EFFECTIVENESS OF A SMOKING CESSATION PROGRAM COMBINED WITH TRANSDERMAL NICOTINE

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ABSTRACT

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The aim of the present study was to assess the effectiveness of a cognitive-behavioral smoking cessation program combined with nicotine patches in a university student sample. Moreover, changes in self-efficacy judgments of both experimental and control group participants were examined. 37 students from various departments of Middle East Technical University participated in the study. Participants in the experimental group received a 6-week group based multicomponent smoking cessation program combined with nicotine patches, whereas those in the control group were provided with self-help booklets. Point prevalence abstinence was used as the main outcome measure, which was verified by CO-measurement in exhaled air both at post-treatment and follow-ups. Separate one-way ANOVAs and repeated measures ANOVAs were used in data analysis. Results showed that there were no significant differences between the experimental and control group in terms of their degree of motivation, readiness and decision to quit smoking, nicotine dependence, depression, self-efficacy, and perceived social

support at pre-treatment. Results of the repeated measures ANOVA with CO-values showed that the CO-levels of experimental groups significantly declined from pre-treatment to post-treatment and to follow-ups. Abstinence rates for the experimental group were found to be 66.67%, 55.55% and 45.44% at post-treatment, 1-month follow-up and 2-months follow-up respectively. On the other hand, abstinence rates for the control group were found to be 11.76%, 5.88% and 5.88% at post-treatment, 1-month follow-up and 2-months follow-up respectively. Moreover, it was found that self-efficacy scores of experimental group participants significantly increased at post-treatment, whereas those of control group participants significantly decreased from pre-treatment to post-treatment. The findings were discussed in the light of the relevant literature. After discussing the limitations and implications of the study, directions for future studies were suggested.

Keywords: Smoking cessation; Cognitive-behavioral; Transdermal nicotine patches; CO measurement.

ÖZ

TRANSDERMAL NİKOTİN İLE KOMBİNE EDİLMİŞ SİGARA BIRAKMA PROGRAMININ ETKİLİLİĞİ

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Bu çalışmada, nikotin bantları ile kombine edilmiş bilişsel-davranışçı sigara bırakma programının etkililiğinin, üniversite öğrencilerinden oluşan bir örneklemde ölçülmesi amaçlanmıştır. Ayrıca, deney ve kontrol grubunda yer alan katılımcıların öz-yeterliklerinde zaman içinde meydana gelen değişiklikler de incelenmiştir. Çalışmaya, Orta Doğu Teknik Üniversitesi'nin çeşitli bölümlerinde okuyan toplam 37 öğrenci katılmıştır. Deney grubunda yer alan katılımcılara 6-haftalık grup bazlı sigara bırakma programı ve nikotin bandı kombinasyonu uygulanırken, kontrol grubundaki katılımcılara kendi kendine yardım kitapçıkları dağıtılmıştır. Katılımcıların sigara içip içmedikleri program bitiminde ve takiplerde solunum havasındaki CO değerleri ölçülerek doğrulanmıştır. Sonuçları değerlendirmek için tek yölü ve tekrarlı varyans analizleri uygulanmıştır. Sonuçlar, program öncesinde deney ve kontrol grupları arasında motivasyon, sigarayı bırakma kararı, sigarayı bırakmaya hazırlılık ve nikotin bağımlılığı dereceleri, depresyon, öz-yeterlik ve algılanan sosyal destek değişkenleri açısından anlamlı bir fark bulunmadığını göstermiştir. CO değerleri ile yapılan tekrarlı varyans analizi sonuçları, deney

grubundaki katılımcıların program öncesindeki CO değerlerinin program sonrasında ve takiplerde anlamlı bir şekilde düştüğünü göstermiştir. Deney grubunun sigara bırakma oranları, program sonunda, ilk ve ikinci takiplerde sırasıyla %66.67, %55.55 ve %45.44 olarak bulunmuştur. Öte yandan, kontrol grubunun sigara bırakma oranları program sonunda, ilk ve ikinci takiplerde sırasıyla %11.76, %5.88 ve %5.88 olarak bulunmuştur. Ayrıca, deney grubunda yer alan katılımcıların öz-yeterlik puanlarının program sonunda anlamlı bir şekilde arttığı, öte yandan kontrol grubunda yer alan katılımcıların öz-yeterlik puanlarının program sonunda anlamlı bir şekilde düştüğü bulunmuştur. Bulgular ilgili literatür ışığında tartışılmıştır. Araştırmanın sınırlılıkları ve çıkarımları tartışıldıktan sonra gelecekte yapılabilecek araştırma konuları önerilmiştir.

Anahtar kelimeler: Sigara bırakma; Bilişsel-davranışçı; Transdermal nikotin bantları; CO ölçümü.

To my mom Nazmiye Yorulmaz and my husband Çağlar Sönmez

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INTRODUCTION

1.1 Smoking

1.1.1 Prevalence and Negative Effects

Tobacco smoking was stated to be an important cause of premature mortality and disability worldwide (WHO, 1999). Worldwide mortality from tobacco use in 1998 had been estimated to rise up from 4 millions to 10 millions in 2030. Estimates showed that over 70% of these deaths will occur in the developing countries (WHO, 1999). Although showing a trend of decrease in the United States, smoking still constitutes the major preventable cause of premature death in the nation (Dodgen, 2005, p. 12). Currently, smoking causes approximately 430.000 deaths annually in the United States and the number of deaths due to smoking exceeds the number of deaths due to cocaine, heroin, alcohol, fires, auto accidents, homicides, suicides, and AIDS combined. Furthermore, approximately 40.000 nonsmokers die each year as a result of their involuntary exposure to secondhand smoking (Centers for Disease Control and Prevention (CDCP), 2002).

Global estimates of smoking prevalence are not different from the US data. Jha and colleagues (2002) calculated regional and global estimates of cigarette smoking for 1995. It was shown that 29% of the world's population, which was 1.1 billion in 1995, was daily smokers. Smokers living in low and middle income countries constituted the 82% of all smokers. It can be concluded from this picture that smoking related deaths and smoking related disease burden will be a serious problem for low- and middle income countries in the near future.

Although tobacco consumption decreased between 1982 and 1991 in most high income countries, it has been increased in developing countries (WHO, 1999). A similar pattern of increment has been observed in Turkey. It was stated that Turkey is ranked as the second country in Europe with the highest cigarette consumption rate after Greece. In Turkey, cigarette consumption per person estimated as 1.837 in 1976, it increased to 2.696 in 1984 (Aşut, 1993, p. 48).

Although there are many prevalence studies with different populations in Turkey, there is not a systematic nationwide study apart from the survey of PIAR conducted in 1988 (cited in Aşut, 1993, p.48). These prevalence studies within different subpopulations included various samples like students of high school and university, women, and health professionals (Demirel & Sezer, 2005; Gülbayrak et al., 2004; Erbaycu et al, 2004). In a study with 899 university students (Demirel & Sezer, 2005), smoking prevalence among male and female students was found to be 50.1% and 33.5% respectively. Similarly, in a sample of students from various universities of Ankara (Yüksel, Dereboy, & Çifter, 1994), the rate of smoking was stated to be 60%. According to the results of a study conducted in 15 different cities of Turkey (Ögel & Tamar, 2001), 22% of high school students aged between 15 and 17 were regular daily smokers. In their study, Gülbayrak and colleagues (2004) examined the smoking prevalence of women living in Elazığ and found the smoking rate in this sample as 26.5%. Moreover, smoking rate of working women and housewives was indicated to be 54.8% and 22.7% respectively. In another striking study, (Erbaycu et al, 2004) the prevalence of cigarette smoking in health professionals in İzmir city was found to be 54.6%. It can be concluded from these studies that smoking is a prevalent problem in different geographical regions and occupational groups.

Concerning the smoking prevalence, the most representative nationwide study was conducted by PIAR in 1988 (cited in Aşut, 1993, p. 48). According to this research, for people aged over fifteen smoking rate was 62.8% for men, 24.3% for women, and 43.6% for both. Moreover, for people aged between 15 and 18 this rate was indicated to be 30%. Additionally, in this study 64% of the smokers stated

smoking one packet or more cigarettes per day and 59% claimed to have at least one quit attempt in the past.

Aşut (1993, p. 48) emphasized one point concerning PIAR's study: PIAR, used "carrying of cigarette packets" as the criterion of smoking behavior. On the other hand, WHO defines "smoker" as a person who smokes at least one cigarette per day. Aşut stated that if the WHO definition was utilized, the rate of smoking in Turkey would be much higher.

This globally and nationally prevalent substance has many negative physical consequences as well as psychosocial ones. The surgeon general reports (published by the United States Department of Health and Human Services) provide comprehensive information on the adverse health effects of tobacco smoking. According to the surgeon general's 1989 report (USDHHS, 1989; cited in Dodgen, 2005, p. 12), negative health consequences of smoking included many forms of cancer like lung and oral cavity, some respiratory and cardiovascular diseases. In this report, smoking was shown to be the major proven cause of lung, oral cavity, larynx and esophagus cancer, as well as chronic bronchitis, emphysema, coronary artery disease and stroke in both men and women. It was also stated that smoking is a contributory factor for bladder, pancreas and stomach cancers for both genders. In the surgeon general's 2004 report (USDHHS, 2004), the health consequences of smoking has been revised and list of diseases has been expanded. Chronic obstructive pulmonary disease, kidney cancer, leukemia, cancers of pancreas and stomach were added to the list of diseases having a causal relationship with smoking. Moreover, 2004 report highlighted the negative health consequences of smoking during childhood and adolescents. A causal relationship had been confirmed between active smoking during childhood and adolescence and impaired lung growth, early onset of lung function decline, and asthma-related symptoms. In addition to all these, the report pointed out the negative effects of smoking on women fertility and on the fetus. It was concluded that smoking causes reduced fertility in women, pregnancy complications and low birth weight in fetus. There has also been recent evidence suggesting that smoking is a risk factor for breast cancer in women (Terry and Rohan, 2002).

In countries where smoking is prevalent, 90% of lung cancer, 15-20% of other cancers, 75% of chronic bronchitis and emphysema, and 25% of deaths from cardiovascular disease at ages between 35 and 69 was shown to be attributable to smoking (WHO, 1999). Among these countries, China was shown as having the world's highest number of tobacco related deaths.

According to the 1990 statistics of State Institute of Statistics (Devlet İstatistik Enstitüsü – DİE; cited in Aşut, 1993, p. 51-52), cardio-vascular diseases constitute the major cause of deaths in Turkey, whereas cancer takes the third place. Cardio-vascular diseases were shown as responsible from the 38.6% of nationwide deaths. Moreover, deaths due to cancer were 10.1% of total deaths. It is now widely known that cardio-vascular diseases and cancer are related to smoking so we can clearly conclude that tobacco related diseases constitute the major causes of deaths in Turkey.

Besides its adverse physical effects, cigarette smoking has many psychosocial consequences. These include; increase in dysphoria, stress and depression and impairment on the development of effective coping strategies (Dodgen, 2005, p. 18-25). Another negative psychosocial consequence may be listed as the increased risk for the use of other substances like alcohol abuse and marijuana experimentation.

Related to its effect on mood, Parrott and Joyce (1993, cited in Dodgen, 2005, p. 19) concluded from their study that rather than improving the mood, smoking reverses the effects of nicotine withdrawal. Their study apparently challenges the self-medication hypothesis (Carmody, 1989; cited in Dodgen, 2005, p.19), proposing that smoking is used as a means of affect regulation in the cases of negative affective states by smokers. Moreover, another study conducted with deprived smokers (Parrott & Kaye, 1999) supported the anxiogenic (anxiety-causing) effects of tobacco smoking. In addition to its anxiogenic effects, smoking was stated to be depressogenic (depression causing). In several studies, significant association was shown between cigarette smoking and depressive symptoms (Choi et al., 1997; Hall et al, 1993).

Another negative psychosocial effect is the easy availability of cigarette as a coping aid, which hinders the development of effective coping strategies to actively deal with problems (Dodgen, 2005, p. 25). Shortly saying, as long as a relief is achieved through smoking, there will be no need to search for alternative coping strategies in stressful situations.

In addition to all these negative psychosocial effects, studies in the literature support the idea that cigarette smoking increases the risk for the use of other substances like alcoholic drinks, marijuana, and opiates (Dodgen, 2005, p. 24-25). The development of substance use disorders in early adulthood was found to be related to cigarette smoking during adolescence (Lewinsohn, Rohde, & Brown, 1999). According to Sherwood and colleagues (2000), this increased risk for other substance use might be result of the smokers' engaging in more health risk behaviors.

1.1.2 Nicotine

It is now known that there are more than 4000 chemicals in the cigarette smoke. Some of these chemicals are proved to be toxic or carcinogenic (USDHHS, 1989; cited in Dodgen, 2005, p. 16). These chemicals can be in solid or gas forms including nicotine, tar, ammonia, acetone, carbon monoxide, nickel, and acetylene (Howell, 2000; cited in Dodgen, 2005, p. 16). Among these, nicotine is proved to be the major psychoactive substance leading to addiction to cigarettes (USDHHS, 1988).

Nicotine is absorbed in the lungs as the cigarette smoke is inhaled and it reaches the brain in 8 seconds (Benowitz et al., 1988; cited in Koob & Le Moal, 2006, p. 251). With this rapid absorption, it also shows its effects on the brain quickly. This rapid onset of effects after a puff is believed to be the major reinforcer for the development of nicotine dependence (USDHHS, 1988). After reaching the brain, nicotine shows its effects through various neurobiological mechanisms both at the cellular and molecular level (Koob & Le Moal, 2006, p. 259-276). Basically, nicotine binds to nicotinic acetylocholine receptors in the brain, and autonomic ganglia leading to the release of various neurotransmitters and hormones like

dopamine, serotonin, norepinephrine and acetylcholine (Kotlyar & Hatsukami, 2002). With the release of these substances, many of the subjective, cognitive and behavioral effects of smoking occur. Some of these effects include increase in pleasure, improved mood, suppression of appetite, increased attention, and enhanced cognition and motor performance. Psychologically rewarding properties of nicotine and the addictive potential of it has been linked to the release of dopamine mainly (Zevin, Gourlay, & Benowitz, 1998). However, it was stated that other neurotransmitters also contribute to these processes.

Besides the effects on the nervous system, nicotine affects other body systems as well (Murray, 1990). In the cardiovascular system, nicotine stimulates the sympathetic nervous system thereby increasing the blood pressure (Murray, 1990). It also has an appetite-suppressing effect especially for the desire for sweet food (Perkins et al., 1990; cited in Koob & Le Moal, 2006, p. 249). Moreover, nicotine increases the metabolic rates of users (Dodgen, 2005, p. 57). Weight of cigarette users decreases through the effects of nicotine on the appetite and metabolic rate.

Related to subjective feelings of smokers, Etter and colleagues (2000) showed in their study that most of the smokers find smoking pleasurable (81%), think that it helps them to concentrate (63%) and deal with stressful situations (82%), and calm down when stressed or upset (90%). Other positive reinforcing effects of the nicotine like feeling of euphoria, increment in energy, reduced stress level, reduced anxiety, and reduced appetite were also shown in different studies (Pomerleau & Pomerleau, 1992; Stolerman & Jarvis, 1995).

With the increasing doses of nicotine, the physiological responses also increase (Henningfield & Woodson, 1989). That is, there exists a dose-response relationship related to the effects of the nicotine.

1.1.3 Nicotine Dependence

All the effects mentioned above point out that nicotine is mainly responsible for the continuation of smoking behavior. At this point, the issue that nicotine use is accepted as a form of addiction should also be highlighted. To evaluate the issue, it

can be referred to standard definitions like the American Psychiatric Association 'Diagnostic and Statistical Manual of Mental Health Disorders' (DSM-IV) (cited in Fagerström, 2002) definition of drug dependence:

DSM-IV Criteria for Drug Dependence

A maladaptive pattern of substance use, leading to clinically significant impairment or distress, as manifested by three or more of the following occurring at any time in the same 12-month period.

