

BEHAVIORAL INTERVENTION FOR SMOKING CESSATION IN
ADOLESCENTS AND YOUNG ADULTS

APPROVED BY SUPERVISORY COMMITTEE

DEDICATION
TO KMS AND MJS

BEHAVIORAL INTERVENTION FOR SMOKING CESSATION IN
ADOLESCENTS AND YOUNG ADULTS

by

TY STEPHEN SCHEPIS

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Supervising Professor: Uma Rao, M.D.

Smoking is the leading preventable cause of morbidity and mortality in the United States. The vast majority of adult smokers initiate smoking before the age of 18, and the cumulative risk for initiation does not decline until the middle 20's. Thus, early intervention programs could be of great benefit to public health. Here, we have tested such a program: a smoking cessation treatment named the Modified Brief Office Intervention (M-BOI). The M-BOI is a 10-session cognitive-behaviorally based intervention. Sixty-three participants were consented for

treatment, and 38 received M-BOI treatment, in conjunction with randomized double-blind, placebo-controlled bupropion. Of treated participants, 60.5% reduced their baseline level of smoking by half at the end of treatment; overall, treated participants reduced their smoking by 49.8%. Using intent-to-treat analyses, 7.3% of participants achieved biochemically verified cessation, and treatment was associated with a significant decrease in smoking. Treatment did not seem to significantly reduce exhaled carbon monoxide (CO) levels but did reduce urine cotinine. Depression history and baseline level of depressive symptoms had no effect on change in smoking during treatment, but this may have been due to low power to detect differences. Exploratory analyses demonstrated that treatment was associated with an increase in smoking-related self-efficacy, and decreases in maladaptive cognitions related to unpleasant events, nicotine withdrawal symptoms, smoking urges and nicotine dependence symptoms. Finally, there were preliminary indications that treatment ameliorated depressive symptoms in individuals with a history of a depressive disorder. Participants rated treatment as helpful with their cessation efforts and the majority would recommend M-BOI treatment to others. One major limitation of this study is the lack of data on M-BOI treatment without pharmacotherapy. Taken together, this study provides preliminary evidence for the efficacy and acceptability of the M-BOI. Further evaluation is needed to more firmly establish its effects.

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CHAPTER ONE

Introduction and Specific Aims

Introduction

The Department of Health and Human Services (DHHS) recently named adolescent cigarette smoking as one of its 10 Leading Health Indicators, reflecting its prominence as a public health concern (Centers for Disease Control and Prevention, 2000). Over 80% of smokers initiate the behavior before the age of 18 (DHHS, 1994), and smoking initiation during the early adolescent period predicts higher rates of smoking in adulthood and lower probability of quitting (Breslau, Fenn, & Peterson, 1993; Breslau & Peterson, 1996; Pierce & Gilpin, 1996). Other studies suggest that tobacco use often predates, and perhaps causes, the initiation of use of other addictive drugs (Alexander & Klassen, 1988; Henningfield, Clayton, & Pollin, 1990; Lewinsohn, Rohde, & Brown, 1999; Myers & Brown, 1994). Thus, adolescent smokers represent a challenging population in urgent need of effective strategies for smoking cessation.

Smoking has been repeatedly linked to psychiatric illness (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Ebeling et al., 1999; Fleming, Kim, Harachi, & Catalano, 2002; N.L. Galambos, B.J. Leadbeater, & E.T. Barker, 2004; Wu & Anthony, 1999), higher suicide rates, higher rates of self-mutilation and lower health-related quality of life (Makikyro et al., 2004; Martinez et al., 2004). The group of depressed smokers appears to be particularly compromised. Depressed

smokers are less likely to quit smoking (Anda et al., 1990), and they are more likely to relapse after a period of abstinence (Kinnunen, Doherty, Militello, & Garvey, 1996). More generally, depression-related withdrawal symptoms act as a risk factor for relapse in all individuals attempting cessation (Pomerleau, Brouwer, & Pomerleau, 2001; R. J. West, Hajek, & Belcher, 1989). As part of this dissertation, we proposed to test the effectiveness of a behavioral program for smoking cessation in both depressed and non-depressed adolescents and young adults.

The American Medical Association (AMA) developed a brief office intervention (BOI) program for adolescent smokers (Levenberg & Elsterm, 1995), which is grounded in the Transtheoretical Model (using the Stages of Change) and Motivational Interviewing with a focus on factors related to smoking behaviors. The BOI is widely used in both clinical and non-clinical settings; that said, the BOI was not developed specifically for youth with depressive disorders or individuals attempting cessation who experience significant depression-related withdrawal symptoms. An important hurdle to be overcome during cessation is the detrimental influence of dysphoric mood during quit attempts in both depressed and non-depressed individuals. This negative affect may be the basis for the lower quit rates and higher relapse rates experienced by depressed smokers (Anda et al., 1990; Kinnunen, Doherty, Militello, & Garvey, 1996). Cognitive-behavioral therapy (CBT) has been found to be effective in managing negative

affect in youth with depressive disorders (Curry, 2001; Reinecke, Ryan, & DuBois, 1998; Weersing & Weisz, 2002) and in adolescent smoking cessation (P. McDonald, Colwell, Backinger, Husten, & Maule, 2003). Hence, we modified the BOI program (M-BOI) to include specific CBT mood management and other treatment strategies for depression in order to reduce the synergistic effects that dysphoria and other depressive symptoms have in maintaining smoking behaviors in individuals attempting cessation.

This dissertation is a component of an existing study on smoking cessation in adolescents. The ongoing project contains an acute treatment phase in which participants will be randomized to receive either bupropion or placebo for 9 weeks. In this dissertation project, we added a behavioral intervention, the M-BOI. This project enrolled 63 participants. Clinical assessments for this project were gathered at baseline and then all assessments were repeated twice during treatment, at Week 4 and at Week 9; a smaller battery of assessments were collected weekly.

Specific Aims

A1a. Primary Aim

To analyze the effect of the M-BOI on reduction in smoking [measured by self-reported change in smoking status, expired air carbon monoxide (CO) and urine cotinine levels] in adolescent smokers attempting cessation.

A1b. Primary Hypothesis

Participants will have a significant reduction in smoking (lesser number of cigarettes smoked lower CO and cotinine levels) at Week 9, when compared to baseline.

A2a. Secondary Aim

To analyze the effect of depression history (presence or absence of depressive diagnosis) on smoking reduction in participants.

A2b. Secondary Hypothesis

Participants without a history of depression diagnosis will have a greater reduction in smoking (at Week 9, when compared to baseline) than those with current or past depressive diagnoses.

A3a. Tertiary Aim

To analyze the effect of baseline depressive symptoms [measured by the Hamilton Depression Rating Scale (HDRS; a clinician-rated measure) and the Beck Depression Inventory (BDI; a self-rated measure)] on smoking reduction in participants.

A3b. Tertiary Hypothesis

Participants with lower depressive symptom scores will have greater reductions in smoking than participants with greater depressive symptom scores at Week 9 (compared to baseline).

CHAPTER TWO

Review of the Literature

ADOLESCENT SMOKING: CONSEQUENCES AND CORRELATES

Smoking is one of the most important public health concerns in the United States today. Epidemiological studies suggest that the lifetime prevalence of nicotine dependence (ND) is as high as 24%, or over 70 million persons in the current US general population, all of whom experience ND symptoms at sometime in their lives (Breslau, Johnson, Hiripi, & Kessler, 2001). Furthermore, abstaining from smoking is extremely difficult to achieve for most smokers. Of those who attempt to quit, less than 10% succeed in remaining abstinent for a year, and only 2 to 3% remain abstinent permanently (Carmody, 1992). Burt and Peterson (1998) found similar results in a sample of high school seniors, with only 3% of those who attempted to quit achieving abstinence from smoking beyond one year. The low abstinence rate occurred despite the fact that 67% of the adolescents surveyed indicated a strong desire to quit and that 60% had actually made a quit attempt.

In the vast majority of cases, nicotine addiction begins before the age of 18, making it a pediatric disease. Among persons under the age of 18, 6,000 individuals initiate smoking and 3,000 become daily smokers each day (DHHS, 1994; G.A. Giovino, 1999; G.A. Giovino, Henningfield, Tomar, & Slade, 1995). Of the students in grades 9 through 12, up to 42.7% have tried smoking and of

these, 75% or more will continue to smoke in adult life (E.T. Moolchan, Ernst, & Henningfield, 2000); the 2005 Monitoring the Future study found that 13.6% of high school seniors were daily smokers and that 6.9% of seniors smoked 10 or more cigarettes per day (Johnston, O'Malley, Bachman, & Schulenberg, 2005). Recent projections suggest that, of the adolescents who become regular smokers in adult life, nearly one-third will die from a smoking-related disease (Centers for Disease Control and Prevention, 1996; World Health Organization, 1999).

In part, many of these individuals continue to smoke regularly because adolescents are possibly more susceptible than adults to the rewarding effects of nicotine, and for the development of ND and withdrawal symptoms (Breslau, Johnson, Hiripi, & Kessler, 2001; DiFranza et al., 2000; DiFranza et al., 2002; Rojas, Killen, Haydel, & Robinson, 1998; T. A. Smith et al., 1996; S.L. Stevens et al., 2003). Younger adolescent rats exhibit conditioned place preference (CPP) for nicotine (Belluzzi, Lee, Oliff, & Leslie, 2004; Vastola, Douglas, Varlinskaya, & Spear, 2002) and self-administer nicotine more readily (Adriani, Macri, Pacifici, & Laviola, 2002) than do older rats. Young adolescent rats exposed to nicotine are also more likely to self-administer as adults than nicotine-naïve adult rats (Adriani et al., 2003). In addition, older adolescent rats develop tolerance to low-dose nicotine more strongly and quickly than adult rats (Belluzzi, Lee, Oliff, & Leslie, 2004).

Nicotine administration in adolescence causes persisting alterations in neurophysiological output and increased expression of cellular damage markers (Slawecki & Ehlers, 2002, , 2003; Slawecki, Thorsell, & Ehlers, 2004; Trauth, McCook, Seidler, & Slotkin, 2000; Trauth, Seidler, & Slotkin, 2000). Finally, neurotransmitter systems evidence persisting alterations in many animal investigations of adolescent nicotine dosing (Collins, Wade, Ledon, & Izenwasser, 2004; C. G. McDonald et al., 2005; Trauth, Seidler, Ali, & Slotkin, 2001; Trauth, Seidler, McCook, & Slotkin, 1999; Xu, Seidler, Ali, Slikker, & Slotkin, 2001; Xu, Seidler, Cousins, Slikker, & Slotkin, 2002). Thus, animal models give evidence that adolescents may be more vulnerable to the immediate effects of nicotine and may have long-term alterations in function as a result of use. Given this vulnerability, the potential for persisting changes, and the high rates of adolescent nicotine use, there is a need for effective intervention(s) for smoking aimed at adolescents in order to reduce the insidious effects of smoking during this critical time period.

The need for effective smoking cessation programs in adolescents is made even more pressing by studies that indicate a relationship between cigarette smoking and alcohol consumption or illicit substance use (Alexander & Klassen, 1988; Myers & Brown, 1994). Other studies suggest that cigarette use predates the use of alcohol and other illicit substances, and that cigarette use may play a causal role in developing addiction to other psychoactive substances

(Henningfield, Clayton, & Pollin, 1990; Lewinsohn, Rohde, & Brown, 1999; McCambridge & Strang, 2005). Numerous studies also found an association between smoking and psychiatric illness in youngsters (R.A. Brown, Lewinsohn, Seeley, & Wagner, 1996; Fergusson, Lynskey, & Horwood, 1996; Milberger, Biederman, Faraone, Hen, & Jones, 1997; Myers & Brown, 1994; Riggs, Mikulich, Whitmore, & Crowley, 1999). In addition, adolescent smoking is associated with higher rates of suicide attempts and self-mutilation in psychiatric inpatients (Makikyro et al., 2004). Finally, a number of studies have found that adolescent smokers suffer from a variety of negative consequences as a result of smoking, ranging from negative health effects to decreased quality of life (Alexander & Klassen, 1988; DHHS, , 1994; Martinez et al., 2004; Myers & Brown, 1994; Prokhorov, Emmons, Pallonen, & Tsoh, 1996).

Thus, cigarette smoking by adolescents is a major public health concern that portends continued tobacco use and the development of ND in adult life. Furthermore, adolescent cigarette use has been linked with the initiation of alcohol and illicit drug use, and with negative physical, psychological and social sequelae. Because smoking during adolescence is associated with a significant socioeconomic burden, timely and efficacious treatment of adolescent smoking is crucial.

SMOKING CESSATION TREATMENTS FOR ADOLESCENTS

Despite the fact that a majority of high school seniors surveyed by Burt and Peterson (1998) and Stanton, Lowe and Gillespie (1996) expressed a strong motivation to stop smoking and made an attempt to quit in the prior year, actual cessation rates are extremely low among adolescents. No study has shown a natural cessation rate above 11% among youth (R.D. Burt & A.V. Peterson, Jr., 1998; Riedel, Robinson, Klesges, & McLain-Allen, 2002; Sussman, Dent, Severson, Burton, & Flay, 1998). Only a minority of adolescents (43%) are confident that they will ever cease smoking permanently (Sussman et al., 1998); a significant majority (74%) of adolescents reported that they believed abstinence would be “really hard” (Centers for Disease Control and Prevention, 1994b). While the risk factors for adolescent smoking are becoming increasingly known (Schepis & Rao, 2005), little work has been done in the realm of treatments aimed at increasing the confidence, skills and resulting success rate of adolescents who wish to stop smoking.

Psychosocial Interventions for Adolescent Smoking Cessation

In adults, both pharmacological and psychosocial interventions for smoking cessation have been tested and found to be effective (for a review, see M.C. Fiore et al., 2000). In adolescents, behavioral interventions have been the mainstay of treatment. However, these are relatively sparse; less than 70 studies

have addressed cessation among youth compared with over 6,000 published reports in adults (M.C. Fiore et al., 2000; S. Sussman, 2002b). Sussman (2002) found that the unweighted mean cessation rate was 14% for adolescent cessation programs at the end of treatment and 12% at follow-up. Participants in control conditions had a 7% abstinence rate at both points. In a review of the adolescent smoking cessation literature, Sussman (2002) found wide variations in follow-up assessment, including no post-treatment measurement, many studies with missing data, and a large number of uncontrolled studies. Despite the limitations noted above, active interventions were associated with almost double the quit rates when compared to control conditions or natural cessation rates (S Sussman, 2002).

The methodological problems noted above are compounded by the lack of theoretically-based treatments among tested interventions. In a review of the literature, Stanton and Smith (2002) noted that very few of the available studies based the intervention on a theoretical model, such as CBT or the Transtheoretical Model of Behavior Change. Nonetheless, a few studies have demonstrated the effectiveness of cognitive-behavioral-based treatment that includes work on stress management, coping skill acquisition, cognitive restructuring and interpersonal skill acquisition (Fromme & Brown, 2000; E.T. Moolchan & Ruckel, 2002; Singleton & Pope, 2000; Tucker, Ellickson, & Klein, 2002). A limited number of other studies have emphasized the Transtheoretical Model as a viable theoretical

basis (Colby et al., 1998; Lawendowski, 1998; Singleton & Pope, 2000; S.L. Stevens et al., 2003) for smoking cessation intervention. Unfortunately, studies that are based on a theoretical model and are of methodologically sound design are few in number; less than 20 meet these criteria (Backinger et al., 2003; P. McDonald, Colwell, Backinger, Husten, & Maule, 2003).

McDonald et al. (2003) reviewed 20 behavioral studies (including some unpublished ones) that met rigorous criteria for high or moderate validity including specification of a theoretical model, high implementation success, quality of research design, sample size and duration of follow-up. They concluded that behavioral treatment to help adolescents quit smoking is promising as 9 out of 20 studies reported significantly higher quit rates in the intervention group. Quit rates of treated groups in successful programs ranged from 10 to 20%, which was from 5 to 20% higher than control groups. They also concluded that the CBT model, which guided the nine effective programs, is a promising approach; Sussman (2002b) found that Motivational Interviewing, a technique that aims to reduce the ambivalence of individuals to make behavior change, was associated with a high cessation rate as well.

In terms of specific psychosocial programs, the Substance Abuse and Mental Health Services Administration (SAMHSA) has recognized two model programs for smoking cessation in adolescents: Project EX and the American Lung Association's Not-On-Tobacco (NOT) intervention (Sun, Miyano,

Rohrbach, & Sussman, 2006). Sussman and collaborators (2001) developed Project EX, a six-week, eight-session intervention, based on input from focus groups of high school students. Project EX includes assertiveness training, motivational enhancement, withdrawal symptom management, psychoeducation and relapse prevention modules (Sussman, Dent, & Lichtman, 2001). At the end of Project EX treatment, the active treatment cessation rate was 14%. At the three-month follow-up, there was a significant difference between the cessation rates of the active intervention group (30%) and the control group (16%). Even after a conservative adjustment for biochemical verification and participant drop-out, 17% of the Project EX group was abstinent, compared to 8% in the control group; this difference remained significant (Sussman, Dent, & Lichtman, 2001). Project EX has achieved similar end of treatment results in a sample of Chinese adolescents (Zheng et al., 2004).

The Not-on-Tobacco (NOT) program is a ten-week intervention consisting of ten 50-minute sessions delivered in single-gender groups by same-gender facilitators; NOT also includes four booster sessions to prevent relapse. The sessions include topics such as the consequences of smoking, preparing for cessation, motivational enhancement, skills training for coping with withdrawal and craving, relapse prevention, stress management, coping with peer pressure and lifestyle modification (Dino, Horn, Goldcamp, Fernandes et al., 2001). In two examinations of NOT, 17.3% of individuals in NOT treatment and 11.3% of

individuals receiving brief intervention (BI) achieved cessation at a 3-month follow-up. These increased to 19.4% for NOT and 11.7% for BI at a 5.5-month follow-up assessment, however, neither was a significant decrease in smoking from baseline (Dino, Horn, Goldcamp, Maniar et al., 2001).

In another published report, 21.7% of participants in NOT treatment and 12.6% of participants in BI had achieved cessation 7.3 months after baseline, which was significant (Dino, Horn, Goldcamp, Fernandes et al., 2001). NOT treatment was also more effective than BI at bringing about reductions in smoking levels, and females appeared to experience greater benefit from NOT than males (Dino, Horn, Goldcamp, Fernandes et al., 2001; Dino, Horn, Goldcamp, Maniar et al., 2001). Continued evaluation of NOT has mixed promising results with non-significant findings (K. Horn et al., 2004; K. Horn et al., 2005; K. A. Horn, Dino, Kalsekar, & Fernandes, 2004). No effect size data was given in publications concerning either Project EX or the NOT intervention.

Other psychosocial interventions have included contingency management (CM), Motivational Interviewing (MI) and distance interventions. CM is a behavioral intervention that reinforces abstinence using immediate and tangible rewards, often money. Corby et al. (2000) conducted the first pilot examination of CM in adolescents attempting to achieve cessation. The design was such that during weeks 1 and 3, participants were paid for attendance at a school clinic; during week 2, participants were only paid for biochemically verified cessation.

Mean consecutive abstinences were highest during week 2 (9.5 consecutive visits with abstinence), which was significantly greater than week 1 (0.38 consecutive visits with abstinence) but not week 3 (5.0 consecutive visits with abstinence) (Corby, Roll, Ledgerwood, & Schuster, 2000).

Roll (2005) conducted a follow-up study, with participants assigned to receive money for attendance at a clinic or for attendance plus abstinence for a 4 week intervention. At the end of the intervention, 50% of the abstinence group achieved 4 weeks of continuous abstinence, compared to 10% in the attendance group. At a 1-month post-treatment follow-up, 66% of individuals in the abstinence group and 40% of the attendance group were abstinent. All of these were significant differences (Roll, 2005). The final CM study compared CBT treatment alone to combination CM and CBT treatment. After 1 week, the CM and CBT group had higher biochemically verified cessation (76.7%) than the CBT group (7.2%); this was significant and persisted through the end of treatment (1 month), with 53% of CM plus CBT participants abstinent compared to no abstinent participants in the CBT-only group (Krishnan-Sarin et al., in press).

Motivational Interviewing acts to resolve ambivalence and increase the adolescent's motivation about cessation through nonconfrontational exploration (Colby et al., 1998). Three studies compared MI to a brief advice (BA) control condition (R. A. Brown et al., 2003; Colby et al., 1998; Colby et al., 2005); while each found a trend towards a treatment effect, no significant results were found.

Abstinence measured at follow-up interviews ranged from 2 to 20%, depending on length of follow-up and the design used (R. A. Brown et al., 2003; Colby et al., 1998; Colby et al., 2005). MI was found to be most effective in adolescents with no intention to cease smoking, whereas BA was most effective with adolescents contemplating cessation (R. A. Brown et al., 2003), and MI appears to increase motivation to quit smoking over BA (Colby et al., 2005). Again, no effect size data was given for these studies.

Finally, studies have examined the use of telephone counseling (Lipkus et al., 2004) and internet-based treatment (Woodruff, Edwards, Conway, & Elliott, 2001) for smoking cessation. Lipkus et al. (2004) found no significant differences in cessation rates between a group given only self-help materials and a group given self-help plus 3 telephone sessions. At 4 months post-baseline, the self-help only group had an 11% cessation rate, and the self-help and phone counseling group had a 16% cessation rate. The rates at the 8-month follow-up rose to 19% and 21% for self-help only and self-help plus phone counseling, respectively. Woodruff et al. (2001) found significant decreases in number of cigarettes smoked following 7 sessions of chat-room based therapy. That said, cessation rates did not differ from baseline, with 22.2% of participants abstinent at the end of treatment, and 33.3% at follow-up. In addition, cessation was not verified biochemically.

Pharmacological Intervention in Adolescent Smoking Cessation

Studies of pharmacological interventions in adolescents have given evidence of moderate efficacy; however, the conclusions that can be drawn have been limited by a lack of replication and design problems. Smith and collaborators (1996) conducted the first published investigation of NRT in adolescents, finding that 14% of the participants had ceased smoking at the end of the 8 week open-label treatment. At the 3- and 6-month post-baseline follow-up assessments, only one of the participants (4.5%) maintained biochemically verified cessation (T. A. Smith et al., 1996). In a larger open-label trial of NRT, Hurt and colleagues (2000) reported that mean smoking rates decreased significantly by the end of 6 weeks of treatment. At the 12-week and 6-month follow-up assessments, this reduction had attenuated. Furthermore, cessation rates were low, with only 10.9% of participants abstinent at 6 weeks and 5% at the 6-month follow-up assessment (R. D. Hurt et al., 2000).

Randomized, double-blind, placebo-controlled studies of NRT have found significantly lower craving and withdrawal scores, with few significant treatment effects found. Both Hanson et al. (2003) and Moolchan et al. (2005) found end of treatment cessation rates above 20% for patch NRT. That said, both studies used adjunctive psychosocial interventions with proven efficacy; Hanson et al. (2003) used both CBT and CM, and Moolchan et al. (2005) used a CBT group intervention. Given the efficacy of CM in fostering acute abstinence (Krishnan-

Sarin et al., in press; Roll, 2005), and the efficacy of CBT for cessation (P. McDonald, Colwell, Backinger, Husten, & Maule, 2003), it is likely that the end of treatment cessation rates would have been closer to the 10-14% seen in previous studies if only NRT was used.

The first published pilot study of bupropion for adolescent smoking cessation was conducted by Upadhyaya and collaborators (2004), who used a 7-week open-label trial of 300mg of bupropion to evaluate its safety and efficacy. It is important to note that 11 of the 16 participants also had comorbid Attention-Deficit/Hyperactivity Disorder. At the end of treatment, there were significant decreases in both the number of cigarettes smoked by participants and their exhaled CO levels. Five of the 16 participants (31.3%) were abstinent after four weeks of medication treatment (Upadhyaya, Brady, & Wang, 2004).

A later placebo-controlled study (Niederhofer & Huber, 2004) examined 150mg of bupropion in older adolescents. Six of 11 (55%) participants receiving bupropion were abstinent throughout the 90-day trial. The study also found that participants were able to maintain cessation longer on bupropion than on placebo (Niederhofer & Huber, 2004). That said, this study had significant design issues (e.g., a liberal definition of abstinence and use of NRT for lapsed participants), which makes drawing conclusions difficult. More recent results presented at the 2005 Annual Meeting of the Society for Research on Nicotine and Tobacco showed that 300mg of bupropion was superior to 150mg and placebo after 6

weeks of treatment in 14 to 17 year old adolescent smokers (Muramoto, Leischow, & Sherrill, 2005) and that 300mg was superior to placebo in preventing post-cessation weight gain (Taren, Fankem, & Muramoto, 2005).

Following adult studies on the combination of NRT and bupropion (e.g., Jorenby et al., 1999), Killen and colleagues (2004) examined the use of nicotine patch and 150mg of bupropion (as an adjunct) for adolescent smoking cessation in a 10-week trial. Participants were given the nicotine patch and randomized to either 150mg bupropion or placebo. No differences in verified cessation were found between groups at Week 10 or Week 26. At Week 10, 28% of the NRT plus placebo group and 23% of the NRT plus bupropion group were abstinent; at Week 26, these rates dropped to 7% and 8%, respectively. Adherence to both NRT and bupropion was low, and participants with a detectable level of bupropion metabolite at Week 5 had a significantly higher quit rate than participants without a detectable level. Together, this implies that bupropion did aid smokers in quitting smoking when it was taken appropriately (Killen et al., 2004).

In conclusion, despite evidence of efficacy of behavioral and pharmacological interventions for smoking in adult patients, significant empirical data from studies employing sound methodologies in adolescents are lacking. Hence, significant efforts should be made to develop and test well-developed treatments in youngsters. Since adolescent smokers are a heterogeneous group,

attempts also should be made to develop more specific interventions for the different subgroups.

EFFECTS OF DEPRESSION ON SMOKING STATUS

Research has shown that there is a strong link between depression and cigarette smoking (Anda et al., 1990; Breslau, Peterson, Schultz, Chilcoat, & Adreski, 1998; Kendler et al., 1993; G.C. Patton et al., 1998). The relationship between these two conditions, however, is complex. Some studies have shown that depressive symptoms appear to promote the use of tobacco products (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Ebeling et al., 1999; Fleming, Kim, Harachi, & Catalano, 2002), while others have found that cigarette smoking is a risk factor for the future development of depressive episode(s) or increases in depressive symptoms (N.L. Galambos, B.J. Leadbeater, & E.T. Barker, 2004; Wu & Anthony, 1999). Windle and Windle (2001) examined 1218 middle adolescents and found that heavy smoking and serious and persistent depressive symptoms seemed to have a synergistic amplifying relationship in a bi-directional manner. In other words, those with severe depressive symptoms at four discrete time periods had greater increases in smoking, and those who smoked at least one-half of a pack per day were at greater risk for increases in depressive symptoms. Thus, while a relationship between the two disorders is unequivocal, the direction of causality in the relationship is still unclear.

Depressed smokers are a difficult population to treat, due to the synergistic nature of the two disorders. Depressed smokers, particularly those with recurrent depressive episodes, are more likely to continue smoking (Anda et al., 1990); depressed smokers are also more likely to prematurely terminate from treatment programs for smoking (L. Curtin, R.A. Brown, & S.D. Sales, 2000), and they are more likely to relapse after a period of abstinence (B. Hitsman, B. Borrelli, D.E. McChargue, B. Spring, & R. Niaura, 2003; Kinnunen, Doherty, Militello, & Garvey, 1996) compared with non-depressed smokers. These observations may be influenced, in part, by the vulnerability for relapse of a depressive episode when individuals with a depression history make attempts to quit smoking (Covey, Glassman, & Stetner, 1997; Glassman, Covey, Stetner, & Rivelli, 2001).

Negative mood seems to play an important role in interfering with cessation efforts even for non-depressed smokers (S.L. Kenford et al., 2002; Piasecki et al., 2000). Pre-treatment negative mood has been found to be a more powerful predictor of treatment failure for smokers with a prior history of depression than for smokers without depression (Breslau, Kilbey, & Andreski, 1992; Covey, Glassman, & Stetner, 1990; Hall, Muñoz, & Reus, 1994). Therefore, mood management would seem to be an important part of any smoking cessation treatment, especially for treatments that include depressed individuals.

Some studies (R.A. Brown, Kahler, Zvolensky, Lejuez, & Ramsey, 2001; Hall, Muñoz, & Reus, 1994; Hall et al., 1998), but not all (Hall et al., 1996),

found a beneficial effect from the inclusion of specific mood management components in behavioral treatments among adult depressed smokers. While these studies included individuals with a history of depressive disorders, they did not focus on participants with a current depressive episode. It is possible that mood management may have a more powerful effect in persons who are in the midst of a depressive episode (and thus, with greater negative affect) while attempting to quit smoking. Indeed, in a study aimed at treating seven factors believed to impede an individual's ability to quit smoking, with depressive symptoms as one factor, it was found that addressing those factors led to a much higher quit rate at eight weeks than found in treatments that did not address those factors (Katz et al., 2003). Thus, treating co-occurring depressive symptoms during smoking cessation seems to be an important component of a successful smoking cessation program.

The literature on behavioral interventions for adult depressed smokers is sparse, and to the best of our knowledge, there are no data in the adolescent population. Developing and refining non-pharmacological treatments for depressed adolescent smokers is important because the long-term effects of antidepressants or nicotine replacement on the developing brain are not known. Thus, taking a conservative approach is desirable until we gather more information on the efficacy and safety of pharmacological treatments in this population (Jureidini et al., 2004). Even if only a small percentage of depressed

adolescents improve from behavioral intervention(s) aimed at smoking cessation, such treatment(s) would be of great public health benefit due to the high financial, health and psychosocial costs of both disorders.

THE BOI

Overview

The BOI was developed by the AMA's Department of Adolescent Health in 1995 (Levenberg & Elster, 1995) with the aim of creating a short intervention that could be used in medical and health-related settings to aid in adolescent smoking cessation. The recommendation of the Agency for Health Care Policy and Research, an arm of the National Institutes of Health, and the Department of Adolescent Health, was that all adolescents be assessed for current smoking or the risk for smoking initiation at each health-related office visit (DHHS, 1996; L. Lamkin & T. P. Houston, 1998). At that time, if an adolescent endorsed current smoking, the BOI could be used.

Transtheoretical Model of Behavior Change (Stage of Change Model)

The BOI is structured using the Transtheoretical model, which is used in many interventions for substance abuse. This model, as used by the BOI, classifies adolescents into one of four categories (stages of change), depending on the individual's readiness to quit smoking. Precontemplators are adolescents who

are not ready to quit, having endorsed no desire to do so during the initial interview. Contemplators are adolescents who believe that they will quit smoking within the next six months, but not within the next thirty days. Those individuals in the Preparation stage plan to quit within the next thirty days, and individuals in the Action stage have already quit smoking (L. Lamkin & T. P. Houston, 1998; Levenberg & Elster, 1995).

While the overall goal of the BOI is to reduce the number of adolescents who transition into adulthood as smokers, the immediate goal of the intervention is to move adolescents from one of the above listed stages closer to the Action stage. Research has shown that the Transtheoretical Model is applicable to adolescent smokers, and that the stage of change for the adolescent can be reliably documented (U.E. Pallonen, 1998). In addition, more recent research found that the stage the adolescent endorsed being in affected that individual's receptivity and willingness to work within a tobacco awareness and smoking cessation program (S.L. Stevens et al., 2003). The authors of this article recommended that the adolescent's stage be assessed, and they recommended that the intervention(s) used for each adolescent be tailored to the stage that adolescent is in at the time of assessment.

Motivational Interviewing

In addition to the use of the Transtheoretical Model, the BOI makes use of an interviewing and intervention technique known as Motivational Interviewing (MI). It is a style that shuns confrontation in favor of empathetic listening and acceptance of ambivalence on the part of the adolescent. MI attempts to foster change by exploring any ambivalence on the part of the adolescent and by developing and weighing reasons to change in a collaborative manner (L. Lamkin & T. P. Houston, 1998).

Miller and Rollnick (1991) outlined the five principles that underlie MI. First, the interviewer should express empathy for the adolescent. This expression does not equate to an endorsement of the adolescent's views or behaviors, but it does accept them. Thus, this action implicitly accepts the adolescent as well. The expression of empathy is thought to be key to encouraging change. Second, the clinician should help the adolescent find and highlight inconsistencies or incongruities in the adolescent's smoking behavior and his or her concerns about the consequences of that behavior. Third, the interviewer should avoid conflict with the adolescent at all times. Confrontation tends to destroy established rapport and engenders resistance to change, both of which are counterproductive. Fourth, the therapist should not fight against resistance, but instead, he or she should acknowledge and accept any resistance. In addition, the interviewer should work to normalize the adolescent's concerns to the degree that it is

reasonable and possible to do so. In addition, the therapist should never impose new, supposedly better views. Finally, the clinician should work to increase and support the self-efficacy of the adolescent in an attempt to give the adolescent the confidence to carry out a difficult and scary change.

Other Aspects of the BOI

In addition to the use of the Transtheoretical Model as a guide and MI as an intervention style, the BOI emphasizes other crucial factors to engender adolescent smoking cessation. Importantly, the BOI was specifically developed for adolescents. Thus, the treatment takes account of developmentally appropriate adolescent concerns, ways of interacting and ways of thinking and translates them into the intervention. As briefly mentioned above, the BOI aims to increase self-efficacy (i.e., an individual's self-perception of his or her ability to effect significant change) through MI. The BOI also includes tasks and exercises meant to increase the adolescent's sense of self-efficacy that go beyond the use of MI. Again, the purpose of these exercises is to increase the adolescent's belief that he or she can actually enact the steps needed to quit smoking and that he or she can cope with challenges that arise during the course of quitting. Finally, the BOI emphasizes social influences, realizing that adolescents are at a unique developmental point, where peers are supplanting parents for influence (L. Lamkin & T. P. Houston, 1998). Such factors as peer or parental smoking, peer

or parental messages about smoking, and tobacco advertising play a large role in the adolescent's smoking behavior and in whether he or she will be willing and/or able to make a quit attempt (Baker, Brandon, & Chassin, 2004b).

Adolescent Smoking Cessation Using the BOI

Even though the BOI is based on sound theoretical principals and is already used at many treatment sites across the US to aid adolescents in quitting smoking, few formal investigations into its efficacy have been undertaken. A pilot study of 54 adolescent smokers revealed that at the end of the BOI intervention, 31% made a quit attempt and 50% had reduced the number of cigarettes smoked per day (Lamkin, 1997). In addition, the BOI was tested with adolescent smokers and was compared to a newly developed internet-based adolescent smoking cessation program called "Stomp Out Smokes" (SOS; C. Patten et al., 2004). Adolescents aged 11 to 18 who had smoked at least 10 cigarettes in the previous 30 days were included in the study and randomized to two groups. Participants in the BOI treatment group had 4 consecutive weekly individual sessions with a smoking cessation counselor; the SOS treatment condition consisted of a website created expressly for adolescent smokers attempting cessation. The website included information on the process of stopping smoking, interactive discussion groups, ways to chart progress on-line,

and modules that included reinforcement for continued cessation and support for those in relapse. No medication intervention was provided in either intervention.

Using an intent-to-treat analysis, the 30-day biochemically verified abstinence rate (based on Timeline Follow-Back Interview) was 12% for BOI versus 6% for SOS. The rates of abstinence for the BOI treatment group correspond well to rates reported in other studies of adolescent smoking cessation programs (S. Sussman, 2002b). The results of these studies indicate that treatment of adolescent smokers using the BOI is a promising avenue to be studied further. It is not known, however, whether the BOI will be equally effective in depressed adolescent smokers. Data from adult studies suggest that behavioral intervention programs developed for a broad group of smokers may not be as effective in the depressed population, and depressed individuals may benefit from additional strategies to manage the negative mood that is often experienced (R.A. Brown, Kahler, Zvolensky, Lejuez, & Ramsey, 2001; Hall, Muñoz, & Reus, 1994; Hall et al., 1998).

THE M-BOI

The modified version of the BOI is very similar to the original version of the BOI with three major differences: it is expanded to nine weeks, it includes cognitive interventions in addition to behavioral strategies for smoking cessation, and it includes specific cognitive and behavioral mood management interventions

for depression and anxiety symptoms. This 10-session treatment is an extension and a modification of the original 4-week BOI to include mood management and cognitive-behavioral components. This addition was based on the experience of the consultant, Dr. Christi Patten, in her treatment of adult smokers (C. A. Patten, Drews, Myers, Martin, & Wolter, 2002; C. A. Patten, Martin, Myers, Calfas, & Williams, 1998).

The intervention was based on the Transtheoretical Model of behavioral change (Prochaska & DiClemente, 1982; Wilcox, Prochaska, Velicer, & DiClemente, 1985), which can reliably be used to assess an individual's readiness to stop smoking (U.E. Pallonen, 1998). Depending upon the stage of each participant at any particular session, the intervention was tailored to that individual and his or her needs. Guidelines were supplied to the counselors to aid in the intervention and tailoring process. In addition, the intervention used motivational interviewing as an intervention strategy to encourage movement towards cessation (Miller & Rollnick, 1991). This strategy emphasized the use of Socratic questions aimed at the adolescent's ambivalence about cessation and a non-confrontational approach to treatment. Self-efficacy was also emphasized, and this was accomplished by teaching the adolescent new coping behaviors and by using positive reinforcement to encourage the adolescent to practice and master the new coping behaviors (Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia, 2001). Participants were also provided with paper handouts that were

developed as part of the intervention. These handouts were tailored to the participant's areas of difficulty and described useful coping strategies.

The initial baseline visit captured data about each participant's social influences, such as peer or familial pressures for or against smoking, psychological factors, such as addiction or the use of cigarettes as a coping mechanism to counter distress, and physical and psychological dependence. This visit was usually 45 minutes in length, and the remaining visits lasted 20-30 minutes. Sessions were tailored to the needs of the adolescent based on his or her reported place in the Transtheoretical Model's Stages of Change concerning smoking cessation. Each session addressed mood management or other cognitive-behavioral didactic topics germane to smoking cessation.

During the initial session, the need for mood management was explained to each participant. The focus was on the relationship between cognitions, tobacco use and cessation. Sessions 2 and 3 emphasized emotional symptoms commonly seen in cigarette withdrawal and coping techniques to counteract these symptoms. Finally, in sessions 4 through 10, the participants set rewards for meeting cessation goals, discussed enjoyable activities to replace cigarette use and reinforce abstinence, examined the use of relaxation and other stress management strategies, and discussed communication skills. At the end of each of these sessions, adolescents were given specific homework to complete that emphasized

increased use of the coping techniques and other cessation reinforcing skills learned in the sessions.

An overview of the MBOI is provided in Table 1 (below); the manualized version of the intervention is included in Appendix A.

INSERT TABLE 1 HERE

SUMMARY AND RATIONALE FOR THE PRESENT STUDY

The vast majority of cigarette smokers begin smoking before the age of 18, and of those smokers, three-quarters will continue to smoke in adult life. A substantial proportion of these smokers experience decreased quality of life and poorer health, which leads to significant costs to society, morbidity and mortality. Adolescents appear to be affected differently by nicotine administration than do adults, with strong indications that adolescents are more vulnerable to the rewarding and addictive properties of nicotine. In general, depressed smokers appear to have the greatest difficulty in attempting to quit smoking. The mood and anxiety symptoms they experience may be exacerbated once smoking, often a coping mechanism, is removed as an option. In addition, the maladaptive cognitions that depressed smokers often tend to have may predispose them to feel less confident in their ability to quit smoking and maintain abstinence (i.e., lowered self-efficacy). Moreover, research has shown that depression and

smoking likely have a strong reciprocal relationship. Finally, smoking cessation treatment for adolescents remains an underdeveloped field, with few validated psychosocial treatments and limited evidence of pharmacological efficacy.

