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Smoking Behaviors and Attitudes Among Clients and Staff at New York Addiction Treatment Programs Following a Smoking Ban: Findings After 5 Years

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Abstract

Introduction: Addiction treatment clients are more likely to die of tobacco-related diseases than of alcohol or illicit drug-related causes. We aimed to assess smoking behavior, and smoking-related attitudes and services, in New York addiction treatment programs before a statewide smoking ban in treatment facilities was implemented (2008), 1 year (2009) and 5 years after implementation (2013).

Methods: We conducted surveys at each time point with clients ($N = 329, 341$, and 353 , respectively) and staff ($N = 202, 203$, and 166 , respectively) from five residential and two methadone maintenance programs in New York State. At each data collection wave, questionnaires measured smoking behavior as well as smoking-related knowledge, attitudes, and experiences with tobacco cessation services as part of addiction treatment.

Results: Staff smoking prevalence decreased from 35.2% in 2008 to 21.8% in 2013 ($P = .005$) while client smoking prevalence over the same period was unchanged (68.1% vs. 66.0%, $P = .564$). Among clients who smoked, mean cigarettes per day decreased from 13.7 ($SD = 8.38$) to 10.2 ($SD = 4.44$; $P < .001$). There were significant time-by-treatment-type interactions for client tobacco-related attitudes and cessation services received; and for staff self-efficacy and cessation services provided. In residential programs, scores for most items decreased (became less positive) in 2009 followed by a partial rebound in 2013. Methadone program scores tended to rise (become more positive) throughout the study period.

Conclusions: Staff and clients may respond differentially to tobacco-free policies depending on type of treatment program, and this finding may help to inform the implementation of tobacco-free policies in other statewide addiction treatment systems.

Introduction

Smoking remains the number one preventable cause of morbidity and mortality in the United States,¹ despite reductions in smoking prevalence over the past 50 years.² While 18% of US adults are smokers,³ smoking prevalence among clients in addiction treatment programs is 3–4 times higher.^{4,5} Persons in publicly-funded addiction treatment bear a disproportionate burden of smoking-related illness, and are more likely to die of smoking-related diseases than of drug- or alcohol-related causes.^{6,7} Smoking cessation interventions for persons in addiction treatment have had limited success, resulting in lower quit rates compared to the general population when receiving the same treatments.⁸ Systemic^{9–11} as well as biological factors^{12,13} may account for these findings, and policy-level interventions are needed to support more effective smoking cessation for clients in addiction treatment.

Smoking bans are effective in reducing direct and indirect exposure to the harmful effects of tobacco use. A recent meta-analysis found an overall reduction of 17% in risk for acute myocardial infarction following the enactment of smoking bans in public places and workplaces.¹⁴ Smoking bans have been linked to reduced hospitalizations for heart attacks and lung disease among Medicare beneficiaries,¹⁵ and to reduced smoking rates among hospital employees¹⁶ and patients in residential addiction treatment programs.¹⁷

In 2008, the New York state Office of Alcoholism and Substance Abuse Services (OASAS) implemented a tobacco control policy in all state-certified addiction treatment facilities.¹⁸ In addition to a smoking ban requiring its roughly 1000 programs to implement tobacco-free grounds, OASAS mandated that programs offer tobacco cessation services (including nicotine replacement therapy, or “NRT”) to clients. Although other states have contemplated similar policies in addiction treatment facilities,^{19–21} the New York policy is currently the most comprehensive. Recent studies examining staff attitudes and practices surrounding the implementation of the policy have identified both positive (eg, increased patient awareness about tobacco abuse) and negative experiences (eg, difficulties with enforcement),²² coupled with perceived increases in program-level commitment of resources and enforcement efforts over time.^{23–26}

This article examines change over time in both client and staff smoking behavior and attitudes in seven New York state-certified addiction treatment programs. It extends findings from a previous paper that reported changes observed over a 1-year period following implementation of the OASAS policy.²⁷ While a number of papers have reported on how staff members responded to the OASAS tobacco policy,^{22–26} few have reported on client-level survey data collection in the context of the policy change.²⁷ Findings may be useful to other addiction treatment systems implementing comprehensive tobacco control policies.

