



On providing smoking cessation services in alcohol and other drug treatment settings: Results from a U.S. national survey of attitudes among recovering persons



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ABSTRACT

Background: Nicotine addiction through cigarette use is highly prevalent among individuals suffering from alcohol and other drug (AOD) problems and remains a prominent risk factor for morbidity, mortality, and healthcare utilization. Whereas most people agree that providing smoking cessation services (SCS) to this vulnerable population is vitally important, the timing of such service provision has been hotly debated, including whether such services should be excluded, available (but not offered), offered, or fully integrated into AOD treatment settings. Important stakeholders in this debate are those in recovery from AOD problems who, in addition to having often been AOD treatment patients themselves, frequently hold influential clinical, research or policy positions and thus can influence the likelihood of SCS provision. This study sought to understand the attitudes of this important stakeholder group in providing SCS in AOD treatment settings.

Method: We assessed a national cross-sectional sample of individuals in recovery from an AOD problem ($n = 1973$) on whether SCS should be: a. excluded; b. available; c. offered; or d. integrated into AOD services. We estimated associations between participants' demographic, clinical, and recovery support service use history, and SCS attitude variables, using multinomial logistic regression.

Results: Roughly equal proportions endorsed each attitudinal position (23.5% excluded, 25% available, 24.6% offered; 26.9% integrated). Correlates of holding more positive SCS implementation attitudes were Black race; primary substance other than alcohol, greater intensity of former or recent smoking, and less mutual-help organization participation; older individuals achieving recovery between 30 and 40 years ago also had more positive attitudes toward integrating SCS.

Conclusions: About half of those sampled were either against SCS inclusion in AOD settings or were in favor of making it "available" only, but not in offering it or integrating it. This oppositional pattern was accentuated particularly among those with primary alcohol problem histories and those participating in mutual-help organizations. Given the universally well-known negative health effects of smoking, understanding more about the exact reasons why certain groups of recovering persons may endorse such positions is an area worthy of further investigation, as it may uncover potential barriers to SCS implementation in AOD treatment settings.

1. Introduction

Nicotine addiction in the form of cigarette use remains one of the most prevalent and pervasive comorbidities among individuals suffering from alcohol or other drug (AOD) disorders (Hurt et al., 1996; Kalman, Morissette, & George, 2005; Weinberger et al., 2018). Nicotine, typically via cigarette use, is often the first drug to which people with AOD disorders become addicted and is also often the last one that they

stop (Kelly, Greene, Bergman, & Hoepfner, 2019). Rates of smoking among individuals entering AOD treatment are very high at 70–90% (Gyudish et al., 2011; Kalman et al., 2005; Weinberger et al., 2018). Whereas the negative health effects from smoking are largely undisputed and are a major contributor to ill health and premature mortality among those with AOD disorders, what is disputed in research is the timing of when exactly to address smoking relative to the other more acutely damaging and life-threatening AOD problems (Derefinko,

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Salgado Garcia, & Sumrok, 2018; Kodl, Fu, & Joseph, 2006). Unlike AOD use, for example, smoking cigarettes—while clearly harmful—does not produce the acute intoxication-related impairments that lead to accidents, injuries, death, and toxicity-related overdose or other causes of premature mortality. It can, however, lead indirectly to acute health hazards (e.g., from alcohol intoxication/loss of consciousness that results in dropping a lit cigarette that causes fire-related hypoxia and/or lethal burns).

Anecdotally, there is a fear among some sectors of the treatment field as well as many clinicians and recovery advocates that an overly aggressive focus on smoking cessation during AOD treatment could dilute clinical efforts that might be better focused on AOD relapse prevention issues or could take away a potentially important harm reduction tool (i.e., smoking cigarettes) that many patients find helpful to hold on to while they are stabilizing in their remission from the more acutely worrisome AOD problems. Some even go as far as stating that people with AOD problems definitely should *not* stop smoking while addressing their AOD use and do it sequentially instead. Many patients also may prefer to stop smoking sequentially rather than simultaneously (Kodl et al., 2006).

Given the enormous disease burden attributable to tobacco use among AOD populations, research has begun to examine the question of whether providing smoking cessation services in AOD treatment is feasible, desired and liked by patients, and even potentially helpful to AOD relapse prevention (Apollonio, Philipps, & Bero, 2016; Evins & Kelly, 2018; Knudsen, Studts, & Studts, 2012; Prochaska, Delucchi, & Hall, 2004; Shi & Cummins, 2015). Some believe that even suggesting quitting tobacco while quitting the main AOD problem substances is not only unhelpful, it could prove dangerous. To date, the state of the science in this regard suggests that those with AOD problems in treatment who do choose to quit smoking do not have worse AOD outcomes than people who elect to continue smoking. Thus, making smoking cessation services available within AOD treatment facilities for those who want to use it may be an efficient and effective clinical and public health policy (Hammett et al., 2019).