(1) Tolerance, as defined by either of the following:

a. Need for markedly increased dose to achieve desired effect.

b. Markedly diminished effect with continued use of the same amount of the substance.

(2) Withdrawal, as manifested by either of the following:

a. characteristic withdrawal syndrome for the substance,

b. the same (or a closely) substance is taken to relieve or avoid related withdrawal symptoms.

(3) The substance is taken in larger doses or over a longer period of time than was intended.

(4) There is a persistent desire or unsuccessful efforts to cut down or control substance use.

(5) A great deal of time is spent in activities necessary to obtain the substance, use the substance, or recover its effects.

(6) Important social, occupational, or recreational activities are given up or reduced because of substance use.

(7) Substance use is continued despite knowledge of having a persistent or recurrent physical or psychological problem that is likely to have been caused or exacerbated by the substance.

The first criterion in the DSM-IV definition is the development of tolerance. Repeated exposure to nicotine results in the development of tolerance, which means that a certain dose of nicotine shows less effect over time (Zevin, Gourlay, &

Benowitz, 1998). Acute and chronic tolerance develops to many effects of the nicotine. Some effects, to which smokers develop tolerance quickly include; cardiovascular effects like increased blood pressure and toxic effects like nausea and vomiting. With regular smoking, greater amount of nicotine accumulates in the body leading to greater tolerance (USDHHS, 1988).

Another criterion of drug dependence is the experience of withdrawal. DSM-IV has listed eight withdrawal criteria related to nicotine. At least four of these criteria must be present immediately after the cessation or reduction of nicotine intake. These eight criteria are; a) craving for nicotine, b) insomnia, c) irritability, frustration, anger, d) anxiety, e) difficulty in concentrating, f) restlessness, g) decreased heart rate, h) increased appetite, weight gain (APA, 1994). Generally, smokers report that they smoke to reverse or avoid these withdrawal symptoms.

Related to the time course of withdrawal symptoms following cessation, Hughes (1992) conducted a study with self-quitters. The results showed that most of the withdrawal symptoms peak in 1 to 4 days and then decreased. It suggests that first days of the cessation period are critical in terms of the unpleasant effects of withdrawal. Moreover, most of the symptoms were shown to be normalized in 7-30 days except for the increased appetite and decreased heart rate. Contrary to expectation, the craving ratings did not increase in this study, but it was shown to continue up to six months.

The other criterion of taking the drug in larger doses and over a longer period of time than intended refers to the loss of control over the use of nicotine. It is also evident in smokers' unsuccessful quit attempts and the continuation of smoking in the presence of health problems.

Because of the easy availability of cigarettes, smokers generally do not spend more time or effort in obtaining them. However, smokers can go out in the middle of the night to buy a cigarette or spend their last money on cigarettes. So the fifth criterion is partially fulfilled. Similarly, smokers may not give up important social, occupational or recreational activities for smoking, but they may avoid

certain activities prohibiting smoking. So, this criterion of drug dependence is also partially valid for nicotine.

The final criterion, continuation of the substance use, despite a physical or psychological problem that is caused by the substance, is well applied to nicotine. It is well evident in the smokers' continuation of smoking despite having serious health problems.

In conclusion, smoking behavior can be classified as a kind of drug dependence according to DSM-IV definition.

Besides the standard definition of DSM-IV related to drug dependence, the surgeon general's 1988 report (USDHHS) also proposed a set of criteria to determine whether nicotine is addictive or not. The report proposed two kinds of criteria as primary and additional (secondary) criteria, which are listed below.

Primary Criteria for Drug Dependence (USDHHS, 1988)

(1) Highly controlled or compulsive use

(2) Psyhoactive effects

(3) Drug-reinforced behavior

Additional Criteria for Drug Dependence

(1) Addictive behavior often involves

- stereotypic patterns of use,
- use despite harmful effects,
- relapse following abstinence,
- recurrent drug cravings.

(2) Dependence-producing drugs often produce

- tolerance,
- physical dependence,
- pleasant (euphoriant) effects.

In the surgeon general's definition of drug dependence, the primary criteria were presented as the primary requirements of dependence. Secondary or additional

criteria indicated the consequences or behaviors seen in most but not all of the users of the substance. The report (USDHHS, 1988) indicated that nicotine use particularly satisfies these criteria and from this some major conclusions were arrived. First of all, it was stated that cigarettes and other forms of tobacco are addictive. Secondly, nicotine was labeled as the psychoactive drug in tobacco, causing addiction. Finally, pharmacologic and behavioral mechanisms operating in nicotine addiction was found to be similar to those operating in heroine and cocaine addiction.

Although dependence of nicotine is similar to dependence of other psychoactive drugs, it seems more dangerous. First of all, production and distribution of nicotine products are legal, making them more available. For this reason, some smokers may have difficulty in admitting that it is addictive and dangerous. Secondly, use of nicotine products, especially smoking, is a socially approved behavior (Dodgen, 2005, p.76-78). In fact, most people find the behaviors of lighting, holding a cigarette, inhaling and puffing appealing.

To sum up, the evidence examined so far shows that nicotine use is clearly far beyond being a bad habit. The evidence indicates that nicotine is an addictive substance and causes dependence on its users. Smokers with repeated unsuccessful quit attempts would also admit that smoking is more than a bad habit.

Nicotine dependence explains only the physiological part of the smoking behavior. However, there are psychological, behavioral and social processes contributing to the initiation and the maintenance of the behavior that must be addressed in the treatment.

1.2 Smoking Cessation

1.2.1 Predictors of Quitting

Increased awareness of the harm caused by cigarette smoking has been resulted in a growing interest in the cessation of it. Epidemiologic data in the United States suggests that most smokers (more than 70%) have made at least one unsuccessful quit attempt, and approximately 46% try to quit every year (CDCP,

1997). Unfortunately, less than 14% of those smokers remained abstinent for even a single month (CDCP, 1993b).

These statistics have made it essential for both researchers and clinicians to understand the underlying variables associated with both successful quitting and relapse. The variables that have been assessed in various studies can be classified into three broad categories: Demographic characteristics (e.g., age, gender, marital status, education level), smoking status (e.g., smoking history, number of cigarettes smoked, degree of nicotine dependence, number of years smoked) and psychosocial variables (e.g., experienced stress, self-efficacy related to quitting, social support) (Glasgow et al., 1988).

There were methodological differences among the studies aimed to identify the predictors of quitting. These studies have used various treatment modalities, predictors, populations and generally investigated potential variables prospectively (Glasgow et al., 1988; Nides et al., 1995; Borelli et al., 2002). These kinds of studies can be examined in two categories as clinic-based studies and studies of unaided cessation. Clinic-based studies have shown that demographic predictors of quitting include older age, higher education, gender (male), and employment (Ockene et al., 2000; Razavi et al., 1999). Psychosocial predictors included high levels of self-efficacy (Borrelli & Mermelstein, 1994), low levels of negative affect (Killen et al., 1996), better psychological adjustment (Razavi et al., 1999), low levels of weight concern (Borrelli & Mermelstein, 1998), and greater social and environmental support for quitting (Nides et al., 1995). Moreover, smoking history variables have been shown to predict quitting like low levels of nicotine dependence (Nides et al., 1995), and longer abstinence in prior quit attempts (Borrelli et al., 2002).

Results of unaided cessation studies have suggested that successful quitting is predicted by being a light smoker, having fewer smoker friends, living with nonsmokers, smoking for fewer years (Marlatt, Curry, & Gordon., 1988), higher education (Rose et al., 1996), high levels of self-efficacy for abstinence (Prochaska, DiClemente, & Norcross, 1992), and low levels of perceived stress (Glasgow et al., 1985). In Marlatt and colleagues' study (1988), a strong motivation to quit was also

shown to be associated with successful quitting and long-term maintenance of abstinence. Moreover, in a national survey study conducted with U.S adolescents, frequency of smoking and duration of past quit attempts were identified as significant predictors of smoking (Zhu, et al., 1999).

On the other hand, some studies failed to find any consistent difference in abstinence rates in terms of demographic variables, smoking history variables like the number of cigarettes smoked per day and degree of dependence (Örsel et al., 2005; Glasgow et al., 1985; Kenford, et al., 1994), gender and education (Salepçi et al., 2005).

To sum up, the studies mentioned above have suggested that successful quitting is affected by various factors. Yet, there is no single variable explaining the process in itself. However, being knowledgeable of these factors would guide researchers and clinicians in their search of successful methods for quitting.

1.2.2 Self-Efficacy

Self-efficacy was defined by Bandura (1977) as the "conviction that one can successfully execute the behavior required to produce the outcomes". Efficacy evaluations were hypothesized to reflect perceived competency in specific situations. Bandura (1977) claimed that these efficacy expectations mediate most behavior changes.

In the context of smoking, self-efficacy was defined as the perception of one's ability to resist smoking (Carey & Carey) and it constituted an important psychosocial variable that used in cessation studies. Smoking self-efficacy was found to be a consistent predictor of success in self-initiated quit attempts (Carey, et al., 1989). Moreover, various studies showed that people with higher smoking self-efficacy in pre-treatment or post-treatment were more likely to be successful (Baer, Holt, & Lichtenstein, 1986; Garcia, Schmitz, & Doerfler, 1990). Efficacy judgments obtained at the end of treatment have consistently predicted smoking status as much as 6-months post-treatment (Baer, Holt, & Lichtenstein, 1986; Condiotte & Lichtenstein, 1981).

It was argued that self-efficacy can be a useful predictor of relapse, especially when assessed during the maintenance phase of the treatment (Baer, Holt, & Lichtenstein, 1986).

Related to the pattern of change in self-efficacy ratings there are studies either in the context of treatment or unaided change. In a study (Condiotte & Lichtenstein, 1981) the changes of self-efficacy judgments of participants after a cessation program were measured. As predicted, perceived self-efficacy ratings of participants were found to be increased as a result of treatment. Similarly, in another study (Carey & Carey, 1993) conducted with people who were planning to quit smoking without professional help, it was found that successful quitters increased their self-efficacy from baseline to 1-year follow-up. On the other hand, self-efficacy of continuous smokers and relapsers were found to be decreased from baseline to follow-up.

1.2.3 Smoking Cessation Interventions: General Outlook

Since the smokers differ greatly in their reasons for smoking, degree of addiction, and motivation to quit, the interventions for cessation were also varied in terms of their target population, scope and the content. Some of these interventions include; clinic-based interventions (Stevens & Hollis, 1989), population based cessation projects like "Quit and Win" contests (Glasgow et al., 1985), worksite interventions (McMahon & Jason, 2000), self-help programs (Prochaska et al., 1993), acupuncture techniques (White et al., 2006), pharmacological treatments like the use of nicotine patches (Richmond et al., 1997) and gums (Herrera et al., 1995), physician-delivered interventions (Ockene et al., 1994), and hypnosis (Abbot et al., 2001; cited in Dodgen 2005, p.138)

Sample sizes of these smoking cessation interventions also differed from one study to another. While some studies were conducted with small-sized samples like 34 smokers (Cinciripini et al., 1994), some others included more smokers like the study of Orleans and colleagues (1991) in which they were able to reach to 2,021 smokers.

One of the most comprehensive reviews of the smoking cessation literature is the Treating Tobacco Use and Dependence, a Public Health Service-sponsored Clinical Practice Guideline, prepared by Fiore and colleagues (2000). Treating Tobacco Use and Dependence Clinical Practice Guideline, which will be referred as "Guideline", is the product of Tobacco Use and Dependence Guideline Panel. The panel took place with the participation of many organizations like Centers for Disease Control and Prevention, National Cancer Institute, and National Institute on Drug Abuse, which are related to smoking cessation in some aspects.

In the Guideline, approximately 6,000 articles were reviewed. From this review, many strategies and recommendations were derived to assist clinicians and researchers working in the area of smoking cessation. Six critical dimensions of smoking cessation were identified and specific recommendations concerning these dimensions were proposed. These dimensions were: a) amount of contact time; b) treatment duration/number of sessions; c) type of clinician; d) treatment format; e) type of counseling and behavioral therapies; e) pharmacotherapy. Concerning the amount of contact time, a strong dose-response relation was indicated and the use of more intensive interventions with increased person-to-person contact was recommended. Similarly, for the treatment duration, a dose-response relation was inferred; treatments lasting more than 8 sessions were found to be more effective than the ones with 0 to 3 sessions. When the providers of the smoking cessation interventions were examined, the results showed that treatment delivered by any type of clinician including psychologists and nurses increase abstinence rates. Furthermore, delivery of treatment methods by multiple types of clinicians was found to be more effective than the delivery by a single type of clinician. From the review of different treatment formats, it was concluded that group counseling, individual counseling and proactive telephone counseling formats are effective. Additionally, the use of multiple formats in the cessation interventions was suggested.

In the Guideline, certain types of counseling and behavioral therapies were also found to be effective. These were listed as practical counseling, like skills training approaches, the provision of intra and extra-treatment social support, and

aversive smoking techniques like rapid smoking. Concerning the use of pharmacotherapy in the smoking cessation treatments, the Guideline suggested that all smokers attempting to quit should be encouraged to use the effective pharmacotherapies. Additionally, suggestions for the use of different types of pharmacotherapies were provided.

In addition to suggestions on these six treatment dimensions, the Guideline (Fiore et al., 2000) discussed the application of smoking cessation treatments in the special populations. These populations included pregnant women, racial and ethnic minorities, hospitalized smokers, smokers with comorbid psychiatric disorders, smokers with chemical dependency, children and adolescent smokers, and older smokers.

To sum; both the topics covered and the provided recommendations made the Guideline an invaluable source of information, especially for the practitioners working in the area of smoking cessation.

There are many different types of smoking cessation interventions that have been identified and applied in the literature. They can be broadly categorized as; a) psychological treatments, b) pharmacological treatments, and c) combination of behavioral and pharmacological treatments. In the following sections, each of these treatment methods will be described and representative studies of each category will be presented.

1.2.4 Psychological Treatments

Since many psychological mechanisms and variables are influential in the initiation, progression, and maintenance of cigarette use, interventions based on learning mechanisms and/or psychosocial variables are widely used in the smoking cessation. These treatments can be examined as a) strategies based on learning paradigms, b) coping skills training, c) multi-component interventions, d) brief advice from health professionals.

1.2.4.1 Strategies Based on Learning Paradigms

Theoretically, treatment approaches addressing the learning components of cigarette use are effective in the cessation of it. Both positive reinforcement (feeling of pleasure) and negative reinforcement (removal of withdrawal symptoms) mechanisms are influential in the initiation and maintenance of smoking behavior (Dodgen, 2005, p.117). Treatment techniques based on learning paradigms might be divided into two as aversive and nonaversive ones.

Aversive Techniques

Aversive techniques were developed in 1970s and mainly based on Pavlovian principles of counterconditioning (Lichtenstein, 1973, cited in Brandon, 2001). These techniques used an aversive unconditioned stimulus (US), which is paired with smoking. These techniques aimed to create aversive reactions (distaste, disgust, or displeasure) to cigarette smoke, which in turn reduces urges to smoke (USDHHS, 1988). Electric shock, rapid smoking, and covert sensitization are three examples of aversive interventions (Dodgen, 2005, p. 118-122).

In the treatments using electric shock, this shock is paired with smoking so that a strong association between the smoking behavior and the unpleasant effects of shock is built (Dodgen, 2005, p. 118). Limitations of this procedure include the need for medical screening before applying the procedure, requirement of special equipments, and most importantly, the acceptance of the person receiving the procedure. Besides, it was shown as ineffective (Russel, Armstrong, & Patel, cited in Lichtenstein, 1982).