Methods

Recruitment and Sample

In 2008, we obtained a list of OASAS-certified addiction treatment programs, excluding those that provided only prevention, education, and short-term (fewer than 5 days) detoxification services; hospital-based programs; criminal justice programs; and adolescent programs. From the remaining 610 programs, 41 were randomly selected with stratification by program type (outpatient, residential, methadone maintenance). OASAS contacted these programs about

the study, 13 expressed interest, and 10 were enrolled. Details of program selection and recruitment are reported in Gwydys et al.²⁷

The original program sample included three outpatient, five residential, and two methadone maintenance programs. For data collection in 2013, two outpatient programs were unavailable and, because prior research has shown difference by program type,²⁷ we included only the five residential and two methadone maintenance programs in the present analysis. One residential and the two methadone programs were located in New York City boroughs, while the remaining four residential programs were dispersed throughout the state.

All paid staff in each program were eligible to complete the survey. Staff participation rates were 92% in 2008 ($n = 202$), 90% in 2009 ($n = 203$), and 86% in 2013 ($n = 166$). Due to staff turnover, 65% of staff participants were the same person in 2008 and 2009 (62% of methadone program staff and 66.5% of residential program staff). In 2013, 21% of staff respondents had also completed the survey in 2008 and 2009 (36% of methadone program staff and 16.5% of residential program staff). Clients represented cross-sectional samples of active program patients at each time point, with no overlap between samples. Sample sizes for clients were $n = 329$, $n = 341$, and $n = 353$, respectively. All clients in each participating program were eligible to complete the survey if they had been in treatment for at least 10 days. This was to ensure that they had some time to become aware of program tobacco policies and services. In order to participate, clients had to be physically present in the program on the day of the site visit. In methadone programs this procedure resulted in a convenience sample, while in residential programs the procedure yielded a census sample because nearly all active clients completed the survey.

Measures

At each data collection wave (2008, 2009, 2013), we administered questionnaires to all eligible program staff and clients. Questionnaires measured respondents' tobacco use behavior as well as smoking-related knowledge, attitudes, and experiences with tobacco cessation services as part of addiction treatment.

Clients completed the Smoking Knowledge, Attitudes, and Service (S-KAS) questionnaire,²⁸ which measures clients' knowledge of tobacco health risks ($\alpha = 0.57$), attitudes toward smoking ($\alpha = 0.75$), and the extent to which they receive clinician-provided ($\alpha = 0.82$) or program-provided ($\alpha = 0.82$) tobacco cessation services in their current treatment program. Clinician Service items asked how many times in the past month clinicians had counseled clients to stop smoking or offered them nicotine replacement therapy. Program Service items asked whether the client had received specific kinds of assistance to quit, such as educational material. Knowledge and Attitude scales were calculated for all clients, whereas Clinician and Program Services were calculated only for smokers. S-KAS scale scores range from 1 to 5, where higher scores indicate greater tobacco-related knowledge, more positive attitudes toward smoking cessation, and greater access to tobacco-related services.

Program staff completed the Smoking Knowledge, Attitudes, and Practices (S-KAP) questionnaire,²⁹ which measures staff members' knowledge of tobacco health risks ($\alpha = 0.85$), their attitudes about treating nicotine dependence ($\alpha = 0.74$), perceived barriers ($\alpha = 0.81$) and self-efficacy for treating nicotine dependence ($\alpha = 0.72$), and tobacco services provided to clients ($\alpha = 0.91$). While Knowledge and Attitude scales were calculated for all staff, Barriers, Efficacy, and Practice scales were calculated only for clinical staff.

