

Brief Report

# Substance Abuse Treatment Counselors and Tobacco Use: A Comparison of Comprehensive and Indoor-Only Workplace Smoking Bans

Hannah K. Knudsen, Ph.D.,<sup>1</sup> Sara E. Boyd, M.S.,<sup>2</sup> & Jamie L. Studts, Ph.D.<sup>3</sup>

<sup>1</sup> Department of Behavioral Science and Center on Drug and Alcohol Research, University of Kentucky, Lexington, KY

<sup>2</sup> Department of Psychology, University of Kentucky, Lexington, KY

<sup>3</sup> Department of Behavioral Science, University of Kentucky, Lexington, KY

Corresponding Author: Hannah K. Knudsen, Ph.D., Department of Behavioral Science, University of Kentucky, 109 Medical Behavioral Science Bldg, Lexington, KY 40536-0086, USA. Telephone: 859-323-3947; Fax: 859-323-5350; E-mail: hannah.knudsen@uky.edu

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## Abstract

**Introduction:** While indoor smoking bans reduce employee tobacco use, less is known about whether comprehensive bans, which prohibit smoking in both indoor and outdoor areas, are associated with lower rates of tobacco use than indoor-only bans.

**Methods:** This study integrated data collected via mailed surveys from 1,910 substance abuse treatment counselors and telephone interviews with 417 administrators of substance abuse treatment organizations. Multinomial logistic regression was used to estimate the associations between counselors' self-reported tobacco use and administrators' reports about organizational smoking bans while controlling for counselors' professional and demographic characteristics.

**Results:** In this sample, 20.3% of counselors were current tobacco users, 47.7% identified as former users, and 32.0% reported never using tobacco products. Only 19.5% of counselors worked in a treatment organization that had a comprehensive smoking ban. The likelihood of being a current tobacco user, compared with being a former user or nonuser, was significantly lower for counselors in organizations with comprehensive bans even after controlling for professional and demographic characteristics.

**Conclusions:** Although relatively few substance abuse counselors worked in treatment organizations with comprehensive bans, such bans may represent a promising direction for tobacco control. Given recent research documenting how tobacco use is negatively associated with the delivery of smoking cessation services by health care workers, additional research on the impact of comprehensive environmental tobacco policies is needed.

## Introduction

Tobacco use remains a significant cause of premature mortality and disease in the United States (Centers for Disease Control and Prevention [CDC], 2008). Declining rates of smoking flattened

in the 2000s (CDC, 2007), indicating the need for additional tobacco control. The workplace is one important venue for tobacco control because smoking harms employees' health and increases costs for employers (Bunn, Stave, Downs, Alvir, & Dirani, 2006; Halpern, Shikiar, Rentz, & Khan, 2001; Max, 2001).

Clean indoor air regulations in the workplace reduce employee tobacco use (Evans, Farrelly, & Montgomery, 1999; Farrelly, Evans, & Sfekas, 1999; Fichtenberg & Glantz, 2002; Kinne, Kristal, White, & Hunt, 1993; Levy & Friend, 2003; Longo, Johnson, Kruse, Brownson, & Hewett, 2001; Longo et al., 1996; Woodruff, Rosbrook, Pierce, & Glantz, 1993). Total bans are more effective than policies restricting smoking to specific indoor areas (Bauer, Hyland, Li, Steger, & Cummings, 2005; Farrelly et al.; Glasgow, Cummings, & Hyland, 1997), suggesting that increased restrictiveness accomplishes greater tobacco control.

Comprehensive bans prohibiting both indoor and outdoor smoking may yield even greater benefits (Nagle, Schofield, & Redman, 1996). About 39% of U.S. hospitals have comprehensive bans (Williams et al., 2009), and case studies have documented subsequent reductions in smoking (Offord, Hurt, Berge, Frusti, & Schmidt, 1992; Wheeler et al., 2007). Nearly all methadone maintenance clinics completely ban indoor smoking, but only 8% prohibit staff from smoking in all outdoor areas (Richter, Choi, & Alford, 2005). Given the relationship between indoor ban restrictiveness and tobacco use, we hypothesized that comprehensive smoking bans are negatively associated with employee tobacco use, relative to indoor-only smoking bans, in substance abuse treatment programs.