To the best of our knowledge, there is no behavioral intervention developed specifically for depressed youth who smoke. We propose to test such an intervention in both depressed and non-depressed adolescents based on the BOI, a program designed for adolescent smokers (Levenberg & Elsterm, 1995). The BOI has high face validity in that it included input from both a multi-disciplinary group of professionals and youth; it also has an explicit theoretical rationale. Furthermore, it is brief, and hence is feasible in a variety of settings. Finally, there is evidence from the experience of Dr. Christie Patten of the Mayo Medical School, who helped develop the M-BOI, that the BOI is effective in helping adolescents quit smoking. When added to the pilot data from Lamkin (1997), the BOI appears to be an efficacious intervention for adolescent smokers. However, the BOI was not developed for depressed adolescent smokers. This group is likely to face significant hurdles over and above those faced by non-depressed adolescents seeking to quit smoking. In particular, dysphoric mood is a hallmark of depressive disorders and is likely to interfere with cessation unless aggressive management of these symptoms occur at various points in the intervention (E.S. Burgess et al., 2002; Covey, Glassman, & Stetner, 1990; Hall, Muñoz, & Reus, 1994).

We believe that components of manualized CBT, particularly those that relate to mood management, will be optimal to boost the BOI. Indeed, the two most efficacious psychosocial smoking cessation programs for adolescents, Project EX and NOT, include many CBT-based didactic modules in treatment. Hence, we modified the BOI (M-BOI) to include 9 sessions (instead of the 4 sessions used in the BOI) and to implement CBT mood management strategies, which have been shown to be effective in the treatment of depression and in increasing treatment adherence and abstinence in adult smokers with significant depressive symptoms (R.A. Brown, Lewinsohn, Seeley, & Wagner, 1996; Hall, Muñoz, & Reus, 1994; Hall et al., 1998). At the end of this study, we will have pilot data on the efficacy of the M-BOI, which can then be examined in future large-scale randomized clinical trials.

CHAPTER THREE

Methodology

OVERVIEW OF THE STUDY DESIGN

The proposed investigation took place over a 27-month period, with each individual participant's treatment phase lasting 9 weeks. Sixty-three adolescent and young adult smokers were recruited and randomized to either bupropion or placebo and entered into the M-BOI protocol. This study is a sub-component of a larger existing study (RO1 DA15131; PI: Rao) where adolescent and young adult smokers received either 300mg of bupropion or placebo for 9 weeks to aid in quitting smoking, in a randomized double-blind manner using a 1:1 ratio of active medication to placebo. A behavioral intervention, the M-BOI, was added to this protocol. The M-BOI is a 10-session (9-week) treatment using cognitive-behavioral intervention in a motivational interviewing format to foster behavioral change. Comprehensive assessments of nicotine use and depression were performed at baseline (Week 0), and following the completion of Weeks 4 and 9. After the terminal session at Week 9, the medication blind was broken in order to aid with making clinical recommendation to the participants. Stratified randomization allowed for the main effects of the M-BOI to be analyzed, which is the central aim of this dissertation. An outline of the protocol is provided below in Table 2.

INSERT TABLE 2 HERE

RATIONALE FOR THE DESIGN

Individual versus Group Treatment

The majority of the treatments for adolescent smokers examined in a review by McDonald et al. (2003) were conducted in schools and done in a group format. We chose to use individual treatment, rather than group, for a number of reasons. First, Colby et al. (1998) emphasized that school-based programs concentrate more on prevention than on treatment of active smokers, and the programs rarely address the motivational issues underlying cigarette use. Second, the potential participants were believed to benefit more from individual contact with their counselor and the opportunity for individually-tailored treatment; this was justified, in part, by the fact that the nature and intensity of withdrawal symptoms, such as negative affect and depressive symptoms, may vary across individuals (E.S. Burgess et al., 2002). Third, given the age range of participants eligible for participation (12 to 25 years of age), it was believed that creating a developmentally homogeneous group would be difficult. Fourth, recruitment was thought to be more feasible when attempting to enroll individuals versus groups of adolescents and young adults due to scheduling conflicts and the like. Finally, from a clinical and ethical perspective, we believed that it was not justifiable to

withhold treatment for the individuals for a prolonged period of time until we obtained the optimal number of subjects for a group intervention.

Length of Behavioral Intervention

The choice of a 9-week intervention program for the M-BOI was based on adult data for both pharmacological and behavioral treatments. These data indicate that 9 weeks of treatment, with the first week focusing on setting a quit date followed by 8 weeks of additional treatment, is effective (Hall et al., 2002; R.D. Hurt et al., 2000). Also, most clinical trials in adolescent and adult populations last 8 weeks and drug-placebo differences clearly emerge by that period (Emslie et al., 1997; Keller, Hirschfeld, Demyttenaere, & Baldwin, 2002; Trivedi et al., 2006).

Inclusion of CBT-based Mood Management in the M-BOI

One characteristic of the 9 smoking cessation programs with significant improvements in cessation rates, as reviewed by McDonald and collaborators (2003), was the use of CBT as a theoretical model to guide treatment. In the treatment of adult smokers with high levels of depressive symptoms or recurrent depressive episodes, the use of CBT-based mood management strategies improved both adherence and outcome (R.A. Brown, Kahler, Zvolensky, Lejuez, & Ramsey, 2001; C. A. Patten, Drews, Myers, Martin, & Wolter, 2002). CBT has

been proven to be efficacious in the treatment of adolescent depressive symptoms (Curry, 2001; Reinecke, Ryan, & DuBois, 1998; Weersing & Weisz, 2002), and it is consistent with the theoretical constructs of the BOI, such as the emphasis on self-efficacy in smoking cessation. Thus, it was believed that the inclusion of CBT principles would aid in acute cessation efforts and in the amelioration of post-cessation mood- and anxiety-related withdrawal symptoms.

PARTICIPANTS

Inclusion Criteria

Participants were between 12 and 25 years of age, inclusive, and were all able to speak and read English. All participants smoked at least 10 cigarettes daily for at least the past 3 months, and had a measured expired carbon monoxide (CO) level of over 10 parts per million (ppm). If a participant who endorsed smoking 10 or more cigarettes per day did not have a CO level above 10 ppm, semiquantitative urine cotinine levels were assessed to confirm smoking status. In such cases, all individuals had a cotinine level of 5 or 6 (out of a range from 0 to 6). Participants endorsed motivation to abstain from smoking, and all participants had one or more previous failed quit attempts, as defined by more than 24 hours of continuous abstinence during the quit attempt(s).

Exclusion Criteria

Persons with a history of eating disorder, mania, autism, schizophrenia, or schizoaffective disorder were excluded. In addition, any individuals with a hypersensitivity or adverse reaction to bupropion were not eligible. Adolescents with any non-nicotine substance use disorder in the past 3 months, other than marijuana or alcohol abuse, were excluded. Persons having suicidal ideation with an active plan or those who made a recent suicide attempt were excluded. Individuals with current psychotic symptoms were excluded. Adolescents or young adults who used any psychotropic medication in the past 2 weeks (or 4 weeks, for fluoxetine), or those who used illicit drugs (excluding marijuana) in the 2 weeks prior to randomization, were excluded. Urine was obtained from participants, following consenting, and tested for occult drug use, and all persons with a positive drug screen were excluded, with the exception of a positive marijuana screen. Persons currently involved in any other smoking cessation treatment, or those using any non-cigarette tobacco product were excluded. It should be noted that 3 participants who were excluded from the primary protocol were included in M-BOI only treatment. Two participants withdrew from medication treatment due to adverse events, and the other participant was excluded from medication due to the use of Modafinil for a sleep disorder.

Classification of Participants by Depression Status

Participants were stratified into 2 groups depending upon depressive symptom status. Individuals were included in the depressed participant group if they had current or past diagnosis of Major Depressive Disorder or Dysthymia, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR, American Psychiatric Association, 1994). Individuals were included in the non-depressed group if they did not have a past depressive disorder diagnosis and if they did not have a current psychiatric diagnosis, excluding alcohol or marijuana abuse diagnoses.

PROTOCOL

Overview

An overview of the protocol is provided in Table 2, above (see Overview of the Study Design section; page 24). The screening visit of the protocol was composed of diagnostic and clinical assessments to determine eligibility, in addition to physical examination and laboratory investigations of the main study. Eligible participants were randomized to medication condition and then entered into treatment with the M-BOI and blinded medication status. The treatment phase lasted 9 weeks, followed by a 6-month follow-up visit that is part of the main study. At the end of 9 weeks, all participants were referred to a non-study physician or therapist for treatment, ensuring continuity of care (see Interventions

section, Clinical Aftercare Referrals subsection, for more information; pages 36 and 37).

Screening and Informed Consent

All interested persons were screened by telephone to determine whether or not they met preliminary eligibility criteria for entry into the study (see Participants section; pages 26-28). This included an assessment of psychiatric symptoms as well as smoking, medical and treatment history. Eligible participants were scheduled for a baseline assessment appointment, where the full battery of assessments (see Measures section, Baseline Eligibility Measures subsection; pages 38-40) occurred following the completion of the IRB-approved informed consent process. Informed consent was obtained from participants and their caregivers (if the participant was under 18 years of age). This consent document included an explanation regarding the purpose, procedures, possible risks and benefits, and confidentiality related to the study. Participants were also given a notice of the University of Texas Southwestern Medical Center Privacy Practices, a HIPAA waiver and a copy of the FDA warning about the use of antidepressants in adolescents. Participants were also given a notice of the University of Texas Southwestern Medical Center Privacy Practices, a HIPAA waiver and a copy of the FDA warning about the use of antidepressants in adolescents. After completion of the baseline assessments, the participants were

presented to a faculty supervisor for approval. At that time, the participant's eligibility for continuation in the study was confirmed.

Randomization to Treatment

Subjects who continued to meet eligibility criteria were randomized to medication treatment with either bupropion or placebo. In order to ensure that the medication treatment cells were balanced in terms of presence or absence of depressive diagnosis (current or past), patients were stratified based on depression diagnosis. After randomization, participants were assigned to a therapist for the M-BOI intervention.

Treatment Protocol

Details of the treatments are outlined in the M-BOI section of Chapter 2 (pages 24-26) and the Interventions section (see pages 36-37).

Withdrawal from the Study

Participants were withdrawn if they developed hypomanic or manic symptoms, developed suicidal ideation and refused to contract for safety, made a suicide attempt, or if their depressive symptoms worsened significantly (a Clinical Global Rating-Severity score of 5 or more for 2 consecutive weeks). Participants who experienced severe nicotine withdrawal symptoms were withdrawn, as were

individuals who developed hypersensitivity or strong adverse reactions to bupropion. Individuals who developed manic or hypomanic symptoms, and those who had strong adverse reactions to bupropion were offered the opportunity to continue treatment in the M-BOI without the use of medication. Withdrawn participants received a follow-up care referral to ensure continuity of care.

INTERVENTIONS

Overview

Participants received 9 weeks of treatment during the study. Each participant came for treatment on a weekly basis for 9 weeks, for a total of 10 sessions. Medication checks at each visit lasted roughly 30 minutes. During these sessions, the physician was supportive and empathic in cases where issues arose or were raised by the adolescent. The physician did not make any attempts to practice cognitive-behavioral or insight-oriented therapy, however. These sessions included time to check smoking status, nicotine craving and withdrawal symptoms, depressive symptoms and medication adverse effects as outlined in the manual developed by Fawcett, Epstein, Fiester, Elkin, and Autry (1987). The manual was adapted for use in adolescents.

The 9-Week M-BOI

Details of the M-BOI treatment are outlined in the M-BOI section of Chapter 2 (see pages 24-26).

Clinical Aftercare Referrals

At the end of the 9-week treatment, all participants were referred to non-study personnel for treatment in order to ensure continuity of care. Participants who quit were provided with information on relapse risk and potential referral sources in the event of a relapse. As a component of their participation in the primary study, they were eligible to continue receiving medication through a non-study physician. Responders (i.e., those who have at least a 50% reduction in smoking) were referred to community resources (e.g., American Cancer Society's QuitLine) and, as a component of the main study, were eligible to continue receiving medication. All non-responders were informed of other treatment options, including nicotine replacement therapy and other pharmacological interventions, and encouraged to discuss these options with their physicians.

ANCILLARY TREATMENTS

No ancillary treatments, either psychosocial or pharmacological, were allowed while the participant was active in this study.

COUNSELORS AND PROGRAM EVALUATION

Counselors

The counselors providing the behavioral intervention were Masters or Doctoral level clinicians in psychology. All counselors had previous experience with manualized treatment, research protocols and/or clinical trials.

Training and Monitoring of Counselors

All counselors were trained using the didactic materials developed by Drs. Patten and Rao, and Mr. Schepis, on the implementation of the M-BOI. All study sessions were taped. Treatment integrity was monitored by ratings of treatment adherence by Dr. Patten. Randomly chosen sessions performed by each counselor were reviewed by Dr. Patten. All deviations from the established format were noted, and counselors received feedback from the reviewed tapes and notes about the discrepancies. In addition, the counselors met weekly to cover cases, reinforce adherence to the protocol, provide feedback on taped sessions, answer questions about the protocol and conduct further protocol training, if such training was necessary. In order to ensure counselor adherence, each counselor was provided with an overview, which serves as a reminder of the topics to be covered in each session.

Data Collection Training

The study coordinator trained all study-related staff and counselors on the collection of data using the pre-established forms. The study coordinator and faculty members regularly reviewed the data to ensure that no deviations from the accepted format occurred. Discrepancies or deviations were addressed with the individual counselor or staff member within 24 hours.

MEASURES

Baseline Eligibility Measures

Assessment of Diagnosis

The Schedule for Affective Disorders and Schizophrenia for Children and Adolescents–Lifetime Version (K-SADS-PL; Kaufman, Birmaher, Brent, Rao, & Ryan, 1996) was used to obtain diagnostic information as it pertained to eligibility for individuals under the age of 18. For individuals aged 18 or older, the Structured Clinical Interview for Axis I DSM-IV Disorders (SCID; First, Spitzer, Williams, & Gibbon, 1995) was used. The data from the K-SADS-PL or SCID are used to obtain a lifetime history of psychiatric illness, using the DSM-IV criteria (American Psychiatric Association, 1994).

The K-SADS-PL is a semi-structured interview that uses probes and lists objective criteria in order to determine whether symptoms meet threshold criteria within a disorder. A clinician administers the measure to the parent and to the

adolescent. Either or both may be interviewed again to clarify any discrepancies or ambiguities. This measure has well-defined reliability and validity (Kaufman et al., 1997). The SCID has been shown to have adequate test-retest reliability (Zanarini et al., 2000) and good inter-rater reliability (Ventura, Liberman, Green, Shaner, & Mintz, 1998; Zanarini & Frankenburg, 2001). Furthermore, there is evidence for the validity of the SCID as a diagnostic instrument, when used by trained clinicians (Ventura, Liberman, Green, Shaner, & Mintz, 1998). The clinician administered the SCID to the participant only.

Either the K-SADS-PL or SCID was administered in full at baseline, and the mood and addictive disorders sections were administered again at the end of treatment. For individuals 18 years and older, sections from the K-SADS-PL were used to assess the history of childhood anxiety and disruptive disorders. Information on current and past depressive episodes was obtained, including symptom type and severity for the current episode and age of onset and offset of past episodes.

Demographic Information

Information was obtained through the K-SADS-PL (Kaufman, Birmaher, Brent, Rao, & Ryan, 1996) demographics assessment concerning age, gender, ethnicity, religion, school placement, health status and socioeconomic status, using the Hollingshead Four-Factor Scale (Hollingshead, 1975).

Measures for Primary Hypothesis Testing

Daily Smoking Diary

Beginning from the baseline visit and ending at termination, participants were asked to keep a daily diary of their cigarette consumption.

Expired CO Concentration

Exhaled CO levels were assessed using a MiniCO monitor.

Definition of Change in Cigarette Smoking

The primary measure of change in smoking was a self-reported 50% or greater decrease in mean number of cigarettes smoked daily from baseline, defined as response. Abstinence was measured as a secondary variable. Self-reported abstinence was confirmed by an expired CO level of 8 ppm or less. Participants were classified as abstinent if they denied smoking in the past 7 consecutive days and met criteria concerning their expired CO level.

Urine Cotinine

Cotinine, a metabolite of nicotine, was measured from urine samples using semiquantitative Accutest© NicAlert™ strips (Manufactured by Jant Pharmacal Corporation) on a 6-point scale. The NicAlert™ strips were found to have good specificity and sensitivity in discerning tobacco users from non users, according to data from the manufacturer (Jant Pharmacal Corporation, n.d.).

Measures for Secondary Hypothesis Testing

Depressive Symptoms

The HDRS and BDI were used to assess depressive symptoms. The HDRS version used is a 24-item instrument with scores ranging from 0 to 73 {Williams, 2001 #190}, and the BDI is a 21-item scale with scores ranging from 0 to 84 (A. T. Beck, Steer, & Garbin, 1988; A. T. Beck, Ward, Mendelson, Muck, & Erbaugh, 1961). The HDRS is a clinician-rated instrument, while the BDI is a self-report measure.

Research {e.g., \Faravelli, 1986 #53} has shown that the HDRS had an inter-rater reliability of 0.95 and a weighted kappa coefficient of 0.67. In the same study, the HDRS was split into eight factors: core depressive symptoms, insomnia, weight or appetite loss, somatic anxiety, psychic anxiety, somatic symptoms, diurnal variations and loss of insight. The factors are listed in decreasing order of the percent of variance accounted for. The HDRS also has good face, construct and concurrent validity (Faravelli, Albanesi, & Poli, 1986).

In an analysis of 25 studies looking at the internal consistency of the BDI, the mean coefficient alpha was 0.86, with a range from 0.73 to 0.92. It had good concurrent validity with the HDRS and the Zung Self-reported Depression Scale, and was able to discriminate adequately between depressed and non-depressed patients (A. T. Beck, Steer, & Garbin, 1988). A factor analysis of the BDI showed that it was composed of seven factors: inhibition, guilt and crying spells,

self-accusation, somatic symptoms, weight loss, irritability and insomnia. These factors are listed in decreasing order of the percent of variance accounted for (Faravelli, Albanesi, & Poli, 1986).

Measures for Exploratory Hypothesis Testing

Treatment Acceptability

As this was a pilot study of the M-BOI, participants were asked to rate how helpful they perceived the program was and if they would recommend the treatment to other smokers; both had answers on a 4-point scale. For perceived benefit, a rating of 1 meant “not helpful at all”, 2 meant “a little helpful”, 3 meant “somewhat helpful”, and a 4 meant “very helpful”; for likelihood to recommend treatment, 1 meant the participant “definitely would not recommend”, 2 meant “might recommend”, 3 meant “probably recommend”, and 4 meant “would recommend”. Feedback regarding the individual components of the program was requested in order to improve the program for future use.

Cognitive Scales Related to Smoking

Self-efficacy in participants was measured using the Smoking Self-Efficacy Scale (SSES), developed by Lawrance (1989). It is a 36-item self-report scale that assesses self-efficacy as it pertains to the ability to abstain from smoking in high-risk situations, based on a cognitive-behavioral model of relapse. Situations used in the SSES have been tailored to typical adolescent or young

adult situations and are rated on a 6-point scale. This scale ranges from “I am very sure I would smoke” to “I am very sure I would not smoke”.

Analysis showed that the scale was composed of three factors for resisting the temptation to smoke. These factors were emotional circumstances leading to smoking, opportunity and availability of cigarettes leading to smoking, and behaviors of friends leading to smoking. The 2-week test-retest correlation values ranged from 0.89 to 0.92, and the internal reliability values ranged from 0.94 to 0.97, using Cronbach’s alpha. The scale had good concurrent validity when compared to current smoking behavior, and it had strong predictive validity as to whether an individual would begin smoking in the near future (Lawrance, 1989).

Cognitive Scales Related to Mood

Both the Hopelessness Scale (HSC; A. T. Beck, Weissman, Lester, & Trexler, 1974), a test of pessimistic cognitions believed to be at the core of dysphoria, and the Cognitive Style Test for Teens (CST; Wilkinson & Blackburn, 1981), a test of negative cognitions and distortions at the core of depression, were used to measure cognitions that influence mood. The HSC had a score of 0.93 in terms of internal consistency, using the Kuder-Richardson formula (A. T. Beck, Weissman, Lester, & Trexler, 1974), and it had good convergent validity when compared to the Hope Scale and the Life Orientation Test (LOT). It also had better discriminant validity than the Hope Scale or LOT in comparing a normal to a psychiatric population (Steed, 2001). The HSC also correlated well with

clinically assessed suicidal behavior, and it was composed of three factors: feelings about the future, loss of motivation, and future expectations (A. T. Beck, Weissman, Lester, & Trexler, 1974). The CST had adequate internal consistency and test-retest reliability. In addition, it had good construct and content validity (Wilkinson & Blackburn, 1981). The CST is composed of five scales related to the individual's cognitions concerning the self, the world, the future, pleasant events and unpleasant events. Both the HSC and CST are self-report measures.

Severity of Nicotine Dependence (ND)

Behavioral symptoms indicative of ND were assessed using the Fagerstrom Tolerance Questionnaire (FTQ). The FTQ is a self-report measure. This modified FTQ has 7 items, with item scores ranging from 0 to 9. A score of 7 or more indicates a high degree of ND on that item (Prokhorov, Pallonen, Fava, Ding, & Niaura, 1996). Research has shown that the scores on the FTQ correlated well with biochemical measures of smoking, such as CO, nicotine and cotinine levels (Fagerstron & Schneider, 1989; Prokhorov et al., 2000).

Furthermore, higher FTQ scores were related to a lower level of success at cessation (Fagerstron & Schneider, 1989). Cronbach's alpha for the FTQ was 0.61, and it has very good test-retest reliability (Pomerleau, Carton, Lutzke, Flessland, & Pomerleau, 1994). A two factor structure was proposed for the FTQ, with factor one assessing urgency to smoke after abstinence through sleep and factor two assessing persistence of smoking behavior during the day. The final

two questions of the measure did not fit well within these two factors, and they stand alone outside of the factor structure (Radzius, Moolchan, Henningfield, Heishman, & Gallo, 2001).

Nicotine Withdrawal Symptoms

Withdrawal symptoms were assessed using the Hughes-Hatsukami Withdrawal Symptoms Questionnaire (HWS). This is an 8-item self-report scale that covers the major behavioral symptoms of withdrawal: anger, irritability, anxiety, restlessness, insomnia, depression, increased appetite, concentration problems and the desire to smoke (Hughes & Hatsukami, 1986).

Cigarette Craving

The Urge to Smoke Scale (UTS) measured cigarette cravings. It is a 10-item self-report scale based on three other scales. It was created to capture the 10 items that showed the greatest change during withdrawal, and it had a high correlation with the summary score that included all craving items. It was tested and shown to have good reliability and validity with adult smokers (Jarvik et al., 2000).

A flow sheet of the assessment schedule, including the duration of each evaluation and the frequency at which it is given, is provided in Table 3 (below).

INSERT TABLE 3 HERE

DATA ANALYSIS

The primary outcome variables for this investigation were daily cigarette consumption, CO levels, urine cotinine levels and smoking cessation, or abstinence, in response to the behavioral intervention. The secondary outcome variables included depressive symptom ratings from the HDRS and BDI. Additional exploratory measures included smoking- and depression-related cognitions (assessed by the SES, CST and HSC), depressive symptoms (HDRS and BDI), smoking-related measures (FTQ, HWS and UTS), and treatment feasibility measures. All analyses were conducted using the computerized Statistical Package for the Social Sciences (SPSS), version 13.0. Means and standard errors, or frequencies, were computed for all variables, along with confidence intervals. Distribution characteristics of all variables were examined as well.

Analysis of the primary hypothesis used the linear mixed model approach to repeated measures, with evaluations of cigarette use, CO and urine cotinine levels weekly throughout treatment as the dependent variables. Daily cigarette consumption was used both as a continuous measure and as a categorical variable, with a 50% reduction considered significant (see Measures section, Measures for Primary Hypothesis Testing subsection; pages 40 and 41). Mixed model analysis was used for the secondary hypotheses, with history of depression diagnosis as a fixed factor. Analysis of the tertiary hypotheses also used the linear mixed model

approach, with baseline depressive symptoms as a covariate; weekly evaluations of cigarette use (self-reported consumption, CO and urine cotinine levels) served as the dependent variables. Correlations between the smoking outcome measures were conducted using a Pearson correlation (mean daily cigarette consumption and exhaled CO) or Spearman's Rho (for analyses involving semi-quantitative urine cotinine). Percent change values were used in the correlations, with the Week 0 value as the fixed comparison (denominator) and each week as the numerator, successively.

Analysis of exploratory measures used the repeated measures GLM at baseline, Weeks 4 and 9 to examine the effect of intervention on these measures. Prior to any of the above GLM repeated measures analyses, Mauchly's Test of Sphericity was conducted to prevent violations of the assumption of sphericity. Where necessary, Greenhouse-Geisser adjustments were made to the degrees of freedom used in the analyses. Point prevalence abstinence rates was used as an exploratory outcome variable (see Measures section, Measures for Primary Hypothesis Testing subsection for definitions; pages 40 and 41). The qualitative information (i.e., feedback from participants and counselors regarding the acceptability of the treatments) was summarized, using appropriate descriptive statistics.

CHAPTER FOUR

Results

DESCRIPTIVE STATISTICS

Demographic and Socioeconomic Characteristics of Participants

Sixty-three participants consented to participate in this study. The mean age of the participants was 20.75 years ($SD = 3.18$), the median age was 20 years, and the age range of the entire sample was 14 to 25 years of age. Participants, at initial screening, smoked an average of 16.46 ($SD = 7.56$) cigarettes per day. The mean socioeconomic score (on a scale with a maximum of 66) was 40.18 ($SD = 10.76$), with a median of 40. The range of socioeconomic scores was 17 to 63. When collapsed into a 5-point socioeconomic scale (with a score of 1 being highest), the mean score was 2.5 and the median was 2. One participant did not have socioeconomic data, leaving a sample of 62 for the analyses of socioeconomic status data. The median educational level of participants was completion of some college, and the median occupational level of participants was skilled manual labor. Many of the participants are still attending school, which may result in a lower current educational level than will be achieved in the future. As a result, educational status was excluded from use as a between-subject factor in further analyses. The demographic and socioeconomic data are captured in Table 4 (below).

INSERT TABLE 4 HERE

Of the 63 participants, 54% were female (n = 34) and 46% were male (n = 29). In terms of ethnicity, 74.6% of participants were Caucasian (n = 47), 9.5% were African-American (n = 6), 7.9% were Hispanic or Latino (n = 5), 4.8% were Biracial or of multiple ethnicities (n = 3), and 3.2% were of Asian descent (n = 2). The ethnicity and gender data are summarized in Table 6 (below).

INSERT TABLE 5 HERE

Among study participants, 52.4% (n = 33) had a past or current depression spectrum diagnosis (e.g., Major Depressive Disorder, Dysthymia or combined Major Depression and Dysthymia) and were included in the depressed participant group; 47.6% of participants (n = 30) had no history of a depression spectrum diagnosis. Twenty-one of the participants in the depressed participant group had a past diagnosis of a depression spectrum disorder, and 12 had a current depressive diagnosis (Major Depressive Disorder, Dysthymia or both). Thirty-eight (60.3%) of the 63 participants received some treatment with the M-BOI, whereas 25 of the participants (39.7%) dropped out of the study or withdrew consent prior to receiving any treatment. Three of the participants received M-BOI only treatment; 60 received double-blinded bupropion or placebo throughout

their participation in the trial. The data concerning depression status and rates of receiving treatment are below in Table 7.

INSERT TABLE 6 HERE

Analysis of Between-Group Differences

Independent samples t-tests and Mann-Whitney U analyses (both 2-tailed) were conducted to investigate whether differences existed between individuals who received no treatment ($n = 25$) due to drop-out and those who received at least some treatment ($n = 38$). No significant differences were found between the groups in terms of ethnicity (Mann-Whitney $U = 459.5$, $Z = -.285$, $p = .776$), SES (5-point scale: Mann-Whitney $U = 363.0$, $Z = -1.431$, $p = .152$; scale score: $t = 1.511$, $p = .136$), initial occupational level (Mann-Whitney $U = 461.5$, $Z = -.193$, $p = .847$), screening level of cigarettes smoked per day ($t = -1.074$, $p = .287$), or depression status (Mann-Whitney $U = 396.0$, $Z = -1.285$, $p = .199$). In participants with a valid screening HDRS ($n = 50$), t-test analysis revealed no differences between individuals who received no treatment and those who received some treatment ($t = .643$, $p = .523$). In addition, analysis of individuals with a valid initial exhaled CO level ($n = 38$) revealed no significant differences on expired CO level between individuals receiving no or some treatment ($t = -.021$, $p = .983$).

Both participant age ($t = -1.782, p = .080$) and gender (Mann-Whitney $U = 364.5, Z = -1.798, p = .072$) approached significance; analysis of these trends revealed that participants who received no treatment tended to be younger in age and were more likely to be female. The data summarizing the between-group (by treatment received) analyses of participants are below in Table 7.

INSERT TABLE 7 HERE

Further independent samples t-tests and Mann-Whitney U tests (both 2-tailed) were conducted to investigate whether differences existed between individuals with a current or past depressive disorder diagnosis and participants without a depressive history. No significant differences were found between the groups on age ($t = -.901, p = .371$), sex (Mann-Whitney $U = 482.0, Z = -.176, p = .861$), SES (5-point scale: Mann-Whitney $U = 461.05, Z = -.263, p = .793$; scale score: $t = -.798, p = .428$), cigarettes smoked per day ($t = 1.220, p = .227$), or occupational level (Mann-Whitney $U = 416.0, Z = -1.083, p = .279$) at screening.

In addition, analysis revealed no significant differences between depression status groups on whether participants received some or no treatment (Mann-Whitney $U = 414.0, Z = -1.285, p = .199$). Analysis of the 38 participants with screening CO levels also revealed no group differences ($t = -.682, p = .500$). Racial or ethnic background was found to relate to membership in the depression status groups (Mann-Whitney $U = 379.5, Z = -2.049, p = .040$); individuals who

had a current or prior diagnosed depressive disorder were more likely to be Caucasian (85.3%) than individuals who had no depression history (65.5% Caucasian). The data summarizing the between-group differences by depression status are captured below in Table 8.

INSERT TABLE 8 HERE

MAIN ANALYSES

Primary Analyses

The primary analyses that follow were conducted on the 38 individuals who received some treatment as a part of the study; individuals who received no treatment were excluded. Of the 38 participants, 4 (10.5%) were classified as abstinent at their last documented visit. Of those 4, however, 1 was lost to follow-up after Week 7. Thus, this person was classified as still smoking in the analyses, leaving 3 individuals (7.9%) with biochemically verified cessation. At the termination of treatment, an additional 4 participants (10.5%) were smoking less than 1 cigarette per day. In terms of a significant reduction in smoking (defined as a 50% or greater drop in daily cigarette consumption), 23 participants (60.5%) were classified as having achieved a significant reduction in smoking at the end of treatment.

Primary Hypothesis Testing

The primary hypothesis was that individuals would have a significant reduction in smoking-related measures (i.e., number of cigarettes smoked per day and exhaled CO levels) as a result of the intervention. Figure 1 (below) captures the data on weekly mean participant report of average daily cigarette use, Figure 2 (below) shows the data for weekly mean participant exhaled CO level, and Figure 3 (below) captures the data for weekly mean participant urine cotinine levels.

INSERT FIGURE 1 HERE

INSERT FIGURE 2 HERE

INSERT FIGURE 3 HERE

General linear model repeated measures analysis was conducted to investigate this hypothesis. This demonstrated that participants experienced a significant reduction in cigarettes smoked per day ($df = 1$, $F = 6.98$, $p < .001$, partial $\epsilon^2 = .395$). The LOCF mean values and standard deviations for participant average daily cigarette smoking were as follows: Week 0 (mean = 14.27, SD = 7.04); Week 1 (mean = 10.66, SD = 6.18); Week 2 (mean = 9.09, SD = 5.97); Week 3 (mean = 8.32, SD = 5.88); Week 4 (mean = 7.79, SD = 6.22); Week 5 (mean = 7.29, SD = 6.05); Week 6 (mean = 7.53, SD = 6.41); Week 7 (mean =

7.39, SD = 5.96); Week 8 (mean = 7.04, SD = 6.03); Week 9 (mean = 7.16, SD = 5.89).

Analysis of participant CO levels revealed that the intervention did not have a significant effect on CO levels ($df = 1$, $F = 1.605$, $p = .117$, partial $\epsilon^2 = .034$). The mean values and standard deviations for participant CO levels were as follows: Week 0 (mean = 12.68, SD = 8.97); Week 1 (mean = 11.86, SD = 7.51); Week 2 (mean = 12.08, SD = 8.33); Week 3 (mean = 11.22, SD = 8.50); Week 4 (mean = 10.38, SD = 8.42); Week 5 (mean = 10.84, SD = 8.60); Week 6 (mean = 11.81, SD = 8.62); Week 7 (mean = 11.78, SD = 8.66); Week 8 (mean = 10.51, SD = 8.49); Week 9 (mean = 10.32, SD = 8.40).

Despite the semiquantitative nature of the cotinine data, parametric data analysis was used for the evaluation of changes in urine cotinine across the intervention. As the data appeared to meet the assumptions of normality, an Analysis of Variance was conducted and compared Week 0 to 9. Due to problems with obtaining cotinine strips, many participants had missing data, which prevented weekly repeated measures analysis. The comparison revealed a significant decrease in urine cotinine levels from Week 0 to 9 ($df = 1$, $F = 7.325$, $p = .014$, partial $\epsilon^2 = .278$). The weekly mean and median data for urine cotinine were as follows: Week 0 (mean = 5.46, median = 6); Week 1 (mean = 5.52, median = 6); Week 2 (mean = 5.11, median = 6); Week 3 (mean = 5.09, median = 6); Week 4 (mean = 5.00, median = 5); Week 5 (mean = 4.22, median = 4.5);

Week 6 (mean = 5.00, median = 5); Week 7 (mean = 4.63, median = 5); Week 8 (mean = 4.62, median = 5); Week 9 (mean = 4.55, median = 5). The weekly data on urine cotinine levels are summarized in Figure 5 (below).

Pairwise comparisons of the weekly report of the average number of cigarettes smoked per day were conducted; these were corrected for multiple comparisons using the Bonferroni calculation. Pairwise comparisons revealed a significant decrease in cigarettes smoked per day from baseline (Week 0) to all time points (Weeks 0 and 1: mean difference = 4.066, $p = .013$; Weeks 0 and 2: mean difference = 5.632, $p < .001$; Weeks 0 and 3: mean difference = 6.408, $p < .001$; Weeks 0 and 4: mean difference = 6.934, $p < .001$; Weeks 0 and 5: mean difference = 7.434, $p < .001$; Weeks 0 and 6: mean difference = 7.197, $p < .001$; Weeks 0 and 7: mean difference = 7.329, $p < .001$; Weeks 0 and 8: mean difference = 7.684, $p < .001$; Weeks 0 and 9: mean difference = 7.566, $p < .001$).

Comparisons also found significant decreases in smoking from Week 1 to all time points after Week 2 (Weeks 1 and 3: mean difference = 2.432, $p = .006$; Weeks 1 and 4: mean difference = 2.868, $p = .003$; Weeks 1 and 5: mean difference = 3.368, $p = .006$; Weeks 1 and 6: mean difference = 3.132, $p = .021$; Weeks 1 and 7: mean difference = 3.263, $p = .004$; Weeks 1 and 8: mean difference = 3.618, $p = .001$; Weeks 1 and 9: mean difference = 3.500, $p = .004$). No other weekly comparisons were significant. As there was not a significant effect of the intervention on weekly CO levels, no pairwise comparisons were

conducted. The pairwise comparisons for average daily smoking levels are summarized below in Tables 13 (for comparisons to Week 0) and 14 (for comparisons to Week 1).

Because individuals who received treatment tended to be older and more likely to be male, when compared to those who did not receive treatment, analyses were conducted on mean daily smoking levels to ascertain if any of these three factors exerted an influence. Age, used as a covariate, did not appear to exert an influence on change in mean daily cigarette consumption over the course of the intervention ($df = 3.147$, $F = 1.186$, $p = .319$). Furthermore, no significant effect was found on daily smoking progression for gender, used as a between-groups factor ($df = 3.081$, $F = 1.416$, $p = .241$). Thus, neither of the predictors of receiving no treatment appeared to influence treatment outcome in those who entered treatment.

Secondary Hypothesis Testing

The aim of the secondary hypotheses was to examine the effect of a current or past depressive disorder diagnosis on change in smoking-related measures throughout the intervention. These analyses are summarized below in Figures 4 (average cigarette consumption), 5 (CO levels) and above in Figure 3 (urine cotinine).

INSERT FIGURE 4 HERE

INSERT FIGURE 5 HERE

Initial examination of the relationship of depression status to daily cigarette consumption using mixed model analysis revealed no significant differences by depression status group on change in daily smoking ($df = 1$, $F = 2.02$, $p = .167$). In addition, there was not a significant difference between depression status groups on exhaled CO levels during the course of treatment ($df = 1$, $F = .84$, $p = .365$). Finally, use of depression status group as a between-subjects factor on the comparison of Week 0 and 9 urine cotinine levels demonstrated no effect of depression status ($df = 1$, $F = 1.479$, $p = .224$).

Tertiary Hypothesis Testing

The aim of the tertiary hypotheses was to examine the effect of baseline depressive symptoms on reduction in smoking-related measures. Initially, the effect of baseline depressive symptoms (e.g., HDRS and BDI) on average daily cigarette consumption was examined. Analysis of each scale revealed no significant effects of baseline depressive symptom rating scores on daily cigarette use levels during the intervention (BDI: $df = 1$, $F = .05$, $p = .821$; HDRS: $df = 1$, $F = .301$, $p = .588$). Analysis of the interaction of CO levels with both the HDRS and BDI was conducted as well. Examination revealed that neither the interaction

of baseline BDI and change in CO levels ($df = 1$, $F = 1.66$, $p = .206$), nor the interaction of baseline HDRS and change in CO levels ($df = 1$, $F = 2.34$, $p = .133$) was significant. Finally, analyses of Week 0 to 9 cotinine levels using revealed no significant effect of baseline depressive symptoms (BDI: $df = 1$, $F < .001$, $p = .995$; HDRS: $df = 1$, $F = .161$, $p = .176$).

Given the likely differences in baseline depressive symptom rating scale scores between individuals in depression status groups, analyses were conducted for the tertiary hypotheses only using the depressed group participants. For individuals in the depressed group, baseline BDI ($df = 2.226$, $F = 1.901$, $p = .160$) and HDRS ($df = 2.220$, $F = 2.018$, $p = .144$) scores did not influence ability to reduce mean smoking through the intervention. In each case, however, it is important to note that the power to detect significant change was low (BDI $\beta = .388$, HDRS $\beta = .409$). Similar results were obtained for CO and urine cotinine levels. Baseline BDI ($df = 2.274$, $F = .552$, $p = .603$) and HDRS scores ($df = 2.307$, $F = .374$, $p = .720$) did not influence expired CO levels during treatment in depressed participants; similarly, baseline depressive symptom scores did not appear to influence change in cotinine levels from baseline to Week 9 (BDI: $df = 1$, $F = .033$, $p = .860$; HDRS: $df = 1$, $F = .028$, $p = .871$). The data from tertiary hypothesis testing is summarized below in Table 9.

