



Sustained, New, Never, and Discontinued Tobacco Cessation Services Adopters



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ABSTRACT

This study examined longitudinal adoption patterns of tobacco cessation (TC) counseling and TC pharmacotherapy in substance use disorder treatment programs and baseline predictors (program characteristics and program culture) of these patterns 12-months later. Telephone survey data were collected in 2010 from 685 randomly sampled program administrators working in geographically representative treatment programs across the U.S. Regarding TC counseling, about 41% of programs never adopt, 33% sustain, and 27% change adoption patterns. Concerning TC pharmacotherapy, about 62% of programs never adopt, 19% sustain, and 18% change adoption patterns. The three most consistent predictors of counseling adoption patterns are TC reimbursement, TC financial resource availability, and smoking culture. For TC pharmacotherapy adoption patterns, the most consistent predictors include profit status, TC reimbursement, level of care, TC financial resource availability, and smoking culture. Findings provide insights into program characteristics and program culture as both potential barriers and facilitators of longitudinal TCS adoption.

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1. Introduction

Tobacco ranks among the most commonly abused substances in the U.S. (National Institute on Drug Abuse [NIDA], 2012), with about 21% of the general adult population being current smokers (Centers for Disease Control, Prevention, 2013). The tobacco use among people in treatment for substance use disorders (SUDs) is more than three times higher, ranging from 65 to 87% (Guydish et al., 2011). Patients seeking treatment for SUDs also smoke more and are twice as likely to die from tobacco-related causes (Hays et al., 1999; Hurt et al., 1996; Richter, Ahluwalia, Mosier, Nazir, & Ahluwalia, 2002).

At the same time, 70 to 80% of SUD patients want to quit smoking (Richter & Arnsten, 2006), can successfully quit (Hughes, Novy, Hatsukami, Jensen, & Callas, 2003), and experience beneficial outcomes on concurrent treatment for other SUDs (Richter & Arnsten, 2006). Because many patients need help to quit smoking (Tobacco Use Recovery Now!, 2009), SUD treatment programs are prime settings for providing evidence-based tobacco cessation services (TCS) recommended by national guidelines including counseling and pharmacotherapy (Fiore et al., 2008). Given the generally low adoption of TCS in SUD treatment programs (Friedmann, Jiang, & Richter, 2008; Knudsen & Studts, 2011; Muilenburg, Laschober, & Eby, 2014a, 2014b; Rothrauff & Eby, 2011), the current study longitudinally examines SUD program administrator reports of TC counseling

and TC pharmacotherapy adoption patterns (sustained, new, never, and discontinued), as these are necessary conditions for implementation patterns, and their program-level predictors to better understand the adoption process.

Adoption differs from implementation in two major ways: first, adoption refers to the availability of TCS in treatment programs whereas implementation refers to the consistent use of TCS by clinicians. Second, adoption of TCS comes before implementation because unless TCS are made available, implementation cannot occur (Fixsen, Naoom, Blase, Friedman, & Wallace, 1995). Thus, understanding the adoption of TCS is an important first step in the diffusion of TCS innovations (Rogers, 1962).

Rogers (1962) seminal work on the diffusion of innovations suggests that the adoption of evidence-based practices (EBPs) is initially slow as few people and organizations are aware of the innovation, increases as awareness grows, and levels off once most organizations have adopted the EBPs. Despite strong theoretical support that the diffusion of innovations is a process, most studies examining the adoption of TCS have used cross-sectional designs (e.g., Friedmann et al., 2008; Knudsen, Studts, Boyd, & Roman, 2010; Rothrauff & Eby, 2011). Although these studies provide important insight into the adoption of TCS at a given point in time, they provide no information on change in the adoption process *within treatment programs over time*. Likewise, cross-sectional studies cannot tell whether programs that are initially non-adopters become adopters over time or if they maintain their status quo.

Only two empirical studies have investigated longitudinal adoption patterns of TCS and factors that predict adoption patterns over

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time (Knudsen, Muilenburg, & Eby, 2013; Knudsen & Studts, 2011). Both studies find considerable change in service offerings. Knudsen et al. examined the sustainment of TC counseling over a 3 year period, finding that approximately 40% of treatment programs discontinued TC counseling over time. Knudsen and Studts (2011) focused exclusively on two types of nicotine replacement therapies (NRTs; patch or gum) and provided a more detailed analysis of changes in adoption patterns by comparing sustained, non-, discontinued, and recent adopters over a 4 year window. Considerable variability was reported in adoption over time, with 28% of programs reporting some change in NRT availability.

Both studies also examined baseline predictors of adoption patterns. Organizational characteristics such as accreditation status (Knudsen et al., 2013), private funding, being on a hospital campus, having access to physicians, offering inpatient/residential treatment, and providing other TCS (Knudsen & Studts, 2011), were predictive of adoption patterns. Moreover, Knudsen et al. found that administrator attitudes regarding the positive impact of TC on SUD recovery and fewer organizational barriers (e.g., less demanding protocols, greater staff skills) predicted sustained adoption of NRT.