## Method

### Samples and Data Collection

This study included publicly funded substance abuse treatment organizations, privately funded organizations, and therapeutic communities (TCs). All organizations previously participated

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## Comparison of workplace smoking bans

in the National Treatment Center Study (NTCS) in 2002–2004 and delivered treatment services ranging from outpatient to residential care. Many facilities offered multiple levels of care. Publicly funded organizations received  $\geq 50\%$  of their annual revenues from governmental block grants and contracts. Privately funded organizations received  $< 50\%$  of their revenues from these sources. Programs self-identifying as TCs were placed in a separate sample because they are a unique modality (DeLeon, 2000; Prendergast, Podus, & Chang, 2000). Methadone maintenance clinics, programs in correctional settings, and those located within the Veterans Administration were not eligible for the study. Descriptions of the random sampling procedures have been published (Knudsen, Ducharme, & Roman, 2006, 2007).

Between September 2006 and January 2008, NTCS administrators participated in telephone interviews about smoking cessation (SC) services, measuring the use of brief interventions related to SC, the availability of SC counseling and medications, and rates of tobacco-using clinical staff. Interviews were completed with 897 administrators for a response rate of 85.2% (Knudsen, Studts, Boyd, & Roman, 2010). Participating organizations received US\$25.

At the interview's conclusion, administrators were asked to identify all counselors, meaning individuals carrying a caseload of clients with substance use disorders (Knudsen & Studts, 2010). Provision of counselor names was optional; programs received no additional incentive for providing this information.

Counselors received the mailed survey and consent forms at the facility's address. Postcard reminders were mailed at 2 and 4 weeks, and nonrespondents received a second survey after 6 weeks. Of the 3,835 counselors contacted, 2,127 returned the survey (response rate = 55.5%) and received US\$20. The Institutional Review Boards of the University of Georgia and the University of Kentucky approved this research.

These 2,127 counselors worked in 431 of the 897 programs that provided organizational data. We conducted chi-square tests and *t* tests comparing programs with at least one counselor survey to programs with no counselor-level data. Variables included sample type, ownership, profit status, location in a hospital, accreditation, number of full time equivalent (FTE) employees, percentage of master's-level counselors, levels of care, availability of SC services (brief interventions, counseling, and medications), smoking ban type, and the percentage of tobacco-using clinical staff. The only significant difference was that programs with no counselor-level data had significantly more FTE employees (mean = 40.8, *SD* = 64.3) than those with counselor-level data (mean = 26.7, *SD* = 38.2; *t* = 3.92, *df* = 879, *p* < .001).

## Measures

*Tobacco use* was measured by asking counselors if they were a current smoker, current user of smokeless tobacco, former smoker, former user of smokeless tobacco, or had never smoked or used smokeless tobacco. The two types of products were collapsed, resulting in a typology of current users, former users, and nonusers.

Administrators reported on indoor and outdoor smoking policies. A dichotomous variable differentiated organizations with a comprehensive ban (i.e., smoking was banned in all

indoor and outdoor areas) from those with an indoor-only ban. Seventy counselors (3.3%) were eliminated because smoking was allowed indoors; unfortunately, this group was too small for multivariate analyses. Professional and sociodemographic characteristics from the counselor survey served as control variables, and sample type reflected the original NTCS coding (see Table 1).

## Analysis

Data were analyzed using multinomial logistic regression in Stata 11.0 (StataCorp, College Station, TX), with relative risk ratios indicating the factor change in odds for a unit increase in each independent variable (Long, 1997). Because counselors were nested within organizations, we used the "cluster" command to calculate robust *SEs* (Long & Freese, 2006). Listwise deletion resulted in a final sample of 1,910 counselors from 417 organizations.

## Results

Descriptive statistics appear in Table 1. About one in five counselors reported current tobacco use. Current tobacco use was reported by 19.8%, 14.5%, and 29.3% of counselors in publicly funded organizations, privately funded centers, and TCs, respectively ( $\chi^2 = 40.7$ , *df* = 4, *p* < .001). Only 19.5% of counselors (*n* = 372), representing 93 organizations, worked in a treatment program with a comprehensive ban.