INSERT TABLE 9 HERE

Correlations of Smoking Outcome Measures

In order to further explore the findings of the above hypotheses, bivariate correlations were conducted to determine whether the decreases in mean daily cigarette consumption, exhaled CO and urine cotinine corresponded. For mean daily cigarette consumption and expired CO, a Pearson correlation was conducted. Significant correlations were found at Weeks 4 ($r = .798, p < .001$), 7 ($r = .569, p = .027$) and 9 ($r = .760, p < .001$), and the data evidenced a trend towards correlation at weeks 3 ($r = .368, p = .084$) and 8 ($r = .439, p = .102$).

Due to the semi-quantitative nature of the urine cotinine outcome data, Spearman's Rho was used to test the correlations between mean daily smoking and cotinine and between exhaled CO and cotinine. For mean daily cigarette use and urine cotinine, significant correlations were seen at Weeks 2 ($\rho = .438, p = .018$), 3 ($\rho = .520, p = .013$), and 9 ($\rho = .625, p = .003$); in addition, a trend towards significance was seen at Week 7 ($\rho = .417, p = .108$). Concerning exhaled CO and urine cotinine, significant correlations were present for the final 3 weeks of the intervention: Week 7 ($\rho = .568, p = .034$), 8 ($\rho = .798, p = .001$) and 9 ($\rho = .634, p = .003$).

Exploratory Analyses

Further analyses were conducted to establish the effect of the intervention on intrapersonal variables, such as smoking-related self-efficacy (SSES),

cognitive style (CST), hopelessness (HSC), depressive symptoms (HRSD and BDI), nicotine withdrawal symptoms (HWS), urges to smoke (UTS) and nicotine dependence (FTQ). For each analysis, the general linear model (GLM) repeated measures approach was used (e.g., SPSS GLM, repeated measures) with measure data from Weeks 0, 4 and 9 as the dependent variables; to prevent Type I error, a Bonferroni correction was used to control for the effects of multiple comparisons. Given the restrictions of the GLM, the data summarized below is for the 22 participants with complete data sets; due to the small sample size, no analysis between participants with and without a history depression diagnosis was performed. Descriptive data for the measures at each time point are summarized below in Table 10; GLM repeated measures data for these measures is also captured in Table 11 (below).

INSERT TABLE 10 HERE

INSERT TABLE 11 HERE

Smoking Self-Efficacy (SSES)

The first exploratory aim was to examine the effect of treatment on smoking-related self-efficacy, using the Smoking Self-Efficacy Scale (SSES). It was hypothesized that participants would experience a significant rise in smoking-related self-efficacy throughout the intervention. There was a significant increase

in participant smoking-related self-efficacy across the intervention ($df = 1.411$, $F = 13.547$, $p < .001$, partial $\epsilon^2 = .392$). The SSES mean values and standard deviations were as follows: Week 0 (mean = 110.59, SD = 47.34); Week 4 (mean = 147.81, SD = 46.53); Week 9 (mean = 156.86, SD = 39.55). Pairwise comparisons, corrected with a Bonferroni calculation, revealed a significant difference between Weeks 0 and 4 (mean difference = 37.227, $p = .003$) and Weeks 0 and 9 (mean difference = 46.273, $p < .001$) on the SSES. A non-significant difference was found between Weeks 4 and 9 (mean difference = 9.045, $p = .123$), implying that the main effect of the intervention on smoking-related self efficacy occurred in the first 5 weeks of the intervention. The data for the SSES pairwise comparisons are summarized in Table 12 (below).

INSERT TABLE 12 HERE

Cognitive Style (CST)

The second exploratory aim was to examine the effect of intervention on participant's cognitions. Analysis of the Cognitive Style Test for Teens (CST) occurred by examining the summed score of the measure and its five scored scales: Self, World, Future, Pleasant Events and Unpleasant Events. It was hypothesized that participants would experience a decrease in maladaptive cognitions in these five domains as a result of intervention. Initial analysis of the

total measure revealed a significant decrease in the level of maladaptive cognitions of participants throughout the intervention ($df = 2$, $F = 4.090$, $p = .024$, partial $\epsilon^2 = .163$). The CST mean values and standard deviations were as follows: Week 0 (mean = 25.73, SD = 10.78); Week 4 (mean = 23.82, SD = 9.87); Week 9 (mean = 21.86, SD = 9.82). Pairwise comparisons revealed only one significant difference, between Week 0 and 9. As the sum score evidenced a significant change, the 5 individual subscales were examined for significant changes.

Cognitive Style Related to the Self (CST Self scale)

GLM repeated measures analysis demonstrated no significant effects of the intervention on the CST Self scale data ($df = 2$, $F = 1.425$, $p = .252$). The CST Self mean values and standard deviations were as follows: Week 0 (mean = 9.68, SD = 4.13); Week 4 (mean = 9.18, SD = 3.98); Week 9 (mean = 8.63, SD = 4.20).

Cognitive Style Related to Individuals in the Environment (CST World scale)

Analysis demonstrated no significant effects of the intervention on participants' scores on the CST World scale ($df = 2$, $F = 1.875$, $p = .166$). The CST World mean values and standard deviations were as follows: Week 0 (mean = 8.05, SD = 3.58); Week 4 (mean = 6.86, SD = 3.15); Week 9 (mean = 7.64, SD = 3.30).

Cognitive Style Related to the Future (CST Future scale)

There appeared to be no main effect of the intervention on cognitions related to the participant's appraisal of the future and future events ($df = 2$, $F = .110$, $p = .896$). The CST Future mean values and standard deviations were as follows: Week 0 (mean = 8.00, SD = 4.32); Week 4 (mean = 7.73, SD = 4.08); Week 9 (mean = 7.91, SD = 3.34).

Cognitive Style Related to Pleasant Events (CST Pleasant Events scale)

The intervention did not have a significant effect on the cognitions of participants related to pleasant events ($df = 2$, $F = .053$, $p = .948$). The CST Pleasant Events mean values and standard deviations were as follows: Week 0 (mean = 9.72, SD = 5.82); Week 4 (mean = 9.50, SD = 5.10); Week 9 (mean = 9.82, SD = 5.17).

Cognitive Style Related to Unpleasant Events (CST Unpleasant Events scale)

Analysis revealed that treatment did significantly decrease the maladaptive cognitions of participants related to unpleasant events ($df = 2$, $F = 18.629$, $p < .001$, partial $\epsilon^2 = .470$). The CST Unpleasant Events mean values and standard deviations were as follows: Week 0 (mean = 16.0, SD = 5.73); Week 4 (mean = 14.32, SD = 5.62); Week 9 (mean = 12.05, SD = 5.71). Pairwise comparisons, corrected using the Bonferroni procedure, established that there were significant differences in CST Unpleasant Events scores between Weeks 0 and 9 (mean difference = 3.955, $p < .001$) and Weeks 4 and 9 (mean difference = 2.273, $p =$

.002). This result implies that the primary effect of the intervention on cognitions related to unpleasant events occurred in the final 5 weeks of treatment. The data from the pairwise comparisons are captured below in Table 13.

INSERT TABLE 13 HERE

Hopelessness (HSC)

Examining the effect of treatment on participant hopelessness, using the Beck Hopelessness Scale (HSC), was the third exploratory aim. It was hypothesized that participants would experience a significant decrease in hopeless cognitions throughout the intervention. Examination of the HSC data revealed that intervention did not significantly change the participant level of hopelessness ($df = 2$, $F = .526$, $p = .595$). The HSC mean values and standard deviations were as follows: Week 0 (mean = 2.64, SD = 3.53); Week 4 (mean = 2.95, SD = 3.97); Week 9 (mean = 2.59, SD = 2.94).

Depressive Symptoms (HRSD and BDI)

The fourth exploratory aim was to analyze the effect of intervention on ratings of depressive symptoms, both clinician-rated (HRSD) and self-rated (BDI). It was believed that participants would experience a significant decrease in depressive symptoms as a result of intervention. Analysis of the HRSD data using GLM repeated measures analysis did not support a significant effect of the

intervention on HRSD-measured symptoms ($df = 1.414$, $F = .829$, $p = .409$). Similar analyses were conducted on BDI-rated depressive symptoms. Analysis did not reveal a significant difference in BDI scores across the intervention ($df = 1.566$, $F = 2.255$, $p = .131$). The overall means and standard deviations for the HRSD were as follows: Week 0 (mean = 5.36, SD = 7.72); Week 4 (mean = 3.23, SD = 4.26); Week 9 (mean = 3.95, SD = 7.37). The overall means and standard deviations for the BDI were as follows: Week 0 (mean = 2.95, SD = 5.14); Week 4 (mean = 2.09, SD = 3.93); Week 9 (mean = 1.09, SD = 2.74).

In order to further examine the effects of intervention on HRSD and BDI data, GLM repeated measures analyses was conducted on the 10 participants with complete data who had a history of depression or a current depressive episode. Analyses of each measure revealed no significant treatment effect (HRSD: $df = 2$, $F = .818$, $p = .457$; BDI: $df = 2$, $F = 1.841$, $p = .187$), but each analysis was limited by small power (HRSD: $\beta = .146$; BDI: $\beta = .290$). The effect size of treatment on the BDI in participants with current of past depressive disorders was .170. The means and standard deviations for the HRSD in depressed group participants were as follows: Week 0 (mean = 9.40, SD = 10.17); Week 4 (mean = 5.80, SD = 5.16); Week 9 (mean = 5.40, SD = 9.29). The means and standard deviations for the BDI in depressed group participants were as follows: Week 0 (mean = 5.50, SD = 6.82); Week 4 (mean = 4.40, SD = 4.99); Week 9 (mean = 2.00, SD = 3.86).

Withdrawal Symptoms (HWS)

Evaluating the effect of intervention on withdrawal symptoms, using the HWS, was the fifth aim of treatment. Following treatment, it was hypothesized that participants would experience a significant reduction in withdrawal symptoms. GLM repeated measures analysis revealed no main effect of the intervention on withdrawal symptom scores ($df = 1.289$, $F = 2.037$, $p = .162$). That said, pairwise comparisons did reveal a significant decrease in withdrawal scores between Week 0 and 9, following Bonferroni correction (mean difference = 1.682, $p = .013$).

The HWS mean values and standard deviations were as follows: Week 0 (mean = 4.32, SD = 3.25); Week 4 (mean = 2.55, SD = 3.31); Week 9 (mean = 2.63, SD = 4.29). Given the lower mean value of the Week 4 HWS than the Week 9 HWS, it might have been expected that Week 4 scores would also be significant different from Week 0 score; this was not the case due to the high standard error in comparison (Week 0 versus Week 4: 1.077; Week 0 versus Week 9: .528). The HWS pairwise comparisons are captured in Table 14 (below). Given the potential for differences in withdrawal between individuals with and without a history of depression, the HWS data were analyzed by depression group. This did not reveal a significant difference between the groups ($df = 1.323$, $F = 2.141$, $p = .151$).

INSERT TABLE 14 HERE

Smoking Urges (UTS)

The sixth exploratory aim was to examine the effect of treatment on smoking urges, using the Urge to Smoke scale (UTS). It was expected that participants would experience a significant decrease in urges to smoke as a result of intervention. Analysis of the UTS data revealed a significant decrease in smoking urges across treatment ($df = 2$, $F = 13.507$, $p < .001$, partial $\epsilon^2 = .391$). The UTS mean values and standard deviations were as follows: Week 0 (mean = 32.05, SD = 11.42); Week 4 (mean = 20.14, SD = 9.28); Week 9 (mean = 18.73, SD = 9.67). Bonferroni corrected pairwise comparisons showed that there were significant decreases in smoking urges between Weeks 0 and 4 (mean difference = 11.909, $p = .003$), and between Weeks 0 and 9 (mean difference = 13.318, $p = .001$); no significant difference existed between Weeks 4 and 9 (mean difference = 1.409, $p = 1.000$). This result seems to indicate that intervention was most effective in reducing smoking urges during the first 5 weeks. The data from the UTS pairwise comparisons are summarized below in Table 15.

INSERT TABLE 15 HERE

Nicotine Dependence (FTQ)

The final exploratory aim was to examine the change in ND symptom ratings across treatment, as measured by the FTQ. It was hypothesized that treatment would be associated with a significant decrease in ND symptom scores. It appears that intervention with the M-BOI was associated with a reduction in ND scores on the FTQ ($df = 2$, $F = 24.457$, $p < .001$, partial $\epsilon^2 = .538$). The FTQ mean values and standard deviations were as follows: Week 0 (mean = 5.59, SD = 1.64); Week 4 (mean = 3.84, SD = 2.22); Week 9 (mean = 3.41, SD = 2.03). Pairwise Bonferroni corrected comparisons indicated that there were significant decreases in ND levels between Weeks 0 and 4 (mean difference = 1.750, $p < .001$), and between Weeks 0 and 9 (mean difference = 2.182, $p < .001$); no significant difference existed between Weeks 4 and 9 (mean difference = .432, $p = .389$). These results seem to indicate that intervention was most effective in reducing ND symptoms in the first half of the intervention, with non-significant decreases thereafter. The FTQ pairwise comparisons are listed in Table 16 (below).

INSERT TABLE 16 HERE

ANALYSIS OF TREATMENT ACCEPTABILITY

Acceptability and Likelihood of Recommendation of Treatment

At both the Week 4 and 9 visits, participants completed questionnaires assessing the benefit they believe that they received from treatment and the likelihood that they would recommend the treatment to a friend. At Week 4, 28 participants responded, and the mean treatment acceptability rating was 3.64 (SD = .678); the mean Week 4 likelihood to recommend rating was 3.5 (SD = .793). The range of scores for Week 4 acceptability was 2 to 4, with 3 participants (10.7%) selecting a 2 (“a little helpful”), 4 participants (14.3%) selecting a 3 (“somewhat helpful”), and 21 participants (75%) selecting a 4 (“very helpful”). The range of scores for the Week 4 recommendation rating was 1 to 4, with 1 participant (3.6%) selecting a 1 (“definitely not recommend”), 2 participants (7.1%) selecting a 2 (“might recommend”), 7 participants (25%) selecting a 3 (“probably recommend”) and 18 participants (64.3%) selecting a 4 (“definitely recommend”).

At Week 9, 23 participants completed the questionnaire. The mean treatment acceptability rating was 3.65 (SD = .487), and the mean likelihood to recommend rating was 3.65 (SD = .573) as well. The range of scores for Week 9 acceptability was 3 to 4, with 8 participants (34.8%) selecting a 3 (“somewhat helpful”), and 15 participants (65.2%) selecting a 4 (“very helpful”). The range of scores for the Week 9 recommendation rating was 2 to 4, with 1 participant

(4.3%) selecting a 2 (“might recommend”), 6 participants (26.1%) selecting a 3 (“probably recommend”) and 16 participants (69.6%) selecting a 4 (“definitely recommend”). The acceptability and recommend ratings for both Week 4 and 9 are given below in Table 17.

INSERT TABLE 17 HERE

Acceptability Ratings by Session

In addition, participants completed weekly questionnaires about the perceived helpfulness of the session, following completion of the therapy visit. The mean acceptability rating ranged from 3.25 (at Week 0) to 3.75 (at Week 4); no treatment sessions were given a rating of 1 (“not helpful at all”). Scores rose from Week 1 to 4 and plateaued from Week 5 through 9 (means of acceptability were between 3.55 and 3.67). The complete data on the acceptability ratings of the individual treatment sessions are summarized below in Table 18.

INSERT TABLE 18 HERE

CHAPTER FIVE

Conclusions and Recommendations

Given that the vast majority of smokers initiate cigarette use prior to 18 years of age (DHHS, 1994), and that early smoking initiation predicts higher rates of smoking in adulthood and lower probability of quitting (Breslau, Fenn, & Peterson, 1993; Breslau & Peterson, 1996; Pierce & Gilpin, 1996), early treatment is crucial to limit the morbidity and mortality associated with smoking. This is especially true as smoking may predispose individuals to further addictive substance use (Alexander & Klassen, 1988; Henningfield, Clayton, & Pollin, 1990; Lewinsohn, Rohde, & Brown, 1999; Myers & Brown, 1994), and as smoking has been linked to psychiatric illness and lower quality of life (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Ebeling et al., 1999; Martinez et al., 2004; M. Windle & R.C. Windle, 2001; Wu & Anthony, 1999). Depressed smokers appear to be particularly compromised (Anda et al., 1990; Pomerleau, Brouwer, & Pomerleau, 2001).

In this dissertation study, we tested the effectiveness of a behavioral program for smoking cessation in adolescents and young adults. We modified an existing cessation program, the Brief Office Intervention, creating the Modified Brief Office Intervention (M-BOI). The M-BOI was adapted to include specific CBT mood management and other treatment strategies for depression to combat

the difficulties experienced during cessation attempts by depressed smokers or those who experience depressive withdrawal symptoms.

The primary aim of this study was to evaluate the effectiveness the M-BOI for smoking cessation in adolescents and young adults. To this aim, smoking- and mood-related measures were collected and analyzed throughout the course of the 10-session intervention. The primary hypothesis was that individuals participating in the intervention would experience a significant reduction in smoking at the end of treatment, as measured by self-reported mean daily cigarette use, exhaled CO and urine cotinine levels. The secondary hypothesis was that individuals participating in treatment with a history of depression would have a lesser reduction in daily cigarette use and biochemical measures than individuals with no history of depression. The tertiary hypothesis was that individuals with higher initial ratings of depressive symptoms, as measured by the HDRS and BDI, would have lower reductions in daily smoking and biochemical measures. Exploratory analyses were conducted to determine the effect of the M-BOI on smoking-related variables (e.g., HWS, UTS and FTQ), on mood-related measures (e.g., the HDRS and BDI), on cognitive measures (e.g., HSC, CST and SESS). Finally, participants' assessment of the usefulness of treatment and their likelihood of recommending M-BOI treatment to a friend were assessed to inform potential changes to the M-BOI.

DEMOGRAPHIC AND SOCIOECONOMIC FINDINGS

Baseline Demographic and Socioeconomic Characteristics

Analysis of the demographic characteristics of the 63 participants revealed that the sample was predominantly composed of older adolescents and young adults, and the sample was slightly more female than male. In terms of socioeconomic status, the sample was a little above the societal mean, and the majority of participants were Caucasian. The mean daily smoking level of participants was 16.46 cigarettes per day, with a range of 10-50 at baseline. The sample was composed a large number of participants who smoked 10-12 cigarettes per day, a smaller aggregation around 20 cigarettes per day, and some individuals who smoked in excess of a pack per day.

The mean number of cigarettes smoked per day by participants is important to note because the participants were regular or even heavy daily smokers; thus, the results of this investigation may not generalize well to light daily smokers (i.e., daily smoking of 5 or fewer cigarettes) or “chippers” (i.e., light, non-daily smokers). The mean number of cigarettes smoked daily by participants corresponds well to the amounts smoked by participants in studies using Project EX (Sussman, Dent, & Lichtman, 2001) and the NOT intervention (e.g., Dino, Horn, Goldcamp, Fernandes et al., 2001).

Factors Associated with Receiving No Treatment

Both gender ($p = .080$) and age ($p = .072$) had a trend towards predicting membership in the no treatment group. Furthermore, other analyses presented at the College on Problems of Drug Dependence (Schepis, Warren, Rao, & Patten, 2006) have revealed that a history of depression or an alcohol or other drug disorder predicted number of sessions attended by participants. Individuals who did not receive treatment tended to be younger and more likely to be female than those who entered treatment.

The findings concerning psychiatric status and age were not especially surprising. It is likely that younger individuals are able to rationalize the longer-term (i.e., not currently pressing) health risks that accompany smoking. Furthermore, the ability to delay gratification accompanies maturation; thus, it is possible that cessation, a task that requires the resources to consistently delay gratification, may be more difficult for younger participants because they tend to have less developed abilities in this arena. In addition, individuals with depression diagnoses (Must et al., 2006) and current (Overman et al., 2004) or developing substance use disorders (e.g., Tarter, Kirisci, Habeych, Reynolds, & Vanyukov, 2004; Tarter et al., 2003) tend to make impulsive and/or risky choices.

The one surprising finding between treatment groups concerns gender. It would have been expected that more males would have dropped-out of study participation prior to entering treatment. Conventional wisdom and research (e.g.,

Rhodes, Goering, To, & Williams, 2002) note that males underutilize medical and mental health services compared to females, which would have predicted greater male drop-out. Whether the tendency for females to receive no treatment was an artifact of the intensive screening process or of the time commitment required for participation is unknown. This unanticipated result is one that needs further investigation. Indeed, awareness of factors that lead to early drop-out (especially if accompanied by an etiological hypothesis) can be used in the future to take steps to prevent early termination and make treatment more accessible to all individuals.

Factors Associated with Depression Status Group Membership

Race or ethnicity ($p = .040$) was associated with membership in a depression status group; Caucasian individuals were more likely than individuals of other races or ethnicities to have a current or past episode of depression. Again, this is a somewhat unexpected result, as studies have found that non-white ethnicity was associated with higher rates of depressive symptoms in adolescent females and a mixed-gender sample (Emslie, Weinberg, Rush, Adams, & Rintelmann, 1990; Kubik, Lytle, Birnbaum, Murray, & Perry, 2003). Smoking may confound this association, however, as smoking is related to increases in depressive symptoms (e.g., M. Windle & R.C. Windle, 2001). That said, no

examinations of the ethnic differences in depression among smokers could be found in the literature.

MAIN ANALYSES

The main analyses (e.g., primary, secondary and tertiary analyses) were conducting using weekly data over the entire 10-week intervention and concentrated on the effect of the intervention on smoking behavior and on the interaction of depressive symptoms and the intervention on smoking-related outcomes. In sum, the intervention was effective at reducing cigarette consumption and urine cotinine levels but not exhaled CO levels; a history of depression and baseline depressive symptom level did not appear to influence changes in smoking behavior through the course of the intervention.

Primary Hypothesis

Overall, intervention appeared to help participants achieve a significant decrease in smoking, with an effect size of .395. By looking weekly, the main significant decreases in smoking occurred from Weeks 0 to 2. At week 2, 72.9% of the overall reduction in average daily smoking had occurred. At the week 4 visit, this percentage rose to 91.1%. Thus, the intervention seemed most effective at reducing smoking in the first 5 sessions. In addition, the intervention was associated with a significant decrease in semiquantitative urine cotinine levels, with an effect size of .278.

The significant decrease in average daily smoking and urine cotinine was not matched by a significant decrease in CO levels at the end of treatment. Furthermore, the effect (partial $\epsilon^2 = .034$) of treatment on CO levels was minimal. There are three possible explanations for this finding. First, CO levels have a very short half-life and are very sensitive to recent smoking (Gariti, Alterman, Ehrman, Mulvaney, & O'Brien, 2002; Hald, Overgaard, & Grau, 2003); for participants who smoked on the way to the appointment, this can result in an artificial elevation of CO level that does not accurately reflect average smoking. Given the fact that the intervention was associated with a significant within-participant decrease in urine cotinine levels, it is quite likely that the weekly exhaled CO levels were somewhat inaccurate as a biochemical marker for smoking level.

In addition, a number of studies have found that participants tend to underreport smoking levels (Stein et al., 2002; Sussman, Dent, & Lichtman, 2001), when compared to biochemical verification. It is likely that this played a contributing role to the difference in findings between other smoking measures and CO levels. In looking at the correlations between smoking outcome data, it is notable that the physiological measures were significantly correlated only in the final three weeks, and the correlations between self-reported smoking level and the two physiological measures were only significant in one-third of the observations. Including observations with a trend towards significance only

increased the occurrences of significant correlations to 50%. Thus, there is somewhat of a lack of fit between the self-reported data and physiological measures that could be accounted for by under-reporting of cigarette use. That said, nearly all correlations were positive (i.e., change in the same direction), and involved small sample sizes, increasing the likelihood of Type II error. Thus, it is likely that under-reporting of cigarette consumption was modest overall.

Secondary Hypothesis

The secondary analyses investigated the effect of depression history on ability to reduce smoking through the course of the intervention. Analysis indicated that membership in the depressed group (marked by the presence of a past and/or current depressive disorder) was not associated with any impairment in the ability to reduce smoking, as measured by self-report, CO or urine cotinine levels. That said, the small sample size might have resulted in a Type II error in the analysis of the effect of depression status on changes in self-reported cigarette consumption, given the trend towards significance. While the data appeared to indicate different paths of change in CO level by depression status group, GLM repeated measures analysis did not support this finding.

The lack of significant findings for an effect of depression status on ability to reduce smoking is somewhat puzzling in light of previous adult findings stating that depression adversely affects smoking cessation outcomes (e.g., L. Curtin,

R.A. Brown, & S.D. Sales, 2000; B. Hitsman, B. Borrelli, D.E. McChargue, B. Spring, & R. Niaura, 2003; Kinnunen, Doherty, Militello, & Garvey, 1996). That said, there is significant evidence that the use of bupropion (a component of the main study) is effective in treating those with current depression and that it is equally effective in individuals with or without a history of depression (Richmond & Zwar, 2003; S. S. Smith et al., 2003). In addition, the M-BOI specifically targets depressive symptoms with mood management and other cognitive strategies to reduce the impact of depression on smoking. Thus, it is likely that a combination of bupropion treatment in some individuals and treatment with the M-BOI resulted in no differences in smoking outcome by depression history.

Tertiary Hypothesis

The tertiary analyses examined the effect of baseline depressive symptoms on change in smoking measures through the course of the intervention. As with the secondary analyses, no significant effects were found. In other words, the baseline level of participants' depressive symptoms had no effect on their ability to reduce smoking. As with the secondary findings, this result could be seen as surprising in light of the adult literature. The inclusion of a large non-depressed group within the sample, resulting in low baseline scores on the depression measures (HDRS and BDI), likely played a role in this finding. Furthermore, there is evidence that bupropion reduces the effect of baseline symptoms on

cessation outcome (Catley et al., 2005), and M-BOI treatment aimed at depressive symptoms also was likely to play a role in this outcome.

EXPLORATORY ANALYSES

Exploratory analyses were conducted using data at Weeks 0 (baseline), 4 (halfway point) and 9 (termination) in the 22 participants with complete data at all 3 time points. Measures related to cognitions (SSES, CTS and HSC), mood (HDRS and BDI) and smoking (FTQ, HWS, UTS) were examined for the effect of treatment. Overall, it appears that treatment had modest effects on depressive symptoms in participants with a history of depression (BDI), small to moderate effects of smoking-related self-efficacy (SSES) and urges to smoke (UTS) and moderate effects on participants' cognitions related to unpleasant events (CST Unpleasant Events subscale) and on ND symptoms (FTQ). In addition, there was some evidence of an effect of treatment on withdrawal symptoms (HWS).

Analysis of Cognitive Measures

The effect of the intervention on participants' cognitions was somewhat mixed: on the one hand, participants experienced significant increases in smoking-related self efficacy and decreases in maladaptive cognitions relating to unpleasant events; on the other, participants experienced no changes in hopelessness and maladaptive cognitions related the self, others, the future or

pleasant events. The non-significant result on the HSC can likely be explained by the low level of baseline hopelessness endorsed by participants (mean = 2.64, SD = 3.53) and by the fact that the M-BOI does not specifically address hopelessness. While any hopelessness relating to smoking was evaluated cognitively, general hopelessness was not addressed. Thus, it was somewhat expected that no significant change would be seen on the HSC.

Concerning the non-significant findings on the 4 CST scales (Self, World, Future and Pleasant Events), a lack of change can be partially explained by the fact that cognitions are stable entities that do not usually change unless specifically activated and tested. While the M-BOI did attempt to evaluate and change maladaptive cognitions related to smoking, evaluation could not be performed in an in-depth fashion because of time constraints. Some change might have been expected on the Self scale, since it relates to self-efficacy, but a lack of change on the other scales is not unexpected because of the limited ability of the intervention to assess and treat aspects of cognitive state unrelated to smoking.

Thus, at first glance, it is all the more surprising that participant levels of maladaptive cognitions related to disappointing or distasteful events did evidence a decrease. Then again, it is important to consider the nature of smoking cessation attempts. Abstinence attempts, as endorsed by nearly all smokers, are naturally unpleasant events. Cessation is associated with cravings, withdrawal symptoms, and regular tests of will; for participants who were able to tolerate

these events well enough to complete the study, it is very reasonable to note a concomitant increase in adaptive cognitions (cognitive coping) associated with noxious stimuli. Thus, the moderate effect size seen (partial $\epsilon^2 = .470$) may be partially due to enduring a set of regularly unpleasant events repeatedly (i.e., noxious cessation-associated stimuli), in addition to the influence of the M-BOI. Interestingly, this was the only effect that seemed to occur primarily in the final half of the intervention, which may speak to the difficulty in remediating maladaptive cognitions.

Similar mechanisms may be at work in the increases seen in participant-rated smoking-related self-efficacy, as measured by the SSES. The small to moderate effect seen (partial $\epsilon^2 = .392$) occurred primarily in the first half of the intervention. This effect was expected, given that (in a theoretical sense) increases in self-efficacy related to undertaking a difficult change are necessary antecedents to effecting change. While the changes seen on the SSES and CST Unpleasant Events scales may have been influenced by the act of attempting cessation itself, it is likely that the majority of the effect was due to the intervention itself. Without a no-treatment control, though, it is not possible to evaluate specific contributors to effect size and outcome.

Analysis of Mood-related Measures

Participants with complete data in the depressed group ($n = 10$) were examined for the effect of the intervention on their HDRS and BDI scores. This resulted in higher mean ratings on each measure at baseline (HDRS mean = 9.40, SD = 10.17; BDI mean = 5.50, SD = 6.82). As the standard deviations illustrate, the sample was still very heterogeneous in terms of depressive symptoms, as it included individuals with past depressive episodes. Given the small sample size of these investigations, the power to detect significance or carefully estimate effect size was limited. Nonetheless, analysis did detect a small effect (partial $\epsilon^2 = .170$) of the intervention on BDI scores in the depressed group of participants. This was not matched in the HDRS (partial $\epsilon^2 = .083$). Differences in the symptoms assessed by each measure or differences in how symptoms are assessed (e.g., self-report versus clinician report) may explain the discrepant findings between these measures. It is possible that, with a larger sample and a corresponding increase in power, there would have been a significant decrease in depressive rating scores and more accurate estimates of effect sizes.

Analysis of Smoking-related Measures

In all three of the smoking-related measures (HWS, UTS and FTQ), significant differences were found through treatment, with one caveat: the decrease in withdrawal symptoms seen on the HWS was only seen in a pairwise

comparison (Bonferroni corrected) between Weeks 0 and 9, and not on the repeated measures GLM analysis. The effect size, using GLM, was very modest (partial $\epsilon^2 = .088$); excluding Week 4 in a one-way ANOVA resulted in a larger effect size (partial $\epsilon^2 = .326$). Without significance on pairwise comparisons, however, it is impossible to infer when the change in withdrawal symptoms occurred. Subjective evaluation of the graphical representation of the data seems to indicate that the vast majority of withdrawal symptom decrease occurred in the first 5 weeks.

For the UTS, concerning smoking urges, the data are more definitive. The intervention had a small to moderate effect (partial $\epsilon^2 = .391$) on decreasing urges to smoke during the course of the intervention. This effect was primarily seen in the first 5 weeks of the intervention, using data from the Bonferroni corrected pairwise comparisons. Similarly, symptoms of ND, as measured by the FTQ, significantly decreased throughout the course of the intervention. The effect on ND was moderate (partial $\epsilon^2 = .538$) and also occurred mainly in the first 5 weeks of the intervention.

The significant effects seen across smoking-related measures were generally expected and can serve as a good proxy measure for the effect of the intervention on smoking itself. Indeed, the effect sizes tend to aggregate around the effect size of the intervention on daily cigarette consumption. Participants also evidenced a decrease in urine cotinine levels, which matched the significant

decrease in self-reported smoking. Overall, participants stated that three of the major impediments to cessation, namely withdrawal symptoms, smoking urges and ND symptoms, were ameliorated by the effects of the intervention. This is an encouraging finding that speaks both to the efficacy of the intervention and to the need for further, large-scale evaluation of the M-BOI. The only limiting factor to this conclusion is that the effect on withdrawal symptoms was modest and only seen in an ANOVA comparison of Weeks 0 and 9, not across the intervention using GLM.

TREATMENT ACCEPTABILITY AND RECOMMENDATION RATE

As the M-BOI is being evaluated for the first time, participants were asked to give feedback on the intervention at the halfway point of treatment (Week 4) and at the termination of treatment (Week 9). In addition, participants rated the usefulness of each individual session. These ratings will be used to revise the intervention to maximize both the likelihood of retaining participants and the intervention's efficacy.

Week 4 Acceptability and Recommendation Ratings

At Week 4, 28 participants rated the "helpfulness" (acceptability) of treatment and whether they would recommend treatment to friends. The mean acceptability rating was 3.64, with a modal rating of 4; the mean recommendation

rating was 3.5, with the modal rating also 4. Thus, participants generally rated the intervention as acceptable or helpful to their efforts at cessation after 5 sessions. They also were highly likely, at this point, to recommend the treatment to other smokers.

In terms of participants' likelihood to recommend the intervention, 1 participant (3.6%) stated that he "definitely would not recommend" the intervention; it is important to note that this individual had recently ceased study medication treatment due to unbearable adverse events. When asked for more specific verbal feedback as to why he would not recommend the intervention to friend, he stated that the single most compelling factor in that rating was his experience with the medication. If his rating is excluded, the mean recommendation rating jumps to 3.59.

Week 9 Acceptability and Recommendation Ratings

At the end of treatment (Week 9), the mean acceptability and recommendation ratings were 3.65 for the 23 participants with data. All participants rated the intervention as "somewhat" or "very helpful", and all except 1 would "probably" or "definitely" recommend treatment. Overall, then, it appears that participants have given the intervention strong ratings of acceptability and have stated that they would be likely to recommend the M-BOI to friends.

As will be mentioned below in the Limitations section, however, the treatment drop-out rate was high. Of participants in treatment, only 28 (73.7%) continued in treatment through 5 weeks (halfway point) and only 22 (57.9%) completed the treatment. Given these numbers, it is possible that the acceptability and recommendation rates above were overestimates of the true rates for all those in treatment; individuals who dropped-out of treatment before Week 4 (halfway) might have given the intervention a lower rating for both the acceptability recommendation ratings. Thus, while acceptability and recommendation rates were high, a selection bias excluding those who were early terminators may have slightly inflated these rates. Session acceptability data (covered below) lends some support to this idea.

Session Acceptability Ratings

For the mean session-by-session acceptability (i.e., “helpfulness”) ratings, the range of means varied from 3.25 (Session 1/Week 0) to 3.75 (Session 5/Week 4). As mentioned above in the section entitled Acceptability Ratings by Session (Chapter 4, page 79), ratings rose from Session 1 to 4, fell slightly and held from Session 6 through 10. The rise in ratings from Session 1 to 5 was accompanied by a decrease in participant number, due to drop-out. The intervention acceptability rating sample size at Session 1 was 36, which fell to 20 by Session 5.

Selection bias may explain much of the rise in ratings during that period; participants who did not find the treatment as useful in their cessation efforts may have simply ceased treatment, leaving a more concentrated group of individuals who perceived benefit from the M-BOI. In all, this would result in an artificially high acceptability rating. Indeed, the true rates of acceptability and of recommendation likelihood might have been closer to 3.3 or 3.4 than 3.6. While this difference is not extremely large, it is important to note the possibility of rating inflation.

LIMITATIONS OF THE STUDY

Issues with Sample Size

Given the time and resource limitations of a dissertation research project, the primary objective of this study was to determine reasonable estimates of the effect size of the intervention, as opposed to power for predetermined effect sizes and p values. That said, many of the analyses contained small sample sizes, particularly those examining the exploratory hypotheses or attempting to divide the sample by depression status. It is possible that these smaller samples resulted in a Type II error, although most of the analyses appeared to have adequate power to allow for conclusions to be drawn. Two of the analyses, examining the change in depressive symptom rating scales (i.e., HDRS and BDI) in depressed participants receiving treatment, were not adequately powered for conclusions to

be drawn. In that case, the effect size data was emphasized as an estimate of the outcome of the intervention. Overall, though, it appears that most of the analyses had adequate power to both test for significance and to establish relatively accurate effect sizes for the intervention.

Issues with Participant Drop-out and Missed Visits

Of the 63 individuals examined, only 38 (60.3%) received some treatment and only 22 (34.9%) completed the 9 weeks of treatment. The mean number of visits attended among those who received treatment was 6.21. For treatment completers, the mean number of sessions attended was 8.18. Thus, nearly all participants missed some of the 10-session treatment. This raises the question of whether the effect of the intervention would have been greater if individuals had been more adherent to treatment. Given the nature of the intent-to-treat analyses, it is likely that the treatment effect size would have been larger if participants had attended a greater average number of sessions. Alternatively, it is possible that the poor participant adherence is a form of feedback indicating that 10 weeks of treatment is too much for the average adolescent or young adult wishing to quit smoking. Given the high recommendation and acceptability rates for the intervention, this may not be likely. Regardless, it is possible that the effect size for the intervention has been underestimated somewhat due to participant adherence problems.

Representativeness of the Participants

As the adolescent smokers in this investigation sought treatment and endorsed motivation to quit smoking, this sample may not be representative of the general population of adolescent and young adult smokers. That said, the group of smokers examined here nearly universally endorsed ambivalence about cessation, sometimes endorsing strong ambivalence. Thus, “motivated” is a relative term when it comes to the readiness of the participants to attempt abstinence. Non-motivated smokers were excluded because the logical first step of a new treatment evaluation was thought to be testing the effectiveness of the M-BOI in a motivated group of participants. If, as was the case, there was evidence of a treatment effect, the M-BOI could then be tested in a general population. Furthermore, investigations of motivational interviewing using adolescent smokers, which included non-motivated smokers (e.g., R. A. Brown et al., 2003; Colby et al., 1998; Colby et al., 2005), consistently have not found significant results or a notable treatment effect. Given the limited state of current knowledge, effective treatment(s) need to be established first in motivated smokers before investigations can tackle the more difficult problem of non-motivated smokers.

A final limitation concerning the representativeness of the participants was that the majority of individuals entering the study were Caucasian (74.6%); of the 38 individuals entering treatment, 29 (76.3%) were Caucasian. The largest non-

Caucasian ethnic group was African-Americans, with 6 (9.5%) consenting for participation and 4 (10.5%) receiving some treatment. Thus, the conclusions that can be drawn from the results primarily apply to Caucasian adolescent and young adult smokers; the sample sizes of non-Caucasian participants were too small to allow for analyses.

Lack of No Therapy Control Group

In addition to the lack of information about the M-BOI separate from the pharmacotherapy intervention (examined below), there is no data about the M-BOI compared to a control therapy condition. Many behavioral smoking cessation studies compare the active intervention to a brief advice condition (e.g., NOT or MI) or a treatment as usual control (e.g., Project EX). Such a comparison was not conducted in this dissertation study, given the resource and time limitations. That said, the lack of a therapy control group does limit the conclusions that can be drawn about the specific efficacy of the M-BOI.

No Information on Behavioral Intervention without Pharmacotherapy

By conducting this dissertation study in conjunction with the main study, all participants received either bupropion or placebo; this means that the results may not be generalizable to a study where only behavioral intervention is provided. While this may limit the applicability of the data from this study, best

practices guidelines for adult smoking cessation programs recommend concomitant behavioral and pharmacological intervention (Anderson, Jorenby, Scott, & Fiore, 2002). Indeed, medication may help in the management of depressive symptoms so that cognitive strategies that focus on the specific management of smoking-related cognitions may be more helpful than when the underlying disorder is untreated (Hitsman, Spring, Borrelli, Niaura, & Papandonatos, 2001).