While some researchers suggest that stopping smoking may actually cause people to have better AOD outcomes, the evidence cannot directly speak to this notion. People self-select into the smoking cessation pathway and cannot be randomly assigned to actually quit smoking (although they can be assigned to a smoking cessation intervention condition, which has been done among those willing to quit [e.g., Cooney et al., 2015; Joseph, Willenbring, Nugent, & Nelson, 2004]). Those who commit to quitting cigarettes may have greater recovery capital overall, because of their motivation for a healthier lifestyle, which may explain their better AOD outcomes rather than quitting cigarettes per se. In addition, those randomized to smoking cessation services in AOD treatment have better outcomes than those who do not receive such services. Individuals in the smoking cessation condition typically receive an empirically supported intervention, such as cognitive behavioral therapy, where they learn skills that can be applied to their AOD use (Prochaska et al., 2004). Thus, it is also possible that it is receipt of a skills-based, empirically supported therapy that is actually accounting for their better AOD outcomes. From a patient-centered perspective (Institute of Medicine Committee on Quality of Health Care in America, 2001), prior research suggests that patients themselves often want to quit sequentially, following remission from AOD problems, rather than simultaneously (Kodl et al., 2006). There is some evidence that sequential cessation may be associated with better substance use outcomes than simultaneous quitting (Joseph et al., 2004), but not always (Cooney et al., 2015). In truth, there will be great individual variability in such outcomes and there is a clear need to understand more about balancing the harms of continued smoking against the potential harms of implementing smoking cessation when it opposes patient values and preferences.

A lingering question in the AOD treatment field, therefore, is whether smoking cessation services should be available at all in AOD

treatment, should be systematically and more assertively offered at some point during AOD treatment to all patients who smoke, or should be treated as “just another drug” with smoking cessation services proactively and seamlessly integrated into the rest of the AOD treatment services spectrum with the expectation that people need to quit cigarettes as well.

One important constituency in this debate is those in recovery from an AOD problem. This is because—in addition to being a large proportion of the general population (22.35 million people; (Kelly, Bergman, Hoepfner, Vilsaint, & White, 2017)—the majority have smoked or are current smokers, and a large proportion of the AOD treatment workforce are people in recovery from an AOD problem, including administrators and addiction treatment policy-makers at federal and state levels as well as frontline counselors and clinicians (Culbreth, 2000; Stöffelmayr, Mavis, Sherry, & Chiu, 1999; White, 2000). As such, these individuals with lived AOD, and often actual AOD treatment, experience, could potentially exert strong pressure on clinic smoking cessation policies at the individual clinician, clinic, treatment system, or state level.

To inform this national debate, the current study sought to investigate attitudes of recovering persons toward providing smoking cessation services in AOD treatment, using a nationally representative sample of people in recovery from AOD problems in the United States. There were several research questions of interest: 1. What is the prevalence of positive attitudes toward providing smoking cessation services in U.S. AOD treatment facilities? Specifically, what proportion of individuals in recovery believe smoking cessation services should be: a. excluded from AOD treatment; b. made available but not directly offered; c. made available and offered; or d. integrated routinely as part of an individual's AOD treatment? 2. What are the demographic, clinical, and treatment and recovery services use variables related to holding such attitudes? 3. Have attitudes toward providing smoking cessation services in AOD treatment settings shifted over time as different cohorts of individuals have entered recovery during the past 40 years? We hypothesized, for the latter, that people achieving recovery in more recent times would be more in favor of including smoking cessation services in AOD treatment given the increasingly greater recognition and acceptance of the negative health effects of continued smoking and high prevalence of smoking among AOD-addicted individuals.

2. Method

2.1. Procedures

The National Recovery Study (NRS) enrolled a nationally representative sample of U.S. noninstitutionalized adults who had reportedly resolved AOD problem. We recruited individuals who had resolved an AOD problem from GfK's KnowledgePanel, which uses address-based sampling to randomly select individuals from 97% of all U.S. households based on the U.S. Postal Service's Delivery Sequence File (Kelly, Hoepfner, Bergman, & Vilsaint, 2017). See GfK (Producer) (2013) for more information on GfK's probability based sampling methodology.