In rapid smoking procedures, the rate of smoking is aimed to be increased. With this technique, smokers are made to increase their inhalation rate of cigarette smoke to the point of illness. Theoretically, with several sessions of rapid smoking, an association should be built between the cues related to the taste and smell of smoking and the adverse physical effects resulted from rapid smoking. At the end, a conditioned aversion to these cues should develop (Dodgen, 2005, p. 119). In the Guideline (Fiore et al., 2000) meta-analysis, rapid smoking was found to be superior to no-treatment control conditions. Moreover, rapid smoking was shown to

result in reductions of cigarette urges (Houtsmuller & Stitzer, 1999). In their study Zelman and colleagues (1992) found that rapid smoking produced strong aversion to smoking and this aversion predicted long-term abstinence. The major problem of this procedure is the increased medical risks like increased heart rate, and elevated blood pressure. Therefore, medical screening and monitoring are necessary for those receiving the procedure (Dodgen, 2005, p. 119). Sachs and colleagues (1979) concluded from their study that rapid smoking procedure is safe and useful in healthy individuals.

Another aversive technique is the covert sensitization. In the covert sensitization, an aversive mental representation in the form of thought or image is used as an unconditioned stimulus. The mental representation of smoking is paired with unpleasant thoughts and images of it like having smoking-related illnesses, nausea, and dizziness (Dodgen, 2005, p. 121). Generally, this method is used along with other smoking cessation methods (Lowe et al., 1980). Major advantages of the method are its ease of application and medical safety (Lichtenstein, 1982).

Non-Aversive Techniques

Contingency management, stimulus control, and cue exposure are three non-aversive techniques used in the smoking cessation.

Contingency management approaches are based on operant learning principles, in which desired behaviors (abstinence from smoking) are directly reinforced (Krishnan-Sarin et al., 2006). It may involve the rewarding of not smoking or punishing for smoking. Contingency management was shown to increase motivation for formal treatment and increase abstinence (Lando, 1993; cited in Dodgen, 2005, p. 126). Bowers and colleagues (1987) also showed that contingency management delayed and decreased relapse. In their study, Murray and Hobbs (1981) compared self-reward, self-punishment, combined self-reward and self-punishment, and self-monitoring on cessation. The results indicated that only self-punishment leads to greater success of abstinence. In most of the studies, participants were monetarily reinforced (Krishnan-Sarin et al., 2006; Corby et al., 2000). On the other hand, in some studies, the participants provided a monetary

deposit contingent on staying abstinent (Lando, 1976; cited Dodgen, 2005, p. 126) or attending treatment sessions (Hall et al., 1984).

Stimulus control procedures based on the assumption that various environmental cues become associated with smoking and thereby triggering smoking behavior. So, these procedures are related to the avoidance of cues that have been linked to smoking (Dodgen, 2005, p. 123). Smokers are encouraged to avoid people, places or things that became associated with smoking. The cues generally include tea, coffee or alcohol intake, as well as the presence of other smokers. This technique is generally used as a preparation strategy, but it can also be used together with other techniques in order to increase the efficacy of a certain treatment. Different methods of stimulus control are used like the restriction of smoking places to certain places, smoking at predetermined times, removing ashtrays and lighters from home, and avoiding certain places like bars (Lando, 1993, cited in Dodgen, 2005, p. 123). The advantage of these procedures is that they reduce the likelihood of cue-induced cravings during cessation.

Cue exposure procedures are used to extinguish the behavior (smoking) by means of exposure to cues associated with behavior and response prevention (Dodgen & Shea, 2000; cited in Dodgen, 2005, p. 124). Use of cue exposure was presented as a strong relapse prevention strategy for smoking (Niaura et al., 1999). To test the efficacy of cue exposure, Niaura and colleagues (1999) conducted a controlled clinical trial. Within the study, cue exposure was presented as a method for breaking the relation between smoking triggers and urges. In the cue exposure training, imagining and role playing the high risk situations for the subjects, describing smoking cues and urges aloud, and reinforcing the spontaneously occurring coping strategies were used. Moreover, Corty and McFall (1984) compared cue exposure and rapid smoking in their study and found similar abstinence rates for both procedures. This method is advantageous, because it has no health risks and can be practiced easily by the person (Dodgen, 2005, p. 126).

1.2.4.2 Coping Skills Training

"Coping skills training" is a generic term for various interventions used in the smoking cessation like relaxation training, relapse prevention training, and problem solving. The aim of the coping skills training is to help people cope with urges to smoke, and maintain satisfactory functioning in the absence of smoking (Dodgen, 2005, p. 130-132).

It is known that smokers generally smoke to deal stress and anxiety. Additionally, most of the relapses take place during emotional states (Shiffman, 1982). Therefore, relaxation training aims to provide smokers an alternative way of coping with negative emotions other than smoking (USDHHS, 1988). Generally, relaxation is not used alone, but used in combination with other techniques in multicomponent treatments (Hall et al., 1984).

Some behavioral coping responses are also taught in the coping skills training. These include, eating and chewing (e.g., gum or candy), distracting activities (e.g., reading, puzzles), escaping from a stressor, and physical exercise. Cognitive coping responses include thinking the benefits of cessation and negative consequences of smoking, thought stopping, disregarding smoking as an option, and using positive self-talk (USDHHS, 1988).

Problem-solving training was also assumed to be beneficial in the smoking cessation, since smokers encounter many problems during the cessation period (Dodgen, 2005, p. 131).

Coping skills training is generally used in multicomponent treatments (Stevens & Hollis, 1989; Hall et al., 1984). These techniques were proven to be effective especially when combined with aversive cessation techniques (USDHHS, 1988). Hall and colleagues (1984) compared the effects of skill training and discussion control on relapse prevention. Biochemically confirmed 1-year quit rates were found to be significantly higher in the skill training group (46% for skill training group and 30% for discussion control group). Similarly, Stevens and Hollis (1989) assessed the effect of relapse prevention skill training on long term abstinence. Their results showed that abstinence rates were higher in the skill training group compared to discussion and no-treatment control groups. In a study

analyzing relapse crisis of ex-smokers (Shiffman, 1982), it was found that ex-smokers who used either behavioral or cognitive coping responses were most likely to overcome a crisis without smoking than those who did not use any coping response. In addition, some studies indicated that skill training might be most effective for some smokers like less-dependent ones (Hall et al., 1984) and who smoke to cope with emotional stress (O'Connor & Stravynski, 1982).

1.2.4.3 Multicomponent Interventions

The realization that smoking is determined by many factors and any single intervention does not give good results (Schwartz, 1987; cited in USDHHS, 1988), have made the multicomponent treatments more popular in recent years. Dismantling studies also supported the idea that multicomponent treatments give better results than any individual treatment (Lando, 1982).

Self-control procedures like stimulus control and self-monitoring, and behavioral coping training procedures were generally included in multicomponent treatments (Lichtenstein, 1982). Moreover, coping skills training and rapid smoking were commonly used as parts of multicomponent treatments (Hall et al., 1984). Many multicomponent treatments also included self-help booklets providing information on health consequences of smoking and instructions for the implementation of certain techniques (Cinciripini et al., 1994).

Hall and colleagues (1984) assessed abstinence rates for two relapse prevention conditions (skills training versus discussion control) and two levels of aversive smoking (6 versus 30 seconds inhalations). Eight of the 14 treatment sessions involved aversive smoking and 6 sessions involved relapse prevention. The skills training consisted of a) cue-exposured relaxation training, b) commitment enhancement, and c) rehearsal and role-playing of commonly experienced relapse situations. In discussion control, subjects were not suggested any specific techniques. One-year abstinence rates were superior for those in the skills training group compared to discussion control group. However, there were no differences in terms of the aversive smoking (no difference between the 6 versus 30 sec. inhalations).

In the study of Erickson and colleagues (1983), subjects were assigned either to the rapid smoking or rapid-puffing procedures. All of the subjects also received behavioral counseling including problem-solving skills training. There was also a comparison group receiving only behavioral counseling without aversive smoking. Results indicated the combination of rapid smoking and behavioral counseling as more effective than other conditions.

Cinciripini and colleagues (1994) applied a multicomponent treatment program in their study including relapse prevention training, scheduled smoking, and self-help materials. They concluded that scheduled smoking might be a useful addition to multicomponent treatment programs. Moreover, Paxton (1980; cited in USDHHS, 1988) compared the effects of multicomponent treatments with and without contingency management procedures. It was concluded that contingency management significantly increases the maintenance of abstinence.

1.2.4.4 Brief Advice from Health Professionals

Brief advice from health professionals including physicians, nurses, dentists and pharmacists has been recognized as an effective method of smoking cessation (Law, Tang, & Wald, 1995; cited in Foulds, 1996). Moreover, in the Guideline (Fiore et al., 2000) it was concluded that brief smoking cessation interventions, including those lasting only three minutes or less, are effective. This indicates that smoking cessation interventions can be delivered to all smokers in all clinical settings (Cofta-Woerpel, Wright, & Wetter, 2007).

The rationale behind this brief advice method is to motivate more people to try to stop smoking. There is no single description of physician advice in literature, but the Guideline (Fiore et al., 2000) suggests physicians a formal model of brief intervention consisting of 5 steps:

1- Asking about smoking status

2- Advising to quit

3- Assessing the willingness to quit. (For those unwilling to stop smoking at the time of assessment, providing a brief intervention increasing motivation, informing

about the negative consequences of smoking, and the benefits of cessation would be useful)

4- Assisting with quit attempt (Concerning the assistance with quit attempt, establishing a quit date, helping the smoker to get social support, recognizing and avoiding smoking triggers, and coping with withdrawal would be beneficial. Moreover, pharmacotherapy can be offered at this point.)

5- Arranging a follow-up (Arrangement of follow-up meeting immediately after the quit date would be beneficial. For those who relapsed, a new quit date could be set or the patient could be referred to a more intensive treatment.)

Russel and colleagues (1979) conducted a study with smokers attending to family doctors. They compared the effects of a) brief advice to quit smoking plus a self-help booklet, b) brief advice only, c) a smoking questionnaire only, and d) no intervention conditions on the smoking cessation. One month and one year follow-ups indicated that brief advice conditions resulted in significantly more abstinence rates than the other two conditions.

To sum up, since many people see a physician or dentist, and consider them as credible sources of health information (Wittenberg, 1983; cited in USDHHS, 1988), brief advice from health professionals can be a cost-effective way of smoking cessation.

1.2.5 Pharmacological Treatments

In the Guideline (Fiore et al., 2000), it was stated that all the smokers trying to quit smoking should be offered pharmacotherapy, except in the presence of special circumstances like the existence of medical contraindications, in the case of pregnancy and/or breastfeeding, and with adolescent smokers. The Guideline recommended two types of pharmacotherapies as first-line medications and second-line medications.

First-line pharmacotheapies were stated as safe and effective for tobacco dependence approved by U.S. Food and Drug Administration (FDA) as a treatment method for smoking. According to the Guideline, first-line pharmacotherapies include Nicotine Replacement Therapies (NRT) and Bupropion SR (Sustained

Release Bupropion) which is a kind of antidepressant. Second-line pharmacotherapies were also shown to be effective in the smoking cessation, but they are not approved by the FDA. Since they have more potential side effects than first-line medications, their use was stated to be considered after first-line treatments are applied. These second-line medications include nortriptyline and clonidine (Dodgen, 2005, p. 140). For the purposes of the present study, only the first-line pharmacotherapies are reviewed below.

1.2.5.1 Nicotine Replacement Therapy (NRT)

Nicotine Replacement Therapies (NRT) constitute the most widely used and investigated pharmacotherapy for tobacco dependence (Fiore et al., 2000; Henningfield et al., 2005). There are many reasons for using nicotine replacement therapy in the treatment of tobacco dependence (Dodgen, 2005, p. 141; Henningfield et al., 2005; Hughes, 1993). Firstly, by means of nicotine replacement therapy, nicotine obtained from cigarettes is replaced with a safer form. Nicotine replacement products are free of additives and dangerous chemicals found in cigarettes. Secondly, since nicotine is supplied somehow, initial withdrawal symptoms are suppressed. Suppression of withdrawal symptoms allows the patient direct his/her attention to behavior change and psychological factors. Finally, the use of any form of nicotine replacement therapy reduces the reinforcing effects of smoking behaviors. It separates taking nicotine from environmental cues of smoking behavior. Nicotine replacement products are available in five different forms in the United States as gum, patch, inhaler, nasal spray, and lozenge (Dodgen, 2005, p. 143-147). All forms of NRT were proven to approximately double the long-term abstinence rates. To increase their availability, two most common forms (gum and patch forms) were changed from prescription only to over-the-counter sale in 1996 (Cofta-Woerpel, Wright & Wetter, 2006). Hughes and colleagues (2003) showed in their meta-analysis that over-the-counter nicotine replacement therapy is effective and results in similar abstinence rates with prescription only NRT. In another meta-analytic study (Silagy et al., 1994), it was concluded that four forms of NRT (gum, patch, intranasal spray and inhaler) are effective therapies to

aid smoking cessation. In Turkey, gum and patch forms of NRT are available as over-the-counter products currently.

In their study, Örsel and colleagues (2005) compared the quitting smoking rates between the use of NRT and behavioral education. Smoking cessation rates in a one-year follow-up was reported as 31.5% for NRT group and 24.2% for behavioral education group. Besides increasing the quitting rates, NRT use was found to increase the attendance rate to the education sessions in outpatient smokers (Türkcan & Çakmak, 2004a). It was concluded that clinicians should encourage their patients for the use of NRTs.

Although all forms of NRTs are regarded as safe, there are some contraindicating factors for their use. The contraindicating factors are mostly common to all forms of NRTs and these include experiencing myocardial infarction within the two weeks, existence of angina pectoris, pregnancy and/or breast feeding (Kotlyar ,& Hatsukami, 2002).

In the following sections, significant characteristics of different forms of NRT, as well as advantages and side effects are described separately.

1.2.5.1.1 Transdermal Nicotine Patch

Transdermal nicotine patches are the most widely used forms of NRT (Burton, Gitchell, & Shiffman, 2000). They are available as over-the-counter, nonprescription products (Dodgen, 2005, p. 144). Nicotine patches are applied to the skin, so that nicotine can be absorbed through the skin. These patches deliver nicotine through the skin at a relatively steady state. Currently available forms differ in their design, pharmacokinetics, and duration of wear (like 24 and 16-hour wear) (Henningfield et al., 2005).

There are many advantages of transdermal nicotine patches over other forms of NRTs. The major advantage is its easy use and compliance: the patient simply places the patch on his/her body. In this way, compliance with patches tends to be higher than other forms of NRTs (Hajek, West, & Fouldset, 1999). Secondly, since a more steady level of nicotine is obtained with the use of patch, the risk of dependence is minimized. Finally, with the steady nicotine concentration in the

body, reinforcing effects of rapid nicotine delivery through smoking is diminished (Dodgen, 2005, p. 144-145).

Generally, the side effects are mild and they rarely result in stopping the use of transdermal nicotine. The most commonly encountered side effect is local skin irritation, which is easily treatable with lotions and by changing the patch location (Prochazka, 2000). Smoking while using the patch results in discomfort due to high nicotine levels and this discomfort may cause the discontinuation. Therefore, the smoker should be informed beforehand about completely stopping smoking prior to the use of the patch (Dodgen, 2005, 144-145).

There are numerous studies on the efficacy of nicotine patches (Fiore et al., 1994a; Jolicoeur et al., 2000; Shiffman, Khayrallah, & Nowak, 2000; Shiffman, Gorsline, & Gorodetzky, 2002). Fiore and colleagues (1994) showed in their study that the usage of nicotine patches improves quit rates. In their placebo controlled study, Shiffman and colleagues (2000) demonstrated that the active placebo group has significantly lower craving and withdrawal symptoms. The efficacy of nicotine patches under over-the-counter conditions was also evaluated and two representative studies (Jolicoeur et al., 2000; Shiffman, Gorsline, & Gorodetzky, 2002) showed that the use of active patch produces significantly higher abstinence rates even though there were no interventions or visits. Furthermore, in the Guideline (Fiore et al., 2000) nicotine patch was shown to be an effective aid for smoking cessation, doubling the cessation rates produced by the placebo patch.