At this time, the main study continues to enroll and randomize patients to double-blinded medication, contraindicating unblinding of past participants. Therefore, information about the effect of the M-BOI intervention alone, excepting the participants' ratings of treatment acceptability and recommendation likelihood, is not available at this time. Following completion of the study, data will be available to test the effect of the M-BOI intervention with and without medication. Given the limitations of a dissertation, conducting a pilot trial of a behavioral intervention for smoking cessation in 63 adolescents would have been difficult, if not impossible, without the resources of a larger RO1 investigation. While this resulted in a lack of data specific to the M-BOI intervention, the advantages of greater resources and sample sizes should not be underestimated.

SUMMARY AND CONCLUSIONS

The results of this dissertation appear to indicate that the Modified Brief Office Intervention is an acceptable tool for smoking cessation in adolescents and young adults that can aid efforts within these populations to achieve cessation. As a whole, participants who received treatment in this study were able to reduce their mean smoking level by nearly half as a result of treatment, and over 60% were able to achieve a significant (i.e., 50% or greater) reduction in smoking.

Three (7.9%) of 38 participants who received some treatment ceased smoking completely, using intent-to-treat analysis and biochemical verification; using data from each participant's last visit, 4 (10.5%) of 38 were abstinent. One of these individuals was classified as currently smoking in intent-to-treat analysis due to early drop-out from treatment. In addition, participation in treatment was associated with a significant decrease in urine cotinine levels. Participants rated M-BOI treatment as highly acceptable and stated that they were likely to recommend treatment to friends. The intervention also gave evidence of increasing the smoking-related self-efficacy of participants, which is important to both making cessation attempts and to maintaining reductions in smoking and/or abstinence.

Furthermore, participants experienced significant reductions in smoking-related withdrawal symptoms, urges to smoke, symptoms of ND and maladaptive cognitions related to unpleasant events. Finally, there were provisional

indications that M-BOI treatment was effective in helping to reduce depressive symptoms in smokers with a history of depressive disorders. All of this evidence combines to indicate that the M-BOI may be an efficacious treatment option for adolescents and young adults seeking intervention for smoking cessation; it may also indicate that the M-BOI is effective in aiding smokers with a depression history, who compose an especially difficult group to treat.

Analysis did not indicate that depression diagnosis history or baseline level of depressive symptoms interfered with the ability of participants to change their smoking behaviors. Participants also did not experience a significant change in hopelessness or maladaptive cognitions related to the self, the world, the future or pleasant events. In opposition to the findings concerning self-reported mean daily smoking level and urine cotinine, no significant changes were found in CO levels as a result of intervention.

These results must be interpreted in light of the limitations of the study, which were a high drop-out rate, problems with missed visits, small sample size for some analyses, the possibility that participants are not representative of adolescent and young adult smokers in general, and a lack of information about the effects of the M-BOI without the influence of pharmacological intervention. Particularly problematic were the high drop-out rate and potentially confounding influence of concomitant medication administration. Between-group analysis of participants based on receiving some or no treatment indicated that participants

who received treatment had a trend towards being male and older; since analysis did not indicate an effect of gender or age on treatment outcome in those who received treatment, it is unlikely that the differences between those who received some treatment and those who received no treatment impacted the findings.

The lack of information about M-BOI treatment without pharmacological intervention is more problematic, as no definitive conclusions can be drawn about M-BOI treatment due to the confounding effect of medication administration. What can be said definitively, however, is that participants found treatment to be effective and that they would recommend it to a friend; moreover, it is reasonable to assume that M-BOI treatment made a significant contribution to the results seen in this study, even if its exact contribution cannot be stated. Taken as a whole, these results indicate a need for further testing of the M-BOI to remove some of the limitations of this study and establish more definitive conclusions about its efficacy in treating adolescent and young adult smokers.

APPENDIX A
M-BOI TREATMENT MANUAL

MODIFIED BRIEF OFFICE INTERVENTION (M-BOI) TREATMENT MANUAL

**STRESS RESPONSE AND SMOKING CESSATION IN
DEPRESSED YOUTH**

**Cognitive-Behavioral Therapy Manual:
Rationale, Outline and
Individual Treatment Sessions**

M-BOI Manual completion date: June 23, 2006

Ty S. Schepis¹
Kimberly A. Warren¹
Christi A. Patten²
Uma Rao¹

¹ = University of Texas Southwestern Medical Center,
Department of Psychiatry

² = Mayo Clinic, Department of Psychiatry

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Introduction: Theoretical and Empirical Rationale of M-BOI Treatment

1. Rationale for M-BOI Development

- 1.1. Rationale for Development: The Need for Efficacious and Validated Treatments: Smoking in the adolescent and young adult population is one of the most important public health concerns in the United States today. Burt and Peterson (1998) found that only 3% of high school seniors who attempted to quit achieved abstinence from smoking beyond one year, despite well over half endorsing a strong desire to quit. Among adolescents, behavioral interventions have been the mainstay of treatment. However, these are relatively sparse; less than 70 studies have addressed cessation among youth compared with over 6,000 published reports in adults (M. C. Fiore, 2000; S. Sussman, 2002a). This problem is further compounded by the lack of theoretically-based treatments among the interventions that have been tested. In a review of the literature, Stanton and Smith (2002) noted that very few of the available studies based their intervention on an actual theoretical model, such as cognitive-behavioral therapy (CBT) or the Transtheoretical Model (i.e., Stages of Change). They also noted that many of the reviewed interventions had poor cessation rates, often below 10% (W. R. Stanton & K. M. Smith, 2002). Thus, not only have there been few evaluations of smoking cessation treatments for adolescents, but the evaluated programs have often produced disappointing results.
- 1.2. Rationale for Development: The Interaction of Smoking and Depressive Symptoms: Research has shown that there is a strong link between depression and cigarette smoking (Breslau, Peterson, Schultz, Chilcoat, & Andreski, 1998; G. C. Patton et al., 1998). Some studies have shown that depressive symptoms promote tobacco use (Choi, Patten, Gillin, Kaplan, & Pierce, 1997; Ebeling et al., 1999; Fleming, Kim, Harachi, & Catalano, 2002), while others have found that smoking is a risk factor for the development of depressive symptoms (Nancy L. Galambos, Bonnie J. Leadbeater, & Erin T. Barker, 2004; Wu & Anthony, 1999). Windle and Windle (2001) examined adolescents and found that heavy smoking and persistent depressive symptoms seemed to synergistically amplify each other. Depressed smokers, particularly those with recurrent episodes, are more likely to continue smoking (Anda et al., 1990), prematurely terminate from cessation treatment (L. Curtin, R. A. Brown, & S. D. Sales, 2000), and relapse back to smoking (B. Hitsman, B. Borrelli, D. E. McChargue, B. Spring, & R. Niaura, 2003; Kinnunen, Doherty, Militello, & Garvey, 1996). Investigations have also shown that individuals with a history of depression frequently report post-cessation depressive symptoms that interfere with continued abstinence (E. S. Burgess et al., 2002). Negative mood or affect seems to play an important role in interfering with cessation efforts even for non-depressed smokers (S. L. Kenford et al., 2002; Killen, Fortmann, Schatzberg, Hayward, & Varady, 2003).

With these research findings in mind, we modified a Brief Office Intervention (BOI) program that was specifically developed for adolescent smokers by adding mood management components and other cognitive-behavioral skills to create the Modified Brief Office Intervention (M-BOI). We believe that this intervention will aid in sustaining abstinence among individuals with a history of depression and those without a history who develop depressive withdrawal symptoms, as a significant risk for depressive symptoms exists for even those without a depression history (Hatsukami, Hughes, Pickens, & Svikis, 1984).

2. The Brief Office Intervention (BOI)

- 2.1. Introduction: The BOI was developed by the American Medical Association's Department of Adolescent Health in 1995 (Levenberg & Elsterm, 1995) to offer a concise intervention that could be used in school and health-related settings to aid in adolescent smoking cessation. It is a four-week intervention that could be used by medical staff, such as nurses. In addition to being appropriate for adolescents, the BOI is appropriate for young adults. Young adults differ significantly from middle-aged adults with respect to smoking-related concerns and motivations to change behavior. In many smoking-related aspects, they are developmentally closer to adolescents (Backinger, Fagan, Matthews, & Grana, 2003; Centers for Disease Control and Prevention, 1994a). The BOI is based on the Transtheoretical Model and uses Motivational Interviewing as an intervention technique to foster cessation. It was not developed to treat smokers with histories of depression or more difficult withdrawal symptoms, such as dysphoria, irritability or anxiety. Thus, the M-BOI adds components to the BOI for use in populations experiencing such symptoms.

- 2.2. Transtheoretical Model: The BOI is structured using the Transtheoretical Model (TTM), which classifies adolescents into one of four Stage of Change categories, depending on the adolescent's readiness to quit smoking. Precontemplators are adolescents who are not ready to quit, having endorsed no desire to do so during the initial interview. Contemplators are adolescents who believe that they will quit smoking within the next six months, but not within the next thirty days. Individuals in the Preparation Stage plan to quit within the next thirty days. Finally, individuals in the Action Stage have already quit smoking (L. P. Lamkin & T. P. Houston, 1998; Levenberg & Elster, 1995). While the overall goal of the BOI is to engender smoking abstinence, the immediate goal of the intervention is to move adolescents closer to the Action Stage. Research has shown that the TTM is applicable to adolescent smokers, and that the adolescent's current Stage of Change can be reliably ascertained (U. E. Pallonen, 1998). In addition, the Stage of Change endorsed by the adolescent has been shown to affect that individual's receptivity to and level of participation in a tobacco awareness and smoking cessation program (S. L. Stevens et al., 2003).

The TTM has been shown to be applicable to a variety of populations, including adolescent smokers (see Spencer, Pagell, Hallion, & Adams, 2002 for a review). Among adolescent smokers, findings generally mirror the distribution of stage of change among adult current smokers in the population, with 20% in the preparation stage, 50% in precontemplation, and 30% in the contemplation stage (U. E. Pallonen, 1998). In general, adolescent smokers move through the stage continuum similarly to adults. However, adolescents use the experiential/cognitive processes of change less frequently than the behavioral ones. While the validity of the stage of change model for smoking cessation is tenable (R. West, 2005), a review of the literature (Spencer, Pagell, Hallion, & Adams, 2002) found that interventions tailored to a smoker's stage were successful more often than non-tailored interventions in promoting forward stage movement.

- 2.3. Motivational Interviewing: In addition to the TTM, the BOI makes use of Motivational Interviewing (MI). MI is an intervention style that avoids confrontation in favor of empathic listening and acceptance of ambivalence. MI attempts to foster change by exploring ambivalence and developing reasons to change collaboratively (L. P. Lamkin & T. P. Houston, 1998). Miller and Rollnick (1991) outlined five principles that underlie MI. First, the therapist should express empathy for the adolescent. This is not an endorsement of the adolescent's views or behaviors, but it is acceptance of them, and thus, the adolescent. Second, the interviewer should help the adolescent highlight inconsistencies between his/her smoking and concerns about the consequences. Third, the therapist should avoid conflict with the adolescent, as this destroys rapport and engenders resistance. Fourth, the therapist should accept resistance, normalize the adolescent's concerns, and never impose views.

Finally, the therapist should work to increase the self-efficacy of the adolescent. This will give the adolescent the confidence to carry out a potentially difficult and threatening behavioral change.

- 2.4. Self-Efficacy: Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia (2001) define self-efficacy as the belief that an individual can exert control over personal problems and the external environment. Individuals with low self-efficacy will be less likely to attempt cessation because they believe that such efforts are doomed to fail. Thus, one of the goals of the BOI is to increase the participant's sense of self-efficacy. The BOI does so by prompting the therapist to reinforce any efforts the individual makes towards cessation. Self-motivational statements are also collaboratively elicited from the participant. These statements are used throughout the cessation process, and the individual is encouraged to remember and use these self-motivational statements outside of sessions. In all, the intervention aims to give the participants stable, global and internal attributional statements for successes and unstable, specific and external statements for failures in cessation, thus increasing the individual's sense of mastery over smoking-related behavioral change efforts.

3. *The M-BOI*

- 3.1. Introduction: The modified version of the BOI is very similar to the original version. As the M-BOI is adapted from the BOI, it also uses the TTM and MI to maximize progress towards cessation. The M-BOI also recognizes the importance of peer and parental influences, as was recognized in the original BOI. Such factors as peer or parental smoking, peer or parental messages about smoking, and tobacco advertising play a large role in the adolescent's smoking behavior and in whether he/she will be willing to make a quit attempt (Baker, Brandon, & Chassin, 2004a), necessitating focus on these issues. There are three major differences: it is expanded to nine weeks, it includes cognitive interventions, and it includes specific mood management components. It also expands the behavioral focus of the BOI to include cognitive strategies to increase self-efficacy and decrease dysfunctional thinking about abstinence.
- 3.2. Cognitive-Behavioral Intervention: The cognitive behavioral interventions used in the M-BOI are based on the theories of Aaron Beck (A. T. Beck, 1970; Hollon & Beck, 1985) and Albert Bandura (Bandura, 1977). According to these theories, personality and behavior result from learned behavioral repertoires and cognitions. This learning occurs primarily through conditioning and social observation. Just as behaviors and cognitions are learned, these actions and thoughts can be changed through reinforcement, modeling and critical cognitive evaluation. The M-BOI uses these theories to develop interventions to change the behaviors of smokers, evaluate their cognitions, and improve negative affect. Interventions such as relaxation

training, reward and goal setting, managing high risk situations, improving communication skills, and evaluation of the participant's beliefs about smoking and abstinence are examples of the applied cognitive-behavioral paradigm. In addition, therapists are encouraged to develop a basic cognitive profile of each participant, including automatic thoughts and interpretations of success and failure at cessation efforts, in order to intervene in a personalized way.

- 3.3. Conclusion: As mentioned above, the M-BOI aims to increase self-efficacy through MI using cognitive interventions. The MI framework is highly consistent with some key aspects of the cognitive-behavioral paradigm: the patient's goals are paramount, and progress in treatment results from collaborative efforts. Mood symptoms can be managed in an exploratory and collaborative fashion that is in harmony with the principles of MI. The M-BOI also includes specific tasks and exercises meant to increase the adolescent's sense of self-efficacy that are coherent with cognitive intervention. In the cognitive paradigm, this is done by normalizing ambivalence about cessation and lapses to smoking, reviewing the gains versus costs of cessation, highlighting past success to enhance confidence, setting small and attainable goals, avoiding interpretations of failures that arouse negative affect and encouraging interpretation of successes that center around the patient's efforts. Finally, the cognitive interventions used in the M-BOI are specifically tailored around the individual's current Stage of Change. For instance, for individuals in the Action Stage, cognitions surrounding abstinence, lapses and the patient's self-efficacy to maintain the abstinence behaviors long-term would be a primary target for intervention. In addition, mood management is essential for patients in the Action Stage, as many will experience anxiety and dysphoria. Thus, the cognitive interventions and mood management within the M-BOI are consistent with MI, self-efficacy and the TTM.

General Session Outlines for the M-BOI

1. Intervention Outline

- 1.1. Introduction: The Modified Brief Office Intervention is structured with three guiding principles in mind: acceptance of the patient, intervention tailored to the patient as an individual and a need for brief interventions. Overall, this leads to a flexible intervention where the goal of the clinician should be to adapt to the patient's needs and to respect the patient's ambivalence about cessation. Psychotherapy outcome research has repeatedly illustrated that rapport between the patient and clinician is one of the most robust predictors of treatment outcome (Horvath, 2001; Meyer et al., 2002). Specifically for substance abuse treatment, therapeutic alliance predicts treatment retention (Meier, Barrowclough, & Donmall, 2005), and one-month (Barber et al., 1999) and six-month post-intake outcomes (Tetzlaff et al., 2005). While the effect of alliance does not appear to be as strong in substance abuse treatment, it is still an important factor. Thus, two of the *prima facie* duties of the clinician are to treat each patient as a unique individual and to create a supportive environment for treatment. This is achieved by careful and empathic listening to the patient's concerns, past treatment history, individual withdrawal symptoms, and high risk situations that promote smoking; it is also achieved by working collaboratively with the patient to formulate an individualized and realistic treatment regimen.

Clinicians are encouraged to use the information given by a patient to emphasize certain aspects of treatment and reemphasize previously learned skills, if those skills seem particularly important to the patient's cessation efforts. Furthermore, it is possible to use material from later sessions if the skills to be taught in a session are less important to the patient's current needs than material from a future session. For instance, if a patient is experiencing a high degree of anxiety-related withdrawal symptoms, teaching diaphragmatic deep breathing or other relaxation techniques earlier in the intervention is good clinical care. That said, clinicians should not vary from the established session order without a clear reason that is in the patient's best interest.

Additionally, the sessions of the M-BOI are intended to be short in duration: following the baseline visit, each session should last no more than 20 to 25 minutes. The baseline session can last from 30 to 45 minutes, depending on the needs of the patient. In order to achieve this goal, the clinician must keep the session focused on the smoking behavior and specific goals for that session. The session length is a guideline, however; if a patient has experienced significant difficulty with cessation (such as a lapse or relapse to smoking) or significant psychosocial stress, the session can go longer to accommodate the patient's need to talk and/or be supported.

- 1.2. Session Outlines: The sections that follow will concentrate on the individual sessions, so a thorough examination of each treatment session will be saved for later. Each appointment consists of two parts: the BOI components and the added didactic material that includes cognitive-behavioral components such as mood management, relaxation techniques, reward-setting, communications skills and examination of cognitions. The combination of the BOI intervention components with the added didactic material composes the M-BOI.

The baseline portion of the BOI will capture information on the patient's smoking history, social and familial influences on smoking, risk posed by common trigger situations, self-efficacy and stage of change. This is one of the most important portions of the entire intervention, as the information gathered will inform the clinician throughout subsequent sessions. The BOI portion of the first session often takes 20 to 25 minutes. The didactic portion of the session composes the rest of the time, usually 10 to 20 minutes.

Other sessions are split into a 10-minute BOI portion and a 10 to 15 minute didactic module, which consists of teaching a skill and/or addressing cognitions. At the beginning of these sessions, 2 to 3 minutes should be devoted to a brief review of the previous session and to reinforcing progress with homework and progress towards abstinence. In the final minutes of each session, the clinician should have the patient review the new skill and its application. Finally, a smoking goal should be set and homework should be assigned, along with problem solving to enhance the patient's self-efficacy to complete homework. When homework is set, the therapist should problem-solve any potential barriers to completion with the patient. The therapist should start by having the patient rate his/her likelihood (on a scale of 10) of using the skill/completing the homework. If the patient offers a rating under 10, it is important to collect reasons why the patient rated his/her likelihood below a 10 (barriers to completion). A simple question can often capture the relevant barriers:

“What do you think will get in the way of you trying this on your own? How can we get that number to a 10?”

The therapist should then aid the patient in problem-solving around barriers to completion. If the barriers are significant and/or do not seem amenable to problem-solving, the therapist can modify the homework and/or find other ways or times to complete the same homework. If the patient continues citing barriers, it is important to gently ascertain whether the patient has understood and internalized the rationale for the homework. This can be touched on by asking a question such as:

“I wonder if you think this will be useful – are you having some doubts about doing (homework/skill to be practiced)?”

In asking the question, it is important to encourage the listing of concerns through non-verbal signals (e.g., calm voice, nodding as the patient lists concerns). If the patient feels his or her concerns about the skill are truly accepted, then he/she will be more likely to work with the therapist to resolve those concerns or to attempt the homework regardless of doubts. Please note that while it is important to capture the likelihood of homework completion and to problem-solve barriers at the end of each didactic session, it is especially important for behavioral skills where it is difficult to determine compliance outside of the patient's report (as opposed to skills where he/she returns with completed worksheets).

The M-BOI sessions are briefly outlined below:

M-BOI Session Outline

Session No.	BOI	Didactic (Cognitive/Mood) Components
Session 1 (baseline)	Baseline Assessment	Cognitive-behavioral chain; relationship between mood and smoking
Session 2	Regular Session	Reemphasis of cognitive-behavioral chain; emotional withdrawal and coping; eliciting automatic negative thoughts (ANTs) related to cessation
Session 3	Regular Session	Reevaluation of coping with emotional withdrawal; evaluation of ANTs related to cessation
Session 4	Regular Session	Reward-setting: rationale and application; evaluation of high-risk situations; continued work on ANTs
Session 5	Regular Session	Enjoyable activities: rationale and application; coping with high-risk situations; continued work on ANTs
Session 6	Regular Session	Relaxation: diaphragmatic deep breathing; importance of managing tension; continued work on enjoyable activity-setting
Session 7	Regular Session	Relaxation: progressive muscle relaxation; continued work on ANTs
Session 8	Regular Session	Relaxation: passive muscle relaxation; continued work on ANTs and high-risk situations
Session 9	Regular Session	Communication skills: rationale, didactics and application; review of relaxation techniques
Session 10	Regular Session	Reemphasis of communication skill- application; review of all skills; anticipation of and problem-solving for future high-risk situations (e.g., moving, beginning or ending school)

M-BOI Session 1: BOI Baseline Screener, Cognitive-Behavioral Education and Mood Management

Goals of the Session:

1. Establish rapport with the patient.
2. Complete the BOI Baseline Screener with the patient.
3. Conduct psychoeducation on the cognitive-behavioral chain, using smoking as the resultant behavior.
4. Emphasize relationship between mood and smoking to patient.

Materials and Preparation Needed Prior to Session:

1. BOI Baseline Screener packet
2. M-BOI session outline
3. Cognitive-behavioral chain worksheet
4. Patient's chart
5. Pen or pencil for patient

1. Patient Introduction to the MBOI

- 1.1. Greeting: In all likelihood, this will be your first time to meet the patient who you will be treating over 10 sessions. As mentioned in the introduction to this manual, one of the strongest predictors of patient improvement and satisfaction with treatment is rapport. The BOI Baseline Screener has a patient greeting at the top of the first page, but therapists are encouraged to develop a greeting that is comfortable for them. Also, therapists are advised to take more time casually talking with the patient than is given in the BOI greeting. It is likely that the patient will be somewhat nervous before the first session; use some time to naturally converse with the patient, which will likely set him/her at ease.
- 1.2. Introduction to Treatment: The first paragraph of the BOI Baseline Screener is not germane to the expanded M-BOI intervention, so therapists should ignore this. Instead, begin by introducing the structure and purpose of the treatment to the patient. The therapist should also emphasize that treatment is collaborative and that this first session will involve more talking by the therapist than is usual. It is important to establish that the patient will be doing more of the talking in the future. A suggested introduction is:

“Well, we will have more opportunities to chat later, so let’s get started. Today will be the first of ten sessions we have together to work on your

smoking. Usually, our sessions will last 15 to 20 minutes, but today is a longer session because I need to get some information from you about your smoking. That way, we will know how best to proceed with the treatment. I know that you have filled out a lot of forms already, and probably answered most of these questions, but getting the answers from you directly will help me understand your smoking and how we can best treat it. I'll be writing a lot of stuff down and will keep us moving so we aren't here too long. If you have any questions or think of something you forgot to say earlier, please interrupt and let me know – what is most important is that you get a chance to answer everything fully and to let me know about you. I also want to emphasize that this is a collaborative process, that we will be working together to find ways to help you quit smoking. Today, I have more talking to do than usual – in the future, you'll be doing a lot of the talking. Does this all make sense?"

2. BOI Baseline Screener

- 2.1. General notes: The information gathered in this baseline screener is very important, and it will be used to inform treatment throughout the intervention. Many of the questions are self-explanatory and will not be covered further in this section; only important questions or ones where confusion regularly arises will be explained further.
- 2.2. Social Influence Questions: This section covers three major topics: social influences relevant to smoking, quit attempts and past experience with withdrawal symptoms.
 - 2.2.1. Questions 4-7: The importance of both individuals who smoke as well as non-smoking individuals in the smoker's world is likely obvious, but it will be restated here. Smokers who are significant figures in the patient's life (e.g., roommates, parents, significant others, close friends) are often a source of temptation to smoke, making abstinence more difficult. Non-smokers can be a source of social support and can aid in holding the smoker accountable to his/her goals. In either case, it is important to obtain information on individuals living with the patient and important individuals in the patient's life. Part of this information must include whether or not the person is a non-smoker and (possibly at a later time) whether that individual is amenable to aiding the smokers quit attempt in an active way.
 - 2.2.2. Questions 8 and 9: These questions cover previous quit attempts and withdrawal symptoms experienced by the patient. Question 8 is significant particularly when the individual endorses abstinence lasting for two weeks or more. In such cases, the reason for relapse to smoking is extremely important; often, these individuals are more psychologically than physiologically addicted, and relapse is as great an

eventual concern as is initial abstinence. Question 9 covers withdrawal symptoms and is important because previous withdrawal symptoms will most likely recur when the patient makes his/her quit attempt. Problem-solving around these symptoms prior to the quit attempt is good clinical care and should always be done by the therapist.

- 2.3. Self-Efficacy: As mentioned in the introduction, self-efficacy is a crucial variable for behavioral change. Another way to conceive of self-efficacy in action (and a way that will likely be more understandable to patients) is to talk about high- and low-risk situations. High-risk situations are equivalent to situations where the patient has low self-efficacy to resist smoking. Low-risk situations are the converse. The nine questions in this section ask about common situations where smokers use cigarettes. It is crucial that the therapist make note of situations where the patient has low self-efficacy (score of 1 or 2); these are high-risk situations that must be problem-solved at a later time.

Only one of the nine questions poses a problem for therapists – question 4. Often, therapists will substitute “drink” for “soda pop”, which implicitly makes the question about smoking while consuming alcoholic beverages. This not only changes the meaning of the question, but it makes it a very similar question to question number 7. Patients often infer that alcoholic beverages are present at the party in question 7. Please only substitute other colloquial terms for soft drinks (e.g., Coke, cola) if “soda pop” is not comfortable.

- 2.4. Psychological Factors: There are two questions that ask about the patient’s mood over the past month and the influence of his/her mood on smoking. For the purposes of the M-BOI and good clinical care, these questions are not enough to form the basis for mood management interventions. Therapists are advised to refer back to questions 1, 3, 6 and 8 from the Self-Efficacy section and to probe further for information about the influence of mood on the patient’s smoking behavior. Later modules of the intervention will address the association of mood states and smoking further.
- 2.5. Stage of Change: Where the individual patient lies along the Stage of Change continuum will be assessed at every visit. It is important to capture this information, as it will guide the interventions made by the therapist. While the ultimate goal of the M-BOI is to aid the patient in making a quit attempt, the more immediate goal is to help individuals move closer to the Action Stage. For some people, abstinence is not a realistic current goal, as they are not ready to quit. If individuals move closer to Action by the end of the intervention, the treatment has been successful. These patients will be more likely to attempt cessation at a later date. As will be discussed later, assessing Stage of Change does not need to be done in the same way at each session. For now, though, ask the question as outlined in the BOI Baseline Screener.

- 2.5.1. Precontemplation: Few individuals will present for cessation treatment in the Precontemplation Stage (i.e., individuals who do not plan to make a quit attempt in the next 6 months). If someone does present in this stage, it is acceptable to contrast this with the fact that the individual has appeared at a smoking cessation clinic/research trial by saying:

“Okay, I’m a little confused. Help me understand how you aren’t feeling ready to quit in the next six months, but you came to a smoking cessation clinic [or research study]. Do you see how that might seem inconsistent? Can you help me understand where you are coming from?”

Often, these individuals are either actually in the Contemplation Stage (i.e., planning to quit between the next 6 months and thirty days), or they could be highly ambivalent about quitting or nervous about abstinence for a variety of reasons (e.g., fear of failure, concern about the difficulty). If the individual is very ambivalent, proceed by using the sheet to collect ten reasons why the patient likes to smoke and ten reasons why he/she does not. If the individual is more nervous about cessation, table the discussion for later in the session by saying:

“It sounds like you are really concerned about quitting because of [patient’s reason]. That is really important, and it is something that I want to talk about a little later in today’s session. Is it okay if we hold off on talking about this for a few minutes?”

- 2.5.2. Contemplation: While it might initially seem paradoxical, many individuals will present for cessation treatment in the Contemplation Stage. Therapists may assume that individuals who present for treatment are all unambivalent about cessation. This is not the case. Many people who present for treatment still enjoy aspects of smoking, and these individuals are often highly ambivalent about cessation. This is not meant to impugn their motivation, which is often strong. Instead, it speaks to the addictive power of nicotine and to the fact that all smokers perceive some benefit(s) from smoking. Up to half of individuals will present in the Contemplation Stage of Change.

If an individual presents in the Contemplation Stage, the therapist should proceed by introducing the worksheet with 10 reasons why the individual likes to smoke and 10 for why he/she does not like to smoke. While the BOI Baseline Screener does not require individuals in the Contemplation Stage to complete the worksheet on 10 reasons why he/she wants to quit, we have found this to be helpful in many patients in the Contemplation Stage. The use of the worksheet is recommended,

unless the patient is more than 3 months away from a quit date. In such cases, the worksheet can be used at a later time, if the individual moves closer to cessation.

- 2.5.3. Preparation: Individuals in the Preparation Stage indicate a commitment to cessation within the next thirty days. Usually, these persons will comprise 30-40% of the sample presenting for cessation. With these individuals, it is important to avoid ignoring the ambivalence that they often feel about cessation. As stated above, smokers perceive some reward(s) from smoking and are often loathe to give those perceived reward(s) up. It must also be stated that the boundaries between Contemplation and Preparation are somewhat arbitrary. It is possible that an individual who plans a quit attempt in six weeks (Contemplation) would indicate a higher level of motivation to abstain than an individual planning to quit in four weeks (Preparation). Thus, assessing the patient's motivation, in addition to assessing Stage of Change, is essential. When presented with an individual in the Preparation Stage, the therapist should proceed with the worksheet covering 10 reasons the patient wants to quit. We have also found that the worksheet covering reasons the patient likes to smoke and does not like to smoke can be helpful, but only in individuals who are not planning to quit in the next two weeks. For these people, the worksheet on reasons why they like and do not like to smoke can confuse the situation.
- 2.5.4. Action: Patients who present in the Action Stage (i.e., achieved abstinence for at least 24 hours) are somewhat uncommon. That said, individuals who are in the process of attempting cessation will come to the clinic, especially if they believe that maintaining that cessation will be difficult. If patients present in the Action Stage, the focus immediately shifts to relapse prevention. With these patients, referring back to the earlier high-risk situations for problem solving is crucial. The first session withdrawal and mood management module is also important. Use of the worksheet covering reasons the patient likes and does not like to smoke is contraindicated. Instead, doing the worksheet on 10 reasons to quit should be done quickly, as the focus is on reinforcing abstinence.
- 2.6. Worksheet: "Reasons Why I Like to Smoke/Reasons Why I Don't Like to Smoke": Please refer to the sections covering the patient's Stage of Change as to whether this worksheet is indicated for use. If it is used, therapists are encouraged to keep a copy of the worksheet for future reference. While it is possible to complete the worksheet in session, it is often better to brainstorm two or three reasons for each list with the patient and assign completion of the list as homework.

For each list of ten reasons, it is important to emphasize two things. One, the patient should be specific on each list. Most individuals will write broad, general reasons (e.g., health concerns) instead of specific ones (e.g., throat hurts, cough is getting worse, scared of cancer). By encouraging specificity, both the therapist and patient have a better idea of the motivational influences involved in the patient's smoking. Two, emphasize that coming up with ten reasons on each list is encouraged, but not necessary. Patients may or may not be able to complete either or both lists. Emphasize that the key points are to think about each concept and be honest, not to get to ten reasons. The purpose of this worksheet is to get the patient to address some of his/her ambivalence about smoking and its consequences; if the exercise becomes more about quantity than quality, the point is lost. A suggested introduction to this worksheet is as follows:

“What I want us to do now is look at this worksheet on reasons why you like to smoke and don't like to smoke. This is important because it helps us establish some of the good things you get out of smoking – after all, you don't smoke to get all the negative stuff, right? Once we know that, we can begin to work on replacing those good things. This sheet also helps us know why you do not like to smoke, which can be really useful when your motivation is being tested by a craving or by withdrawal symptoms. You can look at the sheet and be reminded of the reasons you wanted to quit in the first place. One last thing, make sure to be very specific when you fill this out. Don't just say you don't like smoking because it is “bad for you”. Say what is bad about it more specifically, like that it's bad for your lungs or that it causes cancer. And, although there are ten spaces here, that's just a guideline. If you can't get ten, that is fine. Let's do two or three together, and I'll have you do the rest later. Is that okay?”

Even smokers who are committed to quitting endorse positive aspects about smoking, and these positive aspects are obstacles to cessation if they are not addressed. Reasons for continued smoking often include mood-related reasons (e.g., “it helps me relax”), social reasons (e.g., “many of my friends smoke”), and reasons related to habit or boredom (e.g., “it gives me something to do when I wait). The therapist will not necessarily address any of these in the first session.

The list of reasons why the individual does not like to smoke should be used by the therapist and the patient to bolster that individual's motivation to achieve abstinence. These reasons can be used in sessions throughout the intervention to remind patients of self-endorsed negative aspects of smoking. Patients should be encouraged to keep this list with themselves at all times and read the list regularly to foster increased motivation to abstain. This is especially key for individuals who maintain ambivalence about cessation. More specific

interventions using this worksheet will be addressed in the chapter for Session 2.

- 2.7. Worksheet: “Reasons Why I Want to Quit”: The general guidelines for this worksheet are the same as those of the worksheet above: patients are encouraged to be specific and honest. Also, completing as many items as possible is ideal, but completion of all ten is not necessary. The purpose of this worksheet is to find specific reasons that the patient wants to achieve cessation. These reasons can be used to either encourage cessation or maintenance of current abstinence. Therapists should refer to the Stage of Change explanations above to determine if the worksheet is applicable for an individual patient. Completion of this worksheet in the session probably is not possible due to time constraints. Instead, two or three reasons should be established in session and completion should be assigned for homework.

Therapists are encouraged to retain a copy of this worksheet to allow them to regularly refer back to these reasons with the patient. The therapist should also encourage the patient to carry this list at all times and to refer to it on a daily basis. It is important to note the general classes of reasons that the individual endorses as motivating his/her cessation attempt. Often, these will include health-related reasons (e.g., concern about cancer), social reasons (e.g., a significant other dislikes smoking), and economic reasons (e.g., the cost of cigarettes). Individuals under 18 years of age may also endorse a fear of legal consequences. While it is important to note the endorsed reasons, it is more important to note whether or not the individual did not include a reason for cessation from one of the categories, especially the social category. If this is the case, it is often true that these patients have social circles that primarily include smokers. The temptation that accompanies this social situation must be problem solved early in the intervention. More specific interventions using this worksheet will be addressed in the chapter for Session 2.

- 2.8. Worksheet: “Personal Plan”: This worksheet captures information about reward-setting, quit date and appointment and contact information for the next session. This can be a useful sheet for individuals close to quitting. For patients who are more than three weeks away from making a quit attempt, it is not useful. Individuals in Precontemplation or Contemplation often feel pressured by this worksheet, as it is very cessation focused. Thus, the sheet, and the concept of reward-setting can be tabled until a later session. Session 4 of the intervention covers reward-setting. For persons who are closer to cessation (Action or Preparation Stages), this sheet is useful. In such cases, therapists are recommended to use five minutes of the session on reward-setting and the use of this sheet. Also, therapists are referred to the chapter covering Session 4, as reward-setting is outlined there.

3. Didactic Module: The Cognitive-Behavioral Chain, Withdrawal and Mood Management

- 3.1. Overview: Before starting with the didactic material, therapists should address any outstanding concerns or questions left over from the BOI Baseline Screener (e.g., patients who are especially nervous about cessation). There are two major goals to the didactic portion of the session. The first is to tie mood and smoking together for the patient. The second is to teach the cognitive-behavioral model to the patient and to use the model to illustrate the relationship between mood state and smoking behavior. It is important for the therapist to be mindful of time at this point in the session. The goal is to keep the initial session under 45 minutes in total duration. If the session is running long, it is best to check-in with the patient and get his/her consent to go over time. Ideally, therapists should allow 15 minutes to cover the didactic material.
- 3.2. The Cognitive-Behavioral Model: Many textbooks and journal articles have been devoted to the cognitive model and its application to a host of disorders. As the M-BOI is a brief intervention, and as other resources exist, this manual will only include a basic explanation of the cognitive model. Therapists interested in a more thorough account of the cognitive model are referred to books by Aaron Beck and collaborators (1993) and Judith Beck (1995).

Simply put, cognitive theory holds that there are three aspects to each individual's personality: thoughts, emotions and behaviors. These three parts interact and influence each other reciprocally. As a smoking-related example: a patient finds out that he/she failed a test and thinks "I'll never pass this class". That thought leads to feelings of anxiety and sadness, and these feelings lead to another thought, "Smoking usually calms me down. I'll have a cigarette." The resultant behavior is smoking. Any number of examples can be devised to illustrate the cognitive model for various smoking- or abstinence-related situations. The cognitive model also covers positive events that lead to smoking. Often, smokers will have a cigarette following a meal because they perceive it to be a pleasant experience. The thoughts associated might be, "I'm done with my meal, and a cigarette has always been good after a meal". This leads to smoking, and often, to feelings of satisfaction.

- 3.3. Linking Mood and Smoking: It is the job of the therapist to illustrate the relationship between mood and smoking. This should be done using examples generated by the patient, if possible. The therapist can begin this discussion by illustrating the link between smoking and mood. One way to start this exploration is suggested below:

"Have you ever thought about why you smoke or why it is so hard to stop smoking?"

If the patient gives at least one mood-related answer, the therapist can say:

“I noticed that you said you continue smoking to [deal with stress, pick you up when you feel down]. I bet that you wouldn’t be too surprised that research has shown that smoking helps to deal with low moods, and that is a common reason that people continue to smoke.”

If the patient does not identify a mood-related answer, the therapist can use an example from the self-efficacy section of the BOI Baseline Screener, if the individual identified a mood-related situation as high-risk, or say:

“Research has shown that people often smoke to manage moods, to deal with feelings. Is that surprising to you? Can you think of an example of when you have done that?”

The therapist (in either case) can continue by saying:

“People regularly smoke when they feel stressed, unhappy, angry or nervous [use patient-relevant mood states, if possible] – often, it helps to deal with the moods a little. Eventually, people learn that smoking helps some with negative moods, so they light a cigarette whenever they feel bad. This learning is like any learning, though, in that it can be unlearned. If we don’t find a different way for you to deal with those bad moods other than smoking, do you think that we’ll be very successful? No, we won’t. Our job is to help you unlearn smoking when you are in a bad mood by giving you other ways to cope with those moods. That will be one part of what we do in our sessions each week. Does that make sense?”

It is important that the therapist emphasize the relationship between smoking and stress, which is a particularly insidious cue for smoking in most individuals. It is important to reemphasize that using tobacco to cope with stress is a learned behavior that can be unlearned and replaced with other, healthier learned coping strategies.

- 3.4. Teaching the Cognitive Model: In teaching the cognitive model to patients, it is important not to get bogged down in the theoretical details. Instead, use the behavioral chain worksheet with the patient as a concrete tool to illustrate the cognitive model. One way to start teaching the model is to say:

“Now that we have established that your mood and smoking are related, let’s talk about your thoughts. You may not be aware of it, but you always have a thought that comes between feeling bad and smoking. Learning to cope with bad moods by smoking almost always results in not thinking anymore. It becomes automatic, and so do the thoughts that come in between. If we talk about it, though, we can rediscover those thoughts.”