We screened selected participants between July and August 2016. Of the 25,228 individuals screened, 2002 reported that they had resolved an AOD problem by responding affirmatively to the question: “Did you used to have a problem with drugs or alcohol, but no longer do?” We constructed survey weights to produce unbiased estimates of population parameters from these respondents (Kelly, Hoepfner, et al., 2017). We developed the survey weights to compensate for non-response and under-coverage by computing base weights reflecting unequal selection probabilities followed by iterative proportional fitting to reflect benchmark marginal totals for gender, age, race/ethnicity, education, geographic region, income, home ownership, and metropolitan area from the Current Population Survey (CPS). We trimmed weights to the 1.45th and 98.55th percentile.

We piloted the survey among 20 participants before administration to the study population over 19 days in July–August 2016. Participants completed the survey electronically and could respond to the survey questions over multiple occasions if desired. Participants could refuse to respond to any item included in the survey. See Kelly, Hoepfner, et al. (2017) for more details. The Partners HealthCare Institutional Review Board approved all study procedures.

2.2. Measures

2.2.1. Demographic characteristics

We derived demographic data from both GfK's existing KnowledgePanel data, which were collected prior to survey administration and from NRS data for variables that GfK did not assess. Existing demographic data included: age, level of education, race/ethnicity, gender, and household income.

2.2.2. Cigarette smoking

We classified participants' smoking status as current, former, or never smokers. Current and former smokers reported on the following: 1) age of first use; 2) age of first regular use (at least once per week); 3) years of regular use; and 4) number of cigarettes smoked per day since beginning regular smoking. If they were currently still smoking, participants reported number of cigarettes smoked in a typical day during the past 7 days, as well as number of quit attempts. Former smokers reported the age at which they stopped smoking. From this information, as well as information about the years since AOD problem resolution, we calculated years since the participant quit smoking, years to quitting smoking after AOD problem resolution, and order of AOD and cigarette problem resolution.

2.2.3. Substance use history

Participants answered a series of questions about 15 substances/classes of substances based on items from the Global Appraisal of Individual Needs (GAIN-I) (Dennis, Titus, White, Unsicker, & Hodgkins, 2002): 1) alcohol, 2) marijuana, 3) cocaine, 4) heroin, 5) narcotics other than heroin (e.g., pharmaceutical opioids), 6) methadone, 7) buprenorphine and its formulations (e.g., "suboxone"), 8) amphetamines (including methylenedioxymethamphetamine, or MDMA), 9) methamphetamine ("crystal meth"), 10) benzodiazepines, 11) barbiturates, 12) hallucinogens, 13) synthetic drugs (e.g., synthetic cannabinoid like "K2" and synthetic cathinones such as "bath salts"), 14) inhalants, and 15) steroids, as well as other (specified by participant). For substances used 10 or more times in the participant's lifetime, we asked participants which substance they perceived to be a problem, and among those which was their primary substance (Dennis et al., 2002). We asked them the age at which they started using the substance regularly and when they resolved their AOD problem. We also asked participants whether they had ever been diagnosed with an alcohol use disorder, other drug use disorder, or other psychiatric disorder.

2.2.4. Treatment and other recovery support services

The questionnaire assessed whether participants had received inpatient or residential treatment, outpatient substance use disorder treatment, and whether they had participated in mutual-help organizations (MHOs) (Institute of Behavioral Research, 2002). We classified participation in MHOs as whether participants had attended 11 different MHOs (e.g., Alcoholics Anonymous (AA), SMART Recovery, LifeRing Secular Recovery, etc.) in their lifetime. Among attendees of MHO, we assessed whether participants were former or past 3-month attendees.

2.2.5. Attitudes toward the inclusion of smoking cessation services in treatment for AOD problems

We asked all participants to endorse the response that best agreed with their opinion on the inclusion of smoking cessation services in

treatment programs for AOD problems. The options were: 1) Services that help people stop smoking should not be automatically included in alcohol/drug treatment – people should focus all their energy on quitting alcohol/drugs first, then focus on quitting cigarettes later (i.e., excluded); 2) Services that help people stop smoking should not be included automatically in alcohol/drug treatment, but should be available for people who ask for it (i.e., available); 3) Services that help people stop smoking should not be included automatically in alcohol/drug treatment, but should be offered to everybody (i.e., offered); and 4) Services that help people stop smoking should be automatically included and integrated as part of their alcohol/drug treatment (i.e., integrated).