1.2.5.1.2 Nicotine Gum

Nicotine gum was the first available form of NRT. It is currently available as an over-the-counter product (Henningfield et al., 2005). The gum is available in two doses: 2 mg and 4 mg, which deliver approximately 1 mg and 2 mg of nicotine, respectively (Dodgen, 2005, p. 143). The absorption of nicotine from the gum takes place through the oral mucosa. Peak levels of nicotine are obtained in about 30 minutes, which is much slower than nicotine delivered by cigarette smoke (Prochazka, 2000).

Advantages of the gum use include its easy availability and delaying weight gain during the cessation period (Dodgen, 2005, 143-144). It also provides an oral substitution for smoking. Although side effects of gum are usually described as minor like mouth sores and jaw soreness, improper use of it constitutes its major disadvantage: It requires a special chewing technique in order to achieve sufficient blood nicotine levels. With the improper use, this level cannot be achieved, causing the frequent use of it. Furthermore, study of Hughes and colleagues (1986) points out the potential physical dependence to nicotine gum.

There is evidence that high-nicotine-dependent smokers benefit more from nicotine gum, especially from the 4 mg gum (Herrera et al., 1995). Moreover, research indicates that for less dependent smokers, the 2 mg gum might be more effective than the higher doses (USDHHS, 2000). Furthermore, it was shown that the use of nicotine gum significantly reduces craving in placebo controlled trials (Cohen, Collins, & Bert., 1997, Shiffman et al., 2003). In their randomized, placebo controlled study, Wennike and colleagues (2003) showed that nicotine gum promoted cessation in smokers, who were unwilling to quit. Additionally, in a meta-analytic review of 33 studies, nicotine gum was found to be superior to both placebo and no-gum controls (Cepeda-Benito, 1993).

1.2.5.1.3 Nicotine Inhaler

Nicotine inhaler is currently available only as a prescription medication in the Unites States (Henningfield et al., 2005). The inhaler consists of a mouthpiece and a plastic cartridge containing 10 mg nicotine. The level of nicotine intake with this form of NRT is determined by the number of inhalations. (Dodgen, 2005, p. 145)

The major advantage is its design, which closely mimics the smoking behavior. Therefore, it can satisfy the behavioral aspects of smoking (Kotlyar & Hatsukami, 2002). It is recommended to be used for 3 months by gradually reducing the dose in this period (Henningfield et al., 2005). As expected, the most common side effects include irritation of the mouth and throat, and coughing (Prochazka, 2000).

Studies with placebo controls showed that the cessation rates with the use of inhaler vary from 11% to 18% at 1 year follow-ups (Schneider, Olmstead, & Nilsson, 1996; Iljalmarson, et al.; cited in Prochazka, 2000). Moreover, in the meta-analysis of Fiore and colleagues (2000), the inhaler resulted in significantly higher quit rates compared to placebo controls (10.5% and 22.8% quit rates for the placebo and nicotine inhaler groups respectively).

1.2.5.1.4 Nicotine Nasal Spray

Nicotine nasal spray is available only as a prescription product in the United States and most other countries (Henningfield et al., 2005). Delivery of nicotine through nasal spray is more rapid than the other forms of NRTs. Each spray contains 0.5 mg of nicotine and one dose is defined as one spray in each nostril (Prochazka, 2000).

Since the delivery and absorption of nicotine is more rapid with the nasal spray, relief of craving is also more rapid compared to other forms of NRT, making it advantageous (Dodgen, 2005, p. 146). However, this rapid absorption of nicotine raises the question about its addictive potential (Kotlyar & Hatsukami, 2002). The other major weakness of the spray is that it has more side effects than all other forms of NRTs. These side effects are nasal and throat irritation, coughing, runny eyes and nose (Prochazka, 2000). The symptoms generally decrease in time, but do not disappear totally.

Clinical trials with nicotine nasal spray resulted in quit rates ranging from 15% to 25% at one year follow-ups (Sutherland, Stapleton, & Russel, 1992; Schneider, Olmstead, & Mody, 1995). Moreover, in their double-blind, placebo controlled study, Blondal and colleagues (1997) found that nicotine nasal spray significantly increased cessation rates over placebo. A recent meta-analytic review (Fiore et al., 2000) also supported its success as an aid in smoking cessation (13.9% and 30.5% quit rates for the placebo control and nicotine nasal spray groups respectively).

1.2.5.1.5 Nicotine Lozenge

The nicotine lozenge is available as an over-the-counter product in the United States (Dodge, 2005, p. 146) and 2- and 4 mg forms are on the market (Henningfield et al., 2005). Similar to the nicotine gum, nicotine is absorbed through the buccal mucosa with the usage of lozenge.

It is recommended to be used for 3 months by gradually reducing the dose. Although relatively easy usage is an advantage, it is needed to be used frequently for adequate blood nicotine levels. Therefore, it can be an obstacle to compliance (Dodgen, 2005, p. 147). More frequent side effects include mouth and throat irritation, and indigestion.

In a placebo controlled study (Shiffman et al., 2002), the lozenge resulted in significantly greater abstinence rates (46.0% and 29.7% for nicotine lozenge and placebo groups respectively). Moreover, it was presented as a safe and effective treatment for smoking cessation in low and high dependent smokers. In another study (Shiffman, Dresler, & Rohay, 2003), lozenge was shown to be effective for smokers with past pharmacotherapy as well as those without past pharmacotherapy experience. However, the effect of lozenge was found to be significantly greater for those with past treatment experience.

1.2.5.2 Bupropion SR (Sustained Release Bupropion)

Bupropion SR (brand name Zyban) is an atypical antidepressant that is used as a smoking cessation aid (Henningfield et al., 2005). It is the first non-nicotine pharmacological treatment approved by FDA for smoking cessation treatments (Dodgen, 2005, p. 148) and is recommended by the Guideline (Fiore et al., 2000) as a first-line medication for this purpose. It is available as a prescription product only.

Since it does not contain nicotine, concerns about the dependence on nicotine and about the abuse of the medication are decreased. This constitutes the major advantages of it over NRTs (Dodgen, 2005, p. 148). Another advantage is the delay of weight gain under the medication. Moreover, bupropion might be a useful smoking cessation aid especially for smokers with comorbid depression. Generally,

it is well tolerated, with most common side effects being headache, insomnia, and dry mouth (Prochazka, 2000).

Bupropion SR was shown to approximately double the abstinence rates compared to placebo, and found to be equally effective for both men and women (Scharf & Shiffman, 2004). In another study, it was shown that bupropion significantly reduces nicotine withdrawal symptoms over placebo (Shiffman et al., 2000). Significant reductions in abstinence-related depression, difficulty in concentration and irritability were noted. However, it had no effect on craving, anxiety or hunger. Additionally, Durcan and colleagues (2002) reported good success rates with the use of bupropion in smokers who tried quitting with NRTs.

Bupropion is currently available under the brand name of Zyban as a prescription product in Turkey.

As a conclusion, it can be stated that there are various pharmacological treatments for smoking cessation. Although all of them were indicated to be effective, understanding benefits and limitations of each would be useful.

1.2.6 Combination of Behavioral and Pharmacological Treatments

Concerning the multifaceted nature of smoking behavior, it can be concluded that interventions targeting both psychological and pharmacological aspects of it are of greater utility. Empirical studies also support that combining pharmacological and behavioral interventions increases outcome beyond that is achieved by either alone (Hajek, 1996; Klesges, Ward, & DeBon, 1996; cited in Dodgen, 2005, p. 165).

Hughes (1995; cited in Niaura & Abrams, 2002) proposed some reasons concerning why the integration of behavioral and pharmacological treatments improves the outcome: a) Behavioral and pharmacological treatments target different aspects of smoking behavior, b) behavioral treatments provide the skills necessary for coping and maintaining abstinence, whereas pharmacological treatments provide relief of withdrawal symptoms, c) behavioral treatments may be helpful for certain subgroups of smokers, whereas pharmacological treatments help

another subgroup of smokers, d) both of these treatments might be improving compliance with the other.

The relatively easy availability of nicotine replacement products facilitates their integration to psychological treatment programs. The patch and the gum forms of NRT are widely used in combination with behavioral treatments (Cinciripini et al., 1996; Tønnesen et al., 1988). Moreover, the combination of bupropion SR and a behavioral treatment was also used for smoking cessation (Javitz et al., 2004).

Fiore and colleagues (1994b) conducted two combination treatments in their research. In the study 1, the effectiveness of the combination of transdermal nicotine treatment and group counseling was assessed. In the group counseling intervention, the emphasis was on discussions of effective coping with withdrawal symptoms and anticipating urge situations. Biochemically confirmed point prevalence abstinence rates indicated that the combination treatment produced higher cessation rates compared to placebo. This superior result was also evident for the combination of transdermal nicotine and brief individual counseling in study 2. It was also shown that group counseling treatments (as compared to brief individual counseling) produce higher cessation rates when combined with transdermal nicotine.

In a similar study (Garcia-Vera, 2004), effectiveness of a combination of behavior therapy and nicotine patch as a smoking-cessation method was examined. The behavior therapy treatment program consisted of 8 sessions, in which numerous cognitive behavioral techniques are used. Patch dosages were arranged on the basis of the number of cigarettes consumed per day. Abstinence rates at post-treatment and 5-year follow-up were high: 58.5% for point prevalence abstinence and 33.1% for continuous abstinence.

Cinciripini and colleagues (1996) evaluated a smoking cessation program using a behavior therapy alone or behavior therapy plus the nicotine patch in their study. Many strategies were used in the behavior therapy like: setting a target quit date, coping skills training, and stress management. Results indicated that the nicotine patch treatment boosts abstinence rates when combined with the behavior therapy. Abstinence rates were found to be significantly higher for the combination

group than the behavior therapy-alone group (79% versus 63%). Moreover, decreased withdrawal symptoms, tension and increased coping were observed for the combination group.

In a study, Örsel and colleagues (2005) compared the quitting smoking rates with either NRT alone, or behavioral education and the NRT combination. In the one-year follow-up, abstinence rates for NRT alone group were 24.2%, whereas the abstinence rates for the combination treatment group were 31.5%.

Combination of behavioral treatments with the use of nicotine gum and bupropion SR were also proved to be effective in different studies (Tønnesen et al., 1988; Herrera et al., 1995; Javitz et al., 2004).

1.3 Outcome Measures in Smoking Cessation

With the growing literature on the smoking cessation methods, a variety of alternative outcome measures are developed and applied. These outcome measures can be examined in two broad categories as a) self-report measures and b) biochemical measures. Some factors like the type of the study and the type of population appeared to influence the decision to choose the appropriate outcome measure (Velicer et al., 1992). In the following sections these outcome measures will be examined in detail.

1.3.1 Self-report Outcome Measures

Self-report measures can be classified into three categories as: a) point prevalence abstinence, b) continuous abstinence, and c) prolonged abstinence.

1.3.1.1 Point Prevalence Abstinence

Point prevalence abstinence was defined as “the percentage of former smokers, who are not smoking at a particular point in time, typically at the time of assessment” (Velicer & Prochaska, 2004). A broad range of ex-smokers can be included with the point prevalence abstinence definition. Individuals who have not smoked for years, or those who quit smoking recently can be accepted as former smokers.

The most common used length of abstinence used for point prevalence rates are 24 hours, 7 days, and 30 days (Velicer et al., 1992). There are some advantages of this outcome measure (Velicer & Prochaska, 2004). First of all, 24 hours and 7 days point prevalence abstinence rates can be validated by biochemical measures. Secondly, if it is measured some time after the end of the treatment, smokers who took delayed action and quit can also be included. Thirdly, this measure tolerates lapses (brief returns to smoking) and relapses (extended returns to smoking). Thus, a smoker with a lapse or relapse is not accepted as a total failure. This method has some disadvantages as well. The major disadvantage is that it requires a minimum duration of abstinence in order to define former smokers. Therefore, it is not as stable as continuous abstinence and may overestimate abstinence rates. Secondly, with point prevalence abstinence rates, it is difficult to understand health effects of smoking cessation. Only immediate health benefits can be detected, since people are only abstinent for 24 hours or one week.

1.3.1.2 Continuous Abstinence

Continuous abstinence was defined as the "percentage of former smokers who have not smoked at all since the occurrence of an intervention or some critical event" (Velicer et al., 1992).

There are some advantages of this outcome measure (Velicer & Prochaska, 2004). First of all, continuous abstinence rates are more stable over time and across studies than point prevalence abstinence rates. Secondly, with this outcome measure, the health benefits of cessation can be easily interpreted. One basic problem of this measure is that most people do not change smoothly from smoking to nonsmoking in their natural environment. Actually, most people experience lapses and relapses. A second problem is that these self-report measures cannot be validated biochemically or by significant others.

1.3.1.3 Prolonged Abstinence

Prolonged abstinence rate is a kind of combination of point prevalence and continuous abstinence rates (Velicer et al., 1992). People are accepted as former

smokers, if they are continuously abstinent for a long period of time, such as 1, 6, or 12 months. Prolonged abstinence rates are kinds of point prevalence rates with longer periods of times. With the use of this outcome measure, people who take delayed action or engage in repeated quit attempts can be included. Moreover, with the use of it, long term health benefits of quitting can be assessed. As with continuous abstinence rates, prolonged abstinence rates also show stability over time. A major disadvantage of prolonged abstinence rate is that it cannot be validated biochemically, or by significant others.

Research questions and the sample of the study would be influential in deciding which outcome to be used. In their population-based study, Velicer and Prochaska (2004) compared four outcome measures: a) 24-hour point prevalence abstinence, b) 7-day point prevalence abstinence, c) 30-day prolonged abstinence, and d) 6-month prolonged abstinence. The results showed that first three measures (24-hour point prevalence, 7-day point prevalence, 30-day prolonged abstinence) are highly correlated with each other (.98 and above). They concluded that these three measures will result in the same conclusions when used as outcome measures.

1.3.2 Biochemical Outcome Measures

Three biochemical outcome measures were used in the smoking cessation studies as measures of carbon monoxide, thiocyanate (SCN), and cotinine. There are two concepts that should be understood to review these measures. Sensitivity and specificity are two concepts that measure the validity of a certain biochemical outcome measure. The sensitivity of a biochemical measure was defined as “the proportion of true smokers who are classified as smokers by this measure”. The specificity of a biochemical measure was defined as “the proportion of true nonsmokers who are classified as nonsmokers by this measure” (USDHHS, 1990). Therefore, methods with high sensitivity and specificity would correctly discriminate smokers from nonsmokers.

1.3.2.1 Carbon Monoxide

High concentrations of carbon monoxide are present in the cigarette smoke (USDHHS, 1989; cited in USDHHS, 1990). With the inhalation of cigarette smoke, it is directly absorbed into the bloodstream and it has a 4 to 5 hours half-life in adults. Direct measurement of carbon monoxide can be obtained from exhaled air. (Stewart, 1975; cited in Velicer et al., 1992).

The sensitivity of carbon monoxide measure to detect smoking status can be within the range of 80% to 85%. However this range can be affected by diurnal variability (Benowitz, 1983; cited in USDHHS, 1990). Sensitivity of it was found poor in some studies (Vogt, 1982; cited in USDHHS, 1990).

A major advantage of carbon monoxide measure in exhaled air is that it provides an immediate, noninvasive method to asses smoking status (Middleton & Morice, 2000). Moreover, breath carbon monoxide assessment can be performed effectively by inexpensive, portable monitors. It is more sensitive to short, recent quits like 24 hours (Velicer et al., 1992).

In their study, Middleton and Morice (2000) aimed to provide a normal carbon monoxide range for smokers and nonsmokers. They found the mean breath carbon monoxide levels as 17.4 part per million (ppm) for smokers and 1.8 ppm for nonsmokers. They also concluded that 6 ppm cutoff gives a sensitivity of 94% and specificity of 96% for outpatients. Therefore, any reading exceeding 6 ppm strongly shows that the person is a smoker. In a similar study, Türkcan and Çakmak (2004b) aimed to determine the optimal cut-off level for breath carbon monoxide. They concluded that the optimal cut-off level of breath carbon monoxide to discriminate smokers from nonsmokers is 5 ppm. This 5 ppm cut-off point gave 96.8% sensitivity and 96.7% specificity.