At this point, it is best to refer to the behavioral chain worksheet to demonstrate the cognitive model in action. The therapist could continue by saying:

“This sheet shows what we have been talking about. There are four things on here: the trigger (or event), the thought, the feeling and the behavior, which is smoking. The trigger is the event that leads to feelings, like stress or anger. As we just talked about, the thought comes between the trigger and the feeling. The combination of the thought and the feeling lead to a behavior. In here, we will focus on smoking as the behavior. Does this make sense so far? Okay, can you think of a stressful situation that would lead you to smoke? Let’s write it down on this sheet and go through it.”

From there, the therapist and patient should work collaboratively to fill out at least two examples of mood-related smoking. It is especially important to work together in uncovering the thoughts that intervene between mood and smoking. Simple questions, such as “What were you thinking right after [trigger] happened?” will suffice. If the patient insists that he/she cannot remember thoughts, ask what the patient would think if he/she was in that situation now. Once you have developed two or three examples (as time allows), ask the patient to come up with three more examples before coming back for the next session.

4. Review, Goal Setting, and Conclusion

- 4.1. Review: At this point, the didactic portion of the session is finished. It is important to let the patient know that you will have them help you review the session, beginning with the next session. In this session, model the review for the patient by talking about the material learned in the didactic portion of the session. This should be a brief overview that lasts between 30 seconds and one minute. In addition to a review of the didactic section, therapists should review assigned homework with the patient. Finally, it is important that the therapist asks the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal Setting: One of the final tasks is to collaboratively set a smoking-related goal to be achieved by the next session. For individuals in the Action Stage, the goal is maintenance of abstinence. For individuals who are not ready to quit, the goal is a reduction in smoking. While this should be collaborative, encourage the patient to cut back by 20% or more. The therapist should stress two things about cutting back: one, this is a goal to be met by the next session, so the patient can step down progressively over the intervening week; and two, that this goal for reduction is an “experiment”. If the patient is not able to meet the goal, then that information will be taken into account and another solution

will be sought. Emphasize that no matter how well adolescent meets the goal, the most important thing is to keep coming back to the sessions. Assign the patient a daily cigarette tracking sheet to aid in reduction. This way, the patient can follow his/her progress, and both the therapist and patient will have a tool to evaluate the course of smoking reduction.

- 4.3. Feedback: In addition to a review, therapists should tell patients that they will be asked for feedback at the end of each session. It is important to obtain verbal feedback from the patient in addition to any written feedback that the patient is expected to give. It is often wise to introduce feedback as an opportunity to discover what was helpful and not helpful in the session. Therapists should ensure that the patient does not feel uncomfortable about giving feedback by making the process very matter-of-fact and by not taking any negative feedback personally. It is also important to be responsive to the patient's wishes, as this will aid in the maintenance of rapport.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring back to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should complete the remainder of the assigned worksheets (e.g., Reasons I Like to Smoke worksheet, etc.).
2. The patient should complete the assigned behavioral chain worksheet.
3. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 2: BOI Session, Emotional Withdrawal and Coping, Cessation-Related Automatic Negative Thoughts

Goals of the Session:

1. Continue rapport building with the patient.
2. Complete the BOI Session with the patient.
3. Cover didactic material on emotional withdrawal.
4. Review the cognitive-behavioral chain, using emotional withdrawal examples.
5. Elicit one or two emotional withdrawal-related ANTs and evaluate the ANTs (as time allows).

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Cognitive-behavioral chain worksheet
4. Patient's chart
5. Pen or pencil for patient

1. Session Introduction

- 1.1. Greeting: It is helpful to begin the session with a minute of small talk unrelated to smoking. This continues rapport building and emphasizes to the patient that the therapist is concerned about him/her in a personal sense.
- 1.2. Session Introduction: At this point, the topic of conversation should shift to smoking-related issues for the remainder of the session. The therapist can introduce this transition by asking an open-ended smoking-related question such as:

“So, how did your smoking go this week?”

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. It is important to reinforce the adolescent for his/her attendance today, irrespective of his/her progress with smoking related goals.

2. Stage of Change

- 2.1. Assessing Stage of Change: Generally, ascertaining the patient's stage of change is a straightforward process; individuals who endorse one particular stage generally should be taken at face value, and the session can proceed. Individuals who endorse being in the Action stage may need follow-up questions to ensure that the therapist understands the individual's readiness to quit smoking. The way that the Action stage choice is worded in the BOI materials ("I'm in the process of quitting") can lead to a misunderstanding if the patient believes that the process of quitting includes reduction. The individual is in the Action stage only if he/she has gone at least 24 hours without a cigarette. Often, the therapist will need to ask a follow-up question such as:

"Have you quit? This answer choice actually means that you have gone a day or more without smoking."

Thus, it is recommended that therapists change the wording of the Action stage criterion from "I'm in the process of quitting" to "I have quit smoking", as this is closer to the meaning of Action. This will also ensure that the patient is clear about when choosing the Action phase is appropriate.

- 2.2. Stage of Change Movement: Hopefully during treatment, the individual will move from one stage to another closer to cessation; unfortunately, sometimes the converse occurs and an individual will move further from cessation. In any case, when the patient endorses a different stage of change than in the previous session it should be briefly explored. This can be achieved by observing that the individual has endorsed a different stage and asking if there was anything specific that prompted the change. For individuals who move forward, cognitions related to increased self-efficacy often will be a major contributing factor. Therapists should support these cognitions and the associated positive behavioral changes by making motivational statements of praise.

For individuals who regress, difficult experiences with reduction and/or cessation can be a prompting factor. For these individuals, exploration of the cognitions that involve negative self statements (self-doubt) or hopelessness is key. These cognitions often involve distortions (addressed in this chapter, Section 4.1.2) and should be evaluated rationally. In addition, the cognitions can be addressed using other techniques such as listing the evidence for and against such a belief or asking the patient what he/she would tell a close friend in a similar situation. This work is crucial to preventing hopelessness and lowered self-efficacy from becoming entrenched in the patient. Thus, therapists should not be concerned if the evaluation of these negative cognitions takes five to ten minutes; the time will be well-spent. Other factors that may decrease readiness include socio-environmental situations such as a

smoking parent who left cigarettes in an accessible place at home. These should be explored as well.

3. BOI Session

- 3.1. BOI Modules: Once the individual's stage of change has been determined, the rest of the BOI session will follow from the endorsed stage. Each set of BOI session materials contains one page for each stage. The bolded note at the bottom of the first page (where stage of change was addressed) should be reiterated here: it is likely that therapists will not have the time to address each point or ask each question with the patient. Therapists are advised to tailor this portion of the session to the patient's needs and cover the most important points within the BOI materials.

From here, the rest of this section on the BOI session will be split into sections for each stage of change and the associated BOI worksheet. Please also note that this will be the only occasion within the manual in which the regular BOI session will be addressed. Therapists are referred to this section for instruction on employing the BOI material in future sessions.

- 3.2. Precontemplation: Individuals in the Precontemplation stage, as mentioned above, are somewhat rare in smoking cessation clinics and treatment studies. It should be noted that the BOI was developed for medical and school health clinic/office settings where the smoker might appear seeking help with medical issues unrelated to smoking. Such clinics were more likely to encounter Precontemplators than services devoted especially to smoking cessation. That said, individuals do appear in cessation-specific settings who do not plan to quit smoking in the next six months. Occasionally, these individuals are interested in quitting at some point in the future; occasionally, they are interested in reducing smoking without quitting. Therefore, it is important to assess more specific aspects of each individual's readiness to quit within the Precontemplation stage.
- 3.2.1. BOI Intervention Goal: The stated goal of the intervention on the BOI worksheet is to "Help the adolescent think about stopping tobacco use". The therapist should assess the willingness of the patient to reduce smoking while not committing to a specific cessation goal as well. At some point within the entire session, the patient should be asked if he/she is willing to cut back on smoking. This can be framed as an "experiment" to assess the patient's problems with reducing smoking. It must be stressed to the patient, however, that if he/she does not cut back, it is not a failure, but information for the "experiment" that will be used in future planning.

3.2.2. Objectives for Intervention: The BOI lists two objectives for the intervention:

- Increase rapport
- Aid teen in identifying the pros and cons of smoking, emphasizing that the decision to change or not to change is his/hers

These are important objectives, and the second one, in particular, stresses an important point. Within the MI framework, patients should not be pressured to reduce and/or cease smoking. It is important at every point in the intervention that the patient not feel coerced or bullied into any behavior change; all patients should receive overt assurances that this will not happen from the therapist. Again, one point should be added to the objectives:

- Assess the individual's willingness to cut back on smoking, while assuring the patient that this is an "experiment" that does not necessarily have anything to do with cessation.

3.2.3. Provider Questions/Statements: The BOI lists four questions or statements for the provider to choose from during the BOI portion of the session. The first is a statement that assures the patient that the therapist is not here to lecture or browbeat him/her into behavior change. Therapists are recommended to say this (or a close paraphrase) to the patient at the first session and two or three other times during the course of the whole intervention.

The second point is a question asking the patient to list the pros and cons of smoking. The therapist should have a worksheet ready for this question that lists the pros and cons and allows the patient to assign a number value (1-10) for how strong or weak of an influence that point is. The therapist can then total up the values for the pro and con side and compare them. When the con side has more reasons and/or value (after assigning points), this can be used to explore the patient's attitude towards smoking and re-explore the patient's readiness to change behavior. The third point is a reevaluation of the patient's readiness to change his/her smoking behaviors, and should be asked as a follow-up question to point two.

PLEASE NOTE: Assigning and comparing total scores is advised only for therapists who have experience with cognitive-behavioral therapy. Patients at this stage often have many pros for smoking and few cons that they consciously think about. Thus, the therapist must help the patient find valid reasons not to smoke (e.g., cost of smoking, current smoking-related health problems, social stigma). Novice therapists

often struggle with this skill, leaving them with a patient who is conscious of more reasons to continue smoking, even after careful evaluation. While this result could be handled by a skillful therapist, novice therapists often become anxious and do not know how to reframe this result adequately. Thus, therapists should not score the pros and cons related to smoking without having more experience with the use of the cognitive model. However, if the number of reasons to continue to smoke seems to outweigh the reasons to quit, the therapist could point out that the adolescent was still willing to try to stop smoking by signing up for this program (and/or by showing up at today's session) and seek clarification from the adolescent, asking "Why is that?"

The final point (point 4) of the precontemplation worksheet praises the individual for continuing to attend sessions despite not having current interest in quitting. It is important for the therapist to praise these individuals for continued attendance without causing discomfort. As the intervention progresses (e.g., session 5), it may be important to begin to explore why the patient continues to come to cessation-focused sessions despite no significant change in willingness to cease smoking. Finding out why the patient continues to come (i.e., what that individual obtains from coming to the sessions) can help inform the clinician when choosing interventions. Exploring why the patient persists with the intervention is only indicated after four or five consistent appearances at sessions; earlier exploration may be premature and counterproductive.

- 3.3. Contemplation: The Contemplation stage covers a very wide range of individuals, from those who are not ready to quit until 6 months later to those who will be ready to quit in the next 5 to 6 weeks. Thus, it is difficult to intervene in the same fashion with all individuals in the Contemplation stage. It is important to use the patient's stated time frame for quitting as a beginning point in forming a treatment plan. It is possible to have an individual with a distant quit date who appears to have adequately resolved his/her ambivalence about cessation; the converse is also possible. In individuals where their stated quit date and motivation/ambivalence level do not match, it is important to urge exploration of the mismatch in a nonjudgmental way. Often this can be introduced by appearing confused (which, the therapist likely is):

Okay, I'm a little confused here. You told me earlier that you are not ready to quit for another four months, but in talking to you it sounds like you are really aware of the negatives of smoking – like you are really motivated to quit. What am I missing? It seems a little mismatched – does that make sense?

From there, it is important to see what reasons appear to be preventing the patient from setting an earlier quit date. Again, the converse (closer quit date with strong ambivalence and/or many fears about quitting) should be explored in this way as well.

3.3.1. BOI Intervention Goal: The stated goal of the Contemplation intervention is to “Help adolescent to decide to stop using tobacco in the near future”. This can be an important goal for individuals who are closer to the Preparation Stage, but for many individuals in the Contemplation stage, this simply is not a realistic goal. A better goal might be to “Help the adolescent explore his/her ambivalence about smoking, and help the adolescent attempt to reduce his/her smoking level”. For many individuals in this stage, the positive aspects of smoking are strong enough that they are not ready to quit in the near future. Thus, identifying and exploring the negative aspects of smoking is important, as is gently urging a reduction in smoking. The purpose of the reduction in smoking is two-fold: one, by smoking less, the individual may reduce his/her health risk (a worthy goal in itself); and two, the individual may develop increased self-efficacy about his/her ability to control smoking. This can be used later as evidence for the individual’s ability to resist and eventually quit smoking.

3.3.2. Objectives for Intervention: The BOI lists two objectives for the intervention:

- Resolve ambivalence about quitting smoking
- Elicit motivational self-statements

For individuals who endorse being more than two months away from cessation, the key is to continue exploring the individual’s ambivalence about continuing to smoke versus quitting. For individuals closer to the Preparation stage (i.e., under two months away from cessation), the session can begin to shift away from exploration of ambivalence to more specific problem-solving and preparation for cessation. For these individuals, beginning to talk about high-risk situations and coping is especially useful. Please note that shifting away from ambivalence to problem-solving is only indicated in individuals who have resolved much of their stated ambivalence about smoking (i.e., individuals who endorse a strong commitment to cessation but are delaying cessation due to concerns about self-efficacy, withdrawal, etc.). Also note that moving away from exploring ambivalence as a primary goal does not equal ignoring ambivalence; if any ambivalence exists, it is best to explore it and normalize it (as many smokers experience ambivalence about cessation).

It is also important to help the adolescent develop motivational self-statements to increase his/her self-efficacy to refrain from smoking. Motivational self-statements are statements that the patient creates to increase his/her self-efficacy during reduction or quit attempts. Often, these statements appear in the course the session, so the therapist must be aware of when such a statement is made. The purpose of these statements is to give the individual a cognitive reminder that he/she is capable of cessation. If the therapist needs to elicit self-motivational statements, the following questions often are helpful:

- *Have you ever quit smoking before?*
(if yes, use that as evidence of the individual's ability to do so again)
(if no, ask the following):
- *Have you ever cut back on smoking before?*
(if yes, use that as evidence of the individual's ability to do so again)
(if no, ask some of the following):
- *Have you ever stopped drinking or using other drugs?*
(if yes, use that as evidence of the individual's ability to do so with a different drug – nicotine)
- *Have you ever achieved a difficult goal? What was it?*
(if yes, this is evidence that the individual might be likely to achieve another difficult goal – cessation).
- *Have you ever been able to wait to get something you wanted?*
- *Have you ever given up something for Lent? Were you successful?*
- *Have you ever taken part in Ramadan? (if patient is Muslim)*
(if yes to any of the final 3, this is evidence that the individual can likely cut back on smoking by delaying that gratification, which he/she has shown he/she can do successfully).

These questions can then give the therapist material to craft statements for the patient to use to bolster motivation to cut back on or quit smoking. A concrete example of such a statement would be, "I have cut back before, so I bet I can do it again" or "I was able to wait all of Lent for chocolate; I know I can wait another hour for a cigarette."

It is important to note that there are also motivational self-statements that are not related to self-efficacy. These statements generally revolve around the concerns the patient has about smoking, such as the social stigma or health costs. Motivational self-statements such as these can include:

- "I want to quit because I do not want to get cancer like my father (or other important family member or friend)."

- “I hate the smell of smoke on my clothes, so it will be great when that is gone.”
- “My boyfriend (girlfriend/partner/spouse) will be so much happier when I quit – and I want him/her to be proud of me.”

Finally, it is important to explore/gently urge cutting back on the number of cigarettes smoked with the patient. Again, framing this as an “experiment” can be helpful (see Section 3.2.1).

3.3.3. Provider Questions/Statements: The BOI lists three useful questions that cover motivation and can help the provider understand which important factors are propelling the patient towards cessation and which factors are impeding progress towards cessation. The first question asks the individual to rate his/her motivation to quit smoking on a scale of 1 to 10. The therapist should be alert to extremes given by the patient. If the individual is in the Contemplation Stage, he/she should likely be between a 3 and 8 on the 10-point scale in terms of motivation. For individuals who score higher (e.g., 9 or 10), exploration of why that individual is not closer to setting a quit date should occur. For individuals who score lower (e.g., below 3), exploration of what concerns that individual has about quitting is warranted. The next two questions are meant to elicit reasons to quit (Question 2) and ways to combat concerns the patient currently has about cessation (Question 3). In some cases, it may be warranted to have an additional question between these two that asks about why the individual picked his/her number and not a 10. This can aid with identifying the concerns to be addressed in question three. In addition, the three questions can be used to address reduction in smoking instead of cessation. This is recommended as an addition in most cases, the exception being in an individual who is highly resistant to making any changes in his/her smoking behavior.

3.4. Preparation: Individuals in the Preparation stage are generally more homogeneous than those in the Contemplation stage, in as much as they are generally less ambivalent about cessation and have begun the mental process of transitioning to quit efforts. Thus, it is important for the patient to begin/continue four things: examination of high-risk situations, the mental process of preparing for cessation, increasing self-efficacy and setting an official quit date. Occasionally, individuals who endorse being in the Preparation stage will be closer in intent and motivation to individuals in the Contemplation stage. These individuals will still harbor significant ambivalence and may be endorsing cessation within the next thirty days because of real or imagined external pressures. The key is to treat individuals primarily using what they report in the session, including their endorsed stage

of change. Again, it is important for the clinician to explore/gently urge the patient for a reduction in the number of cigarettes.

3.4.1. BOI Intervention Goal: The stated goal of the intervention on the BOI worksheet is to “Help adolescent set a quit date”. For all individuals in the Preparation stage, it is important to explore setting a specific quit date, and actually setting one if possible. This is an important goal, but one that is not always achievable within the session. Some individuals will continue to endorse being “about four (or three) weeks away” from quitting for a number of weeks in a row. Again, therapists should be aware that the individual’s endorsed stage of change is the primary (but not only) aspect determining the intervention(s) to be used. In such cases, it is likely best to treat these individuals as if they endorsed being in the Contemplation stage for the purposes of creating motivational self-statements and resolving ambivalence; that said, it is still necessary to aid the individual in problem-solving for their quit attempt and to otherwise treat the individual like any other in the Preparation stage.

3.4.2. Objectives for Intervention: The BOI lists three objectives for the intervention:

- Help adolescent overcome barriers to quitting
- Support and empower the adolescent by reflecting his/her strengths
- Set a quit date and discuss follow-up plan

One way to help the patient move towards cessation is to use the questions about motivation that were used in the Contemplation section, particularly questions 1 and 3. If the patient has been in the Contemplation Stage for a number of weeks prior to this one, changing the questions is likely in order. Other ways to assess the barriers to quitting for the patient are the following:

“What are you most concerned about when you think of quitting?”
(Basically Question 1 from Statements/Questions section)

“What seems to be getting in the way right now when you think about giving up cigarettes?”

“When you think about quitting, what is the first thing that comes to mind? Is it a concern?”

These questions can help you identify the barriers around which problem-solving must occur prior to a quit attempt. Often, these concerns tie into the patient’s acknowledged high-risk situations. Thus, another way to problem-solve impediments to quitting is to focus on the

high-risk situations elicited in the BOI Baseline Screener. You can introduce this by saying:

“Remember when we first met and we talked about those common situations in which smokers are tempted to light up? It sounded like it was hardest for you to resist smoking when (you are angry, you are bored, etc), remember? Can we talk more about that, because I think it will be important to address that before you try to quit.”

At that point, it is important to ask more follow-up questions about the specifics of the situation and concerns about the situation that the individual has. Therapists should try to avoid assuming that they “know” what is difficult about a specific situation. This is especially difficult for therapists who are former smokers, as they may assume that their experiences are generalizable. Indeed, this may be the case. Almost always, though, there will be at least subtle differences between the situations. If the therapist assumes that he/she fully understands the aspects of a patient’s high-risk situation, there is a significant risk that the problem-solving employed will not be fully effective.

Once the therapist feels comfortable with his/her understanding of the high-risk situation, it is important to collaboratively create solutions to combat the temptation inherent in the high-risk situation. The therapist can propose a behavioral solution to the problem; while therapists are encouraged to create an inventive solution with patients, some examples are listed below:

- Restrict cigarette supply (via leaving cigarettes at home; only taking a set number of cigarettes, etc.)
- Place cigarettes in a harder place to obtain them (leave cigarettes in car)
- Make cigarettes harder to use (by wrapping them in aluminum foil)
- Practicing relaxation techniques (in place of smoking)
- Substitute an enjoyable non-smoking activity (movies instead of a bar; exercise instead of sitting at home and smoking)
- Avoid high-risk situations (usually a solution of last resort)

Cognitive solutions are also available and should be used as well. These are particularly effective when the patient endorses emotionally-laden situations as the highest risk for smoking behaviors. The therapist should elicit the automatic thought concerning smoking in these situations and work with the patient to create a rational and realistic counter-thought to the dysfunctional thought (either about smoking or the emotional situation propelling smoking behavior). A motivational self-statement might suffice in this situation, given with

specificity to the situation at hand. This material will be covered in more detail in Section 4.

- 3.4.3. Provider Questions/Statements: The provider questions and statements pertain to the material covered in the previous section (3.4.2), so therapists are referred to that section for questions one through three. These questions cover high-risk situations and coping techniques to use in those situations. The final point is statement four, which deals with devising a quit date and strategy for quitting. Again, it should be stressed that this is a collaborative process and that therapists should not push setting a quit date on patients. Attempting to pressure a patient into setting a quit date has a significant risk of backfiring, leaving rapport damaged. Thus, it is recommended that this statement be made into a question, as follows:

“It seems like you’ve thought about this a lot and done a lot of work on smoking, and it sounds like you have planned some great ways to avoid smoking. Are you ready to set a quit date?”

If the patient says no, explore this with the patient, attempting to uncover the fears or other impediments that interfere with the patient’s ability to set a quit date. If the patient has stated wanting to set a quit date within the next two weeks, but is unwilling to set a specific date, gentle confrontation about this inconsistency is recommended. Again, a good technique is to claim confusion and ask the patient to resolve the inconsistency. Once the topic has been explored, with any impediments covered and any problems solved, the therapist should attempt to set a quit date with the patient again.

- 3.5. Action: Individuals in the Action stage have achieved abstinence for at least one day, so the session focus shifts to preventing a return to smoking. The therapist may need to address ambivalence about continued abstinence (e.g., “I don’t know if I can keep dealing with my dad without smoking”), but generally this will be a minor part of the session, if it is present. Relapse prevention includes exploring the past week for situations when maintaining cessation was problematic and planning for future high-risk situations. Finally, relapse prevention includes prophylactic work on differentiating between lapses and relapses.

- 3.5.1. BOI Intervention Goal: The stated goal of the intervention on the BOI worksheet is to “Help adolescent maintain abstinence and prevent relapse”. This is the only goal that the therapist should have in dealing with individuals who have achieved cessation. As such, it is important that the therapist keeps the session focused on situations involving craving for cigarettes that have occurred during the cessation period and

which may occur during the next week of planned cessation. Finally, past experiences with cessation can be useful to help uncover previous barriers to maintaining cessation; it is reasonable to assume that these barriers will present a problem during this cessation attempt (albeit often in a somewhat different form, which must be talked about with the patient).

3.5.2. Objectives for Intervention: The BOI lists three objectives for the intervention:

- Identify high-risk situations to prevent relapse
- Identify benefits from quitting smoking
- Provide support to the teen to maintain abstinence or help him/her recover from slips.

Questions one and two of the Provider Questions/Statements section deal with the first objective, namely to identify high-risk situations. These questions deal with times when it is “more difficult to stick with it” and withdrawal symptoms. As mentioned in Section 3.5.1, it is important to examine the recent cessation period for times of lowered self-efficacy to resist cigarettes and/or increased cravings. These can serve as a basis for discussion with the adolescent. However, do not assume that the high-risk situations encountered during cessation will be the same as the ones previously endorsed in the BOI Baseline Screener or the same as ones experienced in previous cessation attempts. While this is a logical assumption, the specifics of the situations are important and often differ from hypothetical or past experiences. It is also important to identify withdrawal symptoms, since situations or times when withdrawal symptoms are experienced are *a priori* high-risk situations. Thus, it is important for therapists to be familiar with common cessation-related withdrawal symptoms, if the patient needs to be cued for experienced symptoms.

Once the high-risk situations and withdrawal symptoms are identified, problem-solving around these situations is warranted. As this topic has been covered in Section 3.4.2, therapists are referred again to that section for a review of problem-solving. In terms of brainstorming benefits of not smoking (Question 3), it is often difficult for patients to verbalize the benefits of cessation after only a few days. This may be due to the fact that patients are often focused on the health changes that occur post-cessation, and these can take weeks or months to become more obvious. Thus, the therapist needs to aid the individual in developing a list of

benefits. In addition, continued therapist reinforcement and praise is key. Some potential benefits are as follows:

- Having more money:
 - It is often helpful to give patients a specific amount of money saved, (e.g., for a 1 pack per day smoker, purchasing a pack costing \$3.20, the one-week savings are \$22.40).
- Health benefits:
 - Even if the patient cannot identify them, stress that their blood pressure is returning to healthier levels, their heart and lungs are repairing and that they can probably physically exert themselves more strenuously than before they quit.
 - Emphasize that every minute they avoid smoking is another minute that they lessen their risks for more serious smoking-related consequences (e.g., cancer, emphysema, COPD).
- Social benefits:
 - Often, smokers who quit receive some praise, however small, from significant others in their lives. It is important to highlight such praise or any other social rewards.
- Personal benefits:
 - Explore whether or not the patient is proud of his or her efforts (and his or her feelings about being a non-smoker). If not, explore this, as the patient has reason to be proud of quitting.
 - Brainstorm other benefits, such as smelling better or starting to have whiter teeth (as tobacco leaves yellow stains on the teeth).

These benefits can be framed as self-motivational statements and added to the list of ones for the patient to use in high-risk situations. For instance, a self-motivational statement around saving money that would have been spent on cigarettes could be, “I am saving enough for a new pair of nice jeans every month that I don’t smoke” or “I can use the money I save by not smoking to go to the movies this weekend”.

Finally, it is important for the therapist and patient to form a contingency plan around a potential smoking lapse, and for the therapist to spend time differentiating a lapse from relapse. Generally, this is done best through patient education, with the therapist doing most of the talking. The following is suggested:

“We need to talk about one more thing – what happens if you have a cigarette. Sometimes that might seem like the end of the world or that you are a failure because you have had one cigarette. But, it is important to think about it just like that: you have only had one cigarette. Does that mean that you are a smoker again? No, not if you can hold your smoking to one or even a few cigarettes. That is what we call a lapse. It’s different from a relapse in that you smoke two or three cigarettes before really catching yourself and stopping again. A lapse isn’t a problem, but a relapse is. One thing that can turn a lapse into a relapse is beating yourself up about smoking because you start to feel worse and think things like, ‘Well, I might as well start up again since I failed.’ Do you think you can say instead, ‘Oops, I goofed. That’s okay, though, because I am going to stop again. It was just a lapse, and those aren’t really a big deal’? Even if you do start smoking again, the most important thing is that you keep coming back so we can talk about it and try new ways to fight smoking. The worst case is giving up – especially because it can take smokers a few quit attempts to finally fully quit. So, no matter what, can we agree not to give up?”

- 3.5.3. Provider Questions/Statements: As questions 1 through 3 have been covered above in Section 3.5.2, therapists are referred there for further explication. For the final question, “What would help you stay on track with this?”, therapists are recommended to ask for any other concerns that the patient might have that have not been adequately covered. The question as listed in the BOI is often too vague for patients. A better question might be:

“Are there any other concerns you have about with staying away from cigarettes that we haven’t talked about? Any other tough times? Are there any skills that you think could help you remain abstinent?”

At that point, if any other problems or concerns arise, the therapist should problem-solve them with the patient.

4. Didactic Module: Emotional Withdrawal and Coping

- 4.1. Emotional Withdrawal: The focus of the didactic session is on emotional withdrawal symptoms (e.g., irritability, sadness, boredom) that the patient may have experienced in past reduction or quit attempts or may presently be experiencing. If both past and current symptoms are present, it is important to prioritize the current symptoms. In addition, it may have been observed that this didactic material overlaps with portions of the BOI intervention concerning those in either the Preparation or Action stages. In cases where the

patient is in either the Preparation or Action stage, therapists are encouraged to interweave the didactic portions of the session into the BOI material, instead of pointedly separating the two sets of material. For individuals in either the Precontemplation or Contemplation stages, it is likely that the didactic material will have to be discussed following the BOI material.

Emotional withdrawal symptoms are withdrawal symptoms whose primary focus is emotional, as opposed to physical (e.g., headaches or disrupted sleep) or cognitive interpretations of withdrawal (e.g., thoughts that “I can’t keep away from cigarettes – I have to have one.”). It is important to note that cognitive aspects of withdrawal often derive from emotional aspects, such as irritability leading to the thought above, as an example. Such chains of emotional withdrawal symptoms leading to cognitive expressions are important to uncover, as they are more remediable than the emotional symptoms themselves.

- 4.1.1. Identifying Emotional Withdrawal Symptoms: The first step in the didactic portion of the session is to identify the emotional symptoms that individuals have when reducing or quitting smoking. If there has not been an opportunity to explore the patient’s unique withdrawal symptoms, this is a good time to do so by saying:

“Have you ever quit or cut back on smoking before? Did you notice any changes in how you felt, any withdrawal symptoms?”

Have the patient list all of his/her withdrawal symptoms, separating physical and emotional withdrawal symptoms (cognitive interpretations will often have to be uncovered intentionally by the therapist and patient). If the patient has already listed his/her withdrawal symptoms, have the patient briefly review them. If the patient denies symptoms or states that he/she cannot remember them, the therapist will need to ask about the major withdrawal symptoms one by one, particularly emphasizing dysphoric emotional states. Once symptoms are identified, it is important to pick one or two (depending on time) of the most important emotional withdrawal symptoms. Ask the patient to pick either the most common or most bothersome emotional withdrawal state to problem-solve around. Once an emotion has been identified, cognitive evaluation can begin.

- 4.1.2. Identifying and Evaluating the Cognitive Correlates of Emotional Withdrawal: Cognitive-behavioral theory states that changing negative emotions is much more difficult than changing the cognitions that underlie or relate to emotional states. The first step in remediating the cognitions associated with emotional withdrawal is to identify one or two of the most salient thoughts. A suggested way to start with the

patient is to say (using irritability as an example of an emotional withdrawal symptom):

“This may not be easy, but I want us to get at what you were thinking when you felt irritable last time you quit (or cut back). Try to think back to when you were trying to quit last – what was going on in your life?”

Once the patient remembers the circumstances of his/her life at that time, the therapist can continue by saying:

“Ok, now that you remember all of that, put yourself back in that last quit attempt, and add in that irritability. How bad was feeling irritable? Do you remember what it was like? So, what did you think about when you were feeling irritable?”

If the patient cannot remember specific thoughts, it is recommended that the therapist ask the patient to act as if he/she was experiencing that emotional withdrawal problem currently. Ask what he/she would think now if he/she was to experience the dysphoric state. The therapist can also ask the patient about the last time he/she felt irritable (whether or not it involved smoking).

Once the therapist has obtained the relevant thoughts, it is important to find one or two that can be treated through the cognitive model. The easiest way to remediate cognitions is to look for what are known as thinking errors, or more technically, cognitive distortions. These are maladaptive ways of thinking that are often erroneous, and thus, can be rationally evaluated and changed. The following ten are a list of the most common cognitive distortions, modified for smoking and adapted from Burns (1989):

- **All-or-Nothing Thinking:** This is the tendency to see things categorically, in either/or terms. An example is, “If I smoke even one cigarette after quitting, I have totally relapsed”.
- **Overgeneralization:** This is a tendency to see one negative event as emblematic of nearly all past and future events. An example is, “I struggled today to meet my smoking goal; I’ll probably struggle from now on.”
- **Mental Filter:** This is a filter that blocks out most positive events from the individual’s awareness. The example is an individual who appears only able to remember disappointing smoking-related events, despite having a history of successes over smoking.

- **Disqualifying the Positive:** This is a tendency to minimize genuinely positive events by devising qualifiers or limitations on how positive the event is. An example is, “I haven’t had a cigarette in two days, but that’s no big deal because I have been really busy. I haven’t had time to think about it.”
- **Jumping to Conclusions:** This is the tendency to make a negative interpretation without enough evidence to support the conclusion. An example is, “I have never tried quitting before, so I will probably fail.”
- **Mind-Reading:** This is where the patient concludes without concrete evidence that another person is reacting negatively to the patient. This is not usually a major cessation-related problem, but an example could be, “My friends think I am not cool now that I am trying to quit smoking.”
- **Fortune-Telling:** This refers to predicting future events negatively in the absence of evidence (or in the face of contrary evidence). An example is, “I know that I will not be able to go to the party and not smoke.”
- **Magnification (Catastrophizing) or Minimization:** This is the tendency to magnify negative events (similar to the Mental Filter) and to minimize positives (similar to Disqualifying the Positive). The most pertinent example is the tendency to make a lapse or missed smoking goal a catastrophe. This leads to disappointment and anger at one’s self, often leading to more smoking.
- **Emotional Reasoning:** This refers to the assumption that an emotional state conveys a reality. Often this is a problem with sensitivity to anxiety; for smoking cessation, an example could be, “I feel anxious, so I am.” Generally, this is a problem if the patient’s primary mode of coping with anxiety is by smoking.
- **Shoulds and Musts:** Shoulds and musts are categorical statements that back the smoker into a corner and induce guilt and dysphoria when the goals are not realized. An example is, “I should be able to quit with no bumps”. Given that many smokers require many attempts and/or experience difficulties in cessation attempts, this is unrealistic and maladaptive.
- **Labeling and Mislabeling:** This is the tendency of the patient to describe an error by attaching a label to him/herself instead of

labeling it as a temporary mistake. An example is when an individual says he/she is a smoker again following a small lapse or when an individual says he/she is a “loser” following cessation-related struggles.

- **Personalization:** This is an important distortion, because it plays into the attributions that patients make about events in their lives. Personalization is using internal, stable and/or global explanations for negative events, especially when there is no evidence to indicate such an explanation. It is important to give patients external, unstable (i.e., temporary) and specific (i.e., limited) explanations for negative events, and internal, stable (i.e., permanent) and global (i.e., all encompassing) explanations for positive events. One example is attributing strong withdrawal symptoms to a permanent (stable) weakness within one’s self (internal) for all difficult events (global). A better, and more realistic, explanation is that this is a temporary (unstable) result due to cessation (external) that only concerns a reaction to smoking (specific).

Working against thinking errors can often be accomplished by asking the patient what he/she would say to a friend who voiced such a thought. In addition, it is often important to stress the error when repeating the thought back to the patient. For instance, emphasize “shoulds” or “musts” when repeating and ask why something should or must occur. It is important, though, to normalize the cognitive distortions by stressing that many people make such errors under stress. That said, it is important to not normalize the error itself. Other cognitive techniques will be explored more fully in later chapters.

5. Review, Goal Setting, and Conclusion

- 5.1. Review: At this point, the didactic portion of the session is finished. As the patient has seen the therapist summarize the session, have the patient review the material. Attempt to keep the overview brief, lasting between 30 seconds and one minute. Therapists should be ready to cue the patient on important aspects of the session and then allow the patient to summarize, once reminded. In addition to a review of the didactic section, therapists should review the assigned homework with the patient. Finally, it is important for the therapist to ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 5.2. Goal-Setting: One of the final tasks is to collaboratively set a smoking goal to be achieved by the next session. For individuals in the Action stage, the goal is maintenance of abstinence. For those who have set a quit date in the next

week, the goal is to achieve cessation on that date and to maintain abstinence until the next session. For individuals who are not ready to quit, the goal is a reduction in smoking. While this should be collaborative, encourage the patient to cut back by 20% or more. The therapist should stress two things about cutting back: one, this is a goal to be met by the next session, so the patient can step down progressively over the intervening week; and two, that this goal for reduction is an “experiment”. If the patient is not able to meet the goal, then that information will be taken into account and another solution will be sought. Assign the patient a daily cigarette tracking sheet to aid reduction. This way, the patient can follow his/her progress, and both the therapist and patient will have a tool to evaluate the course of the reduction.

- 5.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. It is often wise to remind patients that feedback is an opportunity to discover what was helpful and not helpful in the session and from the therapist. Therapists should ensure that the patient does not feel uncomfortable about giving feedback by making the process very matter-of-fact and by not taking any negative feedback personally. If the patient is reluctant to give feedback or responds in a vague or impressionistic way, the therapist should become more specific in asking for feedback. It is often helpful to ask questions about specific parts of the intervention or if the patient thinks that he/she would benefit from focusing on aspects of cessation that have not been focused on to this point. Once feedback is obtained, it is important to make notes of any ways that the patient requested changes in format or presentation; honoring the patient’s wishes aids in maintaining and strengthening rapport and strengthens the patient’s resolve to enact behavioral change.
- 5.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist’s contact information and a list of the pertinent materials to bring back to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should complete a behavioral chain worksheet with three emotional withdrawal-specific examples.
2. Have the patient evaluate thinking for evidence of smoking-related “shoulds” or “musts”.
3. For patients who understood distortions well or who showed evidence of strong presence of one distortion other than “shoulds” or “musts”, have patient track use of a specific distortion.
4. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 3: BOI Session, Reevaluation of Coping with Emotional Withdrawal, Evaluation of Automatic Negative Thoughts Related to Cessation

Goals of the Session:

1. Continue building rapport with the patient.
2. Complete the BOI Session with the patient.
3. Evaluate patient's withdrawal symptoms and coping, emphasizing emotional withdrawal.
4. Briefly review material on cognitive distortions from Session 2.
5. Evaluate one or two ANTs related to cessation using cognitive techniques.

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Cognitive-behavioral chain worksheet
4. Patient's chart
5. Pen or pencil for patient

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. This solidifies the rapport building that has occurred up to this point and helps the patient feel at ease before discussing what is often a frustrating topic, the individual's smoking.
- 1.2. Session Introduction: After spending a minute or two in conversation, the therapist should shift the conversation to cessation-related topics; this can be done by asking an open-ended smoking-related probe such as:

"Tell me how your smoking has been over the past week."

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Review of Emotional Withdrawal and ANTs Related to Smoking Cessation

- 3.1. Review of Homework (Behavioral Chain Worksheet and Emotional Withdrawal): It is important to start the didactic portion of each session with a review of the assigned homework. This achieves two purposes: one, it lets the patient know that his or her efforts on the homework are important and will be used in treatment; and two, it is valuable material for the therapist to use developing a treatment plan with the patient for this and future sessions. The therapist should introduce this by stating that he/she would like to see what the patient did in the past week on the homework, which (for this session) was a behavioral chain worksheet and tracking one or two cognitive distortions. If the patient did not fully complete the homework, it is important to immediately address this by problem-solving. The therapist can say:

“So, you were not able to finish the behavioral chain for this week, right? What do you think made it hard to complete the worksheet – what got in the way?”

It is important for the therapist to walk the fine line between condoning and condemning the behavior. Neither is useful. Condoning non-adherence to homework by passively not addressing the subject or by stating that it is not a problem simply reinforces non-adherence. This makes it less likely that the patient will complete the homework in the future. On the other hand, being punitive or condemning about the failure to complete homework will damage rapport and make homework less likely to be completed. Thus, it is important for the therapist to keep affective reactions to a minimum and treat the situation simply as one to be problem-solved. If possible, it is also advisable to restate the rationale for homework in general, and to restate the specific rationale for this assignment.