Table 2 presents the multivariate model of tobacco use. Working in programs with comprehensive bans, rather than indoor-only bans, was negatively associated with the odds of current tobacco use. The odds of being a current tobacco user were about 43% lower if the organization had a comprehensive

**Table 1. Descriptive Statistics of 1,910 Counselors Working in 417 Substance Abuse Treatment Organizations**

Variable	Mean ( <i>SD</i> ) or % ( <i>n</i> )
Self-reported tobacco use	
Current tobacco user	20.3% (387)
Former tobacco user	47.7% (912)
Nonuser	32.0% (611)
Works in an organization with a comprehensive indoor and outdoor smoking ban	19.5% (372)
Personally in recovery from substance abuse	49.1% (937)
Master's-level degree or higher	43.2% (825)
Certified or licensed addictions counselor	65.3% (1,247)
Experience working in the substance abuse treatment field in years	9.99 (7.93)
Sample type	
Publicly funded treatment organization	41.4% (790)
Privately funded treatment organization	34.4% (656)
Therapeutic community	24.3% (464)
Age in years	45.84 (11.68)
Female	61.5% (1,174)
Race/ethnicity	
Black	18.7% (357)
Hispanic, Asian American, or other	10.9% (208)
White	70.4% (1,345)

**Table 2. Multinomial Logistic Regression Model of Counselors' Self-Reported Tobacco Use on Type of Smoking Ban, Professional Characteristics, and Demographic Variables**

Variable	Current user vs. nonuser RRR (95% CI)	Current user vs. former user RRR (95% CI)	Former user vs. nonuser RRR (95% CI)
Organization has comprehensive ban (vs. indoor-only ban)	0.56* (0.35–0.89)	0.58** (0.40–0.83)	0.97 (0.73–1.29)
Personally in recovery from substance abuse (vs. not recovering)	9.00*** (6.25–12.96)	1.51** (1.11–2.06)	5.96*** (4.52–7.87)
Master's-level degree or higher (vs. less than master's-level degree)	0.32*** (0.22–0.46)	0.48*** (0.35–0.67)	0.66** (0.52–0.85)
Certified or licensed addictions counselor (vs. not certified or licensed)	0.84 (0.61–1.17)	0.67** (0.50–0.90)	1.25 (0.97–1.60)
Experience working in the substance abuse treatment field	0.97* (0.95–0.996)	0.97* (0.96–0.99)	1.00 (0.98–1.01)
Sample type			
Publicly funded organization	Reference	Reference	Reference
Privately funded organization	0.81 (0.55–1.21)	0.78 (0.56–1.08)	1.05 (0.80–1.37)
Therapeutic community	1.53* (1.05–2.22)*	1.37* (1.01–1.85)	1.12 (.83–1.51)
Age	1.00 (0.99–1.02)	0.98** (0.97–0.99)	1.02** (1.01–1.03)
Female (vs. male)	0.90 (0.67–1.22)	1.19 (0.93–1.53)	0.76* (0.60–0.96)
Race/ethnicity			
Black	0.58** (0.40–0.85)	0.91 (0.67–1.23)	0.64** (0.47–0.87)
Hispanic, Asian American, or other race/ethnicity	0.60* (0.39–0.93)	1.08 (0.68–1.70)	0.56** (0.39–0.81)
White	Reference	Reference	Reference

Notes. Model adjusts for clustering of counselors within 417 substance abuse treatment organizations. RRR = relative risk ratio.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$  (two-tailed tests).

ban, regardless of whether the reference group was former users or nonusers.

Several professional and demographic characteristics were associated with tobacco use. Counselors in recovery from substance abuse were more likely to currently use tobacco than non-recovering counselors; differences were significant in reference to former use and nonuse. Compared with counselors working in publicly funded organizations, counselors working in TCs were more likely to be current tobacco users. Years of experience and having a master-level degree were negatively associated with current use, relative to both former use and nonuse. The odds of current use, relative to nonuse, were significantly lower for Black and Hispanic/Asian/other counselors. The odds of current tobacco use versus former use were lower for certified/licensed counselors and older counselors.

Predicted probabilities elucidated key differences in current tobacco use by ban type. First, predicted probabilities were calculated with the dichotomous variables set at zero (i.e., reference category), while age and experience were set at their means. The predicted probability of current use was .14 (95%  $CI = 0.07–0.20$ ) for comprehensive bans and increased to .22 (95%  $CI = 0.15–0.29$ ) for indoor-only bans.