2.3. Statistical analysis

We calculated the prevalence of each attitude toward the inclusion of smoking cessation services in treatment for AOD problems. We then compared the distribution of demographic and clinical correlates between these different attitudes using unadjusted multinomial logistic regression models with individuals who felt that smoking cessation services should not be included in AOD treatment as the reference group. We chose the latter as the reference group given that most U.S. treatment programs currently do not include smoking cessation services as part of AOD treatment. We explored the use of ordered logistic regression, but the models violated the proportional odds assumption, so we proceeded with multinomial regression models. To explore changes in these attitudes over time periods, we constructed cohorts of individuals who resolved their AOD problem in 1985 or earlier, 1986–1995, 1996–2005, and 2006–2015. We compared the distribution of attitudes between these cohorts using a chi-square test with the Rao-Scott correction (i.e., design-based F-test). Analyses were design-based and incorporated survey weights using Stata, V14 (StataCorp, 2015).

3. Results

3.1. Prevalence of attitudes toward the inclusion of smoking cessation in AOD treatment among adults who have a resolved and current AOD problem

Of the 2002 participants included in the dataset, 1973 responded to the question inquiring about their attitudes toward smoking cessation services in AOD treatment. There was a fairly equal population prevalence of responses across the four possible response options with 23.5% (95% CI: 20.9, 26.3) reporting that smoking cessation services should be excluded, 25.0% (95% CI: 22.4, 27.8) reporting that smoking cessation services should be available for those who ask for it, 24.6% (95% CI: 22.1, 27.3) reporting that smoking cessation services should be offered to patients in AOD treatment, and 26.9% (95% CI: 24.1, 29.9) reporting that smoking cessation services should be included and integrated into AOD treatment.

3.2. Correlates of attitudes toward smoking cessation in AOD treatment

The distribution of attitudes did not significantly differ by age, sex, education, or household income. Compared to white non-Hispanic participants, Black non-Hispanic participants were more likely to agree with including smoking cessation services in AOD treatment compared to not automatically including these services in AOD treatment (white non-Hispanic: 22.96% included vs. 22.4% excluded, Black non-Hispanic: 42.40% included vs. 17.19% excluded; RRR = 2.41, 95% CI: 1.33, 4.35; Table 1a; see Supplementary File where the population-level prevalence estimates are available for every demographic and clinical subgrouping).

As Table 1b shows, current smokers were less likely to support including as compared to excluding smoking cessation services in AOD treatment than were never smokers; however, this did not quite reach

Table 1a
Demographic correlates of attitudes toward including smoking cessation in AOD treatment.

	Available (vs. excluded)		Offered (vs. excluded)		Integrated (vs. excluded)	
	RRR	95% CI	RRR	95% CI	RRR	95% CI
Age (in years)	1.00	0.99, 1.02	1.01	0.99, 1.02	0.99	0.98, 1.00
Male (ref = Female)	0.89	0.62, 1.29	0.72	0.50, 1.02	0.80	0.55, 1.16
Race/Ethnicity (ref = White, non-Hispanic)						
Black, non-Hispanic	1.03	0.54, 1.94	0.90	0.49, 1.66	2.41	1.33, 4.35
Other, non-Hispanic	0.36	0.12, 1.01	0.50	0.19, 1.30	1.21	0.52, 2.79
Hispanic	0.68	0.40, 1.16	0.60	0.34, 1.05	0.86	0.51, 1.46
2+ Race, non-Hispanic	0.75	0.26, 2.12	0.52	0.18, 1.48	0.69	0.24, 2.01
Education: Bachelor's degree or higher (ref = less than college)	0.92	0.62, 1.34	0.97	0.67, 1.39	0.90	0.61, 1.33
Household income \$50,000 USD or greater (ref ≤ \$50,000 USD)	1.06	0.73, 1.52	0.79	0.56, 1.13	0.74	0.51, 1.07

Bold indicate statistically significant effect or difference between compared groups.

statistical significance (Current smokers: 22.93% included vs. 24.46% excluded, Never smokers: 36.04% included vs. 21.97% excluded; RRR = 0.57, 95% CI: 0.33, 1.00; $p = .051$). The age when individuals started smoking or regularly smoking, the duration of smoking history, and characteristics of quit attempts (e.g., number of quit attempts, age when they quit smoking, time since quitting smoking, order of quitting smoking and AOD, and years to quitting smoking after AOD problem resolution) were not significantly related to the attitudes that participants endorsed. In contrast, among current and former smokers, a greater number of cigarettes smoked per day since the participant started smoking regularly was associated with an increased likelihood of supporting the attitude that AOD treatment offer smoking cessation services to patients, as compared to not including this service (RRR = 1.02, 95% CI: 1.00, 1.03). Among current smokers, greater number of cigarettes smoked during the past week was similarly associated with an increased likelihood of supporting the attitude that AOD treatment offer smoking cessation services to patients, as compared to not including this service (RRR = 1.03, 95% CI: 1.00, 1.04).