Following restatement of the rationale for homework, it is important to problem-solve the situation of non-adherence. Using the information that the patient provided about the reasons for not completing homework, it is important to create solutions to the presented problems. Some common problems and solutions are as follows:

- Completion of homework, but failure to bring to session
 - Solution: place homework under car keys or wallet/purse to avoid leaving home without assignment.
- Did not understand homework
 - Solution: be more deliberate and concrete in explaining the purpose and directions for homework.
 - Solution: help the patient complete a small portion of the homework in session so that the patient understands directions.
- Did not see purpose of homework
 - Solution: reintroduce rationale for homework and be more deliberate in explaining the rationale for future homework.
 - Solution: ask the patient to restate rationale for each homework exercise during the review portion of the session.
 - Solution: have the therapist assist the patient in coming up with a personalized reason for how the assigned homework may help him/her.
- Misplaced homework following session
 - Solution: have the patient put the homework in a highly visible place (e.g., on refrigerator) immediately after returning home from the session.
- Patient forgot to complete
 - Solution: in addition to having the patient place the homework in a highly visible place, have the patient complete the homework at a specific time each day.
 - Solution: put the homework task on a calendar/schedule.
 - Solution: restate the rationale for homework, as this situation is regularly a more polite way for the patient to express misunderstanding of the need for homework.

If the patient did complete at least a portion of the homework, review the results with the patient in the session. If there were any unexpected results to the homework, reiterate them to the patient and explore them (often by asking if the result was surprising to the patient). Often, the results of the homework can be combined with didactic reviews and new didactic material. Where possible, working material from the homework into the didactic lessons is

recommended to the therapist. As such, incorporating the homework review into the didactic portion of the session will be covered in Section 3.2 of this session.

- 3.2. Review of Emotional Withdrawal and Cognitive Distortions: The therapist should begin this part of the session by stating that he/she wants to review emotional withdrawal and cognitive distortions with the patient. First, the therapist should ask the patient to define the concepts and/or give personal examples of emotional withdrawal and cognitive distortions, taking time to focus on each concept. It is important in each case for the therapist to review each of the specific emotional withdrawal symptoms and cognitive distortions found for each patient and to ask if the patient noticed or is concerned about experiencing (if patient has not yet set a stop date) any new emotional withdrawal symptoms or unexpected cognitive distortions in the past week.

For patients who completed at least a portion of the homework, the therapist should use the examples from the behavioral chain (which should relate to emotional withdrawal) to review emotional withdrawal. If the patient noted any cognitive distortions, either in the homework or in self-report, the therapist should use those examples to review cognitive distortions. In the case of cognitive distortions, the patient should review the list of common cognitive distortions with the therapist. In reviewing cases of coping with emotional withdrawal or cognitive distortions, it is important for the therapist to begin working with the patient to rationally evaluate the cognitions that arose. Often, these cognitions will be distorted in some ways that allow for intervention. A sample of such interventions is provided in the next section.

- 3.3. Evaluating the Cognitive Correlates of Emotional Withdrawal or Cessation: The following cognitive interventions are adapted from Leahy and Holland (2000). The interventions listed are not meant to be exhaustive, and therapists with experience using cognitive therapy are encouraged to use other interventions as needed.

- Evidence for and against a Belief:
 - This intervention involves having patients list the evidence for and against a particular belief that the individual holds. Therapists should have the patient brainstorm reasons to retain and reject a belief; once reasons are collected, have the patient rate the importance of each reason (from 1-10) and keep the most important reasons from each group, usually up to 3 reasons. It is the therapist's job to help the patient devise evidence in support of self-efficacy for behavioral change or against continued smoking, as patients may emphasize evidence tied to lowered self-efficacy or in support of smoking. Additionally, the therapist must not allow the patient to give reasons against behavior change that are

unrealistic or involve cognitive distortions. Generally, if the belief is truly a distortion or supported by a distortion, therapists will be able to collaboratively work with the patient to find evidence for self-efficacy or against the need to continue smoking. (Please see page 19, Session 2, Section 3.2.3 for an important note on this subject.)

- Double Standards:
 - Often, patients hold themselves to a double standard (compared to others) when it comes to self-efficacy or behavioral change. Regularly, individuals will create perfectionistic standards for themselves that they would not create for others; another example is excessive self-punishment for failure to reach a goal while tending to forgive others for reasonable failures. Therapists should point this out to patients, asking:

“Would you apply the same standard to another person? Why (or why not)? Is that a fair standard?”

- Aiding a Friend/Defense Attorney:
 - This attacks the same underlying problem as seen in the Double Standards Section in a different fashion. Here, the therapist should role-play a situation where he/she is a friend of the patient in a similar situation captured in the Double Standard. The therapist should ask (as an example):

“Okay, so you are telling yourself that you are a failure for not meeting your smoking goal. Would you say that to a friend? Let’s act it out – I’ll be your friend and you be yourself. Let’s play it out and see what happens.”

Almost invariably, the patient will be less punitive and more encouraging of the friend than of him/herself. The therapist should point this out to the patient and reevaluate the his/her original self-doubting or self-punitive statement in light of the new statement. An alternative to this is to have the patient play “defense attorney” and defend him/herself as strongly as possible. It is important to state that the patient may not truly believe the defense, but it is still the patient’s goal to be as thorough and convincing as possible. Once the individual is done, see if the arguments sway the patient’s view of the situation. If not, explore the ways in which the defense was not convincing, emphasizing the most realistic and important defenses.

- Testing Predictions:

- In cases where patients commit to a reasonable smoking-related goal while making a negative prediction about their future ability to achieve the goal, it is important to have the patient make a testable prediction. In cases where the prediction seems distorted and/or unreasonably doubtful about the patient's ability to enact change, have the patient track the outcome for discussion at the next session. It is important to help the patient devise motivational self-statements and coping techniques to increase the likelihood of success. If the therapist only had the patient track the outcome without intervening to increase the chance of a positive outcome (which disproves the prediction), there is a strong chance that the patient's prediction would be realized. This would only damage the patient's self-efficacy for taking future steps towards abstinence. Thus, some sort of intervention is indicated to increase the likelihood that the patient will achieve or make reasonable progress toward the goal.
- Brainstorming Alternate Interpretations:
 - This technique is useful when a patient is making attributions for a past failure or disappointment. If a patient is making an unrealistic or overly self-punishing attribution (often, these are stable, internal and/or global attributions), the therapist needs to offer alternative explanations that are external to the patient and point to specific and unstable causes. An example is reframing a patient's struggles to cope with withdrawal symptoms:

The goal is to take an attribution from:

"I am a failure at this, like I have been the past three times I tried to quit."

to:

"I didn't reach my goal this time but there were some things going on that made it harder, like having a stressful week and friends who smoke around me. That doesn't mean that I am a failure; it just means that I need to work at finding different ways to cope. And, if I look back, having high stress and friends who offered me cigarettes contributed to the times I struggled to cut back (or stop) in the past."

- Evaluating Predictions as "Self-Fulfilling Prophecies":
 - Regularly, patients with poor past cessation experiences will see these as indicative of all future experiences with attempted abstinence. While this belief can be evaluated in a number of

different ways (e.g., evidence for and against, framing as a “fortune-telling” cognitive distortion), it is also important to suggest that such a belief could serve as a self-fulfilling prophecy, making abstinence harder to achieve. It is important to explore the influence of attitudes on outcomes with the patient and to help him/her frame the previous experiences in a better light.

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the evaluation of one or two of the patient’s cognitions related to emotional withdrawal or smoking cessation, the therapist should shift to a review of the session. At this point in treatment, the patient will likely be able to complete the review by him/herself, so have him/her review the material. This overview should be no more than one minute. Therapists should be ready to provide cues to the individual to remind the patient about the crucial aspects of the session. It is important to avoid reviewing material for the patient, however; therapists should provide clues (cues) about the important aspects of the session and only move to summarize if the patient still appears lost. Therapists should have the patient review his or her assigned homework as well. Finally, it is important for the therapist to ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: One of the final tasks is to collaboratively set a smoking goal to be achieved by the time the patient returns for the next treatment session. Individuals who have achieved abstinence should be encouraged to set a goal of continued cessation. For those who have set a quit date in the next week, the goal is to achieve cessation on that date and to maintain abstinence until the next session. For individuals who are not ready to quit, the goal is a reduction in smoking. While this should be collaborative, encourage the patient to cut back by 20% or more. The therapist should continue to stress that cutting back is a goal to be met by the next session and that this goal for reduction is an “experiment”. (Failure to achieve the goal is not a catastrophe. Indeed, the patient may have significant psychosocial stressors in the next week that would be likely to interfere with achievement of the goal.) To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further discussion of this topic, therapists are referred back to Session 2, Section 5.3 (page 30).
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist’s contact information and a list of the

pertinent materials to bring back to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should complete a behavioral chain worksheet using three events where the patient was highly tempted to smoke (regardless of outcome).
2. Have the patient continue to evaluate thinking for smoking-related “shoulds” or “musts”.
3. Have the patient select a specific cognitive distortion to track, particularly in the behavioral chain (best choices are usually Magnification/Catastrophizing, Discounting the Positive and Fortune-Telling).
4. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 4: BOI Session, Reward-setting, High-Risk Situations, Continued Evaluation of Cessation-Related ANTs

Goals of the Session:

1. Complete the BOI session with the patient.
2. Cover didactic material on reward-setting.
3. Capture and problem-solve high-risk situations.
4. Continue to evaluate automatic negative thoughts (ANTs).

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Reward-setting worksheet
4. Problem-solving worksheet
5. Behavioral Chain worksheet
6. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

“Well, let’s get down to business. How was this week for you in terms of smoking?”

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review (ANTs and Distortions), Reward-setting and High-Risk Situations

- 3.1. Review of Homework (Behavioral Chain Worksheet and Emotional Withdrawal): Given that there are two important topics to cover for the first time today (reward-setting and high-risk situations), it is important to only briefly examine the patient's homework. Therapists should devote around 4 minutes to reviewing the patient's behavioral chain for evidence of distortions and to reviewing how he/she coped with the situation. It is particularly important to ask the patient for the relevant counter-thoughts that he/she used to cope. If none were used, it is important to continue teaching the patient how to rationally evaluate thoughts, emphasizing the techniques used in the previous week. If the patient used counter-thoughts, it is important to praise the patient's efforts, regardless of the effectiveness of the thoughts. Also, it is important to reinforce the use of these techniques as a helpful way to assist not only with stopping smoking but with improving mood. That said, if the counter-thoughts were not effective, have the patient brainstorm more useful thoughts in the session. Finally, briefly review the cognitive distortion the patient agreed to track, looking at instances where the patient felt he/she was using the distortion. Overall, though, it is incumbent upon the therapist to balance the need to review these topics with the need to move quickly and reserve time for the other portions of the didactic module.
- 3.2. Reward-setting: There are two important points in this portion of the didactic session: 1) to emphasize the importance of rewards when changing a behavior (i.e., rationale) and 2) for the patient to begin thinking about potential rewards for meeting smoking-related goals (i.e., action plan). Reward-setting can be used at any stage of behavioral change and does not require that the patient has already quit smoking or even significantly cut down. In fact, the patient should be encouraged to use reward-setting as a way of acknowledging his or her effort and perseverance in attending sessions, exploring behavioral change (e.g., evaluating the pros and cons of quitting) and taking concrete steps towards cessation.

- 3.2.1. Rationale: Before formulating a specific plan, it is important to provide the rationale for using rewards to the patient. Using behavioral theories, humans are motivated by positive outcomes (or reinforcement). A reinforcing outcome makes it more likely that an individual will repeat a behavior under similar conditions in the future. Thus, rewards are important to increase an individual's motivation to change a behavior and to provide something enjoyable that affects cognition, self-efficacy and mood state. Therapists should briefly explain the application of reinforcement to a specific behavioral change, in this case, smoking-related behavior. An example could be the following:

“Think about honors or awards that you may have received at school or work. How did you feel about yourself afterwards? You probably felt proud and motivated to achieve even more. The recognition of your hard work and abilities likely had a positive effect on your sense that you could make changes and produce good outcomes. So, it reinforced those positive beliefs you have about yourself and your ability to achieve things. This recognition and reinforcement probably also increased the likelihood for you to repeat the behavior in the future. One of the things that we need to do today is to talk about events like that – rewards. Have you ever thought about why you continue to smoke, even though you know it isn’t good for you?”

The patient will list reasons why he/she continues to smoke; these reasons will invariably include something that can be construed as a reward for continued smoking. Examples include the rewarding effects of mood change (e.g., “getting a lift” or reducing irritability) and/or social reinforcement (e.g., spending time with other smokers). The therapist should frame reasons to continue smoking in terms of reinforcement. It is important to keep this framing simple and put it in lay terms. For example, while many therapists will understand the difference between positive reinforcement (e.g., mood lift) and negative reinforcement (e.g., relief of withdrawal symptoms, including irritability), it is not useful to try to educate the patient as to these technical differences. Instead, frame both positive and negative reinforcement as “rewarding”, without distinction. Following the listing of reasons by the patient, the therapist can continue by saying:

“That’s interesting – did you notice that you listed out things like (list examples) that are rewarding? You smoke because you get something positive out of it, which is what all smokers do. There are things about smoking that you enjoy – do you see that? Good. Well, one of our jobs today is to find ways to reward you for taking steps towards quitting.

As with the awards and recognition we talked about earlier, rewarding yourself for not smoking will make you more likely to keep changing. In this case, you will be more motivated to stay away from cigarettes. Does this make sense?"

- 3.2.2. Reward-setting Plan: At this point, the focus shifts away from imparting the rationale for reward-setting to brainstorming and setting rewards for the patient. There are four important points to remember during this process. First, it is important to note that rewards do not only involve material reinforcers (e.g., a new item of clothing). Rewards can also include social, time-related or mental activities that are pleasant for the patient. Thus, a reward need not be something tangibly material, but must be something enjoyable and significant that acknowledges the patient's efforts. Second, it is important to remember that rewards need to be set in proportion to the goal achieved. It is important that a hierarchy of rewards be established, pairing increasingly large rewards with increasingly important and difficult cessation-related actions.

Third, rewards do not have to be given only for periods of abstinence. It is recommended that rewards be used when a patient meets a goal that is directly related to smoking. These can include abstinence or smoking less than a specified number of cigarettes in one day. Rewards can and should be used for intermediate goals that are important for cessation. One example would be a reward for homework completion, in cases where patients have struggled to complete homework repeatedly. Fourth, it is important to have rewards for both short-term and long-term achievements. While the cardinal example is increasing rewards for increasing periods of abstinence (as in some contingency management paradigms), the principle could be applied to a goal for number of cigarettes smoked or for homework completion. In such a case, an individual might contribute \$1 towards an item he/she wants for every day a smoking goal is met and then contribute \$5 as a bonus for making an entire week of goals.

The therapist and patient should collaboratively develop a list of situations that warrant a reward. For individuals who are in the action phase or who plan to quit within the next week, rewards should center around meeting continuous abstinence goals (daily, weekly and monthly); for individuals who are not ready to quit, it is often useful to set rewards for meeting daily and weekly goals for number of cigarettes smoked. As mentioned above, rewards can be set for daily homework completion or other tangible cessation-related steps (e.g., discarding cigarettes in the presence of the therapist). It is important that the reward be attainable for the individual (e.g., not be abstinence-related

for individuals who are not within a week of a quit date), while also challenging the individual (e.g., a significant decrement in smoking, abstinence).

Once the goals to be rewarded have been set, it is important to work with the individual to pair these goals with appropriate rewards. One rule of thumb, particularly with abstinence-related goals, is to set monetary rewards equivalent to the amount the individual is saving by not smoking. That said, it is recommended that the therapist encourage the patient to find non-monetary or non-material rewards, such as taking a walk, playing video games for a longer period of time, or painting. It is important to discover what the patient does to reward him/herself after a difficult day or an accomplishment. Therapists should try to avoid over-reliance on one type of reward, especially food rewards (as individuals tend to gain weight when quitting). Once the rewards are paired with achievements, it is important to review the hierarchy with the patient and to ask for feedback. It is also wise to assess the patient's willingness to implement the plan and to explore situations in which willingness is not high.

- 3.3. High-Risk Situations: The final didactic portion of the session will be spent in problem-solving around high-risk situations. As mentioned in the chapter on Session 1 (Section 2.3), self-efficacy is related to situations in which the patient is more or less likely to smoke. If an individual is unsure of his/her ability to resist cigarettes in a given situation, then that individual has low self-efficacy in that situation and the situation is high-risk. It is important to work with the patient to create solutions that make these situations less challenging. It is likely that some problem-solving around high-risk situations has already occurred during the intervention to this point. The BOI materials ask questions related to high-risk situations in the Action stage (#1) and Preparation stage (#1) questions; it is also likely that individuals already have endorsed certain situations as more problematic in terms of self-efficacy to resist smoking. As such, the patient likely has some practice in coping with high-risk situations; thus, the purpose of this module is to teach problem-solving as it applies to high-risk situations and to apply this learning to a specific high-risk situation. First, it is important to have the patient propose a high-risk situation to be problem-solved. Often, these either involve dysphoric emotions (e.g., irritability or sadness) or social situations, sometimes involving alcohol. Once the situation of focus has been agreed upon, it is important to begin teaching problem-solving, beginning with the rationale.

- 3.3.1. Smoking-related Problem-Solving: It is very important to note that this exercise (teaching problem-solving) is meant to be only a simple introduction to problem-solving. Given the time constraints of the intervention, it is important to be brief and focused to situations that are

high-risk for smoking. An introduction that includes the rationale for the exercise is as follows:

“So, _____ (high-risk situation of focus) is one time when it is especially hard for you to resist smoking, right? Well, our goal right now is to make it easier for you to stay away from cigarettes when (the high-risk situation) is going on. But, I want us to talk about it more generally than that, because there are ways that you can problem-solve for any time when it is tough to keep from smoking. What we will do is talk about how to come up with ways to cope, and then we will apply what we are talking about to (patient’s high risk situation). Does that sound okay?”

There are 6 steps to problem solving in smoking-related situations:

- A. Identify the problem to be solved (a smoking-related high-risk situation).
- B. Generate as many solutions as possible.
- C. Rank-order the solutions from best to worst.
- D. Develop a plan to implement the best solution.
- E. Following use of the plan, evaluate the effectiveness of the plan.
- F. Revise the plan, if necessary.

The therapist should go through each of these steps with the patient, using the example chosen. The patient should do most of the work, with the therapist acting as a guide to aid the process. It is important that the therapist respect the content of the patient’s plan by only intervening when the plan seems likely to fail. Also, it is crucial that the patient and therapist collaboratively develop a plan for when, where and how the patient will use the solution (point D). Therapists should assess the willingness of the patient to use the plan on a 10-point scale. If the patient gives a number under 10, help the patient modify the plan to make implementation more likely.

Finally, while problem-solving usually is used to denote the development of behavioral coping strategies, it is recommended that therapists briefly work with the patient on creating a motivational self-statement to aid in coping with the high-risk situation. This should be a quick process, resulting in one statement that the patient can use to bolster his/her motivation in the difficult situation.

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists

should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.

- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. Have the patient implement the plan to reward him/herself under the circumstances agreed upon in session.
2. Have the patient attempt the solution devised via problem-solving to the high-risk situation focused on in session.
3. Have the patient attempt a behavioral chain worksheet focused on the high-risk situation.
4. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 5: Enjoyable Activities – Rationale and Application; Coping with High-Risk Situations; Continued Work on ANTs and Cognitive Distortions

Goals of the Session:

1. Continue to build rapport with the patient.
2. Complete the BOI Session with the patient.
3. Review patient's homework on reward-setting.
4. Review high-risk situations and evaluate effectiveness of the plan from last session.
5. Brainstorm enjoyable activities to replace smoking and plan to implement one for homework.
6. Review relevant ANTs and distortions (if time allows).

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Problem-solving worksheet
4. Behavioral Chain
5. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

“How did those high-risk situations go this last week? Did our plan help you stay away from cigarettes? In what ways?”

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to

reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on Session 2, Sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and reduces the likelihood that the patient will engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review (Reward-Setting and High-Risk Situations), Enjoyable Activities and Continued Evaluation of ANTs (if time allows)

- 3.1. Review of Homework (Reward-Setting and High-Risk Situations): As in previous sessions, the first didactic task is to review the patient's homework. Given that there are two separate tasks to review, the homework review will likely consume more of the didactic portion of the session than it usually does. Therapists should allot roughly 10 minutes to homework review in this session.

- 3.1.1. Reward-Setting Homework Review: The therapist can begin by reviewing the patient's adherence to the reward-setting plan established in the previous session. The therapist can start the review by saying something such as:

"We need to review your homework. Can we start with how you did on rewarding yourself for goals? Did you get a chance to reward yourself?"

The therapist may already know if the patient met the reward-related goal, as patients often begin the session by talking about such topics. If the therapist does not know, then the therapist must first establish whether or not the patient rewarded him/herself. While the therapist could tailor the intervention and review based on whether or not the patient met the goal to be rewarded, it is often more helpful to intervene based on whether or not the patient found the reward to be helpful in meeting the goal. Thus, individuals who did not meet the goal, those who did not employ the reward despite meeting the goal or those who used the reward but did not enjoy it can be grouped together for the purposes of intervention. These individuals will require more problem-

solving than those who successfully employed the reward and enjoyed it.

With non-adherent individuals, it is important for the therapist to restate the rationale for reward-setting in a different fashion than in the previous session; once that has been done, the therapist should work with the patient to find an alternative reward paradigm, linking goals to new rewards. Occasionally, the therapist will need to help the patient find more realistic goals, if the previous week's experience indicates that the established goals were too difficult to meet. In rare cases, the patient will still indicate that he/she does not expect the reward to be motivating. It has been our experience that around 20% of patients will not use rewards, even in cases where the rationale has been well-stated and the reward paradigm is realistic. With these individuals, it is important to accept their resistance or a lack of interest in using rewards. In this brief intervention, there is not time to explore such a complicated topic with the patient, so acceptance is the best option.

Also, in some cases, the patient will give him/herself the reward despite failure to meet the goal. With these individuals it is important to briefly restate the rationale, emphasizing that using the reward without meeting the goal subverts the purpose of reward-setting. Often, these individuals will continue to reward themselves without meeting goals; thus, it is recommended to emphasize other aspects of the intervention and to not set a reward for homework.

For individuals who both met the goal, and found the reward motivating, it is important to examine whether the reward paradigm needs to be modified to account for new goals. For instance, if a reward was given for smoking 7 cigarettes or less per day, the therapist and patient should explore whether this goal should be changed to emphasize the next behavioral step (e.g., reduce to 5 cigarettes or less per day). It is important to remember to modify the goal so that the patient will continue both to be challenged and to make progress towards cessation. In cases where the goal was abstinence, it is recommended that this goal be maintained.

- 3.1.2. High-Risk Situation/Coping Review: Once the patient's reward-setting homework is reviewed, the therapist should shift the review to the patient's experience in implementing the coping plan for a high-risk situation. Again, this is the fifth step (step E) in problem-solving around any barriers or issues. To review, the problem-solving steps are as follows:

- A. Identify the problem to be solved (a smoking-related high-risk situation).
- B. Generate as many solutions as possible.
- C. Rank-order the solutions from best to worst.
- D. Develop a plan to implement the best solution.
- E. Following use of the plan, evaluate the effectiveness of the plan.
- F. Revise the plan, if necessary.

It is important to be deliberate in stating the rationale for evaluating the patient's coping with the high-risk situation before doing so. Therapists should state that evaluation of the patient's coping is not about evaluating the patient's efforts; instead, it is about evaluating the effectiveness and ease of use of the coping technique. If the patient did not implement the strategy to counteract the high-risk behavior, the therapist should intervene as if the strategy was too difficult to implement. Problem-solving should occur from that standpoint. If the patient endorses that the coping technique was not helpful despite its use, the therapist and patient should collaboratively modify the coping strategy or implement a new one. Therapists should stress that these efforts are "experiments" where the results will alter the coping strategy, if needed.

In cases where the patient endorsed a positive outcome following the use of the coping strategy, the therapist must decide whether to problem-solve a different high-risk situation or whether to spend the time on continued cognitive evaluation (Section 3.3). This decision will depend on which aspect the therapist believes will enable the greatest behavior change; in other words, the therapist should concentrate on the greater impediment to reductions in smoking (and/or cessation). In addition, it is possible for the therapist to concentrate on the cognitive aspects of the high-risk situation. Ultimately, the decision on how to intervene is a clinical decision for the therapist to make. That said, it is important for the therapist to adhere to the 10 minute limit for homework review, regardless of the interventions used.

- 3.2. Enjoyable Activities: The primary material to cover in this session encompasses the rationale and planning for enjoyable smoke-free activities. There are some distinct similarities between enjoyable activity-setting and reward-setting (e.g., rewarding nature of activity, need to be specific when scheduling), but the differences are such that they comprise two separate activities. As with all new skills, it is important for the therapist to begin by imparting a rationale to the patient concerning the teaching and later use of the skill. A sample rationale for enjoyable activity-setting is as follows:

“Remember last week when we talked about why we were going to use rewards to help you stop smoking? We talked about the fact that smoking is probably rewarding or fun in some way for you, right? Last week, we wanted to encourage you to use rewards that would motivate you to keep from smoking; this week, we are going to talk about a similar topic: planning for enjoyable activities. In this case, we are looking to replace your smoking with another enjoyable activity, preferably one where you cannot smoke. The point is that we want to replace one fun thing that causes you serious problems, which is smoking, with another fun thing that is good for you. This way, you will have other enjoyable activities in your life that distract you from smoking and fill some of the needs that were met when you smoked. Does this make sense?”

As mentioned, the purpose of enjoyable activity-setting is to replace the enjoyment derived from smoking with enjoyment derived from another (more positive) enjoyable activity. Enjoyable activity-setting is especially useful for individuals who entered treatment with significant depressive symptoms or for those who developed depressive withdrawal symptoms as a consequence of a reduction in smoking or cessation. For such individuals, an additional rationale is often helpful:

“What’s more, when people have symptoms of depression, like you do, they often cut back on the fun things that they do. One of the symptoms of depression is just that – reducing or stopping the number of fun things that a person does. Research has shown that increasing the number of pleasant activities that a person engages in can help reduce depression. So, doing fun things is way to fight depression. That is the great thing about scheduling enjoyable activities for you – it will help you cut back on smoking AND it will help you be less depressed. That is why this activity can be really useful for you.”

Once the rationale is established, the therapist and patient can collaboratively begin brainstorming potential activities to use as enjoyable substitutes for smoking. Activities that are the best substitutes fulfill two criteria: one, the activity should be one that the patient has enjoyed in the past (but stopped currently doing) or one that the patient has “always wanted to try”; and two, the activity should be incompatible with smoking. Therefore, activities that the patient already engages in should not be used and the patient should not use an activity where he/she can concomitantly smoke cigarettes. In brainstorming activities with the patient, the therapist should keep these criteria in mind, asking the patient if the activity brainstormed is a new addition to the patient’s activities and will be incompatible with smoking. Examples of activities that are incompatible with smoking include: going to a non-smoking coffee bar with a friend, going to a movie, or exercise. Exercise is especially recommended as a replacement enjoyable activity; exercise has been shown to help reduce smoking, potentially through the following effects: it can reduce

depression and anxiety symptoms; it can bring about a sense of general well-being; it helps relieve stress; it aids in the prevention of excess weight gain; and it improves health (Marcus et al., 1999).

If a patient proposes an activity that will not necessarily prevent the individual from smoking, the therapist should attempt to help the individual brainstorm ways to make smoking more difficult (if not impossible) while carrying out the activity. An example might be moving the location of an activity to a place where smoking is not allowed, including the home of a non-smoking friend. Once a particular activity is decided upon, it is important to schedule the performance of that activity for a specific time on a specific day. Have the patient do this in the session, writing it down on his/her tracking sheet for smoking or in a calendar. Finally, inform the patient that the use and effectiveness of the activity will be examined in the next session, much like the effectiveness of reward-setting was examined in this session. This way, the patient will be more likely to implement the activity (given the knowledge that it will be talked about next week), and he/she will be more likely to note whether the activity was enjoyable and/or effective in reducing his/her smoking.

- 3.3. Continued Work on ANTs (if time allows): It is important that the therapist respect the boundaries of the session and only spend time on reviewing ANTs and cognitive distortions if the session has not extended past the 25 minute limit. If the session is nearing 25 minutes, the therapist should move onto the review.

On the other hand, if there is 5 minutes or more left in the session, the therapist can spend some time evaluating one ANT. Given the content of the session, it is recommended that the ANT relate to the high-risk situation that was problem-solved in the previous session or in this session. This keeps a consistent focus, and it reduces the time needed to uncover another cessation-related ANT. If no important ANTs were discussed in the high-risk portion of this or the previous session, the therapist should have the patient revisit one of the high-risk situations, asking:

“Put yourself back in ____ (the high-risk situation). Envision the sights, the smells and noises that were in the environment. When you were especially tempted to have a cigarette, what were you thinking? What was going through your mind?”

This should provide a useful ANT to be analyzed. The therapist and patient can then collaboratively analyze the situation using the behavioral chain worksheet and techniques discussed in Session 3, Section 3.3; it is also helpful to collaboratively look for the cognitive distortions listed in Session 2, Section

4.1.2. The therapist should be mindful of the time, working to keep the discussion brisk and within the time limit for the session.

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should attempt the enjoyable activity and track its effectiveness (both in terms of enjoyment and in reducing smoking).
2. Continue implementing (or implement new) reward-setting plan.
3. Have the patient continue to track relevant ANTs and cognitive distortions; if a portion of the session was spent on cognitive evaluation, assign brief homework relevant to that portion of the session.
4. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 6: Continued Work on Enjoyable Activity Setting; Importance of Managing Tension; Relaxation – Diaphragmatic Deep Breathing

Goals of the Session:

1. Continue to build rapport with the patient.
2. Complete the BOI Session with the patient.
3. Review patient's homework on setting enjoyable activities to replace smoking.
4. Teach and practice deep diaphragmatic breathing.
5. Emphasize the importance of tension reduction for achieving abstinence from smoking.

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Handout on diaphragmatic deep breathing
4. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

"I am interested to hear about how you did this week with your smoking. Can you tell me about it?"

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review, Diaphragmatic Deep Breathing and Tension Reduction

- 3.1. Homework Review (Enjoyable Activity-Scheduling): As in previous sessions, the therapist should begin the didactic portion of the session by examining the patient's efforts on the assigned homework. For patients who have struggled to complete the homework, specific suggestions for the therapist are offered in the session 3 materials, section 2.1. For individuals who did not attempt to use enjoyable activities, the therapist should explore what aspects of the homework made completion difficult. Occasionally, a patient will have had an unexpectedly difficult week, which makes enacting enjoyable activities harder (given the time commitment often involved). While a case could be made that enjoyable activities are needed even more in difficult circumstances, it is important to support and empathize with the patient. Scheduling enjoyable activities is even more important for patients with significant depressive symptoms (whether these are depressive withdrawal symptoms or depressive symptoms that predated cessation); these individuals tend to stop enjoyable activities, possibly as a consequence of depression. As such, if a patient with depressive symptoms did not attempt the enjoyable activity planned in the previous session, it is important to restate the rationale for the assignment and to emphasize the influence of depression on enjoyable activities and the reinforcement of depressive symptoms as a result of a lack of enjoyable activities.

For individuals who were able to attempt the scheduled enjoyable activities, the therapist should examine the perceived enjoyment derived from the activity and whether that activity aided the individual in refraining from smoking. If the activity was not at least moderately enjoyable (a rating of 5 or more on a scale of 10) and/or not effective in aiding a reduction in smoking (according to the patient's self-report), then the therapist and patient need to collaboratively brainstorm alternative enjoyable activities. If the individual is experiencing significant depressive symptoms, the anhedonia common to depression may contribute to lowered feelings of enjoyment from the activity. As such, it is

important to take depressive symptoms into account when deciding whether to recommend finding alternate activities or to recommend trying the activity a second time (as individuals with depression often experience increases in pleasure derived from activities with repeated use). Regardless of the situation, it is important to collaboratively select an enjoyable activity for the patient to attempt in the next week. As with the previous session, have the patient schedule the day(s) and time(s) to complete the activity. This will increase the likelihood that the activity will be performed.

- 3.2. The Importance of Tension Reduction – Rationale: This will be the first of three relaxation exercises to be taught and practiced during the course of the intervention. In Session 7, individuals will learn about progressive muscle relaxation; in Session 8, patients will be taught passive muscle relaxation. In this session, the focus is on diaphragmatic deep breathing exercises. Before this relaxation technique can be taught, however, the rationale for performing relaxation exercises must be imparted to the patient. Again, teaching a skill and assigning its practice for homework without imparting a specific rationale for its use often leads to poor homework adherence. It is important that the patient be a collaborative partner in the therapy; part of fostering a patient's investment in therapy and collaboration is communicating a rationale for the use of skills taught in the session.

A tension-reducing activity can broadly be conceived of as any activity which brings about relaxation or a reduction in anxiety and arousal. While this intervention teaches focused breathing- and muscle-related tension reduction activities, everyday activities that remove stressors from the environment (e.g., different driving routes to avoid traffic) or increase relaxation (e.g., 15 minutes of pleasure-reading before work or meditation) can be used as tension reduction devices. In cases where the patient uses one or more of the 3 tension reducing activities successfully, brainstorming other tension reducing activities with the patient is indicated. On the other hand, if an individual states that he/she has tried one or more of these activities without a reduction in tension, the therapist should investigate the patient's use before teaching an alternate activity. The therapist should proceed with a replacement activity only if patient used the technique correctly and in appropriate situations regularly for at least 3 weeks.

In order to introduce the first tension reduction activity (deep diaphragmatic breathing), it is important for the therapist to talk with the patient about the relationship of stress and smoking. For many patients, this is a link that they readily identify and acknowledge without prompting. In cases where the link has already been made, the therapist can introduce deep breathing by saying something short like:

“We’ve talked before about how increased stress is a trigger for your smoking – that you smoke more when you’re feeling stressed. Today, we are going to spend some time talking specifically about a skill that can help you reduce some of that stress and tension. It is diaphragmatic deep breathing. If you practice it and use it when you are feeling stressed, deep breathing can help by cutting down your stress in almost any situation, which makes it less likely that you will smoke. Does that make sense? Let’s start here: what does stress feel like for you? (e.g., muscles tense, neck or shoulder tension, headaches, irritable, shaky, nervous).”

If patient is not able to come up with an example, ask what happens or how they feel when they have an argument with someone, a conflict with a teacher or boss, or have an upcoming exam where they are not prepared. At this point, the therapist can transition to the introduction of progressive muscle relaxation, relating the specific symptoms cited by the patient to the specific rationale (below) for progressive muscle relaxation.

With individuals who have not explicitly established a link between stress or tension and increased smoking, the therapist and patient must spend time establishing such a link. The therapist can ask the patient to list stress symptoms (as above) and ask if, when the patient feels these symptoms, he/she smokes more. In contrast to this exploratory way of establishing a link between smoking and stress, a more direct way is provided here:

“Often, people feel stronger cravings for cigarettes and smoke more when they experience a stressor. Does that sound familiar? Have you ever done that before?”

Again, the answer will almost always be yes. If the patient still denies such experiences, the rationale for teaching deep breathing will be that many patients find a link between stress and smoking and that such an event might arise in the future for the patient. The therapist should highlight that tension reduction increases positive feelings, which can often reduce smoking as well. This can be done by asking the patient what his/her mood is like when he/she feels relaxed. The patient will most likely describe his/her mood in positive terms (e.g., good, happy, peaceful). Finally, state that even if the patient has not noticed this, deep breathing can be helpful in reducing negative event-related stress.

For individuals who endorse increased smoking in response to stressors (but who have not previously established the link between smoking and stress), the therapist can proceed by stating:

“So, you’ve noticed that you smoke more (or experience greater cravings) when you feel stressed. That is a very common experience, because smoking is

a way to deal with stress and reduce it. Smoking relaxes your muscles, which is the main way that you feel like you have gotten rid of some of the stress. We'll work on muscle relaxation in the next two sessions, but today we are going to talk about diaphragmatic deep breathing. Our goal in this session and in the next two is to give you a number of skills that you can use to reduce your stress levels in ways other than smoking. Our goal is to replace smoking with these relaxation techniques. Does that make sense? Before we begin, I want to emphasize one thing that I will repeat over and over: relaxation techniques are like any skill in that they require practice before you get good at them. So, I am going to have you practice deep breathing in here and then have you set a time each day to practice deep breathing so you can get good at it. That way, when you really need it, you'll be good at it. Evidence shows that people who don't practice relaxation techniques have much more trouble using them when they really need it. Make sense? Do you understand why we are going to work on deep breathing and other relaxation techniques over the next few sessions?"

Once the rationale for deep breathing has been fully stated and the patient expresses understanding of the rationale, the therapist can begin teaching the skill.

- 3.3. Relaxation – Diaphragmatic Deep Breathing: This portion of the session is the most important, so therapists should manage the session such that this part of the didactic component is not rushed. Often, this means allowing at least 5 to 10 minutes for teaching, practicing and scheduling deep breathing. If time allows, other breathing exercises can be taught. Two others will be outlined later in this session's materials.

- 3.3.1. Teaching Diaphragmatic Deep Breathing: Once the therapist has established a rationale for this skill, little needs to be said before beginning skill building. A simple transition naming the skill and summing up the rationale in one sentence will suffice. For this and the other relaxation exercises, it is important that the therapy room be quiet and non-distracting and that the therapist use a comfortable and soothing voice to facilitate relaxation. In teaching diaphragmatic deep breathing, the first step is to differentiate between chest breathing and diaphragmatic breathing. This can be done by saying something like:

"Most people don't pay a whole lot of attention to their breathing, but we are going to focus on your breathing today because there is a way to do it that is often more relaxing. Put one of your hands on your chest, and the other in the middle of your body, just below your ribs. When you breathe, which one moves? For most people it is the hand on their chest. This gets air into the top of the lungs, but it's pretty inefficient and doesn't fill the lung. Our goal is to get the bottom hand to move –

the one over your abdomen. To do that, we need to get your diaphragm, and not your chest, to do the work.”

At this point, it is important for the therapist to model proper diaphragmatic deep breathing, ensuring that his/her (therapist's) hand is visibly moving as it rests over the abdomen. Note to the patient that his/her chest will not move much (if at all) when he/she is properly using the diaphragm to breathe. Have the patient to practice with you, telling the individual that he/she should take normal breaths through the nose. Have the patient practice for at least 30 seconds, watching the patient to ensure that he/she is properly using the technique. Immediately, but gently, stop the patient if he/she lapses into chest breathing. Correct the error by briefly reteaching the skill using different language, and begin practice again. Once the patient completes a 30-second trial of deep breathing, ask the patient for feedback on the experience, including whether the patient feels more relaxed after the trial. If not, reassure the patient that it often takes some practice to get used to the technique and receive full benefit from it.

Once feedback has been obtained, have the patient practice the technique again for 30 seconds. Once the patient seems proficient at the technique, have him/her use chest breathing briefly to illustrate the difference; ask for feedback about the differences between the techniques. Finally, have the patient practice diaphragmatic breathing for one, final 30-second trial.

- 3.3.2. Teaching Other Breathing Skills: If time allows, as the therapist should leave 2 or 3 minutes for scheduling daily diaphragmatic breathing practice, there are two other brief breathing techniques that can be taught. One is the “Holding the Breath” technique; it is a slight modification of the simple diaphragmatic breathing technique taught earlier. In this exercise, the patient breathes in (using the diaphragm) through the nose for 3 seconds then holds the breath for 3 seconds. Following the 3-second hold, the patient should release the breath through tightened lips, thinking about either a relaxing mantra word or the word “relax”. This should be repeated until the desired effect is achieved.