“Worst case” and “best case” scenarios were then calculated. The worst case represented a 45.8-year-old White male working in a TC, who was personally in recovery, lacked a master's-level degree, was neither certified nor licensed, and had 2 years of experience. In this worst case scenario, the difference in current use by ban type was substantial, increasing from .40 (95%  $CI = 0.29–0.52$ ) in organizations with comprehensive bans to .54 (95%  $CI = 0.45–0.63$ ) for indoor-only bans. The best case scenario represented a 45.8-year-old White male working in a publicly funded treatment organization, who held a master's-level degree, was certified or licensed, was not in recovery, and had

18 years of experience. The predicted probabilities of current use approached zero for both comprehensive (.04; 95%  $CI = 0.02–0.06$ ) and indoor-only bans (.06; 95%  $CI = 0.29–0.52$ ).

## Discussion

This study of substance abuse treatment counselors revealed a significant negative association between the comprehensiveness of organizational smoking policies and current tobacco use. Counselors were less likely to use tobacco if smoking bans included both indoor and outdoor areas rather than only indoor areas. Notably, our measure of smoking bans came from program administrators, reducing the likelihood that this finding was due to common method variance or social desirability (Spector, 2006).

This finding, coupled with the predicted probabilities of current tobacco use, suggests directions for disseminating information about comprehensive bans in substance abuse treatment. In organizations with a highly educated and professional workforce, rates of tobacco use may be so low that a comprehensive ban might yield modest results. Comprehensive bans in organizations employing a less educated, less credentialed, and less experienced workforce might produce more meaningful reductions in smoking. Future research should examine whether disseminating information about comprehensive bans results in policy adoption and whether subsequent reductions in smoking are contingent on employee characteristics.

Comprehensive bans in health care settings may have clinical implications. In substance abuse treatment, counselors who smoke engage less frequently in brief cessation interventions and counseling (Guydish, Passalacqua, Tajima, & Manser, 2007; Hahn, Warnick, & Plemmons, 1999; Knudsen & Studts, 2010; Ziedonis, Guydish, Williams, Steinberg, & Foulds, 2006). Furthermore, allowing smoking in outdoor areas may undermine the effectiveness

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of clinical interventions (Richter et al., 2005). Exploring the relationship between comprehensive bans and the implementation of cessation services are important directions for future research.

Although negatively associated with current tobacco use, the prevalence of comprehensive bans was relatively low. We did not measure barriers to comprehensive bans, such as concerns about costs and negative impacts on employee retention and client satisfaction (Wheeler et al., 2007). A study of hospitals in Arkansas, where comprehensive bans were mandated, found that the average cost of implementation was lower than expected and only 7% of facilities reported negative effects on employee retention (Williams et al., 2009). This finding is consistent with prior research demonstrating that few individuals change jobs when indoor smoking policies become more restrictive (Bauer et al., 2005).

Our study has multiple limitations. First, the cross-sectional design limits the ability to draw causal inferences. Second, we studied one type of health care organization, so future research should examine other health care settings and other industries. While our response rate was similar or higher than some other studies of counselors (Duraisingam, Pidd, & Roche, 2009; Forman, Bovasso, & Woody, 2001; Gallon, Gabriel, & Knudsen, 2003; Joe, Broome, Simpson, & Rowan-Szal, 2007), it was lower than the 70% response rate achieved in a large study of counselors working in the National Drug Abuse Treatment Clinical Trials Network (McCarty et al., 2007). We cannot address the extent to which non response at the level of individual counselors may bias our results, which is a limitation of this research. Other large studies of U.S. treatment programs using data from counselors (Hahn et al., 1999) and administrators (Knapp, Rosheim, Meister, & Kottke, 1993; Richter, Choi, McCool, Harris, & Ahluwalia, 2004) have published rates of counselor smoking from 22% to 23%, which are similar to this study, and administrators' reports about the average percentage of tobacco-using clinical staff (Knudsen et al., 2010). Self-reported tobacco use may result in underreporting (Gorber, Schofield-Hurwitz, Hardt, Lévassieur, & Tremblay, 2009), but biochemical measures were not feasible for this large mail-based survey (SRNT Subcommittee on Biochemical Verification, 2002).

We experienced difficulties in obtaining lists of counselors from administrators, which may be a significant source of bias. Our comparison of programs with and without counselor-level data suggests that these two groups were highly similar except for organizational size. Organizational size was unrelated to the percentage of tobacco-using clinical staff, which adds some confidence in our results. Caution should be exercised in generalizing these findings to large treatment programs or other organizational settings.

Comprehensive smoking bans may be a promising strategy for tobacco control in substance abuse treatment organizations. Our findings, while not definitive, highlight the need for longitudinal research on the impact of comprehensive smoking bans in diverse settings.

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## Declaration of Interests

None declared.

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