When examining AOD-related characteristics, participants that reported alcohol as their primary substance were less likely to support including as compared to excluding smoking cessation services in AOD treatment relative to individuals whose primary substance was cannabis (Alcohol: 24.61% included vs. 26.49% excluded, Cannabis: 35.95% included vs. 14.11% excluded; RRR = 0.36, 95% CI: 0.18, 0.74;

Table 1c). Similarly, people who self-reported having been diagnosed with an alcohol use disorder by a clinician were less likely to support offering smoking cessation services to patients in AOD treatment as opposed to not including these services (Alcohol use disorder: 17.14% offered vs. 30.86% excluded; No alcohol use disorder: 25.94% offered vs. 22.15% excluded; RRR = 0.47, 95% CI: 0.30, 0.74). The number of substances used, age of regular use, self-reported diagnosis of another drug (not alcohol) use disorder, and self-reported diagnosis of another psychiatric disorder were not associated with attitudes toward smoking cessation services in AOD treatment. History of inpatient and outpatient AOD treatment were also not associated with these attitudes. Mutual help (any and 12-step) attendance was associated with a lower likelihood of agreeing with offering or including smoking cessation services in AOD treatment. More specifically, former MHO attendees were less likely to recommend including rather than excluding smoking cessation services in AOD treatment (Former MHO: 21.76% included vs. 26.21% excluded, RRR = 0.55, 95% CI: 0.37, 0.84; 12-Step former MHO: 22.71% included vs. 26.72% excluded, RRR = 0.57, 95% CI: 0.38, 0.86) relative to never attendees (Any MHO: 29.40% included vs. 19.66% excluded; 12-Step MHO: 29.12% included vs. 19.50% excluded). Past 3-month attendees were less likely to recommend including smoking cessation services (Any MHO: 25.46% included vs. 33.85% excluded, RRR = 0.50, 95% CI: 0.28, 0.90; 12-step MHO: 23.61% included vs. 35.95% excluded, RRR = 0.44, 95% CI: 0.24,

Table 1b
Smoking correlates of attitudes toward including smoking cessation in AOD treatment.

	Available (vs. excluded)		Offered (vs. excluded)		Integrated (vs. excluded)	
	RRR	95% CI	RRR	95% CI	RRR	95% CI
In full sample:						
Smoking status (ref = never)						
Former	0.89	0.53, 1.50	1.48	0.87, 2.50	0.67	0.41, 1.10
Current	1.01	0.57, 1.78	1.30	0.74, 2.28	0.57	0.33, 1.00
Among former and current smokers						
Age when started smoking	0.99	0.94, 1.04	1.00	0.95, 1.04	1.01	0.96, 1.06
Age when started smoking regularly	0.99	0.94, 1.04	0.97	0.93, 1.02	0.99	0.95, 1.04
Number of years smoked regularly	1.00	0.99, 1.02	1.00	0.99, 1.02	0.99	0.97, 1.00
Average number of cigarettes smoked per day since smoking regularly	1.00	0.98, 1.02	1.02	1.00, 1.03	1.00	0.98, 1.02
Among former smokers						
Age when quit smoking cigarettes	1.00	0.98, 1.01	0.99	0.97, 1.01	0.99	0.97, 1.01
Years since quit smoking cigarettes	1.01	0.99, 1.02	1.00	0.98, 1.01	1.00	0.98, 1.02
Years to quit smoking cigarettes after AOD problem resolution	0.99	0.97, 1.01	1.01	0.99, 1.03	1.00	0.98, 1.01
Order of quitting smoking vs. AOD (ref = Quit smoking before AOD)						
Quit smoking with AOD	0.65	0.28, 1.50	1.01	0.47, 2.14	1.29	0.58, 2.85
Quit smoking after AOD	0.71	0.42, 1.20	0.99	0.59, 1.66	0.65	0.38, 1.12
Among current smokers						
Cigarettes smoked in past week	1.00	0.97, 1.02	1.02	1.00, 1.04	1.00	0.97, 1.03
Number of attempts to quit smoking	1.01	0.98, 1.04	1.02	0.99, 1.04	0.99	0.95, 1.02

Bold indicate statistically significant effect or difference between compared groups.

Table 1c
AOD and psychiatric correlates of attitudes toward including smoking cessation in AOD treatment.

