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Development of a Behavioral Activation–Based Intervention for Cigarette-Smoking Young Adults

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Quitting smoking during young adulthood can substantially reduce tobacco-related morbidity and mortality later in life. Depressive symptomatology is prevalent among smokers and increases risk for poor smoking cessation outcomes. However, few integrated behavioral interventions simultaneously target smoking and depressive symptoms and rarely have young smokers been included in the development of these interventions. In this paper we describe an 8-session behavioral activation–based treatment for smoking (BATS; MacPherson et al., 2010) adapted for youth. We conducted a series of focus groups with young adult smokers with depressive symptoms in order to modify treatment manuals to be developmentally appropriate. Subsequently, we completed a small pilot group (n = 5) of the intervention to provide preliminary data on feasibility, acceptability, and outcomes. We provide a case series of the participants in order to provide clinical illustrations of how the modified BATS treatment was implemented among young adults. Most pilot study participants exhibited smoking abstinence and smoking reductions at the end of treatment, as well as improvement in depressive symptoms and maintenance of levels of activation and environmental reward. Participants provided positive qualitative constructive feedback regarding the intervention.

Regular smoking rates among males and females ages 18–24, collectively "young adults," are approximately 22% and 15%, respectively (Jamal et al., 2014). More than half of young adults report interest in quitting smoking but they are rarely successful (Curry, Sporer, Pugach, Campbell, & Emery, 2007; Fagan et al., 2007; U.S. Department of Health and Human Services, 2014). These findings, accompanied by the developmental changes occurring from adolescence into young adulthood, call for interventions oriented towards the unique needs of young adults. Moreover, the critical need to focus intervention efforts in young adults is underscored by large-scale data indicating that quitting smoking prior to age 30 can mitigate more than 95% of tobacco-related mortality (Pirie, Peto, Reeves, Green, Beral, 2013). To date, a limited number of studies have evaluated psychosocial interventions specifically for young adult smokers (Villanti, McKay, Abrams, Holtgrave, & Bowie, 2010). A recent Cochrane review of smoking cessation trials among youth ages 20 and younger (Stanton & Grimshaw, 2013) indicated promise for interventions that addressed motivation or included cognitive-behavioral elements; yet no current single intervention could be recommended for utilization with young smokers on a wide scale. One reason for the modest cessation outcomes among young adults may be the limited attention to important risk factors that complicate quitting.

Depressive symptomatology is a widely studied vulnerability factor implicated in poor smoking cessation outcomes (Weinberger, Mazure, Morlett, & McKee, 2013). Adult smokers with a history of depression or current depressive symptomatology tend to evidence shorter time to relapse and lower rates of abstinence (Weinberger, Mazur, et al., 2013; Weinberger, Pilver, Desai, Mazure, & McKee, 2013). Although the association between depressive symptoms and smoking has received considerable attention, we were able to identify only one trial that targeted depressive symptoms in young adult smoking cessation (Schleicher, Harris, Campbell, & Harrar, 2012). In this particular study of college students for whom interest in quitting smoking was not an inclusion criterion, there were no differences between cognitive behavioral therapy and a nutrition-focused control in smoking outcomes during the follow-up period. A number of studies among high-school-aged smokers also demonstrate that greater depressive symptomatology predicted failure to quit smoking above and beyond other smoking history variables (e.g., Horn et al., 2004; Sherphof et al., 2013; Zhu, Sun, Billings, Choi, & Malarcher, 1999) with few exceptions (e.g., Colby et al., 1998). However, none of these studies tested interventions

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designed to specifically address depressive symptoms in the context of smoking cessation. Thus, there is a clear need to develop cessation interventions that target depressive symptoms in young adult smokers.