Table 1. Demographic Characteristics for Staff ($n = 571$) and Clients ($n = 1023$): Addiction Treatment Programs, New York State, 2008–2013

	Staff			P^a	Client			P^a
	2008 ($n = 202$)	2009 ($n = 203$)	2013 ($n = 166$)		2008 ($n = 329$)	2009 ($n = 341$)	2013 ($n = 353$)	
Age	47.2 (12.4)	46.4 (12.9)	44.3 (12.9)	$P_1 = .570$; $P_2 = .135$; $P_3 = .038$	39.3 (10.8)	40.0 (11.8)	40.3 (12.8)	$P_1 = .431$; $P_2 = .767$; $P_3 = .284$
Gender								
Male	61 (30.4%)	62 (31.3%)	45 (27.1%)	$P_1 = .835$; $P_2 = .381$; $P_3 = .496$	179 (55.1%)	170 (50.0%)	179 (50.9%)	$P_1 = .409$; $P_2 = .864$; $P_3 = .640$
Female	140 (69.7%)	136 (68.7%)	121 (72.9%)		145 (44.6%)	168 (49.4%)	172 (48.9%)	
Education								
No HS diploma or GED	3 (1.5%)	2 (1.0%)	2 (1.2%)	$P_1 = .601$; $P_2 = .042$; $P_3 = .213$	100 (30.6%)	100 (30.0%)	99 (28.1)	$P_1 = .528$; $P_2 = .389$; $P_3 = .777$
HS diploma or GED	73 (36.3%)	80 (40.8%)	44 (27.0%)		107 (32.7%)	122 (36.6%)	118 (33.5%)	
Bachelor's or associate's	81 (40.3%)	67 (34.2%)	70 (42.9%)		120 (36.7%)	111 (33.3%)	135 (38.4%)	
Graduate degree	44 (21.9%)	47 (24.0%)	47 (28.8%)					
Ethnicity/race								
Hispanic	21 (10.5%)	21 (11.2%)	24 (14.9%)	$P_1 = .063$; $P_2 = .497$; $P_3 = 0.284$	71 (21.9%)	73 (22.1%)	86 (24.7%)	$P_1 = .918$; $P_2 = .660$; $P_3 = .653$
Black	61 (30.5%)	52 (27.8%)	47 (29.2%)		106 (32.6%)	106 (32.0%)	99 (28.5%)	
White	96 (48.0%)	106 (56.7%)	80 (49.7%)		135 (41.5%)	135 (40.8%)	148 (42.5%)	
Other	22 (11.0%)	8 (4.3%)	10 (6.2%)		13 (4.0%)	17 (5.1%)	15 (4.3%)	
In recovery	52 (26.5%)	53 (27.2%)	28 (17.2%)	$P_3 = .885$; $P_2 = .024$; $P_3 = .034$				
Primary substance								
Alcohol					54 (17.1%)	53 (16.8%)	56 (16.0%)	$P_1 = .782$; $P_2 = .002$; $P_3 < .001$
Crack/cocaine					92 (29.1%)	81 (25.7%)	50 (14.3%)	
Heroin					142 (44.9%)	150 (47.6%)	206 (58.9%)	
Other					28 (8.9%)	31 (9.8%)	38 (10.9%)	
Currently employed					35 (10.7%)	29 (8.8%)	18 (5.2%)	$P_1 = .401$; $P_2 = .064$; $P_3 = .007$

GED = General Educational Development; HS = high school.

^a P_1 : the P value of statistical tests to compare the 2008 survey and the 2009 survey; P_2 : the P value of statistical tests to compare the 2009 survey and the 2013 survey; P_3 : the P value of statistical tests to compare the 2008 survey and the 2013 survey.

Table 2. Client and Staff Smoking Prevalence and Cigarettes per Day (CPD) by Treatment Program Type: Addiction Treatment Programs, New York State, 2008–2013