The other technique is called “Rhythmic Breathing”, and it is another modification of the diaphragmatic technique taught above. In this instance, the individual is to breathe in for a predetermined count. This count is usually between 3 and 6 seconds. The patient does not hold his/her breath, but instead, immediately breathes out for the same count. The count should be kept consistent, and it is important for the patient

to focus on the count and his/her breath in a meditative fashion. Again, this should be repeated until relaxation is achieved.

In the session, it is likely that the therapist either will have no time to teach these alternate skills or time to teach only one. If the skills cannot be taught in this session, they can be taught in the next session. *[That said, since each session has important didactic material and a time limit, the alternate techniques should be taught only when the individual expresses poor results from basic deep diaphragmatic breathing. In such cases, the alternate techniques can be offered as a “modification that sometimes makes the breathing more relaxing and effective.”]*

- 3.3.3. Scheduling Diaphragmatic Deep Breathing Practice: Once the patient has demonstrated his or her proficiency in deep diaphragmatic breathing, it is important to work with the patient to schedule 10 minutes of daily practice of the technique. Before doing so, it is important to state the rationale for the assignment, as it is with any homework assignment. A sample rationale is as follows:

“Good. Now that you have deep breathing down, we need to find times for you to practice it through the next week. It’s important that you set aside 10 minutes each day to practice the technique, and there are two reasons for this. One, diaphragmatic breathing is like any skill – unless you practice it, you’ll tend to forget it. Remember the problem I talked about earlier – not being able to use a skill well if you have not practiced? Practicing to get deep breathing mastered is one reason. The second reason for using the deep breathing daily is that even practice can be relaxing. Although you are still perfecting the skill, it will help with anxiety. Now that we have talked about why we want you to use deep breathing daily, can we find a time each day to have you practice for 15 minutes?”

In scheduling daily diaphragmatic breathing practice, it is important that the scheduled time be consistent and unlikely to interfere with other activities. In other words, the patient should schedule practice during time that is usually free, and the patient should schedule practice consistently across the week. Only in very rare cases should the patient schedule practice at different times of the week. In addition, it is helpful if the patient can schedule the practice at the beginning or end of the work/school day or during a stressful part of the day. Individuals who use diaphragmatic breathing often state that using the technique before work or school “starts the day well”; others endorse using the technique at the end of the work or school day helps them transition and leave the stresses of the day behind. A final possibility is to have the

patient schedule practice during his or her day, perhaps at lunch or during a scheduled break. Regardless, it is preferable to schedule practice at a time when the patient is likely to notice the benefits of practice; the possibilities above maximize the opportunity for the patient to appreciate the benefits. In addition, the place where practice will occur should be briefly examined. The environment should foster relaxation by being free from interruption, noise, and it should be dimly lit, if possible.

When practice is scheduled, the therapist should problem-solve any potential barriers to practice with the patient. The therapist should start by having the patient rate his/her likelihood (on a scale of 10) of practicing at the scheduled time. If the patient offers a rating under 10, it is important to collect reasons why the patient rated his/her likelihood below a 10 (barriers to completion). A simple question can often capture the relevant barriers:

“What do you think will get in the way of you practicing at that time? How can we get that number to a 10?”

The therapist should then aid the patient in problem-solving around barriers to completion. If the barriers are significant and/or do not seem amenable to problem-solving, the therapist can suggest finding an alternate time to practice. If the patient continues citing barriers, it is important to gently ascertain whether the patient has understood and internalized the rationale for skill practice. This can be touched on by asking a question such as:

“I wonder if you think this will be useful – are you having some doubts about using deep breathing?”

In asking the question, it is important to encourage the listing of concerns through non-verbal signals (e.g., calm voice, nodding as the patient lists concerns). If the patient feels his or her concerns about the skill are truly accepted, then he/she will be more likely to work with the therapist to resolve those concerns or to attempt the homework regardless of doubts. Please note that while it is important to capture the likelihood of homework completion and to problem-solve barriers at the end of each didactic session, it is especially important for behavioral skills where it is difficult to determine compliance outside of the patient's report (as opposed to skills where he/she returns with completed worksheets).

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should schedule a specific time daily to practice diaphragmatic deep breathing for at least 10 minutes.
2. The patient will attempt an effective, previously used pleasant activity or a new one (in cases where previous activities were not fully effective) to replace smoking.
3. Have the patient continue tracking relevant ANTs and cognitive distortions; if a portion of the session was spent on cognitive evaluation, assign brief relevant homework.
4. The patient should be instructed to wear loose or comfortable clothing to assist in practicing the muscle relaxation technique in the next session.
5. Patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 7: Progressive Muscle Relaxation; Continued Evaluation of Automatic Negative Thoughts

Goals of the Session:

1. Continue rapport building with the patient.
2. Complete the BOI Session with the patient.
3. Review patient's homework on diaphragmatic breathing and enjoyable activity use.
4. Teach and practice progressive muscle relaxation.
5. Review the impact of relevant ANTs or distortions, brainstorming counter-thoughts (if time allows).

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Handout on progressive muscle relaxation
4. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

"So, how did you do with smoking and the goal we set for this past week?"

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review and Progressive Muscle Relaxation

- 3.1. Homework Review (Pleasant Activity Scheduling and Diaphragmatic Breathing): Since there are two topics to cover in this homework review, it is important for the therapist to be timely in the review. As activity scheduling has already been reviewed in the previous session, this portion of the homework review can be given less time than the review of deep breathing. That said, if the pleasant activity scheduled was new, then it is important to not rush the review of this new activity.
 - 3.1.1. Review of Pleasant Activity Scheduling: To begin, the therapist needs to check-in about the ability of the patient to implement the activity and about his/her enjoyment of the activity. It is unwise to assume continued use or effectiveness for activities used for a second time. If the activity continues to be effective (or was effective for the first time, in the case of a new activity), the therapist should urge the patient to continue use in the next week and move on to the deep breathing review. If the activity was ineffective (regardless of whether it was a new or reused activity), the therapist and patient should quickly brainstorm an alternative activity or problem-solve ways to make the activity more feasible and enjoyable. Therapists are recommended to review Session 5, Section 3.2 and Session 6, Section 3.1 for further instructions on pleasant activities. It is important, however, to keep in mind that increases in the time and effort needed to complete all of the homework will likely lead to decreases in adherence. Practice of the new skill (progressive muscle relaxation) is the primary focus of the homework and any other homework should be added only judiciously and on a case-by-case basis.
 - 3.1.2. Review of Diaphragmatic Deep Breathing: It is also important to assess the patient's ability to implement and benefit from diaphragmatic deep breathing. As with all homework exercises, it is important to intervene based on whether the patient used the technique and, if used, whether

the patient benefited from the technique. If the patient did not use the technique, investigate the reason(s) for non-adherence (e.g., patient did not understand or internalize the rationale; the time scheduled became inconvenient) and problem-solve based on the reason for non-adherence. Have the patient be concrete in endorsing a reason, as a vague explanation for non-adherence is not useful for problem-solving. It is often useful to have the patient state a rationale for use of the technique, thus testing whether the patient understood and internalized the stated rationale. If needed, the therapist can brainstorm reasons with the patient that the technique would be useful. Scheduling 10 minutes daily to attempt the technique may be useful, but only if the patient endorses strong motivation to attempt the technique again; it is important to remember that 10 minutes will be required per day for practicing this session's didactic technique (progressive muscle relaxation), and adding 10 minutes for breathing practice may be prohibitive.

If the technique was used, but the patient states that it was not effective in reducing anxiety, the therapist should have the patient demonstrate the use of the technique in session. Occasionally, the problem lies in a lack of consistent and correct implementation. The therapist should assess whether the patient is correctly performing the technique and whether the patient used the technique as agreed: daily for at least 10 minutes. If the patient correctly demonstrates the technique in session and endorses daily use (for at least 5 minutes), then the patient was likely using the technique correctly. In such cases, it is recommended that the therapist encourage the patient to utilize one of the alternative deep breathing techniques covered in the last session (Session 6, Section 3.3.2). The therapist should take about 3 minutes to teach the patient the alternative technique and schedule practice daily for about 10 minutes. It is important to emphasize that different breathing techniques work well for different people, like medicines or flavors of ice cream do; thus, just because diaphragmatic deep breathing did not prove to be effective, it does not mean that an alternative breathing technique will be ineffective as well. Again, it is important to keep in mind that the primary didactic activity in this session is progressive muscle relaxation, which also requires daily practice. Thus, adding 10 minutes for breathing practice is recommended when the individual endorses strong motivation to attempt both exercises and/or anxiety and stress are crucial symptoms interfering with cessation.

Finally, if the technique was successful, explore whether the patient feels that he/she could use the technique in stressful situations during the next week without scheduling a set time for use. It is important to emphasize that diaphragmatic deep breathing is a technique that can be

used at any time – all it takes is awareness by the individual that he/she is feeling stress or tension. In order to maximize effectiveness, it is important that the therapist and patient brainstorm physical and cognitive cues that the patient is feeling stress. Often, people are not consciously aware of tension in stressful situations. Thus, it is important to establish relevant cues to aid recognition; in addition, it is important to list situations for the patient that are typically stressful. Examples include a test or quiz, dating, or receiving an evaluation by a boss. Without necessarily scheduling a specific time for use (e.g., 6 PM on Tuesday), the patient can plan to use the technique should any of these events (or any other stressful events) arise during the week. Scheduling to use breathing before, during and/or after an upcoming stressful event is a good intermediate step between scheduling breathing specifically and fully unscheduled use (i.e., “as needed”)

3.2. Progressive Muscle Relaxation:

- 3.2.1. Rationale: Before beginning to teach the new skill to the patient, it is important to restate a rationale for the importance of tension reduction and to tie this rationale to progressive muscle relaxation. If a rationale is not given, the patient may not see the need for another tension reduction technique, which can make utilization of the technique unlikely. It is recommended that the patient aid in rationale formation, especially since the tension reduction rationale was given in the last session. A sample introduction is provided below:

“Last week we talked about why stress and anxiety (or tension) were problems that we needed to take care of in order to help you quit smoking – do you remember that? What do you remember about why we wanted to cut down on your stress level? Did you learn anything this past week from your experience with deep breathing that can help us talk about why we want you to reduce the stress in your world?”

Hopefully the patient will be able to state a rationale that links stress and/or anxiety to smoking; the ideal case is one in which the patient will use a personal example or his/her experience with deep breathing to illustrate the link. It is important to praise any rationale that the patient provides, and only then raise missed points or correct misunderstandings. If the patient is unable to clearly articulate a rationale for tension reduction, a brief one can be given:

“So, when we talked last week about the problem that stress or anxiety poses for you when you try to quit smoking, we noted that having tension requires coping. And the way that smokers often cope is by smoking. Smoking relaxes muscles, so it seems like smoking a cigarette

can help reduce some of the stress or tension that is going on. Does this sound familiar? We talked about specific times that this was applicable to you, when [use a pertinent situation from the patient]. Our goal is to cut down on your stress levels in order to make it less likely that you would be tempted to smoke. We want to break that link by reducing your stress."

At this point, the rationale for tension reduction has been reviewed, but the specific rationale for progressive muscle relaxation still needs to be imparted. One important difference between diaphragmatic deep breathing and progressive muscle relaxation is that the latter directly reduces muscle tension, much like cigarette smoking. It is often useful to emphasize this point to the patient, as it will give progressive muscle relaxation a unique rationale above that of the general rationale for tension reduction. A sample rationale is given here:

"Now that we have reexamined the connection between stress and smoking, we are going to have you use another technique to increase your relaxation and help you fight smoking urges. This technique is called progressive muscle relaxation. Just like it sounds, we will have you relax your muscles one by one, which will help you feel more relaxed overall. One great thing about this technique, and a way that it is different from deep breathing, is that by relaxing your muscles, it does the same thing that smoking does for you. Since smoking relaxes your muscles, we are going to replace that with a healthier alternative, which should help you not to smoke as much. How does that sound?"

3.2.2. Teaching Progressive Muscle Relaxation: Once the rationale has been established, it is time to begin teaching progressive muscle relaxation. Have the patient begin by taking off his/her shoes and assuming a comfortable (but supported and stable) position in his/her chair. If the patient remembered, it is helpful for him/her to have worn comfortable clothing. As with deep diaphragmatic breathing, it is beneficial to have a quiet environment and for the therapist to use a calm, soft voice. The exercise consists of tensing and then relaxing 16 muscle groups, beginning with the feet and working upward. The muscle groups are as follows:

- i. Left foot: have the patient curl his/her toes under and hold
- ii. Left lower leg: have the patient lift his/her toes up and hold (tensing the muscle below the shin)
- iii. Left upper leg: have the patient press the heel of his/her foot down and hold (tensing the quadriceps)

- iv. Right foot: have the patient curl his/her toes under and hold
- v. Right lower leg: have the patient lift his/her toes up and hold (tensing the muscle below the shin)
- vi. Right upper leg: have the patient press the heel of his/her foot down and hold (tensing the quadriceps)
- vii. Left hand and forearm: have the patient make a fist and hold
- viii. Left upper arm: have the patient flex his/her biceps and hold
- ix. Right hand and forearm: have the patient make a fist and hold
- x. Right upper arm: have the patient flex his/her biceps and hold
- xi. Stomach: have the patient pull his/her stomach muscles in and hold
- xii. Chest: have the patient try to pull his/her arms as tightly to his/her sides as possible and hold
- xiii. Shoulders: have the patient shrug his/her shoulders and hold
- xiv. Neck: have the patient straighten his/her neck and pull his/her chin down and hold
- xv. Cheeks and nose: have the patient squint tightly and wrinkle his/her nose and hold
- xvi. Forehead: have the patient lift his/her eyebrows (or wrinkle his/her forehead) and hold

First, have the patient focus his/her mind on the targeted muscle group. Instruct the individual to inhale from the diaphragm and tighten the muscle group as hard as is possible. The patient should hold this tension for about 8 seconds. The tension should be very noticeable to the patient, but it should not cause pain (i.e., it should be gentle but deliberate). After 8 seconds, instruct the patient to quickly relax the muscle group. He/she should let all of the tightness out of the muscles, simultaneously exhaling. The patient should feel the muscles relax, becoming loose and limp, with the tension flowing away like water out of a faucet. The crucial point here is for the patient to focus on the difference between tension and relaxation. The patient is trying to learn a very subtle distinction between muscular tension and muscular relaxation, so emphasize that the patient needs to carefully focus on the difference between holding the muscle tight and letting go. Once all of the muscle groups have been covered, the therapist should let the patient have a minute to relax. Instruct the patient to focus on his/her state of muscle relaxation and to concentrate on his/her breathing, using the diaphragm to breathe. Once the minute is complete, it is important

to slowly bring the patient out of the relaxed state. This can best be achieved by stating the following:

“Now, I am going to count down from 5 to 1. With each number, I want you to become a little more alert – but to remain relaxed. When I reach 1, I want you to open your eyes.”

The therapist should count down and allow the patient 10 to 15 seconds to readjust to the environment. During this time, the therapist should continue using a calm, quiet voice in order to avoid jarring the patient out of relaxation. Slowly, the therapist can transition to a more normal rate and tone of speaking; the goal, though, is to keep the patient as relaxed as possible by avoiding stark transitions.

Following completion, the therapist and patient should explore whether the technique seemed effective and whether the patient was able to clearly notice the differences between tension and relaxation. If the patient did not feel that the technique was effective, it is important for the therapist to encourage further practice and (if time permits) to have the patient attempt the technique on 3 muscle groups in session. Remind the patient that progressive muscle relaxation is like any skill: it requires practice for him/her to feel comfortable with the technique and gain the maximum benefit. If the patient did not notice a clear difference between tension and relaxation, it is important to have the him/her attempt the exercise again using one muscle group. The biceps are often a good example, as they can be strongly and noticeably constricted. Have the patient constrict the biceps as strongly as possible without causing pain; following 8 seconds of tension, the patient should suddenly release. Emphasize (before constriction) that the release should be immediate and complete.

- 3.2.3. Scheduling Progressive Muscle Relaxation Practice: As mentioned above, progressive muscle relaxation is a skill that requires practice to maximize the patient’s comfort level with and benefit from use. The patient should schedule 15 minutes daily to complete one or two full series of progressive muscle relaxations. The therapist can suggest practicing progressive muscle relaxation during the practice time previously allotted for deep breathing. In cases where the patient did not respond well to diaphragmatic breathing, scheduling practice time for progressive muscle relaxation should receive priority over scheduling alternative breathing exercises. If, and only if, the patient rates his/her ability to complete both exercises as a 10 (on a scale of 10) should practice for breathing techniques and progressive muscle relaxation be scheduled. Scheduling practice time for both is also contraindicated in cases where the patient has had regular difficulty in

completing homework in the past. For further information on scheduling relaxation techniques, therapists are referred to Session 6, Section 3.3.3.

- 3.2.3. Cognitive Evaluation: If time allows, or (if in the clinical judgment of the therapist) the patient has benefited from or could benefit from work on ANTs and cognitive distortions, the therapist can take a few minutes to work with the patient on cognitions. As this session's homework review covered two topics, and as teaching progressive muscle relaxation can be time-consuming, therapists should be aware of the time before beginning cognitive evaluation. It is important to maintain the boundary of the session and avoid going over time. For further comment on cognitive evaluation, therapists are referred to Session 2, Section 4.1.2 (for cognitive distortions) and Session 3, Section 3.3 (for evaluation of ANTs).

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should transition to using deep diaphragmatic breathing in daily stressful situations without scheduling the activity (if it was effective).
2. The patient will use progressive muscle relaxation daily, at a scheduled time.
3. Have the patient continue tracking relevant ANTs and cognitive distortions; if a portion of the session was spent on cognitive evaluation, assign brief relevant homework.
4. The patient should be instructed to wear loose or comfortable clothing again to assist in practicing autogenic muscle relaxation in the next session.
5. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 8: Passive Muscle Relaxation; Continued Work on Automatic Negative Thoughts and High-risk Situations

Goals of the Session:

1. Continue rapport building with the patient.
2. Complete the BOI Session with the patient.
3. Review patient's homework on relaxation exercises.
4. Teach autogenic (passive) muscle relaxation.
5. Work with the patient on developing meditation skills for tension reduction.

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Handout on autogenic (passive) muscle relaxation
4. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

"Tell me how your smoking went this week? Did anything we talk about help you stay away from cigarettes (or smoking)?"

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review, Passive Muscle Relaxation, and Meditation

- 3.1. Homework Review (Relaxation Techniques): The primary homework is to review the patient's practice of progressive muscle relaxation. As this is very similar to the homework review outlined for diaphragmatic deep breathing, therapists are referred to that section (Session 7, Section 3.1.2) as well. Again, the first step is to assess whether the patient used the technique as agreed (daily for 10 minutes); if the patient was not adherent for all 7 days, it is important to address this. That said, non-adherence for 1 or 2 days is generally not problematic and can be addressed more briefly. Moreover, it is important to reinforce any level of practice. Since problems with homework adherence can stem from a misunderstanding and/or lack of internalization of the rationale for technique use, it is important to have the patient restate the rationale. From there, the therapist should attempt to problem-solve obstacles to practicing relaxation technique with the patient.

If the patient used the technique but did not benefit from it, it is important to assess the patient's understanding and implementation of the technique's mechanics. A common problem with progressive muscle relaxation is poor differentiation between the tensed and relaxed state. It is important to ask the patient specifically about his/her ability to feel a distinct difference. In addition, the therapist should evaluate the environment where the patient attempted relaxation for evidence of interfering stimuli (e.g., noises, interruptions by other people, anxiety on the part of the patient). If one of these stimuli were present, the therapist should help the patient problem-solve ways to eliminate the presence distractors. For example, if the patient is anxious prior to beginning progressive muscle relaxation, it is likely that he/she will have too many interfering thoughts to fully engage in working on the technique. One way to combat this is to have the patient engage in diaphragmatic breathing for a few minutes, which should lower the patient's anxiety level; another way to fight the interfering influence of anxiety is to have the patient delay practicing the technique until later in the day, when

anxiety may be lower. In either case where the patient did not benefit from progressive muscle relaxation, it is important to encourage the patient to continue practice of the technique daily, as autogenic muscle relaxation (this session's didactic material) depends on proficiency with progressive muscle relaxation. The work with autogenic muscle relaxation will be somewhat abbreviated if the patient has not mastered progressive muscle relaxation. Instead of spending the bulk of the session covering autogenic muscle relaxation, the therapist should concentrate on further work on progressive muscle relaxation (in addition to other relevant interventions).

If the patient was successful, he/she can continue to use progressive muscle relaxation. That said, practice should continue at a less frequent level (i.e., three times per week), as the practice of autogenic muscle relaxation is the primary focus of the homework. In addition, since autogenic muscle relaxation builds upon progressive muscle relaxation, the therapist should advise the patient to practice progressive muscle relaxation as a "warm-up" to autogenic relaxation. It is also important to review any other assigned homework as well, including cognitive homework (Session 2, Section 4.1.2 [for cognitive distortions] and Session 3, Section 3.3 [for evaluation of ANTs]), pleasant activity scheduling (Session 5, Section 3.2 and Session 6, Section 3.1), reward setting (Session 4, Section 3.2 and Session 5, Section 3.1.1), problem-solving high-risk situations (Session 4, Section 3.3 and Session 5, Section 3.1.2) and/or diaphragmatic deep breathing (Session 6, Section 3.3 and Session 7, Section 3.1.2). Failure to review homework with the patient sends the message that homework is not necessarily important for the patient's progress, and it often leads to poor adherence in the future.

- 3.2. Teaching Autogenic (Passive) Muscle Relaxation: The other muscle-related relaxation technique to be used in the M-BOI is autogenic muscle relaxation. This type of relaxation builds on progressive muscle relaxation by having the patient attempt to create muscle relaxation without the tension phase. This exercise is also called passive muscle relaxation because the goal is to have the patient passively relax his/her muscles. In order for the patient to be successful at autogenic muscle relaxation, however, the patient must be able to accurately recall the relaxation. While this can make acquisition of the skill more difficult for patients, this also makes the skill more useful: unlike progressive muscle relaxation, it is possible to relax muscles passively in the middle of other active exercises (e.g., a test or a conversation). Progressive muscle relaxation requires more effort and is more obvious to outside observers. This makes its use difficult in real-time situations. As will be seen, this is not the case for passive muscle relaxation. Before beginning the rationale for autogenic muscle relaxation (and teaching the skill), it is important to remember that not all patients will be able to benefit from autogenic muscle relaxation at this time. If the patient was unable to differentiate clearly between tension and relaxation, it is unlikely that the patient will be able to effectively utilize autogenic muscle

relaxation; for such patients, it is recommended that the didactic portion of the session concentrate on progressive muscle relaxation (or other tension reduction skills). Autogenic muscle relaxation can be taught in a later session if time allows and/or if tension continues to be an impediment to cessation.

- 3.2.1. Rationale: Since this technique can be used in everyday situations, it has more applicability than progressive muscle relaxation. In addition, the patient may prefer one technique over another; thus, having more than one tool available will enhance the patient's self-efficacy. Both should be clearly stated in the rationale to the patient. A sample rationale for autogenic muscle relaxation is as follows:

"Last week, we talked about progressive muscle relaxation. It was really useful because you could relax your muscles, like cigarettes do. Of course, it is better for you, so our goal was to have you replace a good thing from cigarettes – the muscle relaxation – with another, healthier thing that achieved the same purpose. This week, we are going to talk about another muscle relaxation technique that is related to progressive muscle relaxation. It is called autogenic, or passive, muscle relaxation. You might be wondering why we need 2 muscle relaxation techniques. Well, while progressive muscle relaxation is great, it's kind of obvious to people around you that you are doing it, right?"

At this point, the therapist should tense and hold one of the more obvious muscle groups (e.g., the shoulders or face) to demonstrate that progressive muscle relaxation is difficult to hide.

"So, it's not like you can do that on a date if you are nervous. Unlike progressive muscle relaxation, passive muscle relaxation can be done at any time because it is hard to notice. All you do in passive muscle relaxation is the relaxation part of progressive muscle relaxation without tensing up, which is the obvious part. That way, you can use it to feel more relaxed in stressful situations – and hopefully that prevents you from getting so tensed or stressed that you need to smoke just as soon as the situation is over."

- 3.2.2. Teaching Autogenic (Passive) Muscle Relaxation: As with the other relaxation techniques, it is important to have an environment that is conducive to tension reduction. Therapists should ensure that the therapy room is quiet and not brightly lit, with a comfortable chair and measures taken to ensure that no interruptions occur. As with progressive muscle relaxation, it is helpful for the patient to remove his/her shoes and to wear comfortable clothing to the session (if he/she remembered). Have the patient assume a similar position to the one

he/she used for progressive muscle relaxation. The therapist should introduce autogenic muscle relaxation by again mentioning that the point of passive muscle relaxation is to create the feeling of muscle relaxation without the tension to heighten the difference. Have the patient focus intently on his/her shoulders for any signs of tension, and have him/her verbally state the level of tension on a scale of 1 to 10. If the patient is able to find tension, instruct that patient to close his/her eyes and try to recreate the sense of muscle relaxation that would have followed tension in progressive muscle relaxation. Using a voice to increase tension reduction, have the patient relax the muscle more and more. The therapist should instruct the patient to feel the tension flow out with every exhalation. Once the patient has attempted to achieve a relaxed state for about 30 seconds, have the patient rate his/her tension on the scale of 10. If the patient was successful in significantly reducing tension (e.g., by at least half), have the patient practice again and then move onto other muscle groups where tension commonly resides, such as the face or neck.

If the patient was not successful in reducing his/her tension, alternate methods are needed to increase the patient's awareness of tension or the difference between tension and relaxation. For therapists, the way to circumvent problems with tension awareness is to have the patient overemphasize relaxation through forced total relaxation. The shoulders are often the best muscle group to choose, as they regularly contain tension and can be relaxed strongly. The therapist should first demonstrate the technique, beginning by sitting with his/her hands clasped in front of the top of his/her breastbone. Then, the therapist should quickly drop his/her hands into his/her lap. While doing this, the therapist should talk the patient through the technique. It is important for the therapist to not let his/her hands drop fully to the side, as this stretches the shoulder muscles. This stretch can obscure the state of relaxation.

Once the therapist has demonstrated and explained this technique, the therapist should have the patient attempt the exaggerated relaxation technique. The therapist should help the patient set his/her arms correctly and then count down for the patient to drop his/her arms into his/her lap. Once this is done, ask the patient if he/she noticed a distinct difference and for a rating of tension on the 10-point scale. The goal is to at least half the initial rating (before attempting autogenic muscle relaxation). If the patient is not able to achieve a significant reduction in tension, then the problem most likely lies with not being able to adequately relax his/her muscles without the priming cue of tension. In such cases, continued work on progressive muscle relaxation is indicated. Following continued practice with progressive muscle

tension, and the consequent increases in awareness of the differences in tension and relaxation, the patient will likely be better able to utilize autogenic muscle relaxation. Inform the patient of this, stating that learning the principles of passive muscle relaxation can be helpful and applied in the future. In such cases, the remaining time for didactic work should be devoted to extra practice with progressive muscle relaxation, or to another important topic related to smoking (at the discretion of the therapist).

- 3.2.3. Scheduling Autogenic Muscle Relaxation: The best way to use autogenic muscle relaxation is to employ the technique in real-time situations to reduce anxiety immediately. Progressive muscle relaxation must be used prophylactically or post-stressor, unlike passive relaxation. Thus, the goal is to have the patient achieve a level of comfort with the task that will allow for the spontaneous use of autogenic muscle relaxation. This requires planned practice in non-stressful situations, followed by cued use in everyday non-stressful activities. At first, the patient should schedule daily practice of the technique for 10 minutes; this should occur for the first 4 days of the week. On the final 3 days of the week, the patient should continue 10 minutes of planned daily practice, but he/she should attempt to use passive muscle relaxation in a non- or mildly stressful activity, such as a class at school. The patient should have a predetermined cue to check his/her tension in the shoulders and face and attempt to passively relax those muscle groups, achieving increased relaxation. Without being overly distracted from the demands of the outside world, the patient should attempt to maintain the relaxed state for as long as possible. Cues for beginning autogenic muscle relaxation can include a time (e.g., 15 minutes after the hour), noise (e.g., chimes from a clock or a phone ringing) or event (e.g., breaks between classes or following the end of phone call). The patient and therapist should predetermine a cue that is certain to occur during the patient's day and set passive muscle relaxation to occur following the presentation of the specified cue.

If the patient is to continue practice of progressive muscle relaxation, the homework schedule should continue on a daily basis for 15 minutes at a time that is likely to increase both adherence and benefit. Therapists are referred to Session 6, Section 3.3.3 for further instructions on scheduling relaxation techniques.

- 3.3. Cognitive Evaluation: If time allows, or (if in the clinical judgment of the therapist) the patient has benefited from or could benefit from work on ANTs and cognitive distortions, the therapist can take a few minutes to work with the patient on cognitions. It is important to maintain the boundary of the session and avoid going over time. For further comment on cognitive evaluation,

therapists are referred to Session 2, Section 4.1.2 (for cognitive distortions) and Session 3, Section 3.3 (for evaluation of ANTs).

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should schedule a specific time daily to practice autogenic muscle relaxation for at least 10 minutes.
2. Patient should add the use of autogenic muscle relaxation in daily situations following presentation of a predetermined cue for the final 3 days of the week.
3. Have the patient continue tracking relevant ANTs and cognitive distortions; if a portion of the session was spent on cognitive evaluation, assign brief relevant homework.
4. Patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 9: BOI Session; Review of Relaxation Techniques; Communication Skills: Rationale, Didactics and Application

Goals of the Session:

1. Continue rapport building with the patient.
2. Complete the BOI session with the patient.
3. Review homework on relaxation techniques.
4. Cover didactic material on communication skills.
5. Continue to evaluate automatic negative thoughts (ANTs), as time allows.

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Communication skills handout
4. Behavioral chain worksheet
5. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

“Okay, did relaxation help you stay away from cigarettes?”

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different.

3. Didactic Module: Homework Review and Communication Skills

- 3.1. Homework Review (Relaxation Techniques): The primary homework to review in this session is the patient's use of autogenic muscle relaxation; if this was not assigned, the goal is to review the relaxation technique assigned as homework. Since this review is very similar to the homework review outlined for diaphragmatic deep breathing (Session 7, Section 3.1.2) or progressive muscle relaxation (Session 8, Section 3.1), therapists are referred to those sections for a more in-depth review. The section reviewing progressive muscle relaxation is especially useful, given that autogenic muscle relaxation builds upon progressive relaxation. If the use of an alternative relaxation technique was assigned for homework, therapists should review those with the patient using the appropriate section as a guide.

It is also important to review any other assigned homework as well, including cognitive homework (Session 2, Section 4.1.2 [for cognitive distortions] and Session 3, Section 3.3 [for evaluation of ANTs]), pleasant activity scheduling (Session 5, Section 3.2 and Session 6, Section 3.1), reward setting (Session 4, Section 3.2 and Session 5, Section 3.1.1), problem-solving high-risk situations (Session 4, Section 3.3 and Session 5, Section 3.1.2), diaphragmatic deep breathing (Session 6, Section 3.3 and Session 7, Section 3.1.2) and/or progressive muscle relaxation (Session 7, Section 3.2.2; Session 8, Section 3.1). Failure to review homework with the patient sends the message that homework is not important to the patient's progress towards abstinence, and it often leads to poorer adherence in the future.

- 3.2. Communication Skills – Rationale: Before introducing the final set of skills concerning communication, it is important to orient the patient to the rationale for learning and applying the skill. In imparting the rationale for communication skill use, it is important to establish the connection between social interactions and mood. From there, the therapist should propose that communication skills can reduce the frequency of poor and stressful interactions; reducing negative interactions diminishes a major impetus to

smoke. The first part of the rationale is given here, which begins with establishing the relationship between mood and social interactions:

“Think about the last time you got into a fight with a friend. Can you remember the last one? When it was over, how did you feel – angry, stressed, sad? [If the patient’s last fight was resolved quickly and amicably, have the patient hold that instance for now and ask for a recent fight that took longer to resolve.] Negative interactions with people around us can lead to bad feelings, like those you experienced. Think back, did you want to smoke more after the fight? Would you be surprised to learn that smokers tend to smoke more and ex-smokers tend start smoking again after a bad interaction with another person? Interestingly, the opposite is true as well: good interactions with those around us make it easier to resist smoking. So, do you see how your social interactions tie into your mood and how your mood ties into smoking? Bad interactions often equal bad mood, and that often leads to smoking.

- 3.3. Communication Skills – Interpersonal Rights: Once the relationship between interpersonal relationships, mood and smoking has been made, the therapist should continue by exploring the interpersonal rights that patients have and how arguments or fights tend to result from violations of those rights:

“Now that we see how fights or negative social interactions can lead to smoking, we need to talk about ways to prevent the bad feelings from occurring and making you more likely to smoke. [If the patient has not given an example of a conflict that ended quickly and amicably, attempt to get one from the patient here.] It is important to see that not all fights are bad. Sometimes, fights allow us to talk about problems with another person – and, sometimes those problems get resolved. In those cases [use patient’s example here, if possible], fights result in feeling respected and listened to. Those good feelings do not lead to smoking – actually, they make it easier to stay away from cigarettes. In cases where fights drag on or do not get resolved, it is often because a person feels like his/her rights have been violated. Since that leads to smoking, we need to talk about that – what rights do you and other people have in relationships with others?”

Have the patient brainstorm rights in the session, aiding the process and reframing rights as needed. A list of rights to cover with the patient is provided here. This list is not necessarily meant to be exhaustive, but it includes:

- A. The right to have our own feelings and have these respected.
- B. The right to have our own thoughts/opinions and have these respected.
- C. The right to make our own decisions (within reason, given developmental stage) and have these respected.

- D. The right to express feelings, thoughts and opinions in an appropriate fashion.
- E. The right to change our mind about our feelings, thoughts and opinions.
- F. The right to be healthy and safe from emotional or physical abuse.

If the patient proposes a right, ensure that it is reasonable and includes all people before adding it to the list. During this exchange it is important to emphasize that other people have the same rights as the patient and that respecting the rights of others often leads to getting respect back. Once these rights have been listed with the patient (in a timely fashion; it is acceptable for the therapist to list the rights once a couple of minutes of brainstorming has occurred to ensure timeliness), the therapist should attempt to identify the specific right that was violated in the patient's example of conflict:

"Now that we have our list of rights, let's think back again to the fight you told me about that didn't end well. Why do you think the fight dragged on? Was it because one of these rights wasn't being respected by that person or you (or both of you)? Which right was it?"

Often, the violation of a right underlies a conflict that does not get resolved well. For fights with friends, a lack of respect for feelings or opinions can often be the cause; for fights with parents, conflict about appropriate decision-making can be a major factor. It is very important that the therapist relate the continuation of a fight to a right violation. If the patient cannot relate the violation of a specific right to the continued conflict, the therapist should ask if the patient can remember a time when he/she felt one of his/her rights was violated. Then, the therapist and patient should explore this situation for evidence of negative feelings and increased smoking. Unless the patient is psychologically sophisticated, the therapist will likely have to be very deliberate in demonstrating the connections between rights, conflicts, dysphoria and smoking. Patients can struggle to understand the rationale, so it is important for the therapist to proceed slowly and have the patient put the rationale in his/her words. This allows the therapist to assess understanding of the concept. Once it seems that the patient has internalized the connections, the therapist should proceed by explaining different ways of coping with right violations.

- 3.4. Communication Skills – Coping with Rights Violations: In this portion of the rationale, the therapist will cover the differences between 4 ways of coping with violations of an individual's interpersonal rights. The 4 ways of coping are: assertively, passively, aggressively, and passive-aggressively. The therapist can continue by saying:

"Wouldn't it be nice to have a way to deal with the times when another person steps on your rights so that you didn't feel crummy afterwards? Well there is a

way – it's called being assertive. Assertiveness has a bit of a bad reputation to some people. They think that it means running over people and taking what you want. As we'll talk about later, that is being aggressive. Being assertive isn't like being aggressive by running over others and it isn't like being a pushover, either. It's somewhere in between the two. Being assertive involves letting others know what your needs are, letting others know what you think and how you feel, and it does so in a way that respects others and encourages more communication. Sometimes, it's easier to talk about being assertive by talking about what isn't being assertive."

"Being aggressive is when you respect your rights, but not the rights of others. Aggressive people are like bulldozers, discounting others' thoughts and feelings while maintaining that their feelings and thoughts are correct. By not respecting others, that individual often gets angry responses – which do not help with feeling good or avoiding smoking. Being a pushover, or passive, is not being assertive either. Here, a person doesn't respect his/her rights but does respect the rights of others. In the end, passive people don't stick up for themselves and get taken advantage of because they don't respect their own rights. That leads to feeling depressed, angry and having low self-esteem – which can lead to smoking. The final non-assertive way to act is to be passive-aggressive. Here, a person does not respect his/her rights or the rights of others. These people tend to go along with what others want when other people are around, but later they intentionally sabotage the plan. An example is a person who agrees to take out the trash and then purposely "forgets" about it. These people often feel both angry and sad; they often feel pretty bad about themselves as well. Being assertive is different than those because it involves respecting both your rights and the rights of others. When people are assertive, they feel good about themselves and about how they dealt with the situation – and that makes it easier to resist smoking."

- 3.5. Communication Skills – Application: The final section on communication skills involves using what the patient has learned about assertiveness by applying it to specific situations. First, it is useful to have the patient come up with a situation in which he/she is not commonly assertive. This can be an interaction with a parent, peer, co-worker or boss, and it should preferably be one that will occur in the next week (to allow for homework practice). Have the patient describe the situation in detail, including the usual outcome in terms of his/her feelings. The goal is to give the patient an assertive way of dealing with the situation. The therapist should intervene by role-playing the situation with the patient, initially by playing the patient's role to demonstrate an alternative and assertive way of responding. Therapists should have the patient be the other party in the interaction. This will aid by making the exchange more realistic, and it will help with the later role-reversal. Once the initial role-play has taken place, the therapist can have the patient talk about the ways in which assertiveness was displayed. At this point, the patient and therapist

should reverse roles; the patient will play him/herself and the therapist will be the other member of the interaction. The therapist and patient should role-play the interaction once or twice, until the patient has demonstrated better use of assertive behaviors. Also, it can be helpful to have the patient summarize some other positive ways of dealing with interpersonal situations to increase generalizability to other situations. These can include:

- A. Using open body language (e.g., not crossing arms, facing speaker)
- B. Using regular eye contact with occasional breaks
- C. Not interrupting the other person
- D. Using a calm, firm voice in the conversation
- E. Using courtesy words regularly (e.g., please, thank you)
- F. Making an effort to understand the other person's opinions and feelings
- G. Most importantly, having respect in the conversation for both parties

Once the patient has demonstrated proficiency with assertive communication, it is time to assign communication skills-related homework to the patient. The homework should be to use assertiveness in a specific situation in the next week. This should preferably be the one practiced in session. If the patient cannot think of a situation in the coming week in which assertiveness would be helpful, have the patient think of a person he/she regularly interacts with where assertiveness is a problem. Briefly role-play an interaction with this person, demonstrating an assertive way of interacting. Overall, the goal is to have the patient practice using a situation that is likely to occur; thus, the patient will be more likely to use the skill in the next week. It is important to emphasize, though, that the situation in which the skills are used may not be the one planned in session. Indeed, use of the 7 general communication skills listed above would improve any exchange, not just those involving conflict. While use of these skills would most clearly improve the patient's mood and cognitions in situations involving a disagreement, use of these skills can (and should) occur in conversations throughout the day. The therapist should encourage the patient to use these skills as much as possible, perhaps concentrating on 1 or 2 that are most difficult for the patient. The therapist can use his/her impressions of the patient, in addition to the patient's self-report, to come up with 2 for practice. Have the patient commit to using these skills throughout the day; this can be facilitated by having the patient cognitively commit to skill use prior to all conversations that he/she initiates.

