



Availability of tobacco cessation services in substance use disorder treatment programs: Impact of state tobacco control policy



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HIGHLIGHTS

- State cigarette excise taxes are associated with availability of TC services.
- CDC recommended spending levels are associated with availability of TC services.
- State tobacco control environments may directly impact access to TC services.
- State tobacco control policy tools may further decrease smoking in the U.S.

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ABSTRACT

Objective: Given the high prevalence of smoking among substance use disorder (SUD) patients, the specialty SUD treatment system is an important target for adoption and implementation of tobacco cessation (TC) services. While research has addressed the impact of tobacco control on individual tobacco consumption, largely overlooked in the literature is the potential impact of state tobacco control policies on availability of services for tobacco cessation. This paper examines the association between state tobacco control policy and availability of TC services in SUD treatment programs in the United States.

Methods: State tobacco control and state demographic data ($n = 51$) were merged with treatment program data from the 2012 National Survey of Substance Abuse Treatment Services ($n = 10,413$) to examine availability of TC screening, counseling and pharmacotherapy services in SUD treatment programs using multivariate logistic regression models clustered at the state-level.

Results: Approximately 60% of SUD treatment programs offered TC screening services, 41% offered TC counseling services and 26% offered TC pharmacotherapy services. Results of multivariate logistic regression showed the odds of offering TC services were greater for SUD treatment programs located in states with higher cigarette excise taxes and greater spending on tobacco prevention and control.

Conclusions: Findings indicate cigarette excise taxes and recommended funding levels may be effective policy tools for increasing access to TC services in SUD treatment programs. Coupled with changes to insurance coverage for TC under the Affordable Care Act, state tobacco control policy tools may further reduce tobacco use in the United States.

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1. Introduction

Despite decades of public health intervention and education, tobacco use remains the leading actual cause of death in the United States (Centers for Disease Control and Prevention, 2015). Costs associated

with smoking-related illnesses are estimated at \$300 billion dollars annually (Centers for Disease Control and Prevention, 2015). Compared to rates of cigarette use in the general population, smoking prevalence is significantly higher among persons seeking treatment in substance use disorder (SUD) treatment programs. Studies estimate that between 65% and 87% of patients in SUD treatment programs smoke cigarettes (Guydish et al., 2011; McCarthy, Collins, & Hser, 2002; Muilenburg, Laschober, & Eby, 2014a, 2014b; Richter, Ahluwalia, Mosier, Nazir, & Ahluwalia, 2002; Teater & Hammond, 2010; Williams & Ziedonis, 2004). The death rate among individuals in SUD treatment who

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smoke is almost four times greater than the death rate among non-smokers in SUD treatment. Furthermore, patients treated for SUDs are more likely to have tobacco-related causes of mortality than other substance-related causes of mortality (Baca & Yahne, 2009; Hurt et al., 1996). Clinicians employed in SUD treatment programs also demonstrate high rates of cigarette smoking (de Tormes Eby & Laschober, 2014; Fuller et al., 2007; Laschober & Eby, 2013; Muilenburg, Laschober, Eby, & Moore, 2015).

Given the high prevalence of smoking among SUD patients, the specialty SUD treatment system is an important target for adoption and implementation of tobacco cessation services. However, SUD treatment programs in the United States have been reluctant to promote tobacco cessation as part of the treatment regimen for patients seeking treatment for alcohol and drugs (Muilenburg et al., 2015). Tobacco use was traditionally viewed as an accepted part of SUD treatment and recovery, whereby people in early recovery used cigarettes as a way to bond with each other and with treatment staff (Substance Abuse and Mental Health Services Administration, 2011). There is also a widely held belief that attempting to quit smoking may negatively impact both treatment and recovery. However, research shows that smokers are more likely to drop-out of SUD treatment than non-smokers (Satre, Kohn, & Weisner, 2007) and smoking may be a risk factor for relapse (Kohn, Tsoh, & Weisner, 2003; Satre et al., 2007). Further, tobacco cessation is associated with increased likelihood of long-term abstinence from other SUDs (Hurt et al., 1996; Prochaska, Delucchi, & Hall, 2004; Satre et al., 2007) and reduced use of alcohol and illicit drugs during SUD treatment (Baca & Yahne, 2009). Finally, there is a belief that patients in treatment for other SUDs have no interest in tobacco cessation (Gulliver, Kamholz, & Helstrom, 2005; Muilenburg et al., 2015) which is not supported by extant research (Prochaska et al., 2004; Richter, Gibson, Ahluwalia, & Schmelzle, 2001).