	2008		2009		2013		<i>P</i> ^a
	<i>N</i>	<i>n</i> (%) / mean (<i>SD</i>)	<i>N</i>	<i>n</i> (%) / mean (<i>SD</i>)	<i>N</i>	<i>n</i> (%) / mean (<i>SD</i>)	
Client smoking prevalence							
All programs	329	224 (68.1%)	341	208 (61.0%)	353	233 (66.0%)	<i>P</i> ₁ = .055; <i>P</i> ₂ = .171; <i>P</i> ₃ = .564
Residential	229	139 (60.7%)	238	125 (52.5%)	247	149 (60.3%)	<i>P</i> ₁ = .075; <i>P</i> ₂ = .083; <i>P</i> ₃ = .933
Methadone	100	85 (85.0%)	103	83 (80.6%)	106	84 (79.3%)	<i>P</i> ₁ = .405; <i>P</i> ₂ = .809; <i>P</i> ₃ = .282
Client CPD							
All programs	224	13.7 (8.4)	208	12.5 (9.8)	233	10.2 (7.4)	<i>P</i> ₁ = .192; <i>P</i> ₂ = .008; <i>P</i> ₃ < .001
Residential	139	13.4 (8.4)	125	11.2 (9.2)	149	10.5 (8.0)	<i>P</i> ₁ = .041; <i>P</i> ₂ = .514; <i>P</i> ₃ = .003
Methadone	85	14.2 (8.4)	83	14.5 (10.5)	84	9.9 (6.3)	<i>P</i> ₁ = .817; <i>P</i> ₂ < .001; <i>P</i> ₃ < .001
Staff smoking prevalence							
All programs	202	71 (35.2%)	203	67 (33.0%)	166	36 (21.8%)	<i>P</i> ₁ = .649; <i>P</i> ₂ = .017; <i>P</i> ₃ = .005
Residential	152	62 (40.8%)	148	58 (39.2%)	124	30 (24.4%)	<i>P</i> ₁ = .777; <i>P</i> ₂ = .010; <i>P</i> ₃ = .004
Methadone	50	9 (18.0%)	55	9 (16.4%)	42	6 (14.3%)	<i>P</i> ₁ = .824; <i>P</i> ₂ = .779; <i>P</i> ₃ = .631
Staff CPD							
All programs	71	11.0 (7.4)	67	11.1 (7.2)	36	9.8 (7.7)	<i>P</i> ₁ = .952; <i>P</i> ₂ = .419; <i>P</i> ₃ = .447
Residential	62	11.3 (7.7)	58	11.7 (7.2)	30	10.4 (8.0)	<i>P</i> ₁ = .786; <i>P</i> ₂ = .474; <i>P</i> ₃ = .619
Methadone	9	8.9 (4.0)	9	7.2 (6.2)	6	6.7 (6.0)	<i>P</i> ₁ = .510; <i>P</i> ₂ = .866; <i>P</i> ₃ = .449

^a*P*₁: the *P* value of statistical tests to compare the 2008 survey and the 2009 survey; *P*₂: the *P* value of statistical tests to compare the 2009 survey and the 2013 survey; *P*₃: the *P* value of statistical tests to compare the 2008 survey and the 2013 survey.

S-KAP scale scores range from 1 to 5, where higher scores indicate greater tobacco-related knowledge, more positive attitudes regarding the treatment of nicotine dependence, fewer barriers and higher perceived self-efficacy for providing nicotine dependence services, and a greater quantity of services provided.

Data Collection

The research team visited each site between June and August of 2008, June and August of 2009, and August and September of 2013. One staff member in each program served as a study liaison by providing names of eligible staff members and arranging meetings for survey data collection. In 2008 and 2009, staff survey packets were labeled with a research identification number and included consent documents, the survey, and a return envelope. In 2013, staff survey was programmed electronically using REDCap.³⁰ The program liaison sent a list of names of all full and part-time paid staff (excluding interns and volunteers), and each staff member was invited by email to participate in the online survey using a link specific to that staff member. For nonresponders, reminder emails were sent 2 weeks and 4 weeks later. Program staff members completed the survey online, and the research team sent a \$25 gift card when REDCap registered a completed survey. In some cases, at the request of the program liaison, paper surveys were sent to nonresponders and to staff who had difficulty completing the online survey.