1.3.2.2 Thiocyanate (SCN)

"Hydrogen cyanide (HCN) gas is a toxic agent present in high concentrations in cigarette smoke" (Velicer et al., 1992). Entering the body, it is rapidly detoxified into SCN by the liver (Langer & Greer, 1977; cited in USDHHS, 1990). Then, SCN accumulates in the body fluids like saliva, urine, and blood.

Therefore, it is used as a biochemical indication of exposure to tobacco smoke. The half-life of SCN has been estimated to change between 10 and 14 days. This long half life constitutes the major advantage of this method. Mostly salivary SCN was used rather than urinary SCN or blood SCN (USDHHS, 1990). However, sensitivity and specificity of salivary SCN has been problematic. The sensitivity of it with light smokers was found to be low. Moreover, some other products can produce similar SCN levels found in smokers that reduces its specificity. For salivary SCN, the sensitivity was indicated as 81% and the specificity was indicated as 71% (Jarvis et al., 1987).

1.3.2.3 Cotinine

Cotinine, which is a byproduct of nicotine was also used as outcome measure in smoking cessation studies. Cotinine is distributed throughout extracellular fluids and is excreted through the kidneys and salivary glands. However, it is mostly eliminated by the metabolism rather than excretion. (Benowitz, 1983; cited in USDHHS, 1990). The half-life of cotinine is variably changing between 15 to 40 hours (USDHHS, 1990). With the current methods, cotinine levels in saliva, urine and blood can be assessed. Among these methods, saliva sampling appears to be more accurate in classifying smokers and nonsmokers and it is recommended as a useful, noninvasive method (Abrams et al., 1987; cited in Velicer et al., 1992).

Cotinine measurement has high specificity since nicotine is mostly found in tobacco (Haley et al., 1983; cited in Velicer et al., 1992). With the cotinine measurement, regular and light smokers can be easily detected. Specificity of it is also high that regular smokers typically have 200 to 100 ng/ml blood cotinine levels (Benowitz, 1983; Cited in USDHHS, 1990). The sensitivity of cotinine measured in plasma, saliva or urine was indicated to be in the range of 96-97%. Similarly, the specificity was indicated to be high ranging from 99-100% (Jarvis et al., 1987).

From the comparison of biochemical measures cotinine seems to be the measure of choice because of its high sensitivity and specificity (Jarvis et al, 1987). However, it is more expensive and more complex to apply than other biochemical

measures. On the other hand, carbon monoxide measurement seems to be a more practical alternative, since it is easily assessed in exhaled air, give immediate results, and considerably cheaper (Velicer et al., 1992; Jarvis et., 1987).

In the light of all these, it can be concluded that point prevalence rates seem to be a reasonable choice as an outcome measure, which can be easily validated by CO measure in exhaled air.

1.4 Health Benefits of Smoking Cessation

Research on the possible negative health consequences of smoking and the effective cessation methods led to new studies on the health benefits of quitting. Smoking cessation and its effects on mortality and various diseases including many forms of cancers, cardiovascular and respiratory diseases were documented in different studies (USDHHS, 1990).

1.4.1 Effects of Smoking Cessation on Mortality and Quality of Life

In an early study of the American Cancer Society (Hammond, 1966; cited in USDHHS, 1990) conducted with 1 million volunteers, it was found that after 10 years of total abstinence, mortality rates of former smokers become equal to those of never smokers. However, this case was found to be valid for those, who smoked fewer than 20 cigarettes daily. For those smoking more than 20 cigarettes daily, the mortality risk was found to be higher than never smokers even after 10 years of abstinence. Similarly, Godtfredsen and colleagues (2002) conducted a 16-year follow-up study. The data from this study also supported that smoking cessation reduces mortality risk. Another striking finding of this study was that reduction of smoking was not found to be associated with a significant decrease in mortality from smoking related diseases. It can be inferred from this finding that in order to experience health benefits, a total abstinence must be achieved, instead of decreasing the number of cigarettes smoked daily.

Taylor and colleagues (2002) concluded from their study that quitting smoking as early as possible is important to experience the benefits. Results of their study showed that life expectancy of former smokers exceeds those of continuing

smokers by 6.9 to 8.5 years for men and 6.1 to 7.7 years for women. Benefits of quitting on life-expectancy were found to be valid for those who quit smoking in older ages (D'Agostino et al., 1989).

Besides the promising effects of smoking cessation on mortality, quitting showed an impact on the quality of life as well. In a study (Mulder et al., 2001) conducted with a random sample of general population, health-related quality of life was measured. Results indicated that former smokers have significantly higher quality of life scores than current smokers. The result was valid especially for mental health rather than physical health dimensions. Similarly, Tillmann and Silcock (1997) found significant differences between the ex-smokers' and continuing smokers' perceived health-related quality of life in their study.

1.4.2 Effects of Smoking Cessation on Cancers

Smoking was proved to be the major cause of lung cancer in former studies (USDHHS, 1989; cited in Dodgen, 2005, p. 12). As a result of a case-control study conducted in United Kingdom, it was found that people who quit smoking even in their middle ages reduce their risk of developing lung cancer (Peto et al., 2000). Furthermore, it was said that by quitting smoking before middle age, more than 90% of the lung cancer risk can be avoided. Besides the duration of abstinence, many prior smoking history variables were found to be influential in lung cancer risk after smoking cessation. These variables included duration of smoking, daily cigarette consumption, and the use of different tobacco products (USDHHS, 1990).

Concerning the larynx cancer, former smokers were found to be at relatively less risk than continued smokers (USDHHS, 1990). However, it was also stated that the risk for former smokers does not become equal to that of never smokers.

Cause and effect relationship was shown between smoking and oral cancer previously (USDHHS, 1989; cited in USDHHS, 1990). From their case-control study, Blot and colleagues (1988) concluded that the risk for oral cancer significantly declines following smoking cessation. Moreover, after 10 years of abstinence, the risk became equivalent to that of nonsmokers. Similarly, for the

esophageal cancer, former smokers showed lower risks of developing cancer after three years of abstinence (La Vecchia et al., 1976; cited in USDHHS, 1990).

Cigarette smoking was reported to be a risk factor for the cancer of pancreas (USDHHS, 2004). Fortunately, long-term abstinence was found to be decreasing the risk of developing pancreatic cancer (Silverman et al., 1994). Studies indicated that risk reduction was not confounded by the number of years smoked and the number of cigarettes consumed per day (Falk et al., 1988; cited in USDHHS, 1990).

Concerning the bladder cancer, substantial reduction of the risk for this cancer was shown in case-control studies (Hartge et al., 1987). Risk reduction was not confounded by the years of smoking and the number of cigarettes smoked daily. However, the risk of developing bladder cancer remained higher for former smokers compared to never smokers.

1.4.3 Effects of Smoking Cessation on Respiratory Diseases

Many diseases of respiratory system had been shown to be directly caused by cigarette smoking (USDHHS, 2004). These diseases include; emphysema, chronic bronchitis, chronic obstructive pulmonary disease (COPD) and asthma. Moreover, chronic respiratory symptoms like chronic cough, wheeze and phlegm production were mostly seen in smokers (USDHHS, 1990).

In a study (Scanlon et al., 2000) conducted with smokers having mild to moderate COPD, it was shown that these patients benefit from cessation despite smoking heavily in the past. Similarly, quitting smoking was found to reduce the rates of respiratory infections like bronchitis (USDHHS, 1990). Moreover, it was indicated that former smokers show less steep declines in pulmonary function compared to continued smokers (Burchfiel et al., 1995). This result was also valid for those who have pulmonary impairment at that time. Age-related lung function decline was found to be smaller in those who stopped smoking than those who continued to smoke (Lange et al., 1989; cited in USDHHS, 1990).

In a review study, it was shown that respiratory symptoms (cough, phlegm, and breathlessness) improve clearly following smoking cessation (Willemse et al., 2004). However, epidemiologic study of Paoletti and colleagues (1985; cited in

USDHHS, 1990) showed that the prevalence of chronic phlegm production continue to be higher in former smokers compared to never smokers.

1.4.4 Effects of Smoking Cessation on Cardiovascular Diseases

Cigarette smoking was indicated to be an important cause of coronary heart disease (CHD) and stroke (USDHHS, 1989; cited in USDHHS, 1990).

Concerning the risk of myocardial infarction (MI), Rosenberg and colleagues (1985; cited in USDHHS, 1990) investigated the effect of quitting smoking on the risk of first MI. The relative risk of MI was 2.9 for continuing smokers, whereas it was found as 1.1 for former smokers. The reductions in the relative risk were found to be influenced by the duration of abstinence and the amount of previous smoking.

Ockene and colleagues (1990) assessed the impact of smoking cessation on coronary heart disease (CHD) in their follow-up study. The results indicated that even after a year of abstinence, the risk of dying from CHD becomes significantly lower for former smokers compared to continuing smokers. Kawachi and colleagues (1994) prospectively examined the relation between smoking cessation and the risk of coronary heart disease in middle aged women. They concluded that one third of the excessive risk for coronary heart disease decreases within two years of cessation. Moreover, the risk reduces to the level similar to that of never smokers on the long-term. Results of diverse studies (USDHHS, 1990) indicated that smoking cessation indeed reduces the risk of CHD. The risk was indicated to show a rapid and partial decline first and then followed by a more gradual decline. It was also stated that it takes approximately 15 years of abstinence for the risk to reach the level of never smokers. Benefits of cessation on CHD were indicated to be valid in older people as well as younger people (Hermanson et al., 1988).

Concerning the risk of stroke, Wolf and colleagues (1988) conducted a cohort study. Results showed that the risk of stroke significantly decreases in 2 years of cessation and reaches to the level of nonsmokers in 5 years. Similarly, the risk of stroke in a sample of women was found to decrease immediately after the

cessation and to disappear largely in 2 to 4 years (Kawachi et al., 1993). This risk reduction was not affected by the amount of past smoking.

1.5 Psychologists and Smoking Cessation

As a field, psychology is relevant to smoking cessation with its cumulative scientific knowledge and practical experience related to the study of human behavior (Matarazzo, 1982). Actually, the contributions of psychologists are at great value on the issue of smoking cessation for several reasons: Firstly, there are various psychological mechanisms in the initiation, maintenance and cessation of smoking behavior. Some of these mechanisms include learning paradigms, cognitive processes, interpersonal relations, motivation, self-efficacy, stress management and effects of negative emotional states. Psychologists' knowledge on these mechanisms makes them appropriate providers of smoking cessation.

Secondly, nicotine dependence was accepted as a kind of drug dependence according to the surgeon general report (USDHHS, 1988) and the standard definitions of American Psychiatric Association (APA, 1994). Therefore, with their knowledge and practice on drug dependence and the treatment, psychologists can make contributions to the field.

Thirdly, there can be comorbid psychological problems like depression in people trying to quit smoking (Glassman et a., 1990). Moreover, the process of smoking cessation itself creates stress. Therefore, psychologists can successfully help their clients in dealing with these problems in the period of smoking cessation.

Finally, it was evident that quitting smoking results in significant improvements in perceived quality of life (both mental and physical) (Mulder et al., 2001). Psychologists can share this evidence with their clients and encourage them to consider cessation even when it is not on the client's agenda.

1.6 Aim of the Study

Smoking is a serious problem in the modern world. Statistics show that the percentage of smokers on the entire population increases despite the increased awareness on the physical and psychological negative effects and economical losses

of smoking. On the bright side, smoking cessation has beneficial effects on health even in the presence of an established smoking related disease. The literature points out that there are many effective methods for smoking cessation, which are being actively utilized in reality.

In the light of all these, the aim of the present study is to assess the effectiveness of a cognitive-behavioral smoking cessation program combined with transdermal nicotine in a university-students sample. Within this study, CO-levels of an experimental group, who received the combination program, were hypothesized to decrease significantly from pre-treatment to post-treatment. On the other hand, no significant changes were expected in the CO-levels of a control group, who received self-help materials. Moreover, changes in self-efficacy scores of both experimental and control groups were investigated. Specifically, self-efficacy scores of the experimental group were hypothesized to increase significantly from pre-treatment to post-treatment. On the other hand, self-efficacy scores of the control group were hypothesized to decrease significantly from pre-treatment to post-treatment.

CHAPTER II

METHOD

2.1 Participants

A total of 37 volunteer smokers studying at various departments of the Middle East Technical University (METU) participated in the present study. There were 20 and 17 participants in the experimental and control groups respectively. All the participants ranged in age from 20 to 31 years, with a mean age of 23.86 (SD = 3.04). The mean age of the experimental group was 24.20 (SD = 3.22) and the mean age of the control group was 23.47 (SD = 2.85). Of the total sample, 64.9 % were male and 35.1 % were female.

The sample constituted of 22 undergraduate level, 11 master level and 4 doctorate level students. Only 2 of the participants were married (5.4 %), both of which had smoker partners. The remaining participants were single (94.6 %). Twenty-nine (78.4%) of the participants spent most of their lives in big cities, seven (18.9 %) in cities and one (2.7%) in a small town or village. Some subject characteristics on the basis of groups are presented in Table 1.

Table 1 Subject characteristics

Variable	Experimental Group	Control Group
Sample size	20	17
Age (years)	24.20	23.47
Ratio of men to women	13:7	11:6
Undergraduate students (%)	50	70.6
Master students (%)	40	17.6
Doctorate students (%)	10	11.8

2.2 Materials

2.2.1 Baseline Measures

Both experimental and control groups were administered self-report measures at pretreatment including Demographic Information Form, Smoking History and Fagerström Tolerance Questionnaire (FTQ), Health Status Information Form, Smoking Decisional Balance Scale (DBS), Self-efficacy Questionnaire (SEQ), Beck Depression Inventory (BDI) and Multidimensional Scale of Perceived Social Support (MSPSS). Finally, breath carbon monoxide (CO) levels in exhaled air were used to determine smoking status both at the baseline and during the treatment.

2.2.2 Post-treatment Measures

After the program, all participants were asked to complete Self-efficacy Questionnaire (SEQ), Smoking Status Form and also their self-reported smoking status was verified by breath CO levels.

2.2.3 Follow-up Measures

Follow-up meetings were scheduled at 1- and 2 months post-treatments for both experimental and control groups in which they indicated whether they smoked or not and also their self-reported smoking status was verified by CO-measures.

Detailed information concerning all of these measures is given below.

2.2.4 Demographic Information Form

At the beginning of this form, confidentiality of the personal information was explained and informed consent of participants was obtained. This form was administered to collect information on participants' demographics including age, sex, education, the place they spent most of their life, marital status, and smoking status of the partner. A copy of this form is presented in Appendix A.

2.2.5. Smoking History and Fagerström Tolerance Questionnaire (FTQ)

In this part, information on the smoking history of participants was obtained including years of smoking and number of prior quit attempts. Besides, their current pattern of smoking and degree of dependence were measured by Fagerström Tolerance Questionnaire (FTQ; Fagerström, 1978; cited in Heatherton et al., 1991). The FTQ is an 8-item self-report measure of nicotine dependency (Fagerström et al., 1991). With the use of responses to these 8 items, including number of cigarettes per day, and time to the first cigarette of the day, the level of the person's nicotine addiction is determined, where higher scores correspond to a more severe addiction. Total score of FTQ was shown to correlate with biochemical and behavioral measures of nicotine dependence (Lichtenstein & Mermelstein, 1986)

This questionnaire was translated into Turkish within the study of Yalçınkaya-Alkar and Karanci (2007), in which they evaluated each item score individually instead of the total score. Pomerlau and colleagues (1994) assessed the test-retest reliability of the scale in American and French samples. Cronbach's alpha levels were stated to be .47 and .61 for the American and French samples respectively. The validity of the scale was also supported in this study. For the purposes of the current study, the total scale score was used.