	Available (vs. excluded)		Offered (vs. excluded)		Integrated (vs. excluded)	
	RRR	95% CI	RRR	95% CI	RRR	95% CI
Number of substances used	1.04	0.96, 1.12	1.05	0.97, 1.13	0.96	0.88, 1.04
Primary substance (ref = cannabis)						
Alcohol	0.50	0.24, 1.04	0.55	0.27, 1.13	0.36	0.18, 0.74
Other drug	0.70	0.32, 1.54	0.79	0.36, 1.73	0.53	0.24, 1.13
Age of regular use (primary substance)	1.01	0.98, 1.04	1.01	0.99, 1.04	0.99	0.96, 1.02
Inpatient or residential treatment	0.98	0.62, 1.56	0.71	0.45, 1.12	0.87	0.54, 1.39
Outpatient treatment	0.95	0.59, 1.53	1.09	0.69, 1.71	0.99	0.61, 1.63
Any mutual help attendance (ref = never)						
Former	0.80	0.54, 1.18	0.74	0.50, 1.08	0.55	0.37, 0.84
Past 3-month	0.66	0.37, 1.17	0.29	0.17, 0.49	0.50	0.28, 0.90
12-Step mutual attendance (ref = never)						
Former	0.73	0.49, 1.09	0.70	0.48, 1.04	0.57	0.38, 0.86
Past 3-month	0.59	0.33, 1.07	0.27	0.15, 0.48	0.44	0.24, 0.82
Any psychiatric disorder (excluding AUD/SUD)	1.10	0.75, 1.62	0.92	0.64, 1.33	0.92	0.63, 1.36
Alcohol use disorder (AUD)	0.75	0.47, 1.22	0.47	0.30, 0.74	0.69	0.42, 1.13
Other substance use disorder (SUD)	0.64	0.24, 1.70	1.38	0.52, 3.66	0.85	0.27, 2.66

Bold indicate statistically significant effect or difference between compared groups.

0.82) or offering smoking cessation services (Any MHO: 13.12% offered vs. 33.85% excluded, RRR = 0.29, 95% CI: 0.17, 0.49; 12-step MHO: 13.30% offered vs. 35.95% excluded, RRR = 0.27, 95% CI: 0.15, 0.48) in AOD treatment relative to never-attenders (Any MHO: 29.40% included, 26.72% offered, 19.66% excluded; 12-step MHO: 29.12% included, 26.58% offered, 19.50% excluded).

3.3. Association between attitudes toward smoking cessation in AOD treatment and time since AOD problem resolution

Results of the omnibus Rao-Scott design-based F test revealed that there was no significant difference in the distribution of attitudes toward smoking cessation services in AOD treatment by the time that individuals resolved their AOD problem ($p = .209$; Table 2; Fig. 1). In exploratory subgroup analyses, we found that individuals who resolved their AOD problem between 1986 and 1995 were significantly more likely to support offering smoking cessation services than endorsing that smoking cessation services are not offered in the context of AOD treatment (RRR = 1.68, 95% CI: 1.04, 2.71); however, we did not observe this finding in other recovery cohorts ($p > .05$).

4. Discussion

There is strong consensus regarding the health harms from cigarette smoking and there are high rates of concurrent cigarette smoking and nicotine addiction among those entering treatment for AOD disorders. Despite this, whether smoking cessation services should be available, offered, or proactively integrated into AOD treatment services is not

Table 2
Association between attitudes toward including smoking cessation in AOD treatment and time since AOD problem resolution.

Time period when resolved AOD problem	Attitude row prevalence estimates (95% CI)			
	Excluded	Available	Offered	Integrated
1985 or earlier	21.2 (15.8, 27.9)	23.6 (17.2, 31.4)	27.4 (20.9, 34.9)	27.9 (20.4, 36.8)
1986–1995	22.0 (16.6, 28.6)	23.2 (17.7, 29.9)	32.5 (26.3, 39.4)	22.3 (16.8, 28.9)
1996–2005	22.7 (17.8, 28.5)	26.9 (21.8, 32.6)	26.6 (21.4, 32.5)	23.9 (18.9, 29.7)
2006–2015	24.5 (20.7, 28.8)	25.2 (21.4, 29.5)	21.5 (18.1, 25.4)	28.8 (24.6, 33.3)

universally agreed upon. Researchers know little about the attitudes of recovering persons vis-a-vis the inclusion of smoking cessation services in AOD treatment settings. Those in recovery represent an important stakeholder group because many persons in recovery work in public- and private-sector AOD treatment, research, and policy settings, and, thus, their attitudes may influence the adoption and implementation of smoking cessation services' policy in such settings (Culbreth, 2000; Stöffelmayr et al., 1999; White, 2000). This study found that, overall, attitudes were fairly evenly distributed across our four possible ordinal levels of smoking cessation service inclusion (i.e., do not include; make them available but do not offer; make available and do offer; routinely include and integrate into AOD treatment services). However, there were certain individual characteristics that were associated with more or less favorable attitudes toward smoking cessation services inclusion, and there was a tendency for older individuals with between 30 and 40 years of recovery (i.e., those entering recovery between 1986 and 1995) to be more in favor of offering smoking cessation services (vs. excluding them) in AOD treatment settings.