For client surveys, staff liaisons in each residential program assembled all clients in the program on the day of the site visit. The research team explained the study to assembled clients and completed informed consent procedures. In methadone clinics the team recruited clients during morning dosing hours. In 2008 and 2009, clients completed paper-based surveys onsite. Each survey packet was labeled with a research identification number and included consent documents and the survey. In 2013, the client survey was programmed electronically using REDCap, and administered during the site visit using computer labs if available in the program and, if no computer lab was available, using iPads. Participants first read a study information sheet built into the survey, reviewed the sheet with

the research team member, and clicked on “I consent to participate” if they agreed to participate. While both consent and survey were self-administered, research staff were present to answer questions throughout data collection. Client respondents received a \$20 gift card.

Data Analysis

First, we compared demographic characteristics of staff and clients across the three data points (2008, 2009, and 2013). We then conducted univariate pairwise comparisons to measure trends between Time 1 and Time 2 (*P*₁), Time 2 and Time 3 (*P*₂), and Time 1 and Time 3 (*P*₃). We used the Bonferroni correction (*P* = .017) to interpret each pairwise comparison.

Next, we compared smoking prevalence and cigarettes per day (CPD) for both staff and clients at each time point. Again, we conducted univariate pairwise analyses to examine differences across time and used the Bonferroni correction. As these univariate analyses revealed decreases in staff smoking prevalence and client CPD, we conducted additional multivariate analysis to assess whether these decreases were observed when controlling for other factors. For staff smoking prevalence, we used a nonlinear mixed model with staff smoking as the outcome (1 = smoker and 0 = nonsmoker), and controlled for time, age, sex, race/ethnicity, education, and whether or not staff were in recovery from substance abuse. For client CPD, where the dependent variable was count data, we used a negative-binomial model controlling for time, age, sex, employment status, race/ethnicity, education, and primary drug used. Smoking prevalence figures at each data point were compared with those of the general New York state population.³¹

Linear mixed-effect models were used to test change over time in S-KAS and S-KAP mean scale scores, including factors for time (2008, 2009, 2013), treatment type (methadone maintenance and residential), and the time by treatment type interaction. We ran a total of nine linear mixed-effect models (one model for each of the four client S-KAS scales and five staff S-KAP scales). These models controlled for age, gender, race/ethnicity, education, and smoking

Table 3. Results of Linear Mixed Models Testing Differences for Time, Modality, and Time-by-Treatment-Type Interaction: Addiction Treatment Programs, New York State, 2008–2013s

	Methadone, mean (SD)				Residential, mean (SD)				Time		Treatment type		Time-by-treatment type	
	2008	2009	2013	2008	2009	2013	2008	2009	2013	F	P	F	F	P
Client ^{a,b}														
Knowledge ^c	3.48 (0.80)	3.50 (0.90)	3.48 (0.70)	3.82 (0.66)	3.70 (0.74)	3.60 (0.72)	2.91 ²⁹²²	3.70 (0.74)	3.60 (0.72)	2.91 ²⁹²²	.055	6.54 ¹⁹²²	ns	
Attitudes	3.19 (0.71)	3.37 (0.70)	3.40 (0.59)	3.17 (0.88)	2.89 (0.85)	3.11 (0.81)	1.31 ²⁹²³	2.89 (0.85)	3.11 (0.81)	1.31 ²⁹²³	.270	0.24 ¹⁹²³	5.40 ²⁹²³	.005
Program services	2.62 (1.31)	3.30 (1.18)	3.56 (1.27)	3.94 (1.00)	3.14 (1.17)	3.33 (1.14)	1.98 ²⁵⁸⁸	3.14 (1.17)	3.33 (1.14)	1.98 ²⁵⁸⁸	.139	11.13 ¹⁵⁸⁸	25.81 ²⁵⁸⁸	<.001
Clinician services	2.08 (1.12)	2.55 (1.15)	2.19 (1.08)	2.70 (1.05)	2.30 (1.23)	2.29 (0.97)	0.79 ²⁵⁸⁸	2.30 (1.23)	2.29 (0.97)	0.79 ²⁵⁸⁸	.455	4.39 ¹⁵⁸⁸	7.30 ²⁵⁸⁸	<.001
Staff ^d														
Knowledge ^e	4.04 (0.68)	4.30 (0.62)	3.94 (0.60)	4.07 (0.66)	4.03 (0.74)	3.90 (0.60)	6.35 ²⁴⁸⁰	4.03 (0.74)	3.90 (0.60)	6.35 ²⁴⁸⁰	.002	0.52 ¹⁴⁸⁰	ns	
Beliefs	3.70 (0.67)	3.82 (0.53)	3.81 (0.60)	3.88 (0.59)	3.75 (0.66)	3.81 (0.60)	0.40 ²⁴⁶⁸	3.75 (0.66)	3.81 (0.60)	0.40 ²⁴⁶⁸	.669	3.56 ¹⁴⁶⁸	ns	
Barriers	3.77 (0.84)	3.65 (0.83)	4.02 (0.74)	3.65 (0.86)	3.55 (0.85)	3.93 (0.84)	5.12 ²³²⁷	3.55 (0.85)	3.93 (0.84)	5.12 ²³²⁷	.007	0.09 ¹³²⁷	ns	
Efficacy	3.23 (0.48)	3.33 (0.56)	3.53 (0.55)	3.38 (0.53)	3.14 (0.69)	3.26 (0.50)	2.53 ²³¹⁹	3.14 (0.69)	3.26 (0.50)	2.53 ²³¹⁹	.081	0.05 ¹³¹⁹	11.24 ²³¹⁹	<.001
Practice	2.79 (0.97)	3.28 (1.03)	3.50 (0.96)	3.24 (1.02)	2.93 (0.90)	3.42 (1.00)	10.55 ²³⁰³	2.93 (0.90)	3.42 (1.00)	10.55 ²³⁰³	<.001	0.32 ¹³⁰³	10.33 ²³⁰³	<.001