In this part of the measurement battery, subjects were also asked to indicate the most important reason that made them to participate in this program in a close-ended question with following alternatives: a) treatment of a disorder, b) protection from illnesses, c) reasons pertaining to economics, d) to be good models for children, e) the bad smell and negative image caused by smoking, f) suggestion- or pressure from significant others and friends, g) other. Besides, participants indicated their motivation and readiness to quit smoking on 5-point Likert-type scales ranging from (1) *not at all* to (5) *very much.* A copy of the Smoking History Form and Fagerström Tolerance Questionnaire (FTQ) is presented in Appendix B.

2.2.6. Health Status Information Form

With this form, participants were screened at pretreatment for the presence of various illnesses like diabetes, cardiovascular diseases, having a stroke, high blood pressure, and high cholesterol. Furthermore, they provided information on their use of alcohol. A copy of this form is presented in Appendix C.

2.2.7 Smoking Decisional Balance Scale (DBS)

Decisional Balance Scale is a 24-item paper-pencil measure that was designed to evaluate the decision-making process across the stages of change in smoking cessation (Velicer et al., 1985). The scale consists of two constructs that were proposed to be underlying the decision-making process in smoking cessation (Prochaska et al., 1994; Velicer et al., 1985). These constructs were labeled as “Pros of smoking” and “Cons of smoking”. The scale was indicated to be successful in differentiating people in different stages of change. Within this study, the participants responded to each item by indicating their agreement ranging from: (1) *completely disagree* to (5) *completely agree*.

Internal consistencies of Pros and Cons scales were found to be high (.87 for the Pros of smoking scale and .90 for the Cons of smoking scale) (Velicer et al., 1985).

The scale was translated into Turkish in a recent study (Yalçınkaya-Alkar & Karanci, 2007). The same constructs emerged in this study and they were also

labeled as “Pros of smoking” and “Cons of smoking”. Internal consistencies of two scales were emerged to be high (.74 and .81 for the Pros and Cons scales respectively). A copy of this scale is presented in Appendix D.

2.2.8 Self-Efficacy Questionnaire (SEQ)

Participants were also received Self-efficacy Questionnaire (SEQ; Nicki et al., cited in Karanci, 1992). SEQ is a 25-item questionnaire, presenting several situations. Participants were asked to rate their confidence to resist the urge to smoke in these situations. Their confidence was measured on a 5-point Likert-type scale ranging from: (1) *not sure of avoiding smoking at all* to (5) *absolutely sure of avoiding smoking*. Higher scores in this questionnaire correspond to higher efficacy of resisting smoking urges.

Turkish adaptation of the scale was done by Karanci (1992). In this study, the psychometric properties of it were examined in Turkish smokers. Five smoking situation factors with satisfactory internal consistencies emerged within this study. These were: a) psychosocial (Cronbach’s alpha = .84), b) habitual (Cronbach’s alpha = .82), c) negative affect (Cronbach’s alpha = .72), d) relaxation (Cronbach’s alpha = .74) and e) restlessness (Cronbach’s alpha = .77). The Turkish version of the scale was found to have high internal consistency in a different study (Cronbach’s alpha = .92) (Yalçınkaya-Alkar & Karanci, 2007). A copy of this questionnaire is presented in Appendix E.

2.2.9 Beck Depression Inventory (BDI)

Beck Depression Inventory (BDI; Beck et al., 1979) is a 21-item scale measuring emotional, cognitive, somatic, and motivational symptoms of depression. The participants respond to each item by considering their last week. Scoring for each item ranges from 0 to 3 and higher total scores indicate higher levels of depressive symptoms. It was found that total scores above 17 indicate clinical depression (Hisli, 1988).

The 1961 version of the scale was revised in 1978 (Beck et al., 1979). Internal consistency of the 1978 revision was found to be satisfactory with

Cronbah's alphas ranging from .73 to .95. Besides, test-retest reliability of the scale was found satisfactory for both psychiatric patients and non-psychiatric patients (Beck, Steer, & Garbin, 1988).

It was adapted into Turkish by Hisli (1988). The split-half reliability of Turkish version of BDI was found to be .74 (Hisli, 1988). The concurrent validity, when correlated with the Minnesota Multiphasic Personality Inventory Depression Scale, was found to be 0.63 with a psychiatric sample (Hisli, 1988), and 0.50 with a university students sample (Hisli, 1989). A copy of this form is presented in Appendix F.

2.2.10 Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Support (MSPSS) was developed by Zimet and colleagues (1988) for the subjective evaluation of social support. The scale consists of 12 items and three subscales, each subscale addressing different sources of social support as family, friends and significant others. Perceived social support is rated on a 7-point scale ranging from: (1) *disagree very strongly* to (7) *agree very strongly*. Higher scores on the scale indicate higher perceived social support.

The total scale and subscales were found to have good internal consistencies, with reliability coefficients ranging from .85 to .91 (Zimet et al., 1988). The test-retest reliability of the total scale and subscales were also satisfactory ranging from .72 to .85. Concerning validity, MSPSS was found to be negatively correlated with Beck Depression Inventory scores in a university-student sample (Kazarian & McCabe, 1991).

The scale was translated and adapted into Turkish by Eker and Arkar (1995). The psychometric properties of the scale was evaluated in a sample of four groups as students with psychological problems, psychiatric inpatients and outpatients, renal disease patients, and visitors of patients. The Cronbach Alphas for all groups were found to be high, ranging between .85 and .91. In terms of validity, the scale was indicated to be negatively correlated with Beck Depression Inventory and State-Trait Anxiety Inventory. A copy of this scale is presented in Appendix G.

2.2.11 Smoking Status and CO Measurement

Smoking status of participants was determined by means of self-reports during the treatment and in follow-up assessments. The participants completed Smoking Status Form (Appendix H). Self-reports were confirmed by carbon-monoxide (CO) measure at pre-treatment, post-treatment, and follow-up assessments.

A portable CO monitor (Vitalograph) was used to measure CO concentrations in expired air. The device measures breath CO levels in parts per million (ppm). In order to standardize the CO measurements, participants were instructed to inhale completely and exhale fully first. Then they were told to inhale fully and hold their breath for 15 seconds. The participants were then instructed to exhale fully and slowly into the CO monitor. Separate disposable mouthpieces were utilized for each participant. Any CO measure exceeding 5 ppm was accepted as the indication of the continuation of smoking.

In the Smoking Status Form, participants were asked to indicate their reasons of smoking, in case they are continuing smokers, from the following alternatives: a) inadequate social support, b) stressful situations, c) weight gain, d) alcohol-related occations, e) withdrawal symptoms, f) presence of smokers in the social surroundings, g) insufficient motivation.

Additionally, successful quitters were asked to indicate what helped them in quitting smoking, with following alternatives: a) motivation, b) social support of the group and the significant others, c) being able to apply the ACE strategies, d) being able to substitute smoking with something else, and e) reminding oneself the negative effects of smoking and the benefits of cessation. Moreover, they were asked to rate the contribution of the program to their success using a 5-point scale ranging from (1) did not help at all to (5) helped a lot.

2.2.12 Transdermal Nicotine Patches

Participants in the experimental group were provided with 24-hr transdermal nicotine patches starting just before the quit date, until the end of the program. Both oral and written information and instructions concerning the use of nicotine patches

were shared with the participants. This information was taken from the instruction leaflet provided with the patches. Additionally, participants were referred to consult a chest medicine specialist in case they encounter any problems with the patch usage.

Subjects were instructed to apply a new patch each morning and were also provided with a body map indicating appropriate body locations to apply the patch. They were also instructed to rotate the patch placement sites occasionally in order to prevent irritation.

The usage and the dosage-pattern of patches recommended by the manufacturer were followed (Nicotinell TTS). Transdermal nicotine patches were available in three forms (30, 20 and 10 cm^2). The initial dose of the nicotine patch was determined by the number of cigarettes smoked daily. Those smoking 20 cigarettes per day or more were started with 30 cm^2 form that delivers 52.5 mg nicotine per day. Those smoking between 10 and 20 cigarettes were started with 20 cm^2 form that delivers 35 mg nicotine per day.

2.2.13 Treatment Manual

A treatment manual based on the works of Gençöz and colleagues (2003) was utilized during the study. It was followed during the sessions of the experimental group. Additionally, participants in the control condition were provided with this manual as a self-help material.

2.3 Procedure

Participants were recruited by means of notices posted at several locations of the METU campus announcing a smoking cessation program. After their recruitment they were randomly assigned either to experimental condition or to control condition. Participants in the experimental group received a multicomponent smoking cessation program combined with nicotine patches. On the other hand, participants in the control group were provided with self-help booklets without any active intervention. There were no face-to-face interaction with control participants except for the first meeting and two follow-up visits.

The smoking cessation program was a multicomponent program combining various psychological strategies with the use of nicotine patches. It was applied in group format with 6 to 7 people in each group. The program consisted of 6 group sessions carried out weekly and each session lasted approximately 2 hours. Before starting the actual program, an orientation session was carried out. During this session, both participants and the experimenter introduced themselves. Moreover, the program rationale, information concerning the duration and the content of the program were presented. The expectations of the participants from the program were also discussed in this session.

The following psychological strategies and techniques were included in the cessation program: 1) didactic information on the negative effect of smoking and health benefits of cessation, 2) treatment contracting and contingency management, 3) self-monitoring and self-control strategies, 4) enhancement of motivation and self-efficacy beliefs, 5) intra- and extra treatment support, 6) identification of high risk situations, 7) strategies for coping with withdrawal symptoms, 8) skills training like assertiveness training and relaxation training, 9) homework assignments, 10) weight control strategies, and 11) relapse prevention.

Group cohesion was tried to be built by making participants sit in a circle, using name tags, forming an e-mail group and sharing of mobile phone numbers. Participants were instructed to quit smoking 24 hours prior to the 3rd session and from that point on they were provided with nicotine patches.

Session-by-session goals and processes of the program were described below.

Session 1 (Goals):

- presenting the cessation program in more detail
- increasing the motivation of participants to continue to the program
- emphasizing the importance of attendance to the sessions
- increasing awareness concerning smoking patterns

Session 1 (Processes):

First of all, the content and the aim of the program were discussed in detail. Then, issues related to group dynamics and ethical considerations were discussed. The importance of attendance to the sessions on the success of this program was emphasized.

In order to enhance motivation, each participant's personal reasons for quitting and problems experienced due to smoking, were overviewed. Moreover, participants were informed about the success rates of similar smoking cessation interventions. In order to promote group communication, name-tags were utilized. Moreover, the mobile phone numbers and e-mail addresses of participants were collected to form a communication group.

The day before the 3rd session was scheduled as the target quit date and the participants were instructed to continue their regular smoking and to observe their smoking pattern very closely until the quit date. The session was closed with summarizing the session content.

Homework: Filling scales and questionnaires, noting down on "Cessation Logbook" immediately after each cigarette (see Appendix I)

Session 2 (Goals):

- increasing commitment to the process
- eliciting social support
- enhancing self-efficacy and motivation
- training in coping strategies
- informing about the use of nicotine patches

Session 2 (Processes):

The session started with the summary of the prior session and the review of homeworks. The effects of self-monitoring on each participant's smoking behavior were discussed and the participants were instructed to continue this observation. By discussion of observations, situations that would most likely be risky after the quit date were identified.

Rationale of contracting was explained and participants were made to sign "Smoking Cessation Contract" (see Appendix J) during the session. Moreover, they were instructed to inform their family and friends that they are quitting smoking and get their support during this period.

CO measurement of participants was done with portable CO monitor. Then, the use of nicotine patches was explained and participants were provided with nicotine patches. Moreover, didactic information on the negative health effects of smoking and the health benefits of cessation was presented.

Readiness for the target quit date was discussed and typical smoking triggers and withdrawal symptoms were reviewed. Participants were asked to implement some coping responses like; avoiding usual smoking places and situations, removing tobacco products and ashtrays around them before the quit day. Moreover, ACE (avoid, cope, escape) strategies were explained and participants were instructed to start practicing them.

Phone numbers of participants were shared within the group and an interactive e-mail group was formed throughout the group. This session was also closed with a summary.

Homework: quitting smoking on the target date, role-playing high-risk situations prior to quit date, calling at least one buddy on the quit date.

Session 3 (Goals):

- reinforcing abstinence
- strengthening the use of coping strategies
- helping to identify personal coping strategies

Session 3 (Processes):

The session was started with discussing each participant's experiences on the quit date. Each participant explained in detail how he/she got prepared to the quit date and what he/she lived on the target date. At that point, especially the smoking urges experienced and the coping responses used to cope with these urges

were discussed. Related to strong urges shared by some members, alternative responses were emerged and suggested as a result of group discussion.

Most of the members stated that calling a buddy on the quit date was helpful. They stated that sharing this process with someone else is encouraging and that they would continue to use this method at least throughout the program. At this point, the reactions of their friends and families upon telling them their decision to quit smoking were discussed. Some participants stated their friends and families as supportive, whereas some stated that their friends and families did not believe that they would succeed in quitting.

Difficulties concerning the use of nicotine patches were discussed. Most of the participants did not report any difficulties or side-effects. Only few reported experiencing mild skin irritation. CO measurement was repeated and feedback about the immediate health benefits of cessation was provided.

Participants were encouraged to reward themselves immediately with the things they decided on the contract. For those hesitating to reward themselves immediately, self-efficacy beliefs concerning staying abstinent were discussed. The session ended with a summary of the topics covered.

Homework: listing strategies specific to situations constituting high-risk for the individual.

Session 4 (Goals):

- reinforcing abstinence
- strengthening the use of coping strategies
- helping to identify personal coping strategies
- teaching to cope with stress and negative emotional states without smoking

Session 4 (Processes):

Firstly, every participant's last week was discussed and last week's homework of identifying personal strategies to high risk situations was reviewed. It was indicated that early morning hours, the time immediately after meals and situations like being together with smokers constitute common high-risk situations

for most of the participants. For these situations, the most efficient coping strategies were tried to be determined through discussions.

Most common withdrawal symptoms, their approximate duration and various methods for coping were discussed. The participants stated living in a campus where smoking is permitted, having smoker roommates in the dormitory and the presence of smoker friends as provocative. Since all the participants were university students, mid-term and final examination periods were defined as major sources of stress. Coping responses for all these stressful times and situations were reviewed. Ways of avoiding smoking in stressful situations and coping with the urges to smoke were again discussed and determined interactively. Avoiding smoking-permitted environments, positive self-talk during stressful situations and engaging in distractive activities emerged as effective coping responses.

Participants listed the benefits of cessation they experience. From this point, the immediate- and long term benefits of cessation were overviewed. The session was closed with a summary.

Homework: communicating with group members via e-mail group or telephone

Session 5 (Goals):

- reinforcing abstinence
- strengthening the use of coping strategies
- training in coping with risky situations

Session 5 (Processes):

The session was opened by overviewing the previous week and the assignment. Stressful conditions experienced by the participants and the ways of coping with them were discussed.

Assertiveness skills were covered as a part of relapse prevention during this session. Important points to improve assertiveness were explained and personal experiences of participants were used to exemplify the issue.

Importance of relaxing in stressful situations was emphasized and progressive muscle relaxation was taught by practicing it during the session. Side-effects of transdermal nicotine patches and adherence to their usage were reviewed. Only few of the participants complained about the side-effects and the remaining participants tolerated it well. The session was closed with a summary.

Homework: Practicing learned assertiveness skills in daily life, practicing progressive muscle relaxation, thinking about the termination and listing possible concerns.

Session 6 (Goals):

- reinforcing abstinence
- maintaining abstinence after termination
- foreseeing possibility of relapse and providing effective coping responses

Session 6 (Processes):

The session was started by overviewing the previous week and the assignment. Each participant stated his/her opinions and worries about the termination of the program. At this point, their improvements throughout the program and their successes were emphasized. Moreover, they were encouraged to stay in contact by means of the e-mail group and telephone in order to maintain group support following cessation.