Behavioral activation (BA; Lejuez, Hopko, Acierno, Daughters, & Pagoto, 2011), when integrated with standard smoking cessation strategies, is one intervention approach that has demonstrated preliminary efficacy for targeting depressive symptoms and improving smoking cessation outcomes among more established adult smokers (MacPherson et al., 2010). BA is a behavioral treatment developed from early theoretical and empirical work by Ferster (1973) and Lewinsohn (Lewinsohn, 1974; Lewinsohn & Graf, 1973) on depression. BA targets greater contact with valued environments through systematic efforts to increase rewarding experiences and enjoyment of daily activities. These activities are hypothesized to improve depressive symptoms through overt behavior change (Lejuez et al., 2011). Although most often used for depression, BA has clear relevance for tobacco smoking and its co-occurrence with depressed behaviors. According to behavioral theory, specifically in this case reinforcement theory, maintenance of smoking and depressed behaviors results in part from a loss of positive reinforcement for healthy, alternative behaviors (Green & Fisher, 2000; Hopko, Lejuez, Ruggiero, & Eifert, 2003). Recent research suggests that smoking and depressed behaviors are associated with each other through a shared diminished engagement in enjoyable smoke-free health activities/reinforcement (Audrain-McGovern, Rodriguez, Rodgers, & Cuevas, 2010). Specifically, Audrain-McGovern et al. (2010) demonstrated that, over time, increases in depressive symptoms were associated with decreases in alternative reinforcers, which in turn were associated with increases in smoking rate into young adulthood. Moreover, lower levels of alternative, healthy sources of reinforcement (Audrain-McGovern et al., 2004) have differentiated young adults who continued to smoke from young adults who were ex-smokers (Audrain-McGovern et al., 2009).

In line with this conceptual framework, we completed a preliminary controlled trial with adult smokers who had elevated depressive symptoms. Participants were randomly assigned to receive either an 8-week BA plus standard smoking cessation intervention with transdermal nicotine replacement (BATS) or 8 weeks of standard cessation treatment (ST) with transdermal nicotine replacement. The content of ST was based on the clinical practice guidelines of the U.S. Department of Health and Human Services (Fiore et al., 2008) and included self-monitoring of smoking behavior, identifying effectual or ineffectual cessation strategies from previous quit attempts, coping with triggers, making broad lifestyle changes like reducing stress, and monitoring and planning for situations that were high risk for return to smoking. The core BA components of the BATS manual include (a) monitoring daily activities, (b) identifying life areas, values, and activities important to the individual, (c) scheduling activities, and (d) implementing "contracts" to elicit help from supportive individuals in completing activities. Daily monitoring consists of an hourly record of each person's activities and a numerical rating of both "enjoyment" and "importance" for each activity completed. The goal of this component is for the client to identify existing patterns of activities with limited value as well as existing nondepressive, nonsmoking activities that are rewarding. The exploration of life areas, values, and activities allows clients to identify ways in which they envision living a meaningful life consistent with important personal values. Subsequently, clients select enjoyable and important activities that are consistent with their expressed personal values. Finally, "contracts" provide clients with the opportunity to request assistance from friends and/or family members to accomplish selected activities either because engaging in the activity is challenging or because company may potentially increase the "enjoyment" and/or "importance" of the activity. In this randomized controlled trial, BATS participants exhibited greater smoking abstinence and reduction in depressive symptoms across a 6-month follow-up relative to individuals in ST (MacPherson et al., 2010).

Although BATS holds promise as an intervention that targets smoking and depressive symptoms, there is a clear need for formative research to adapt the treatment to be more appropriate for young adults. Older adolescence into young adulthood is a distinct and socially recognized stage of life (Furstenberg Jr., Rumbaut, & Settersten Jr., 2005) with unique developmental transitions, including decreased parental monitoring, movement into semi-independent living, and unusually strong social pressures that may contribute to problematic behaviors such as smoking, but also to establishment of a personal set of values and identity (Arnett, 2000; Patterson, Lerman, Kaufmann, Neuner, & Audrain-McGovern, 2004). In addition, young adults may be more likely to experience depressive symptoms if they are having difficulty coping with the stress associated with these life transitions (Dyson & Renk, 2006; Gore, Aseltine, Colten, & Lin, 1997). Thus, to provide the greatest level of developmental appropriateness, we anticipated that several aspects of the BA treatment would need to be modified or receive additional focus to address the particular needs of young adults.

The Present Study

Following Carroll and Rounsaville's (2008) sequential model of treatment development, we conducted a series of focus groups with young adult smokers with depressive symptoms in order to modify and refine clinician and participant manuals to be developmentally appropriate. Subsequently, we completed a small pilot group of the