In general, approximately one-quarter of the sample endorsed each of our four ordinal levels of smoking cessation service inclusion in AOD treatment settings. What was noteworthy, however, was that a substantial proportion of participants endorsed the position of not being in favor of including any smoking cessation services at all in AOD treatment, and another sizable group endorsed making smoking cessation services available only to those who ask for it, while not endorsing the more assertive approach of proactively offering cessation services to smokers entering AOD treatment. In total, this signified that about half of those sampled were either generally against its inclusion or somewhat cool on the idea. While we cannot speak to the exact reasons why recovering persons endorsed such positions, it is an area worthy of further investigation, particularly given the universally well-known negative health effects of smoking. As noted, it may be related to fears of diluting the focus from the more acutely life-threatening harms arising from a relapse to AOD use, or that cigarette use may represent a form of harm reduction or coping strategy that even may mitigate relapse to AOD use for some. Research should examine such attitudes, given not only this discourse but also existing public policies that *prohibit smoking entirely* in some AOD treatment programs, which may prevent persons with AOD problems from seeking treatment (Department of Behavioral Health and Intellectual Disability Services, 2018). Thus, understanding more about the reasons behind such beliefs may inform the broader treatment field about some of the potential barriers to effective implementation of smoking cessation services in

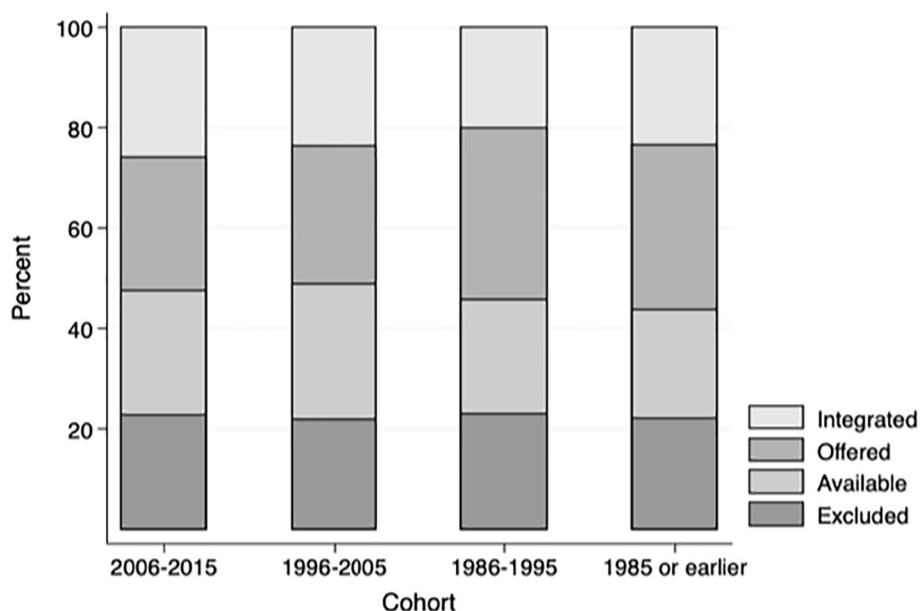


Fig. 1. Distribution of attitudes toward including smoking cessation services in AOD treatment by time period when resolved AOD problem. Note: Sampling weights not reflected in percentages; refer to Table 2 for weighted percentages.

AOD settings, as well as strategies to balance the harms of continued cigarette smoking against the harms of implementing smoking cessation when it opposes patient values and preferences. Ultimately, programs may need to flexibly tailor services to such preferences and patient needs.

There were a number of variables that were associated with endorsing certain smoking cessation service positions. The only demographic variable that was associated was Black recovering persons were more likely than white recovering persons to want to automatically include smoking cessation services in AOD treatment. The reasons for this are unclear. It has been documented that Black Americans, in general, are more motivated to quit smoking and make more attempts than their white counterparts but tend to not be as successful at quitting as whites (Burgess et al., 2014; Daza et al., 2006; Fu et al., 2005; Hendricks et al., 2014; Kahende, Malarcher, Teplinskaya, & Asman, 2011; Rayens, Hahn, Fernander, & Okoli, 2013). Also, there have been economic disparities documented between Black and white Americans in treatment, with Black Americans showing disadvantage. Thus, it is plausible that the greater desire to include SCS in AOD treatment among Black Americans may, in part, be driven economically as SCS outside of such settings could add additional financial burden. Further research is needed, however, to understand more precisely why Black persons in recovery from an AOD problem seem more in favor of including smoking cessation services in AOD treatment than whites.