1.1. State tobacco control policy

In 1999, the Centers for Disease Control and Prevention (CDC) published their first *Best Practices* report, including explicit recommendations about necessary levels of funding that states needed to invest in tobacco prevention and control (Tyman, Babb, MacNeil, & Griffin, 2011). The report also cited research documenting the effectiveness of a myriad of policy tools that together composed what they termed a “comprehensive tobacco control effort” (Centers for Disease Control and Prevention, 2014). These policies included increasing the unit price of tobacco, implementation of smoke-free laws at the local and state levels, and encouragement of smoke-free private settings (Centers for Disease Control and Prevention, 2014).

The 1999 CDC report also suggested that states invest between \$1.6 and \$4.2 billion on tobacco prevention and control. Following the report, overall investment in state tobacco control programs doubled, but most states have failed to keep pace with suggested levels of CDC funding over time (Centers for Disease Control and Prevention, 2014). In 2011, only two states funded programs at recommended levels (Centers for Disease Control and Prevention, 2014). State spending is a strong signal of their commitment to comprehensive tobacco control policy.

The relationship between cigarette taxes and cigarette consumption has been well established in the economic literature (Becker, Grossman, & Murphy, 1990). In general, cigarette excise taxes have a negative effect on smoking behavior: as taxes increase, individuals smoke less (Cebula, Foley, & Houmes, 2014; Lewit & Coate, 1982; Meier & Licari, 1997). States with higher cigarette taxes are intentionally using this policy tool to curb smoking. Thus, higher cigarette excise taxes are indicative of a greater state commitment to tobacco control. We include cigarette taxes as an indicator of the state tobacco control environment and examine their impact on availability of TC services in SUD treatment programs.

Smoke-free laws are relatively new in the United States. In 2000, only two states had implemented any type of smoke-free policy in private worksites, restaurants or bars (Tyman et al., 2011). By mid-2013, 30 states plus Washington, D.C. had passed smoke-free laws that at least covered restaurants and bars (Campaign for Tobacco-Free Kids, 2013).

While much research has addressed the impact of tobacco control on smoking rates, often overlooked in this literature is the potential impact of state tobacco control policies on availability of services for tobacco cessation within SUD treatment programs. Only one prior study examined the relationship between two state tobacco control policies and the availability of TC services (Shi & Cummins, 2015). The study found that SUD treatment programs located in states that spend at least half of amount recommended by the CDC on tobacco prevention and control and states with comprehensive smoke-free laws were more likely to offer TC services. However, this study did not include state demographic variables, a measure of demand (i.e., percentage of the state adult population that smokes), or a measure of cigarette excise taxes, one of the three key components of comprehensive state tobacco control policy. Thus, the effect that the study attributed to comprehensive smoke free laws may be a product of omitting these important state-level variables. In econometric terms, this is a form of endogeneity resulting from omitted variable bias. In addition, the study did not account for the nesting of treatment programs in states and thus failed to account for unobserved heterogeneity. Finally, the study grouped all tobacco cessation services into one measure which does not allow for an examination of the unique factors associated with adoption of TC screening, counseling and pharmacotherapy services. Prior research shows that the predictors of adoption vary by type of TC services (e.g., TC counseling, TC pharmacotherapy) (Eby, Laschober, & Muilenburg, 2015). This paper improves upon this research by estimating a series of equations that include state characteristics, a demand measure, and cigarette excise taxes, in addition to other explanatory variables. We also account for the nesting of treatment programs in states and disaggregate tobacco cessation services by type.

2. Methods

This study utilizes data from five publicly available sources. Treatment program-level data are taken from the 2012 National Survey of Substance Abuse Treatment Services (N-SSATS), an annual census of all known SUD treatment programs in the US providing SUD treatment services. Measures of state demographic characteristics and state per capita income are taken from the U.S. Census Bureau and the number of physicians per capita is from the 2012 state-level Area Health Resource File (AHRF). Data on prevalence of cigarette smoking in each state and the District of Columbia and state-level tobacco control measures are from the Centers for Disease Control and Prevention and The Tax Burden on Tobacco: Historical Compilation (Orzechowski & Walker, 2014).

Three dependent variables measure the availability of TC services in specialty SUD treatment programs. Availability of TC screening is measured by a dichotomous variable indicating whether the treatment program screens patients for tobacco use as part of assessment/pre-treatment services. Availability of TC counseling is measured by a dichotomous variable that indicates whether the treatment program specifically offers tobacco cessation counseling as part of the program's ancillary services. Availability of TC pharmacotherapy is measured by a dichotomous variable that indicates whether the treatment program offers any nicotine replacement medications and/or non-nicotine tobacco cessation medications such as Bupropion and Varenicline.

Several characteristics of SUD treatment programs are included in the analyses as control variables: program is based in a hospital setting, program is accredited, program type (private for-profit, private non-profit, government owned), program acceptance of private

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