Weight gain was discussed and some strategies were suggested to prevent gaining weight. Possibility of relapse was discussed and each participant's concerns about the relapse were acknowledged and strategies mentioned so far were reviewed. Participants were encouraged to see relapses as temporary failures and learning experiences rather than total failure. They were told to set a new quit date immediately after a relapse.

Participants' feedback on the program was gathered. Specifically, they were asked to indicate what was mainly helpful for them. Influence of the group on their cessation period was discussed. Finally, CO measurement was done and follow-up sessions were scheduled.

2.4. Data Analysis

All analyses were performed using the Statistical Package for Social Sciences (SPSS), version 13 for Windows. Demographic information was analyzed through Descriptive Statistics.

Separate ANOVAs were conducted to evaluate whether there were significant differences between experimental and control groups on their, degree of nicotine dependence, self-efficacy, motivation and readiness to quit, depression scores, perceived social support at pretreatment. Moreover, repeated measures ANOVA was conducted with obtained CO measures to explore the effectiveness of the program. Chi-square analyses were conducted to analyze whether abstinence rates of experimental and control groups differ significantly or not. Changes in the self-efficacy scores of experimental and control groups were assessed with repeated measures ANOVA.

CHAPTER III

RESULTS

3.1 Program Attendance and Compliance

Attendance of participants to the treatment and follow-up sessions was found to be satisfactory. Absence from half of the treatment sessions were accepted as drop-out from the study for the experimental group participants. Only one of the participants dropped out and was not included in the analyses. The compliance with the use of transdermal nicotine patches was also satisfactory. Three participants discontinued the use of the patch for a week, due to skin irritation. Moreover, one participant refused to use nicotine patches because of personal reasons, and therefore was excluded from data analysis.

3.2 Characteristics of Participants

Analyses were carried out with a total of 35 smokers. Smoking related characteristics of the participants are presented in Table 2.

Table 2 Smoking related characteristics of participants

	Group	N	%	Mean	SD
Years of smoking	experimental	18		6.89	3.21
	control	17		5.70	2.97
Total FTQ scores	experimental	18		6.61	1.82
	control	17		6.12	1.70
Previous quit attempt	experimental				
	yes	14	77.78		
	no	4	22.22		

Table 2 Smoking related characteristics of participants (Continued)

	Group	N	%	Mean	SD
	control				
	yes	12	70.6		
	no	5	29.4		
Motivation to quit	experimental	18		4	.91
	control	17		4	.71
Readiness to quit	experimental	18		3.22	.88
	control	17		3.12	.70

Participants were asked to indicate their reason of participating in this program in a close-ended question with following alternatives: a) treatment of a disorder, b) protection from illnesses, c) reasons pertaining to economics, d) to be good models for children, e) the bad smell and negative image caused by smoking, f) suggestion- or pressure from significant others and friends, g) other. In the experimental group, the most frequent reasons were identified as (1) protection from illnesses (50%) and (2) the bad smell and negative image caused by smoking (50%). Similarly, in the control group, most frequent reasons were identified as the (1) protection from illnesses (53%) and (2) the bad smell and negative image caused by smoking (41%).

3.3 Baseline Measures

Experimental and control groups were compared in terms of their degree of motivation, readiness and decision to quit smoking, nicotine dependence, depression, self-efficacy, and perceived social support with pretreatment measures, in order to explore potential baseline differences. For this purpose, separate one-way ANOVAs were conducted with motivation and readiness evaluations, FTQ, BDI, SEQ, MSPSS and DBS scores. Results showed that there were no significant differences between experimental and control groups in terms of aforementioned measures. Descriptive statistics concerning these measures are illustrated in Table 3.

Table 3 Descriptive statistics for motivation, readiness, FTQ, BDI, SEQ, MSPSS and DBS scores

	Group	N	Mean	SD
Motivation to quit smoking	experimental	18	4.00	.91
	control	17	4.00	.71
Total		35	4.00	.80
Readiness to quit smoking	experimental	18	3.22	.88
	control	17	3.12	.70
Total		35	3.17	.78
FTQ	experimental	18	6.61	1.82
	control	17	6.12	1.70
Total		35	6.38	1.75
BDI	experimental	18	10.11	4.62
	control	17	10.12	4.25
Total		35	10.11	4.38
SEQ	experimental	18	2.53	.64
	control	17	2.55	.66
Total		35	2.54	.64
MSPSS	experimental	18	67.22	11.96
	control	17	66.47	10.49
Total		35	65.86	11.11
DBS				
Cons of smoking	experimental	18	2.11	.61
	control	17	1.89	.29
Total		35	2.00	.49
Pros of smoking	experimental	18	2.88	.57
	control	17	2.74	.50
Total		35	2.81	.54

3.4 Program Effectiveness and Abstinence Rates

2 (Group: experimental vs. control) X 4 (Time: pre-treatment, post-treatment, 1-month follow-up, 2-month follow-up) repeated measures ANOVA was conducted with measured CO values (see Table 4). Results showed a significant main effect of time, $F(3,33)=31.08$, $p<.001$, as well as a significant group X time interaction effect, $F(3,33)=13.03$, $p<.001$ (see Figure 1).

Post-hoc comparison of CO values was conducted with Bonferroni correction at .05 significance level. Results of post-hoc comparisons showed that the only significant differences were obtained between pre-treatment and post-treatment mean CO levels, and between pretreatment and both follow-up measures of the experimental group. Mean CO values of experimental group participants showed a decline from pre-treatment to post-treatment, and pre-treatment to follow-up measures.

Table 4 Repeated measures ANOVA results with CO values

	Sum of Squares	df	Mean Sqaure	F	Sig.
Time	4079.37	3	1359.79	31.09	.000
Time x Group	1709.78	3	569.92	13.02	.000
Error	4330.67	33	43.74		

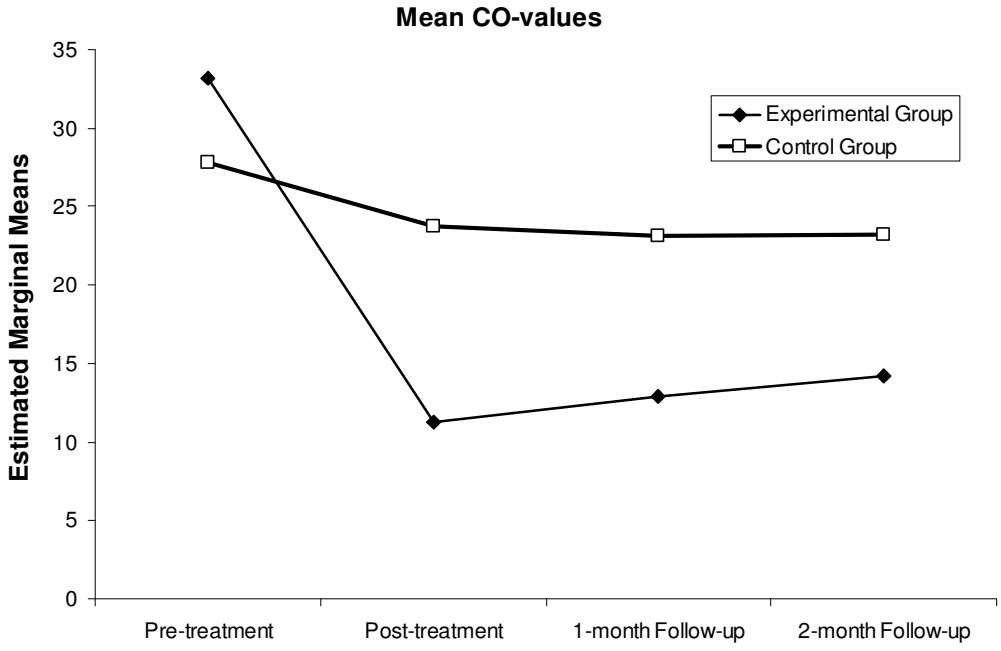

Figure 1 Mean CO values of experimental and control groups over four assessment periods

Abstinence rates of the experimental group were found to be significantly higher than the abstinence rates of the control group at post-treatment, $\chi^2(1,N=35)=10.98$, $p<.01$. In the experimental group 66.67% of the participants were (24-hr point prevalence abstinence) abstinent at the end of the program, whereas only 11.76% of the control group participants were abstinent at post-treatment. At 1-month follow up, the difference between the abstinence rates of two groups was found to be statistically significant, $\chi^2(1,N=35)=10.01$, $p< .01$. At 1-month follow-up, 55.55% of participants in the experimental group and 5.88% of participants in the control group were abstinent. At 2-month follow-up, the difference between the abstinence rates of two groups was still statistically significant, $\chi^2(1,N=35)=6.81$, $p< .01$. Results showed that 45.44% and 5.88% of participants were abstinent for the experimental and control groups respectively (see Figure 2).

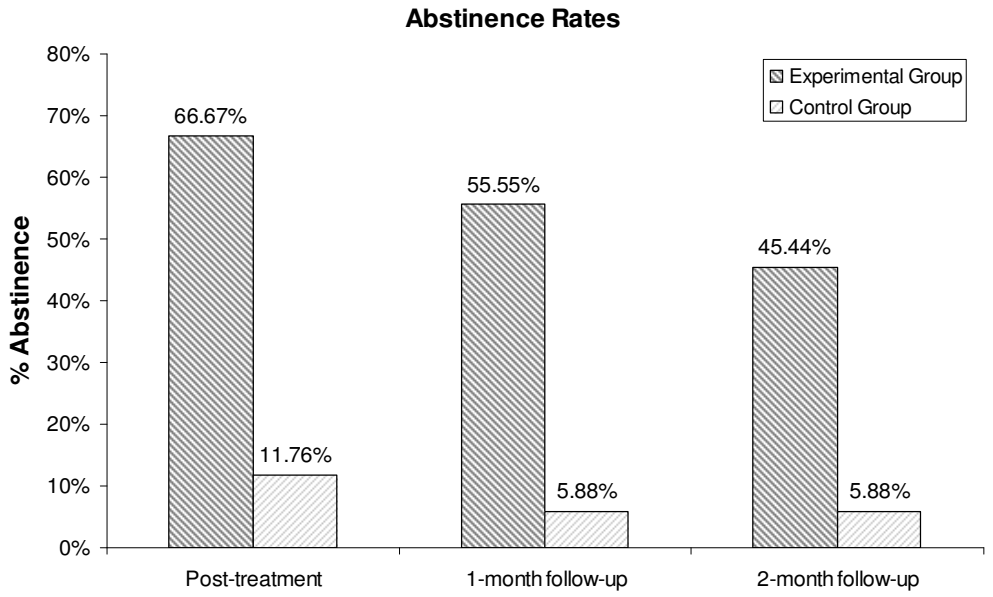

Figure 2 Abstinence rates of groups at post-treatment and follow-ups

Although identified as abstinent with CO measurement at the time of follow-up assessments, 4 of the successful quitters reported occasional smoking, especially together with the alcohol intake.

3.5 Self-efficacy Measures

2 (Group: experimental vs. control) X 2 (Time: pre-treatment, post-treatment) repeated measures ANOVA was conducted with SEQ scores (Table 5). Results showed a significant group X time interaction effect, $F(1,33)=10.44$, $p<.01$. (Figure 3)

Post-hoc comparison of SEQ scores was conducted with Bonferroni correction at .05 significance level. Results of post-hoc comparisons showed that experimental group participants' SEQ scores significantly differ from pre-treatment to post-treatment, showing an increment. On the other hand, SEQ scores of control group participants showed a significant decline from pre-treatment to post-treatment.

Table 5 Repeated measures ANOVA results with SEQ scores

	Sum of Squares	df	Mean Sqaure	F	Sig.
Time	1.57	1	1.57	1.84	.18
Time x Group	8.91	1	8.91	10.44	.003
Error	28.14	33	.85		

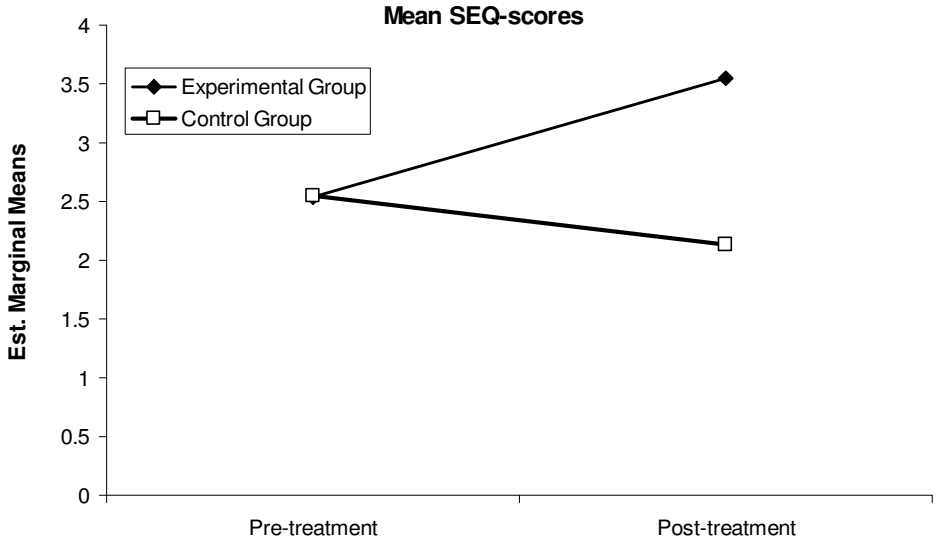

Figure 3 Mean SEQ scores of experimental and control groups over two assessment periods

3.6 Aids to Successful Cessation and Reasons of Continuing Smoking

At post-treatment, successful quitters were asked to indicate what helped them in quitting smoking, with following alternatives: a) motivation, b) social support of the group and the significant others, c) being able to apply the ACE strategies, d) being able to substitute smoking with something else, and e) reminding oneself the negative effects of smoking and the benefits of cessation. The most frequent answers to this question were: (1) motivation (75%), (2) social support of the group and the significant others (66.67%). Moreover, they rated the contribution of the program to their success as high ($\underline{M}$=4.71, $\underline{SD}$=.47), in the 5-point scale.

Furthermore, participants of the experimental group, who continued to smoke were asked to indicate their reasons, with following alternatives: a) inadequate social support, b) stressful situations, c) weight gain, d) alcohol-related occasions, e) withdrawal symptoms, f) presence of smokers in the social surroundings, g) insufficient motivation. The most frequent answers were identified as: (1) stressful situations (83.3%), (2) insufficient motivation (66.67%).

CHAPTER IV

DISCUSSION

In this chapter, firstly the findings of this study will be discussed. Then, clinical implications of the study will be stated. These will be followed by the limitations of the present study and the suggestions for future research.

4.1 Program Effectiveness and Compliance

The primary goal of the present study was to evaluate the effectiveness of a multicomponent smoking cessation program that combined cognitive-behavioral therapy with transdermal nicotine patches. The results showed that the combination of cognitive-behavioral techniques with nicotine patches is an effective smoking cessation intervention. This finding was in line with previous studies (Cinciripini et al., 1996; Fiore et al., 1994b; Garcia-Vera, 2004).

Moreover, post-treatment abstinence rates were found to be in accordance with previous studies. In their placebo controlled study, Fiore and colleagues (1994b) also used the combination of group counseling intervention and transdermal nicotine. Their results indicated that abstinence rates were 59.1% at post-treatment and 34.1% at 6-month follow-up for the active treatment group. In a similar study, (Cinciripini et al., 1996) abstinence rates were found to be significantly higher for the combination of behavior therapy and nicotine patches, compared to behavior therapy alone (79% and 63% respectively). This difference in cessation rates seemed to be weakening at 6 to 12 months post-treatment. Similarly, in the present study, post-treatment abstinence rates were found to be high for the experimental group receiving the program, compared to control group. Moreover,

the difference of cessation rates between two groups was found to be weakening at 1 to 2 months post-treatment.

