characteristics including smoking status, education, and medical training, but hospital-based clinics were more similar to community-based clinics in terms of measures of smoking related constructs.

Controlling for other factors in regression analyses, higher education and medical training were associated with greater knowledge about the risks of smoking. Higher education and being certified or licensed were also associated with more positive beliefs about treating smoking, while being a clinician and being a current or former smoker were associated with less favorable beliefs about treating smoking. Among these the only unexpected finding may be that clinicians had less favorable beliefs about treating smoking, as compared to non-clinicians, and this may be because clinicians face the daily press of multiple clinical needs, where smoking is only one of several clinical issues that could be addressed. More unexpected was the finding that staff in recovery from addiction, compared to those not in recovery, saw fewer barriers to addressing smoking in their setting, and this may warrant verification in other samples or in future studies. However, the most consistent finding from the regression analyses was that staff in VAMC settings outperformed staff in other clinic settings on all of the S-KAP smoking construct scales.

Well-developed procedures to support VAMC clinicians in addressing smoking (Sherman & Farmer, 2004) may account for these findings. The VAMC system has established Clinical Practice Guidelines for several conditions and disorders, including tobacco use (Veterans Administration, Department of Defense, 2004). Performance measures for the tobacco cessation guideline include, for example, that all patients are screened annually about tobacco use. Clinicians are reminded about this screening through electronic records and—when tobacco use is reported—advice to quit, brief counseling, referral, and medication are offered to assist with cessation. National targets are set for each intervention, program performance is measured against these targets, and compliance is encouraged through performance monitoring reports, meetings, and program director incentives. If this system underlies the stronger performance of VAMC settings on smoking attitudes and practices, then that argues for increased smoking-related policy development, implementation, and counselor support in community-based drug abuse treatment systems. A few examples of such policy development are available in publicly-funded drug abuse treatment systems, notably smoke-free grounds policies implemented in New Jersey residential treatment settings (Williams et al., 2005) and a New York policy requiring assessment and treatment of smoking for all persons entering publicly-funded drug abuse treatment (Tobacco-Free Services, 2008).

Limitations to this study include generalizability, limited sample size, participation of HIV care clinics as well as substance abuse treatment clinics, and the use of new measurement

scales to assess smoking related constructs. Participating clinics comprised a convenience sample of clinics involved in other research protocols and were not selected to be representative of county, state, or national treatment systems. A total of 11 clinics were divided into three categories, with 3-5 clinics representing each type of treatment setting. For these reasons the findings are not generalizable and may warrant testing with larger and more representative samples of treatment programs. The sample included HIV care clinics as well as drug abuse treatment clinics and, moreover, HIV care clinics appeared only in the hospital-based setting group. This offers potential confounding of differences in type of setting (VAMC, hospital-based, community-based) and what the clinics were treating (substance abuse or HIV). At the same time, the inclusion of staff from two HIV care clinics enabled increased sample size, the use of the hospital-based comparison group, and distinction between VAMC settings and non-VAMC hospital settings (both of which are hospital affiliated and whicg emphasize physical health).

The staff survey measures were based on prior similar surveys, and scales were developed based on factor analyses (Delucchi et al., in press). Because these scales are new to the literature, there is no prior published research to demonstrate their usefulness in discriminating differences between types of clinic settings. Notwithstanding these limitations, this paper compared smoking related constructs across three types of clinical settings, and found differences that generally conform to the use of developed smoking related policies and procedures in VAMC settings, and to lower smoking related knowledge, beliefs, counselor self-efficacy, and practices in community-based settings where staff smoking rates are elevated.