- 3.6. Cognitive Evaluation: If time allows, or (if in the clinical judgment of the therapist) the patient has benefited from or could benefit from work on ANTs and cognitive distortions, the therapist can take a few minutes to work with the patient on cognitions. It is important to maintain the boundary of the session and avoid going over time. For further comment on cognitive evaluation, therapists are referred to Session 2, Section 4.1.2 (for cognitive distortions) and Session 3, Section 3.3 (for evaluation of ANTs).

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following the didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Therapists should have the patient review his/her assigned homework and its rationale as well. Finally, it is important that the therapist ask the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: The next task is to set a smoking goal to be achieved by the next treatment session. As this topic has been covered in detail in previous sessions, therapists are referred to sessions 1 through 3 for more specific information. To aid reduction and self-awareness of smoking, the therapist should assign the patient a daily cigarette tracking sheet.
- 4.3. Feedback: Following the review of the session and goal-setting for the next week, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to sessions 1 through 3.
- 4.4. Conclusion: Finally, set the next appointment with the patient and give him/her a reminder card with the therapist's contact information and a list of the pertinent materials to bring to the next session. Offer to make a reminder call to the patient, if he/she would like one.

Session Homework:

1. The patient should use assertiveness at least once, in a scheduled encounter.
2. The patient should continue to use the most effective relaxation technique during or in anticipation of stressful situations.
3. Have the patient continue tracking relevant ANTs and cognitive distortions; if a portion of the session was spent on cognitive evaluation, assign brief relevant homework.
4. The patient should track his/her smoking for the intervening week on the assigned worksheet.

M-BOI Session 10: Continued Work on Communication Skill Application; Review of All Skills; Anticipation and Problem-Solving of Future High-Risk Situations

Goals of the Session:

1. Complete the BOI session with the patient.
2. Review communication skills material and continue implementation.
3. Briefly review the skills learned in the intervention, emphasizing the most useful intervention skills with the patient.
4. Collect future (next 6 months) high-risk situations and problem-solve these situations.

Materials and Preparation Needed Prior to Session:

1. BOI Regular Session packet
2. M-BOI session outline
3. Communication skills handout
4. Problem-solving worksheet
5. Patient's chart

1. Session Introduction

- 1.1. Greeting: As with previous sessions, it is helpful to begin by engaging in small talk that is unrelated to smoking. Such small talk continues to emphasize the importance of the whole patient and helps make a transition between completion of questionnaires (or waiting for the therapist) and the treatment session itself.
- 1.2. Session Introduction: After a short period has been spent in conversation, the therapist should shift the focus of the session to cessation-related topics by prompting the patient to focus on his or her smoking by saying:

“This is our last session – how did things end up with your smoking?”

Or, the therapist can start with the stage of change question on the first page of the BOI session materials. If the therapist does ask an open-ended question, asking the stage of change question is still required and can be done once the opening question has been answered. As with previous sessions, it is crucial to reinforce the individual for his or her continued attendance; this is especially necessary for individuals who have struggled to meet smoking-related goals.

2. BOI

- 2.1. Completion of the BOI Materials: Therapists should complete the BOI handouts before proceeding to the didactic portion of the session. The procedures for the BOI components are described in the materials on session 2, sections 2 and 3. Therapists are advised to work towards avoiding repetition in questions or order of topics in the BOI session, as this makes treatment less interesting and tends to hurt the ability of the patient to engage. While it is important to cover most of the topics in the BOI session, as time allows, it is also important to balance this drive with efforts to keep the sessions interesting and different. In this session, there are three important topics to cover, and the BOI materials have been covered extensively in past sessions; thus, if time becomes an issue, it is important to emphasize the didactic material over the BOI section.

3. Didactic Module: Homework Review, Review of Skills and Anticipation of Future Stressors

- 3.1. Homework Review (Communication Skills): Review of the assigned communication skill homework should proceed as homework review has in the past: by reviewing adherence to the task followed by the benefit derived from use (assuming adherence). Thus, for more specific instructions on assessing these aspects, therapists are referred to previous sections on homework review. It has been our experience that patients can struggle with adherence to communication skill homework, often stating something like, “an opportunity didn’t come up to use it.” It may be true that the situation selected for the practice of the skill did not arise; that said, communication skills can be used in any encounter. The use of assertive communication skills involves a significant shift in outlook and behavior change, which may be difficult for the patient. It is important to ascertain what impediments made skill implementation difficult and problem-solve these. While impediments common to past experiences with homework often interfere (e.g., poor internalization of the rationale, unexpected time commitments that interfered with the planned encounter, or lack of opportunity planned for in past session), there are impediments that are unique to communication skills.

One of the unique impediments to communication skill practice is a lack of understanding about the situations and times when these skills can be implemented. Despite emphasizing that communication skills are useful in any situation, some patients will think that they should only be used in arguments. While this may be the most useful time for use, good communication can improve any interpersonal interaction. As mentioned in the last session, it is important to encourage the patient to use these skills (i.e., the 7 skills listed in Session 9, Section 3.5) in everyday encounters. The therapist should explore

specific ways that the patient can use good communication skills in conversation; in-session practice is also encouraged.

Another major impediment is entrenched passivity or aggressiveness that would make assertiveness difficult or even threatening to use. Some patients will believe that the use of assertiveness will result in a poor outcome. These patients may hold beliefs like, “If I stand up for myself, others will reject or attack me” or “If I am not aggressive, others will walk all over me”. As significant cognitive restructuring is not possible, only a brief exploration of the cognitions preventing the use of an assertive interaction style is indicated. Once a few minutes have been spent evaluating the cognitions that impede assertive behavior, the therapist and patient should work to find a non-threatening person to practice assertiveness with. Using assertiveness in a conflict-ridden relationship or situation would likely be too difficult for such individuals. The therapist should encourage the patient to practice assertiveness in the least threatening environment possible (perhaps continuing role-playing with a friend or family member) and only progressing to more difficult or threatening encounters later.

It is also important to review any other assigned homework as well, including cognitive homework (Session 2, Section 4.1.2 [for cognitive distortions] and Session 3, Section 3.3 [for evaluation of ANTs]), pleasant activity scheduling (Session 5, Section 3.2 and Session 6, Section 3.1), reward-setting (Session 4, Section 3.2 and Session 5, Section 3.1.1), problem-solving high-risk situations (Session 4, Section 3.3 and Session 5, Section 3.1.2), diaphragmatic deep breathing (Session 6, Section 3.3 and Session 7, Section 3.1.2), progressive muscle relaxation (Session 7, Section 3.2.2; Session 8, Section 3.1) and/or autogenic muscle relaxation (Session 8, Section 3.2). This portion of the session should conclude with the therapist encouraging the patient to continue practice of communication skills. A brief review of the 7 skills listed in Session 9, along with scheduling further practice of assertiveness is indicated. As this is the last session, therapists should convey the importance of continued practice of all skills from the M-BOI that the patient found helpful. It is important that the patient be aware that skill use will aid continued cessation or efforts to achieve cessation; regular practice, in addition to use of the skill in relevant situations, will be of the greatest aid to the patient in his/her sustained efforts at abstinence. This also creates a transition to the next section of the didactic materials, which is to review the most useful skills with the patient.

- 3.2. Review of Skills Learned in the Sessions: As this is the last session, it is important to have the patient briefly review the skills that he/she has learned and used. While it might be nice to have the patient review every skill learned over the course of the intervention, this is not realistic given the time involved. Instead, it is more realistic to have the patient review the 2 or 3 skills that

he/she found most useful. In this review, the therapist should have the patient cover both the “nuts and bolts” of implementing the technique and the situations where he/she can implement the skill to prevent smoking. Therapists are referred back to the specific sections covering each skill to aid in the process of review. In addition, this process should be treated as long-term homework setting, with the therapist aiding in the creation of an action plan to cope with temptations to smoke. Thus, the therapist should have the patient specifically schedule (while exercising reason) the use of the techniques in the coming weeks and months. It is important that the therapist have the patient use a relatively broad spectrum of techniques; the ideal case is the use of cognitive coping statements, problem-solving for high-risk situations and some behavioral technique (e.g., reward setting or relaxation techniques). If the patient only proposes the use of two closely related skills, such as diaphragmatic deep breathing and muscle relaxation, the therapist should gently encourage the inclusion of another, unrelated skill.

- 3.3. Anticipation of and Planning for Future Stressors: It is also important to have the patient anticipate any upcoming stressors so that the situation (and the increased temptation to smoke) can be problem-solved in advance. Examples of stressful events include graduation from high school or college, moving away from home or to a new town, changing jobs, resuming a romantic relationship (that was interrupted by summer), or a close friend moving. It is often useful to attempt to anticipate events within the next 6 months, although for major events like beginning college, 12 months is acceptable. It is important to have the patient anticipate the potential for stress from the event and to create a specific action plan to proactively lessen the stressful event's effects and/or cope with the anticipated effects. To aid this process, problem-solving (outlined in Session 4, Section 3.3.1.) should occur for the event.

In order to illustrate this process, a hypothetical example is given here: enrollment in a college 150 miles away. Here, it would also be useful to find the specific aspects of the situation which are most troubling, as beginning college is a very vague and general problem that would be difficult to problem-solve. Examples of more specific problems include leaving parents or siblings, separations from friends or a boy/girlfriend, making new friends or adjusting to college work. This is the first step of problem-solving – identifying the specific problem at hand. The next step is to brainstorm potential solutions to the specific problem. If the problem is separation from family, reasonable solutions might be to call or email family members on a set schedule, tapering that schedule as the patient deems appropriate; in addition, scheduling trips home or family visits in advance is indicated. Similar solutions might work for coping with separations from friends or significant others; another solution to separations from these individuals is to plan solutions that increase time together (within reason, given the demands of college), such as vacations. For coping with making new friends in college, it is important to recommend

making non-smoking friends, spending time with these individuals in non-smoking areas or in activities that discourage smoking. Brainstorming places to meet friends and role-playing initial encounters is also encouraged. For coping with the new demands of college work, encourage the patient to join study groups, get proactive academic counseling, and to stay ahead on school work. Regardless of the specific problem, it is important to encourage good eating habits, exercise, adequate sleep, scheduling of enjoyable activities, and scheduling of relaxation techniques to encourage positive adjustment.

Once solutions have been brainstormed, it is important to create a concrete plan for their implementation. Unlike the recommendation in the above problem-solving section (in Session 4), multiple solutions can and should be used. In Session 4, the focus was on a single high-risk situation, whereas here, the problem is likely to be larger. This will necessitate the use of multiple coping techniques. Encourage the patient to continue brainstorming solutions and to carry out the final two steps of problem-solving: evaluation of the techniques after their use and modification of the plan, as needed.

4. Review, Goal Setting, and Conclusion

- 4.1. Review: Following didactic portion of the session, the therapist should verbally conclude and initiate the review. The patient should review the material, and the overview should be no more than one minute. Therapists should aid the patient, as needed, by reminding them of the general topics covered; that said, the review should be left to the patient to complete. Finally, it is important that the therapist asks the patient specifically if he/she has any questions or if any of the material in the session was confusing.
- 4.2. Goal-Setting: As this is the last session, it is not possible to plan a smoking-related goal for the patient's next visit. Instead it is important to encourage patients who have achieved abstinence to continue abstinence and to encourage patients who have not achieved cessation to continue their efforts. For patients who have not achieved cessation, exploration of medication (nicotine replacement or bupropion) can be useful, as can recommendations for obtaining further behavioral therapy. Many states offer telephone quitlines; patients can be encouraged to follow-up with one of these services. For instance, the State of Texas offers a quitline through the American Lung Association; often they, or the American Cancer Society, will have resources for patients.
- 4.3. Feedback: Following the review of the session and goal-setting for the future, therapists should ask for verbal feedback from the patient about the session. For further instructions on how to elicit and effectively deal with feedback, therapists are referred back to previous sessions, especially sessions 1 through 3. Feedback should be elicited not only for this session, but for the

intervention as a whole. While this occurred to some degree in the section above on skill review (Section 3.2), it is important to also ask for aspects of the intervention that were not helpful (as helpful components were already cataloged in Section 3.2); in addition, feedback should be obtained on which aspects therapist's style the patient liked and did not like. While negative feedback can be hard for therapists to cope with, it is important to remember that this is an opportunity to learn and improve with future patients

- 4.4. Conclusion: It is important for the therapist to let the patient know that the therapist has enjoyed working with the patient; it is also helpful to praise the efforts of the patient in completing the intervention and working diligently towards cessation. Finally, the therapist should work to achieve a sense of closure for the intervention. While termination of this intervention will not require as much processing as would termination from more intensive psychotherapy, it is important to allow time for brief processing of termination.

Session Homework:

1. The patient should schedule a specific time to practice assertive communication skills, including the 7 aspects of positive communication.
2. Have the patient continue tracking relevant ANTs and cognitive distortions; the patient should continue to devise counter-thoughts to combat ANTs and distortions.
3. For patients who need follow-up care (due to concerns about relapse or in aid of continued cessation efforts), the patient should work to arrange further treatment.

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APPENDIX B

Tables

Table 1

Session Outline for the Modified Brief Office Intervention

Session No.	BOI	Didactic (Cognitive/Mood) Components
Session 1 (baseline)	Baseline Assessment	Cognitive-behavioral chain; relationship between mood and smoking
Session 2	Regular Session	Reemphasis of cognitive-behavioral chain; emotional withdrawal and coping; eliciting automatic negative thoughts (ANTs) related to cessation
Session 3	Regular Session	Reevaluation of coping with emotional withdrawal; evaluation of ANTs related to cessation
Session 4	Regular Session	Reward-setting: rationale and application; evaluation of high-risk situations; continued work on ANTs
Session 5	Regular Session	Enjoyable activities: rationale and application; coping with high-risk situations; continued work on ANTs
Session 6	Regular Session	Relaxation: diaphragmatic deep breathing; importance of managing tension; continued work on enjoyable activity-setting
Session 7	Regular Session	Relaxation: progressive muscle relaxation; continued work on ANTs
Session 8	Regular Session	Relaxation: passive muscle relaxation; continued work on ANTs and high-risk situations
Session 9	Regular Session	Communication skills: rationale, didactics and application; review of relaxation techniques
Session 10	Regular Session	Reemphasis of communication skill- application; review of all skills; anticipation of and problem-solving for future high-risk situations (e.g., moving, beginning or ending school)

Table 4*Demographic and Socioeconomic Characteristics*

Variable	Mean	Median	SD	Range
Age (Years)	20.75	****	3.18	14-25
Cigarettes Smoked per Day	16.46	****	7.56	10-50
Socioeconomic Status Score	40.18	****	10.77	17-63
5-point Socioeconomic Level	****	2	****	1-5
Level of Education	****	5	****	2-6
Occupational Level	****	4	****	1-8

Table 5*Gender and Ethnicity Frequencies and Percentages*

Ethnicity	Frequency		Percent		
	Male	Female	Male	Female	Total
Caucasian	19	28	30.2	44.4	74.6
African-American	3	3	4.8	4.8	9.5
Hispanic/Latino	3	2	4.8	3.2	7.9
Asian	1	1	1.6	1.6	3.2
Biracial	2	1	3.2	1.6	4.8
Total	29	34	46.0	54.0	100.0

Table 6*Depression Status and Treatment Characteristics*

Variable	n	Percentage	Mean	SD
Treatment Variables				
Received no treatment	25	39.7		
Received some treatment	38	60.3		
Drop-out before Week 4	10	15.9		
Drop-out between Weeks 4 and 9	6	9.5		
Treatment completers	22	34.9		
Sessions Attended			6.21	2.896
Depression Status Variables				
Non-Depressed Smokers	30	47.6		
Depressed Smokers	33	52.4		
Past Major Depression	21	33.3		
Current Major Depression	9	14.3		
History of Dysthymia	2	3.2		
History of Double Depression	1	1.6		

Table 7*Variables Related to Receiving Treatment*

Variable	No treatment M (SD)	Some treatment M (SD)	df	<i>t</i> /(<i>Z</i>)	<i>p</i>
Age	19.88 (3.295)	21.32 (3.014)	61	-1.782	.080
Socioeconomic Status	42.75 (10.237)	38.55 (10.909)	60	1.511	.136
Cigarettes Smoked Per Day	15.20 (5.354)	17.29 (8.69)	61	-1.074	.287
Exhaled CO	13.90 (5.259)	13.96 (8.94)	36	-.021	.983
Sex	N/A	N/A	N/A	(-1.798)	.072
Race/Ethnicity	N/A	N/A	N/A	(-.285)	.776
Socioeconomic Status (5-point)	N/A	N/A	N/A	(-1.431)	.152
Occupation	N/A	N/A	N/A	(-.193)	.847
Depression Status	N/A	N/A	N/A	(-1.285)	.199

Table 8*Variables Related to Depression Status*

Variable	Depressed M (SD)	Non-depressed M (SD)	df	<i>t</i> /(<i>Z</i>)	<i>p</i>
Age	20.41 (3.076)	21.14 (3.314)	61	-.901	.371
Socioeconomic Status	39.15 (10.660)	41.34 (10.959)	60	-.798	.428
Cigarettes Smoked Per Day	17.53 (8.312)	15.21 (6.493)	61	1.220	.227
Exhaled CO	13.00 (7.844)	14.80 (8.364)	36	-.682	.500
Sex	N/A	N/A	N/A	(-.176)	.861
Race/Ethnicity	N/A	N/A	N/A	(-2.049)	.040
Socioeconomic Status (5-point)	N/A	N/A	N/A	(-.263)	.793
Occupation	N/A	N/A	N/A	(-1.083)	.279
Treatment Received	N/A	N/A	N/A	(-1.285)	.199

Table 9*GLM Repeated Measures (within-subjects) Evaluation of Tertiary Hypotheses*

Variable	df	F	<i>p</i>	Partial ϵ^2
Average Smoking * BDI	3.094	.585	.631	****
Average Smoking * HDRS	3.086	.971	.411	****
CO Level * BDI	3.687	.655	.612	****
CO Level * HDRS	3.630	.337	.835	****

Table 10*Descriptive Data of Exploratory Measures*

Variable	Week 0	<u>Mean (SD)</u>	Week 9
		Week 4	
SSES	110.59 (47.34)	147.82 (46.54)	156.86 (39.55)
CST (Self)	9.68 (4.13)	9.18 (3.98)	8.64 (4.20)
CST (World)	8.05 (3.58)	6.86 (3.15)	7.64 (3.30)
CST (Future)	8.00 (4.32)	7.73 (4.08)	7.91 (3.34)
CST (Pleasant)	9.73 (5.82)	9.50 (5.10)	9.82 (5.17)
CST (Unpleasant)	16.00 (5.73)	14.32 (5.62)	12.05 (5.71)
HSC	2.63 (3.53)	2.95 (3.97)	2.59 (2.94)
HRSD (all)	5.36 (7.72)	3.23 (4.26)	3.95 (7.37)
BDI (all)	2.95 (5.14)	2.09 (3.93)	1.09 (2.74)
HRSD (depressed)	9.40 (10.17)	5.80 (5.16)	5.40 (9.29)
BDI (depressed)	5.50 (6.82)	4.40 (4.99)	2.00 (3.86)
HWS	4.31 (3.26)	2.55 (3.32)	2.64 (4.29)
UTS	32.05 (11.43)	20.14 (9.28)	18.73 (9.67)
FTQ	5.59 (1.64)	3.84 (2.22)	3.41 (2.03)

Table 11*GLM Repeated Measures (within-subjects) Evaluation of Exploratory Measures*

Variable	df	F	<i>p</i>	Partial ϵ^2
SSES	1.411	13.457	<.001	.392
CST (overall)	2	4.090	.024	.163
CST (Self)	2	1.425	.252	****
CST (World)	2	1.875	.166	****
CST (Future)	2	.110	.896	****
CST (Pleasant)	2	.053	.948	****
CST (Unpleasant)	2	18.629	<.001	.470
HSC	2	.526	.595	****
HRSD (all)	1.414	.829	.409	****
BDI (all)	1.566	2.255	.131	****
HRSD (depressed)	2	.818	.457	****
BDI (depressed)	2	1.841	.187	.170
HWS	1.289	2.037	.162	****
UTS	2	13.507	<.001	.391
FTQ	2	24.457	<.001	.538

Table 12*SSES Pairwise Comparisons*

Comparison	Mean Difference	Std. Error	p^*
Weeks 0 and 4	37.227	11.018	.009
Weeks 0 and 9	46.273	10.647	.001
Weeks 4 and 9	9.045	5.625	.368

*** = Adjusted for multiple comparisons using the Bonferroni procedure**

Table 13*CST (Unpleasant) Pairwise Comparisons*

Comparison	Mean Difference	Std. Error	p^*
Weeks 0 and 4	1.682	.777	.126
Weeks 0 and 9	3.955	.587	<.001
Weeks 4 and 9	2.273	.567	.002

*** = Adjusted for multiple comparisons using the Bonferroni procedure**

Table 14*HWS Pairwise Comparisons*

Comparison	Mean Difference	Std. Error	p^*
Weeks 0 and 4	1.773	1.077	.344
Weeks 0 and 9	1.682	.528	.013
Weeks 4 and 9	.091	1.224	1.000

*** = Adjusted for multiple comparisons using the Bonferroni procedure**

Table 15*UTS Pairwise Comparisons*

Comparison	Mean Difference	Std. Error	p^*
Weeks 0 and 4	11.909	3.159	.003
Weeks 0 and 9	13.318	3.030	.001
Weeks 4 and 9	1.409	2.149	1.000

*** = Adjusted for multiple comparisons using the Bonferroni procedure**

Table 16*FTQ Pairwise Comparisons*

Comparison	Mean Difference	Std. Error	p^*
Weeks 0 and 4	1.750	.322	<.001
Weeks 0 and 9	2.182	.386	<.001
Weeks 4 and 9	.432	.274	.389

*** = Adjusted for multiple comparisons using the Bonferroni procedure**

Table 17*Treatment Acceptability and Recommendation Ratings*

Variable	Mean	SD	Median	Range
Week 4 Acceptability	3.64	.678	4	2-4
Week 4 Recommendation	3.50	.793	4	1-4
Week 9 Acceptability	3.65	.487	4	3-4
Week 9 Recommendation	3.65	.573	4	2-4

Table 18*Session Usefulness Ratings*

Session (Treatment Week)	Mean	SD	Median	Range
Session 1 (Week 0)	3.25	.692	3	2-4
Session 2 (Week 1)	3.33	.620	3	2-4
Session 3 (Week 2)	3.55	.568	4	2-4
Session 4 (Week 3)	3.60	.500	4	3-4
Session 5 (Week 4)	3.75	.444	4	3-4
Session 6 (Week 5)	3.60	.598	4	2-4
Session 7 (Week 6)	3.65	.606	4	2-4
Session 8 (Week 7)	3.61	.502	4	3-4
Session 9 (Week 8)	3.67	.485	4	3-4
Session 10 (Week 9)	3.55	.739	4	2-4

APPENDIX C

Figures

Figure 1

Weekly Participant Ratings of Average Cigarettes Consumed per Day

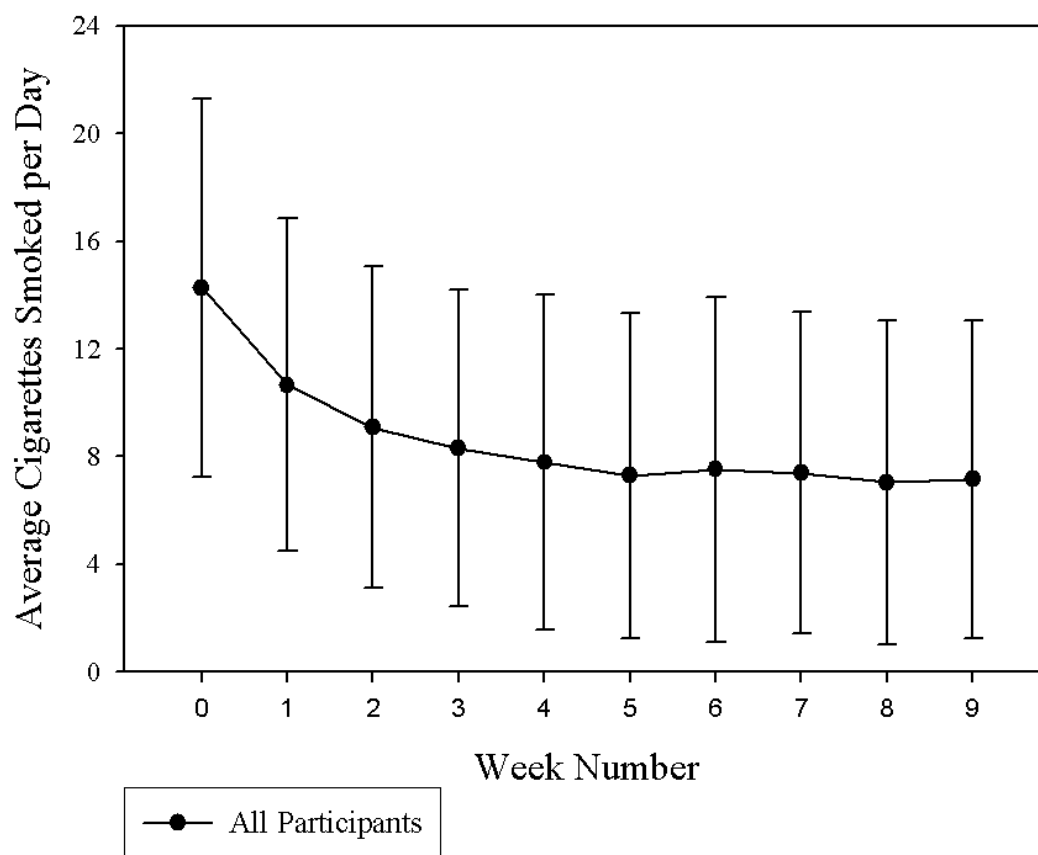


Figure 2

Weekly Mean Participant CO Levels (ppm)

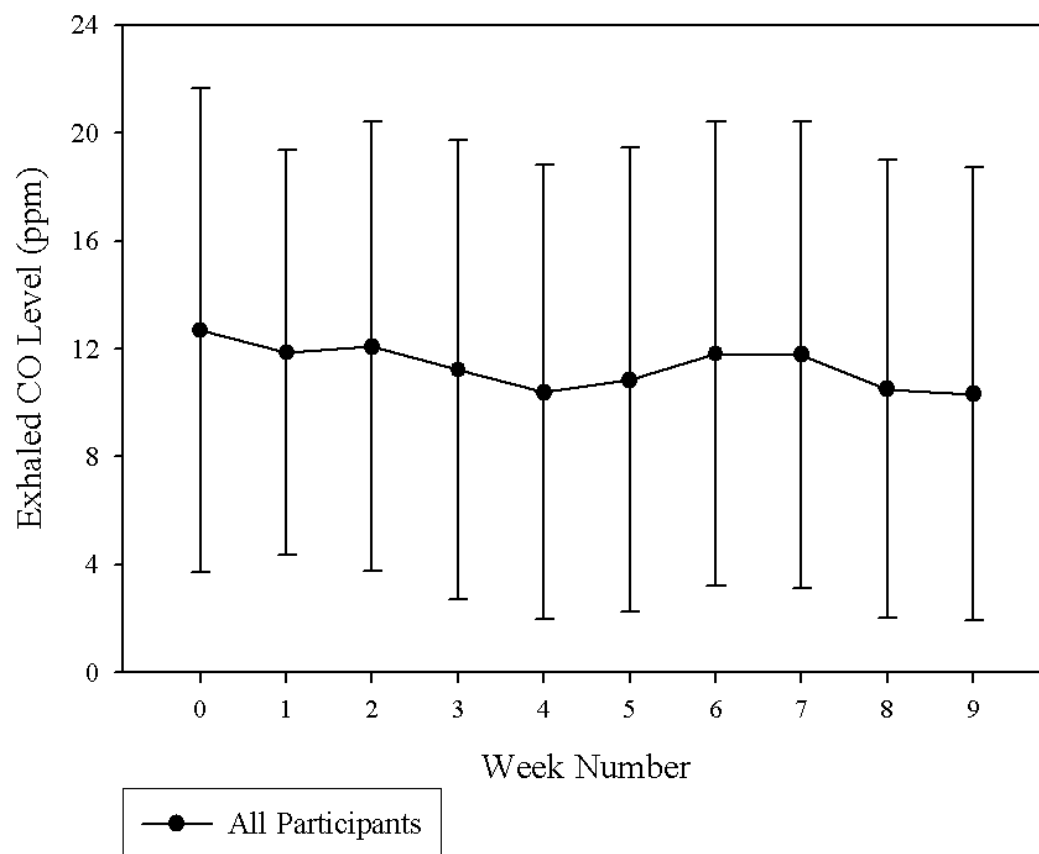


Figure 3

Weekly Mean Participant Semiquantitative Cotinine Levels

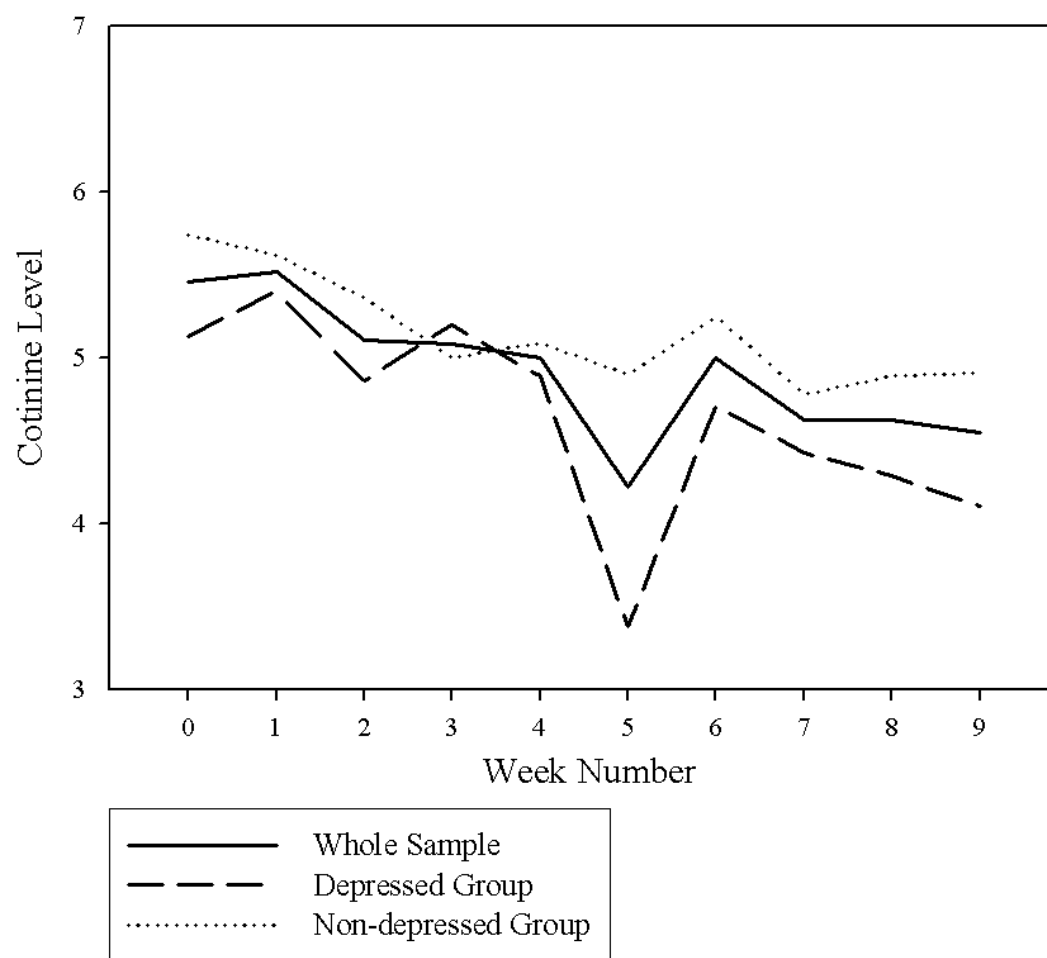


Figure 4

*Weekly Participant Ratings of Average Cigarettes Consumed per Day by
Depression Status Group*

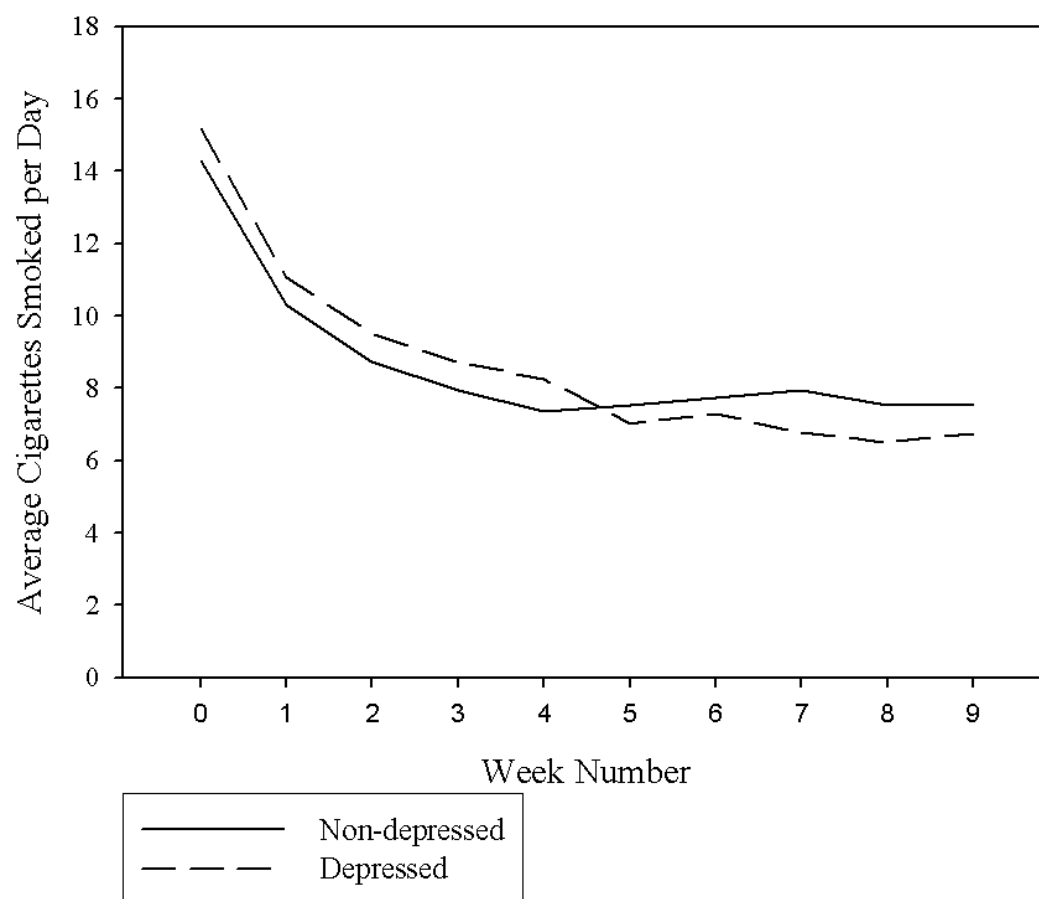
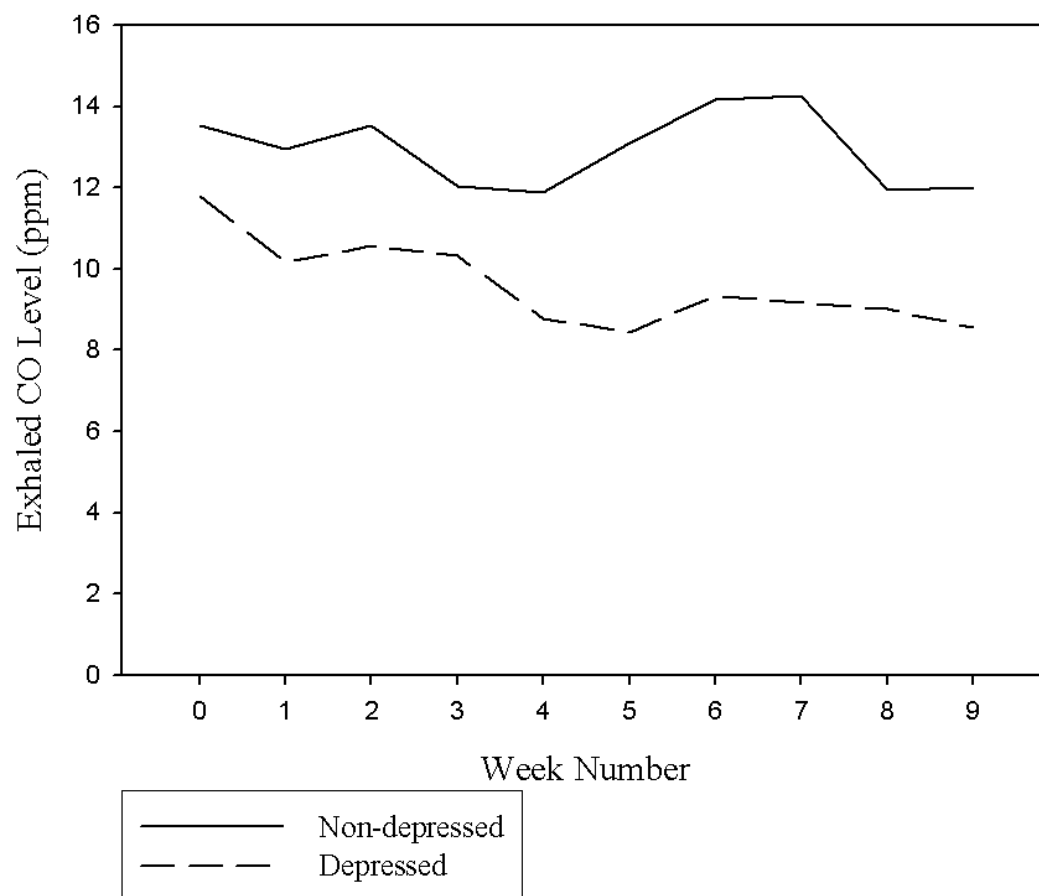


Figure 5

Weekly Mean Participant CO Levels (ppm) by Depression Status Group



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VITAE

Ty Stephen Schepis was born in Dallas, Texas, on December 31, 1976, the son of Mary Judith Schepis. After graduating from James Martin High School in Arlington, Texas in 1995, he matriculated to Texas Christian University in Fort Worth, Texas. He was granted the degree of Bachelor of Science, *Summa Cum Laude*, with Departmental Honors in Neuroscience from Texas Christian University in May, 1999. During the next three years he was employed as a research technician at the University of Texas Health Science Center at Dallas. In addition, he worked as a Master Trainer and Tutor for the Princeton Review of Fort Worth, Texas. In August of 2002 he entered the Graduate School of Biomedical Sciences at the University of Texas Health Science Center at Dallas. He was awarded a Doctorate of Philosophy degree in August of 2006. Following graduation, he will be employed at Yale University in New Haven, Connecticut as a National Research Service Awardee (T32). This position will be funded by the National Institute of Drug Abuse. On June 4, 2005, he married Karen Allen Macy of North Carrollton, Mississippi.

Permanent Address: 5711 Stage Line Drive
Arlington, Texas 76017