^aAnalyses controlled for demographics (age, gender, race/ethnicity, education, current smoker). Staff analyses also controlled for whether staff were in recovery. Client analyses also controlled for employment and primary substance use.

^bMethadone program clients: $n = 100$ (2008), $n = 103$ (2009), and $n = 106$ (2013). Residential program clients: $n = 229$ (2008), $n = 238$ (2009), and $n = 247$ (2013).

^cAll scales ranged from 1 to 5. Higher scores reflect more knowledge, more favorable beliefs about tobacco cessation, and more tobacco cessation services delivered by staff or received by clients. For the barriers scale only, a lower score is more favorable. Scale means (SD) include all clients for knowledge and attitudes scales, and smokers only for remaining scales.

^dMethadone program staff: $n = 55$ (2008), $n = 55$ (2009), and $n = 42$ (2013). Residential program staff: $n = 152$ (2008), $n = 148$ (2009), and $n = 124$ (2013).

^eScale means (SD) include all staff for knowledge and beliefs scales, and clinical staff only for barriers, efficacy, and practice scales.

status. Client analyses also controlled for employment status and primary substance. Staff analyses additionally controlled for whether the respondent was in recovery from substance abuse. Models accounted for nesting of staff and clients within program. Because staff respondents may or may not be the same person at each time point, the staff model allowed for correlations within site and within participant. The client model allowed for correlations within site only. All analyses were performed using SAS software, version 9.3.³²

Results

Participant Characteristics

Table 1 presents demographic characteristics for clients and staff across all programs at each time point. Using the conservative Bonferroni correction to interpret univariate pairwise comparisons ($P = .017$), we found no significant differences in staff characteristics across time. Clients who reported heroin as their primary substance increased from 44.9% in 2008 to 58.9% in 2013, while clients who reported crack or powder cocaine decreased from 29.1% in 2008 to 14.3% in 2013 ($P < .001$). There was also a significant decrease in clients who were currently employed, from 2008 (10.7%) to 2013 (5.2%; $P = .007$).