In this study, staff in community-based treatment programs tended to have lower educational achievement and shorter time in their position and in their field, compared to those other settings. They also were often in recovery from their own addiction, and smoked at a rate approximately twice that of the U.S. adult population. Addressing staff smoking in these programs through policy development and smoking cessation intervention for staff may be the most direct route to increasing counselor use of smoking cessation practices with clients. Indeed, it is challenging to consider how smoking cessation intervention can be delivered to clients in settings where 40% of staff currently smokes. At the same time, findings for hospital-based programs suggest that much lower staff smoking rates, by themselves, are not sufficient to produce higher levels of smoking cessation intervention with clients. We found that it was in the VA system clinics that staff reported the most delivery of smoking cessation intervention to their clients, and this may be due to the use of smoking cessation guidelines implemented in a strong policy and performance monitoring framework. This suggests that both reductions in staff smoking and development and implementation of smoking policy, are needed to support staff in better addressing nicotine dependence in community-based drug abuse treatment settings.

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J Drug Issues. Author manuscript; available in PMC 2010 July 7.

Table 1

Comparison of Staff Characteristics across Settings (*N* = 335)

	Veterans Affairs Medical Center (a) (*n* = 56)	Hospital-based Settings (b) (*n* = 101)	Community-based Settings (c) (*n* = 178)	*p* value a,b	*p* value b,c	*p* value a,c
Gender (%, *n*)				0.1283	0.6580	0.0456
Male	42 (23)	34 (34)	31 (54)			
Female	58 (32)	66 (67)	68 (121)			
Hispanic	5 (3)	17 (17)	9 (16)	<.0001*	0.2068	0.3223
Race/Ethnicity (%, *n*)				0.5294	0.7305	0.8910
White	59 (33)	50 (51)	59 (105)			
African-American	21 (12)	21 (21)	25 (45)			
Other	20 (11)	29 (29)	16 (28)			
Education (%, *n*)				0.2196	0.0430	<0.0001*
No Bachelor	25 (14)	37 (37)	60 (107)			
Bachelor plus	75 (42)	63 (64)	40 (71)			
Medical (%, *n*)	36 (20)	47 (47)	4 (8)	0.2153	<0.0001*	<0.0001*
Certified/licensed (%, *n*)	30 (17)	21 (21)	49 (87)	0.5957	0.1487	0.1605
Smoker (%, *n*)				0.4367	<0.0001*	<0.0001*
Current	2 (1)	13 (13)	40 (72)			
Former	53 (30)	42 (42)	42 (75)			
Never	45 (25)	45 (45)	16 (28)			
In recovery (%, *n*)	15 (8)	19 (19)	64 (113)	0.6775	0.0036*	0.0002*
Years in Field (mean, *SD*)	12.8 (9.23)	11.5 (7.80)	8.1 (7.09)	0.0059*	<0.0001*	<0.0001*
Clinician (%, *n*)	82 (46)	73 (74)	67 (119)	0.0303	0.1492	0.0005*
Patient contact hours per week (mean, *SD*)†	25.7 (8.84)	25.0 (10.69)	28.3 (11.19)	0.7447	0.0033*	0.2118

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* *p* value is less than corrected alpha set to .0167

† Patient contact hours calculated only for staff with clinician care responsibility (*n* = 239)

Table 2

Comparison of Smoking Related Measures across Settings (*N* = 335)

Clinic Setting Mean (SD)	Veterans Affairs Medical Center (a) (*n* = 56)	Hospital-based settings (b) (*n* = 101)	Community-based Settings (c) (*n* = 178)	*p* value a,b	*p* value b,c	*p* value a,c
Scales †						
Knowledge	4.5 (0.59)	4.1 (0.81)	4.1 (0.55)	0.0152*	0.4662	0.0041**
Beliefs	4.3 (0.60)	3.6 (0.59)	3.4 (0.60)	0.0001***	0.0430	0.0001***
Barriers	2.7 (0.74)	3.0 (0.52)	3.1 (0.58)	0.0248	0.3375	0.0049**
Self-efficacy	3.6 (0.57)	3.0 (0.53)	3.0 (0.54)	0.0002***	0.4474	0.0002***
Practices	3.5 (0.96)	2.5 (0.97)	2.2 (0.91)	0.0002***	0.0497	0.0001***