However, there are limitations to both studies that support further investigation into TCS adoption patterns. One limitation is the narrow definition of TCS adoption by focusing only on two types of counseling (Knudsen et al., 2013) and two types of NRT (Knudsen & Studts, 2011). This stands in contrast to the broader range of TC counseling and TC pharmacotherapy advocated by the national guidelines (Fiore et al., 2008). Further, although one of the studies compared sustained, non-, discontinued, and recent adopters, it focused only on two types of NRTs and did not examine program administrator attitudes as predictors of adoption patterns (Knudsen & Studts, 2011).

A last limitation is the time-spans used to examine changes in TCS adoption patterns, which ranged from 3 to 4 years from baseline. Because innovation adoption and implementation theories (e.g., Fixsen et al., 1995; Rogers, 1962) do not specify or speculate about an exact time-span within which adoption changes can be expected to or should take place, examining more diverse time-spans such as fewer years between baseline to follow-up is important to provide greater insights into the adoption process. It also allows us to compare the base rate of adoption between studies using shorter versus longer time-spans. This may help inform future research and theorizing about the dynamic aspects of EBP adoption.

The present study builds and expands on existing research to address these gaps in the TCS literature. Specifically, we provide the most comprehensive perspective on TCS adoption to date by examining changes over a 12-month period and examining four types of TC counseling and nine types of TC pharmacotherapy as outlined in the national guidelines (Fiore et al., 2008). In so doing we examine TC counseling and TC pharmacotherapy separately, recognizing that the predictors of these different types of TCS may be important to consider. Moreover, we examine a range of both program characteristics and indicators of program culture as predictors of four different adoption patterns over time (sustained, never, discontinued, and new adopters).

Using data from a nationally random sample of SUD treatment program administrators, we address three research questions: (1) What percent of treatment programs are classified as sustained, never, discontinued, and new adopters of TC counseling and TC pharmacotherapy? (2) What baseline treatment program characteristics (profit status, hospital or medical affiliation, extent of TC reimbursement, level of care, and availability of TC financial resource availability) and baseline treatment program culture (perceptions regarding the program's smoking culture and positive effect of TCS on sobriety) predict TC counseling adoption patterns? (3) What baseline treatment program characteristics and baseline treatment program culture predict TC pharmacotherapy adoption patterns?

2. Materials and methods

2.1. Study design and sample

Longitudinal data were obtained from the Managing Effective Relationships in Treatment Services (MERITS III) project, which started in 2010. MERITS III is designed to assess the effect that SUD treatment program processes and management practices have on the adoption, implementation, and sustainability of TCS in treatment programs. All procedures were approved by the University of Georgia Institutional Review Board. Detailed information on the study design has been published previously (Muilenburg et al., 2014a, 2014b).

Briefly, the 2010 Substance Abuse and Mental Health Services Administration (SAMHSA) National Directory provided the sampling frame for MERITS III. The Directory included 11,153 SUD programs that were composed of Federal, State, local government, and private facilities, were located across the U.S., and included all levels of care. To screen for eligibility in MERITS III, all programs listed in the Directory were first assigned a random number. Then, trained research assistants called program administrators screen and qualify for eligibility. To be eligible the program had to provide SUD counseling services in a community setting. Programs that offered only methadone maintenance, Veterans Administration (VA) programs, DUI educational programs, or those listed as Halfway Houses and only offered detoxification services were excluded.

Approximately 5000 programs were contacted to compile a list of 2679 eligible programs. Working from this list of eligible programs, trained research assistants called to request a 30-minute structured phone interview with program administrators. A total of 1006 administrators participated, 171 were no-shows even after repeated attempts, 422 refused to participate, 944 could not be reached (i.e., phone disconnected, program closed), 125 were duplicate programs, and 11 no longer qualified. Thus, the basic phone interview response rate was 62.91% (see Gripp, Luloff, & Yonkers, 1994 for basic phone interview response rate calculation).

The same 1006 treatment programs were contacted again 1 year later and invited to participate in a follow-up survey: 685 program administrators completed the 30-minute follow-up phone interview, 244 programs could not be reached (e.g., phone disconnected, program closed), 4 programs were no longer eligible, and 71 administrators refused participation. This resulted in a final sample of 685 treatment programs that participated at both baseline and 12-month follow-up.

2.2. Measures

2.2.1. Adoption of TC counseling and adoption of TC pharmacotherapy

Adoption of TC counseling and adoption of TC pharmacotherapy were measured at baseline and 12-month follow-up. Program administrators reported whether their program adopted (made available) at least one of four types of *TC counseling services* (individual counseling that focuses on social support specifically for TC, individual counseling that focuses on problem solving/skills training specifically for TC, four or more individual counseling sessions specifically for TC, group counseling specifically for TC) recommended by the national guidelines (Fiore et al., 2008). Further, program administrators stated whether their program adopted at least one of the nine currently endorsed TC pharmacotherapies (nicotine patch, gum, nasal spray, lozenge, inhaler, bupropion-SR, varenicline, clonidine, nortriptyline) (Fiore et al., 2008).

Adoption of TC counseling and TC pharmacotherapy at each time period was recorded as 0 = *not adopted* and 1 = *adopted*. Based on responses at both baseline and follow-up, four adoption patterns were created separately for TC counseling and TC pharmacotherapy: 1 = *sustained adopters* (reported TCS at baseline and follow-up), 2 = *new adopters* (reported no TCS at baseline but TCS at follow-up), 3 = *never*

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