Smoking Behavior

Table 2 shows smoking prevalence and CPD for staff and clients, both overall and disaggregated by program type. For example, the top line shows client smoking prevalence across all programs, which showed no significant change across three time points (68.1%, 61.0%, and 66.0% respectively). However, among clients who smoked, mean CPD decreased from 13.7 ($SD = 8.4$) in 2008 to 10.2 ($SD = 7.4$) in 2013 ($P < .001$). Over the same time period, CPD among residential clients decreased from 13.4 ($SD = 8.4$) to 10.5 ($SD = 8.0$; $P = .003$), and decreased among methadone clients from 14.2 ($SD = 8.4$) to 9.9 ($SD = 6.3$; $P < .001$).

Staff smoking prevalence across all programs decreased from 35.2% in 2008 to 21.8% in 2013 ($P = .005$). This change was driven primarily by staff in residential programs, whose smoking decreased from 40.8% in 2008 to 24.4% in 2013 ($P = .004$). Staff CPD was unchanged over the study period.

In the In the non-linear mixed model controlling for age, gender, race/ethnicity, education, and recovery, the odds of staff smoking in 2013 were 87% lower than in 2008 ($OR = 0.13$, 95% CI: 0.01, 0.98, $P < .05$). Similarly, in the negative-binomial model controlling for age, gender, race/ethnicity, education, employment status, and primary substance use, client CPD in 2013 was 25% lower than the average number of client CPD in 2008 (95% CI: 14.6% to 33.5%, $P < .001$) (data not shown).

Client S-KAS

Means for client S-KAS scales are shown in the upper half of Table 3, where the last 3 columns show main effects for time, treatment type, and their interaction. There were significant time-by-treatment type interactions for client Attitudes ($P = .005$), Program Services ($P < .001$), and Clinician Services ($P < .001$). Client attitudes toward smoking cessation became more positive over time in methadone programs, while in residential programs they initially became more negative and then rebounded. For Program Services, methadone and residential programs differed at the start, converged at 2009 (residential decreased, methadone increased) and changed little thereafter. Clinician Services scores displayed a similar pattern.

There was a main effect of treatment type on the Knowledge scale such that residential clients, compared with methadone clients, reported greater knowledge of tobacco-related risks at all time points ($P = .011$).

Staff S-KAP

Means for staff S-KAP scales are shown in the lower half of Table 3. There were significant time-by-treatment type interactions for the Efficacy and Practice subscales ($P < .001$). Staff Efficacy scores became more positive over time in methadone programs, while in residential programs they initially decreased (2009) and then rebounded (2013). Staff tobacco-related practice scores showed a similar pattern. There was a main effect for time in staff Knowledge scores ($P = .002$) such that, when collapsed across treatment type, mean staff knowledge scores decreased from 2009 to 2013 (data not shown). We also observed a significant main effect for time in staff Barriers scores ($P = .007$), such that both residential and methadone program scores were similar in 2008, dipped in 2009, and then increased to greater than baseline levels in 2013.

Discussion

This cross-sectional study analyzed changes in smoking attitudes and behavior, for both staff and clients, in seven New York State addiction treatment programs from 2008 to 2013. Smoking prevalence among addiction treatment staff in these programs decreased from 35% to 22%. The decrease was most pronounced in residential programs, where staff smoking decreased from 40.8% to 24.4%. The decrease in staff smoking, moreover, remained significant after controlling for age, sex, race, ethnicity, education, and recovery status of staff. During the same period, the New York State smoking rate decreased from 18% to 16%.³¹

While residential programs demonstrated a more marked decrease in staff smoking prevalence, smoking prevalence and CPD were consistently lower among methadone program staff throughout the study. This finding could be related to differences in staff turnover and in proportions of staff in recovery from substance abuse. The proportions of staff in recovery for 2008, 2009, and 2013 were lower in methadone programs (10.2%, 5.9%, 7.3%, respectively) than in residential programs (32%, 34.7%, 20.5%, respectively). From 2008 through 2013, staff turnover was 64% in the methadone programs and 83.5% in the residential programs. The higher proportion of in-recovery staff in residential programs may account in part for their higher rates of tobacco use relative to methadone program staff.