† Scale values range from 1-5, and a higher score reflects a higher level of knowledge about smoking, more positive beliefs about treating smoking in the clinic setting, greater sense of self-efficacy, or the use of more practices to address smoking among clients. The exception is the barriers scale, where a higher score reflects higher barriers to addressing smoking in the clinic setting.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Least Square (LS) Means and Standard Errors for Regression Models Predicting S-KAP Scale Scores [§]

	Knowledge	Beliefs	Barriers	Efficacy	Practice
Race/Ethnicity					
African-American	4.19 (0.09)	3.73 (0.08)	2.00 (0.08)	3.25 (0.08)	2.74 (0.14)
Caucasian/White	4.32 (0.06)	3.83 (0.06)	1.87 (0.06)*	3.20 (0.06)	2.81 (0.10)
Other (Reference)	4.18 (0.09)	3.92 (0.00)	2.09 (0.09)	3.29 (0.08)	2.84 (0.14)
Education					
Bachelor plus	4.35 (0.07)**	3.96 (0.07)**	1.92 (0.07)	3.31 (0.06)	2.80 (0.11)
No Bachelor	4.12 (0.07)	3.69 (0.07)	2.06 (0.07)	3.18 (0.06)	2.80 (0.11)
Medical					
Yes	4.34 (0.09)*	3.85 (0.09)	1.99 (0.09)	3.31 (0.08)	2.99 (0.14)**
No	4.13 (0.06)	3.80 (0.05)	1.98 (0.05)	3.18 (0.05)	2.60 (0.09)
Clinician					
Yes	4.22 (0.06)	3.72 (0.05)*	1.95 (0.05)	3.28 (0.05)	2.88 (0.09)
No	4.24 (0.09)	3.93 (0.08)	2.03 (0.08)	3.21 (0.08)	2.72 (0.14)
In Recovery					
Yes	4.24 (0.08)	3.85 (0.08)	1.89 (0.08)*	3.30 (0.07)	2.92 (0.12)
No	4.22 (0.07)	3.80 (0.07)	2.08 (0.07)	3.19 (0.06)	2.67 (0.11)
Certified/licensed					
Yes	4.22 (0.08)	3.91 (0.08)*	1.98 (0.08)	3.28 (0.07)	2.86 (0.13)
No	4.25 (0.06)	3.75 (0.06)	1.99 (0.06)	3.22 (0.05)	2.74 (0.09)
Smoker					
Current	4.24 (0.09)	3.76 (0.08)*	2.12 (0.09)	3.17 (0.08)	2.77 (0.14)
Former	4.32 (0.07)	3.75 (0.07)*	1.89 (0.07)	3.27 (0.06)	2.77 (0.11)
Never (Reference)	4.14 (0.09)	3.97 (0.08)	1.95 (0.08)	3.30 (0.08)	2.85 (0.13)

J Drug Issues. Author manuscript; available in PMC 2010 July 7.

	Knowledge	Beliefs	Barriers	Efficacy	Practice
Setting					
Community-based	4.14 (0.08)*	3.54 (0.07)***	2.12 (0.07)**	3.14 (0.07)***	2.31 (0.12)***
Hospital-based	4.12 (0.08)**	3.62 (0.07)***	2.03 (0.07)*	3.00 (0.07)***	2.51 (0.11)***
VA (Reference)	4.44 (0.10)	4.31 (0.10)	1.82 (0.10)	3.60 (0.09)	3.57 (0.16)

§Each equation included gender, race/ethnicity, education, whether the respondent had medical training (Medical) or clinical responsibility (Clinician), smoking status, recovery status, certified/licensed in addictions treatment, number of years in their field, number of patient contact hours per week, and clinical setting type. Tabled values are Least Square (LS) means. For variables with three levels (e.g., Ethnicity), the footnoted LS mean is significantly different from the mean of the reference category. Variables in the table are those that showed significant relationship to at least one S-KAP scale.

*p < .05.

**p < .01.

***p < .001