Of note, age of smoking onset, time since quitting smoking, and order of quitting smoking relative to AOD problem resolution were not associated with response endorsements. Yet greater intensity of smoking among current or former smokers was associated with more positive attitudes toward including smoking cessation services in AOD treatment. It is possible that greater health consequences and related regrets, or greater difficulty quitting—because these individuals may be smoking the most and are perhaps the most addicted smokers—may contribute to this more positive attitude toward formally including smoking cessation services.

Interestingly, whereas psychiatric or other drug use disorders, number of substances used, and age of regular substance use were found unrelated to attitudes about including smoking cessation services, those with alcohol as their primary substance and/or who had been diagnosed with alcohol use disorder were less likely to endorse a positive attitude toward offering smoking cessation services in

treatment. This substance specific relationship is intriguing. Why those with primary alcohol vs. other primary drug use histories would have a less favorable attitude toward smoking cessation services inclusion is unclear. Subsidiary analyses (not shown) did not find that this was explained by greater current heavier smoking among those with alcohol histories. Also, whereas formal treatment services use was not associated with differential endorsement, MHO participation was related both in general as well as among former and current 12-step MHO attendees. Again, it is unclear why exactly participation in MHO would be associated with less favorable attitudes toward including smoking cessation services in AOD treatment. It could be that because MHO participants tend to have more severe clinical addiction histories (Kelly, Brown, Abrantes, Kahler, & Myers, 2008; Kelly & Hoepfner, 2015), more of these individuals hold the beliefs we mentioned regarding a harm reduction/coping approach or fear of moving the focus away from the more acutely life-threatening substances (i.e., alcohol, opioids). This should be investigated.

It was noteworthy, too, that the older (1986–1995) recovery cohort was the only one that appeared to subscribe to a more positive view toward offering smoking cessation services in AOD treatment relative to not including them at all. Although the exact reason for this is unclear, it is plausible that this now older cohort may be realizing some of the long-term effects of earlier smoking habits and have regrets that they did not stop sooner, perhaps at the same time many of them would have received AOD treatment.

4.1. Limitations

Any conclusions or generalizations drawn from the current set of findings should be made following careful consideration of a number of important limitations. The study is cross-sectional, thus any inferences relating to dynamic temporal relationships among variables are tentative pending corroboration from longitudinal studies. The measure of attitude toward smoking cessation in AOD treatment did not specify which type of services should be integrated or made available and we did not inquire specifically about the use of e-cigarettes. While nicotine replacement therapy and, more recently, medications such as bupropion and varenicline, in combination with behavioral support, have emerged as best practices for individuals with psychiatric disorders (Evins et al., 2019), recent data suggest newer nicotine replacement

strategies (e.g., e-cigarettes) may be more effective than traditional nicotine replacement therapy (e.g., patches/gum) among individuals who want to quit (Brown, Beard, Kotz, Michie, & West, 2014; Hajek et al., 2019), but further work is needed to confirm the robustness of these findings. Future studies may examine whether attitudes toward combining smoking cessation and AOD treatment differ depending on the type of smoking cessation services under study. Also, the study relies on retrospective recall of many variables, which can be prone to recall bias and temporal telescoping. Also, our measurement instruments were in many cases not ideal, being somewhat coarse and conducted at a macro level. We constructed the measure of smoking cessation treatment attitudes for the purpose of this study and, thus, we do not know its reliability. Qualitative analyses would have been very helpful to contextualize many of the findings. Finally, while our sample comprises people who have resolved a significant AOD problem, some of whom may work in AOD service capacities, we do not know whether those individuals in particular actually may have different attitudes. It is possible that holding such positions may moderate such attitudes.

5. Conclusion

Despite several limitations inherent in a survey study design, findings from this nationally representative investigation of attitudes of recovering persons offer preliminary insights into the beliefs of this large and potentially influential stakeholder group and generate a number of hypotheses and ideas for further investigation to understand more about the barriers to the implementation, in some cases, of any kind of smoking cessation services in AOD treatment. Such barriers are worthy of understanding, as they may tacitly undermine implementation of such services at a time when potentially more smokers with AOD problems entering treatment wish to address their tobacco use and quit smoking alongside addressing their AOD problem. Given the high risk for smoking-related morbidity and mortality in the AOD population, research focusing on these barriers is a worthy investment.

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Author statement

Lead author J.F. Kelly designed the study and wrote the initial draft; Co-author M.C. Greene conducted the statistical analyses and wrote the first draft of the results and methods section; Co-authors Kelly, Greene, Bergman, Hoffman, and Hoepfner, edited and contributed to further manuscript drafts.

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