Although client smoking prevalence was unchanged over time, their mean CPD decreased from 13.7 in 2008 to 10.2 in 2013. This shift occurred in both residential and methadone programs. Although no data could be found for mean CPD among New York State residents over the same period, the rate of decrease in this client sample is comparable to that observed in the national population over a similar period (16.7 in 2005 to 14.6 in 2012).³

In residential programs, client attitudes toward tobacco cessation became more negative between 2008 and 2009, but had rebounded to near-baseline by 2013. This may reflect initial resistance from residential clients in response to the smoking ban, which was reported by directors in another study examining the OASAS policy.²³ In addition, methadone clients may have been less affected by the smoking ban since, unlike residential clients, they do not live in the treatment facility. By 2013, however, residential clients reported significantly

more favorable attitudes toward tobacco cessation, which may reflect both changes in organizational culture³³ within those programs and more general changes in how the US population views smoking in public places and healthcare facilities.³⁴

S-KAS scores for Program Services and Clinician Services were higher in residential programs at baseline than at the two follow-up points. Residential programs may have made special efforts to implement services even before the policy began.²⁷ Clients as well as staff in residential programs may have become disillusioned with these efforts once they discovered some of the challenges associated with them, and this may be reflected in initial decreases in both client attitude scores and staff efficacy scores in residential programs.

Staff scores on the tobacco-related Practice scale were elevated in residential programs as compared with methadone programs, but decreased in 2009. Practice scores for methadone programs, by contrast, increased consistently over time. Nevertheless, staff in both methadone and residential programs reported increasing barriers to providing tobacco-related services across the study period. In the first year of policy implementation, New York State committed funding to support staff training and nicotine replacement therapy availability throughout the state treatment system. However, this support may have been insufficient or may have declined over time. The cost of delivering tobacco cessation services was cited frequently as a barrier by New York State treatment program directors in Brown et al.²³

Study limitations include the timing of baseline data collection, the cross-sectional study design, reliance on self-report, and generalizability. Baseline data collection occurred shortly before the 2008 statewide tobacco policy was implemented, but some programs had already begun to implement smoking bans and offer cessation services.²⁷ Second, although the findings reveal interesting trends in staff and client tobacco-related attitudes and behaviors following a comprehensive smoking ban, the cross-sectional nature of the data precludes causal statements regarding the effects of the ban. Third, we relied on self-report data and did not use biological measures of respondents' smoking or cessation. Fourth, although we drew from a random sample of programs in 2008, only 13 of the 41 programs randomly selected expressed interest and only 10 programs actually participated in the study at that time.²⁷ We were unable to include outpatient programs findings in the current analysis due to loss of outpatient programs from the sample. As a consequence, findings are not generalizable to the statewide addiction treatment system.

Conclusions

While numerous studies have reported on prevalence of smoking among addiction treatment staff³⁵ and clients,⁵ this is the first to report decreasing smoking rates among staff in New York State programs, and the first to observe decreasing CPD among addiction treatment clients anywhere in the United States. These findings, if supported by additional research, reflect important changes in addiction treatment systems where both staff and client tobacco use have been historically entrenched. Although our study design does not permit causal attribution, it seems likely that these changes reflect general US and New York State tobacco control efforts. Differential changes in residential versus methadone programs for smoking-related behavior, attitudes and practices, however, suggests some impact of the New York OASAS policy, at least in residential treatment programs.

Our findings suggest that type of treatment program may be an important consideration as additional states plan and implement

tobacco policies in their addiction treatment systems. Clients in residential programs may express greater initial resistance to smoking bans, while those in outpatient programs may find it easier to adapt to smoking bans. We note, however, that initial decrements in tobacco-related attitudes and services for residential clients and staff were followed by later improvements.

This study provides information regarding the leading tobacco control initiative in the largest statewide addiction treatment system in the nation. Although this initiative has been in place since 2008, to date there is only one other paper examining clients' experiences with its smoking ban and cessation services.²⁷ The New York policy can serve as a model for other states as they move forward in implementing tobacco control efforts among vulnerable populations.

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Declaration of Interests

LSB is the director of one program—START Treatment and Recovery Centers—included in the study sample, and this program received staff, patient, and program incentives as reported in the article.

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