Along with other research (Fiore et al., 1994b, Cinciripini et al., 1996), the results of the present study suggested that the use of nicotine patch might be a helpful aid in smoking cessation. Additionally, the use of patch was well tolerated by participants. The most common side-effect was skin irritation. However, this was not resulted in the discontinuation of using them. Although not measured specifically, it was observed in group discussions that most of the participants realized a suppression of withdrawal symptoms with the use of nicotine patches. It was especially reported by those having previous quit attempts.

The pattern of reduced withdrawal symptoms with the addition of nicotine patches was reported in other studies. Cinciripini and colleagues (1996) attributed this effect of patch addition on the withdrawal symptoms to three factors: They concluded that nicotine replacement probably a) had a favorable effect on short-term stress, b) improved affect, and c) improved the effectiveness of coping behavior. In the present study, these proposed factors might have been operating for the withdrawal symptoms.

Related to their reasons of participating in this program, both experimental and control group participants reported similar reasons. In both groups, two reasons, a) protection from illnesses and b) the bad smell and negative image caused by smoking, got the highest rankings. This result suggested that health concerns constituted the basic motivation for quitting in this sample. In their study, Curry and colleagues (1990) evaluated an intrinsic-extrinsic model of motivation for smoking cessation. Health concerns and self-control dimensions were categorized as intrinsic motivation, whereas immediate reinforcement and social influence dimensions were categorized as extrinsic motivation. Their results showed that successful quitters were able to differentiate between intrinsic and extrinsic motivation. Moreover, their results indicated that smokers with higher levels of intrinsic- compared to extrinsic motivation were more likely to achieve abstinence. The sample of the present study also reported health concerns as a motivation to quit at pre-treatment.

The drop-out rate was also very low, which may be attributed to the repeated attempts to increase group cohesion and emphasizing the importance of session attendance. Participants were informed about the cyclic nature of the smoking cessation that most smokers succeed in quitting only after experiencing a series of lapses and relapses during their quit attempts. Moreover, they were told that every attempt constitutes a learning experience for them, so they were encouraged to attend sessions even if they were continuing smoking. All these might have been influential in the high attendance rates to the sessions.

4.2 Social Support

Cognitive-behavioral skills and social support were incorporated within this program used in this study. Provision of intra-treatment and extra-treatment social support constituted the main ingredients.

Intra-treatment social support was provided by forming a buddy system. Starting from the orientation session, participants were encouraged to communicate with and support each other. Group cohesion outside the sessions was facilitated by the use of an e-mail group and a telephone chain. They were assigned to call at least one buddy as homework. Moreover, in group discussions social support was provided through recommendations and the sharing of experiences.

For the extra-treatment social support, participants were encouraged to seek support from their environment. Specifically, they were asked to determine at least one person from their environment to be their support person, who communicates about the cessation period and the participant's progress periodically throughout the program.

At this point, explaining basic types of social support might be useful (Sarafino, 1990, p. 98-99). One type of support is *emotional support*, which involves the expression of empathy and concern toward the person. It provides a sense of comfort and belongingness to the person at the times of stress. Another type is *esteem support*, which occurs through people's expressions of positive regard for the person and encouragement. Esteem support is especially useful during the appraisal of stress, such as when the person assesses whether the

demands exceeds personal resources or not. *Instrumental support* involves direct assistance like helping with chores at the time of stress. Another type is *informational support*, which includes giving advice, directions, or feedback about how the person is doing. *Network support* provides a feeling of membership in a group of people who share interests and social activities.

Experimental group participants in the present study were provided with emotional support, esteem support, informational support and network support through the intra-treatment and extra-treatment social support resources.

Moreover, there are two models proposed in the literature, which might be useful in examining the role of social support in smoking cessation. These are a) direct effects model and b) stress-buffering model. The direct effects model assumes that social support is beneficial to people regardless of the amount of stress they experience (Cohen & Wills, 1985; cited in Sarafino, 1990, p. 103). That is, sense of support has a direct effect on health, in this case smoking cessation. Stress-buffering model assumes that support protects people from the harmful effects of stress by increasing their self-esteem and making them to talk about their problems (Cohen & Wills, 1985; cited in Sarafino, 1990, p. 102). Stress moderates the effect of social support, that is only an interaction of stress and social support would successfully predict social support.

In the present study, both of these social support mechanisms might have been operated. Social support, especially the intra-treatment social support might have had a direct effect of cessation on successful quitters. Since the quitting itself is a stressful process for most of the smokers, social support might have been beneficial through its stress-buffering effect as well. Participants in this study might have experienced less stress through the use of social support resources, which in turn helped them to achieve abstinence.

In the present study, successful quitters were asked to indicate what helped them in quitting and they rated the social support of the group and significant others as being helpful for them in their success. Previous studies also examined the role of social support in the smoking cessation. Etringer and colleagues (1984) investigated the influence of group cohesion in a multicomponent behavioral

treatment, in which they manipulated the cohesiveness level. The results showed that increasing the level of cohesion above that normally found in groups resulted in significantly higher abstinence rates. In another study (Morgan, Ashenberg, & Fisher, Jr., 1988), the effects of social environment on the abstinence from smoking were assessed. Results indicated that successful abstainers get more helping behaviors from friends than relapsers. Overall, the results suggest that social support that is provided through a buddy system or by the social environment has beneficial effects on the cessation period.

4.3 Self-Efficacy

Results showed that participants in the experimental group displayed significant improvements in their smoking self-efficacy. On the other hand, participants in the control group demonstrated significant reductions in their self-efficacy from pre-treatment to post-treatment.

The significant increment in self-efficacy scores of experimental group participants is not surprising. Self-efficacy Questionnaire measures people's confidence to resist the urge to smoke in various situations. More than half of the experimental group participants succeeded in quitting smoking. Quitting smoking proves by itself that those people had resisted the urge to smoke in these situations. Therefore, it increases the probability that those participants show higher levels of confidence than control group participants. This finding is in accordance with previous studies indicating that self-efficacy judgments increase as a result of successful quitting (Carey & Carey, 1993; Condiotte & Lichtenstein, 1981).

The significant reduction in self-efficacy scores of control group participants was also expected, since most of these people have been unsuccessful in resisting many of the situations depicted in the Self-efficacy Questionnaire. Therefore, it increases the probability that their self-efficacy decreases from pre-treatment. This finding is also in line with past research, indicating that self-efficacy ratings decrease as a result of unsuccessful attempts of quitting (Carey & Carey, 1993; Condiotte & Lichtenstein, 1981).

According to self-efficacy theory (Bandura, 1977), there are four major sources of information that people use to judge their level of self-efficacy. These are performance accomplishments, vicarious experience, verbal persuasion, and emotional arousal.

Performance accomplishments as source of efficacy information are based on personal mastery experiences. This source suggests that successes raise mastery expectations of people, whereas repeated failures lower them. Negative impacts of occasional failures diminish after strong efficacy expectations are built with repeated success. Experiences based on this source produce higher and more generalized efficacy expectations.

Vicarious experience is another source of efficacy information, in which people infer their efficacy expectations by seeing other people performing behaviors. Seeing others performing behaviors, people can persuade themselves that they should also be able to achieve some improvement in performance. Since this information is based on social comparison, it is a less dependable source of information than personal accomplishments. Self-efficacy expectations based on this source of information tend to be weak and are more vulnerable to change.

In verbal persuasion, efficacy expectations are manipulated by making people believe that they can successfully cope with the overwhelming situation through suggestions. Again, this source also produces weaker efficacy expectations than those of performance accomplishments.

Emotional arousal suggests that stressful situations generally elicit emotional arousal that might be informative about personal competency. However, misinterpretations of emotional arousal make this source less dependable.

Participants in the present study might have been used all of these sources to judge their self-efficacy to resist smoking. However, it can be concluded that performance accomplishments constitute the strongest source of self-efficacy evaluations in this study.

4.4 Cessation, Continuing Smoking and Relapse

In this study, successful quitters reported that they benefit mostly from their motivation to quit smoking, social support of the group and the significant others. This finding was in line with previous studies, indicating an association between strong motivation to quit and successful quitting, as well as long-term maintenance of abstinence (Marlatt et al., 1988). The critical role of social support on smoking cessation was also shown in previous studies (Etringer et al., 1984; Morgan, Ashenberg, & Fisher, Jr., 1988).

From the beginning of the program, participants were encouraged to overview their reasons to quit smoking and to remind these reasons to themselves periodically. In this way, underestimating the negative effects of smoking with the passage of time was tried to be prevented. Moreover, they were told repeatedly that they can successfully cope with the overwhelming situations that they encounter during this period. Disclosures of personal concerns and problems related to the cessation period were facilitated in group discussions. Taken together, all these might have been influential in participants' motivation to quit smoking. Additionally, experiencing immediate health benefits of cessation might have increased the motivation of successful quitters.

Continuing smokers reported stressful situations and insufficient motivation as their reasons for smoking. Previous findings also suggested that exposure to stressors increases the desire to smoke (Perkins & Grobe, 1992). Concerning the current sample, it was observed that most common stressors were related to academic life. Before the quit day, most of the participants were worried about the exam periods and overcoming these periods without smoking. Most of them reported to be more concentrated while studying, if they were smoking at the same time. In group discussions, coping strategies for this problem were considered. As a result, some of the participants realized that they can easily manage to study without smoking, contrary to their expectations. However, others reported that exam periods became more stressful without smoking.

Results showed that, some of the successful quitters relapsed to smoking in follow-ups. That relapse is a common problem in the smoking cessation was

reported in previous studies (Fiore et al, 2000; Lichtenstein, 1982). Even in formal cessation treatments, relapse rates rise up to 70% during the first year after quitting (Fiore et al., 2000).

There might be several reasons for relapses in the current study: First of all, with the end of the program, participants were no longer provided with intra-treatment social support. Moreover, they no longer experience the antismoking norm of the group. Secondly, although they were instructed to continue using nicotine patches after the program, they might have stopped using them. With the discontinuation of nicotine patches, they might have experienced withdrawal symptoms. Thirdly, they might have discontinued using coping responses that they practiced during the program. Finally, they might have been exposed to stressful situations during this period. All of the reasons mentioned above might have been influential in the relapse experienced by some participants.

Previous studies tried to examine relapse situations. Smoking urges that are caused by negative emotional states and psychosocial stress were identified as the best predictors of relapse (Doherty et al., 1995). In another study, situational factors leading to relapse and their time period were examined (Cummings, Jaen, & Giovino, 1985). Their results showed that withdrawal symptoms and craving for cigarette lead to relapse in the first week after quitting. After this initial period, coping with crisis situations and exposure to smoking triggers (presence of other smokers, consumption of alcohol and coffee) were identified as reasons for relapse. They concluded from these results that withdrawal from nicotine is influential in early relapse, whereas psychosocial aspects of smoking are influential in later relapse. Similarly, in the present study, later relapses might be associated with the psychosocial aspects of smoking habit.

In this study, occasional smoking was identified as a problem like relapse. Although identified as abstinent at the time of follow-up assessments, some of the successful quitters reported occasional smoking. Occasional smoking was reported especially with alcohol consumption, which again points out the role of psychosocial aspects of smoking in the cessation period.

4.5 Limitations of the Present Study

The major limitation of the study is related to the short time interval between the program and the follow-ups. Participants were followed for 2 months after the treatment program. However, following participants at 6-month and 1-year post-treatment would be more informative in the sense that patterns of lapses, relapses and late-quitting would be captured.

Another shortcoming of the study might be the small sample size. Although experimental studies tolerate small sample sizes, conducting the study with a larger sample would be beneficial.

In the present study, the differences in smoking motives of individuals were not considered. Typology measurement would be included and strategies for the most common reasons would be discussed.

The sample was homogenous in the sense that all the participants were students attending the same university. The effects of this homogeneity were twofold: It constituted an advantage, since they were in the same physical- and social environment and they experience similar situations at least concerning the academic life. On the other hand, in the daily life working with such a homogenous group of people would be difficult. Therefore, it reduces the sample's representativeness of the general population and constitutes a limitation for the present study.

Another limitation related to the representativeness of the general population was the easy applicability of cognitive-behavioral techniques in a well-educated university-student sample. Discussion of cognitive-behavioral techniques was easy and the compliance with homework assignments was satisfactory, which may not be easily achieved with a different sample.

4.6 Directions for Future Research

As stated before, the short time interval for follow-ups constituted a limitation for the present study. Therefore, future research in this field would benefit from studies with extended follow-up periods for at least six months.

Additionally, generalization of the results should be examined in a more diverse sample of individuals.

Considerable amount of evidence have suggested a gender difference concerning smoking cessation. That is to say, men were shown to be more successful in quitting smoking than women (Wetter et al., 1999; Bjornson et al., 1995; Fiore et al., 1994b). Therefore, further studies can investigate the impact of gender on abstinence rates in a sample of Turkish smokers.

Literature indicates a dose-dependent effect related to the treatment intensity; that is abstinence rates increase with the increased contact between the smoker and the clinician (USDHHS, 2000). However, less intensive programs might be preferred for practical reasons. Therefore, the effect of different treatment intensities with different populations can be examined in further studies. Moreover, the effect of delivering the program used in the present study by multiple clinicians might be investigated.

Furthermore, considering smoking typologies and tailoring the treatments accordingly would be beneficial. Future research in this field would assess the outcome of such tailoring procedures. Similarly, the stages of change of the participants can be determined beforehand and the treatment can also be tailored accordingly.

The program used in the present study can be applied to special populations like psychiatric patients, adolescents, or people with smoking-related medical problems, because these populations may have more limited coping resources or immediate quitting would be crucial for them. Therefore, it would be useful to assess the effectiveness of the program with such populations and to investigate whether the program meets with the needs of these populations.

High intensity programs require high commitment, since people invest considerable time and effort in such programs. Therefore, variables affecting the degree of individual's commitment become critical for the cessation period. Future research in this field would benefit from studies investigating potential variables that affect program commitment and the effects of manipulating these variables.

Social support emerged as an important factor in successful quitting. In the present study, intra-treatment and extra-treatment social support were tried to be elicited. Intra-treatment social support were tried to be built by forming a buddy system. Further research can examine another source of social-support that participants may bring their support person to the treatment sessions. The effect of this support system on the treatment outcomes might be investigated.

4.7 Clinical Implications

The results of the present study have some implications for those working in the areas of clinical psychology, health psychology and for those specifically working in smoking cessation area.

Cognitive-behavioral therapy was effectively used in the treatment of a broad range of problems. Some psychiatric disorders successfully treated by cognitive-behavioral therapy included depression (Reynolds & Coats, 1986), social phobia (Heimberg et al., 1990) and schizophrenia (Sensky et al., 2000). Some other problems, for which cognitive-behavior therapy was used successfully, included chronic pain (Morley, Eccleston, & Williams, 1999) and obesity (Rosen, Orosan & Reiter, 1995). The result of this study also supported that cognitive-behavioral treatment can successfully be used for smoking cessation. The multicomponent cognitive-behavioral therapy in the present study covered many issues and points that are relevant to smoking cessation. The method utilized in this present study may guide clinicians in their practices.

The results also suggest that support groups can be successfully used in the area of smoking cessation. Actually, use of support groups for problematic behaviors started and increased previously in other countries like the United States. Especially starting from the foundation of Alcoholics Anonymous (AA) in the early 1900's (Room & Greenfield, 1993), utilization of support groups for problem behaviors was increased and new groups like Nicotine Anonymous were emerged. Social support groups like Alcoholics Anonymous (AA) were also started to be used in our country in recent years. Current study suggests that the use of support groups in the smoking cessation is beneficial; therefore the use of such groups can

be increased. Such groups would be successfully held in specialized smoking cessation clinics and chest medicine clinics of hospitals. Moreover, the effectiveness of the combination of nicotine patch with cognitive-behavioral therapy suggests that nicotine patches can be added to treatment methods. Over-the-counter availability and optimum price make these products easy aids for smoking cessation.

The new law concerning the cigarette smoking in public places was accepted by the Grand National Assembly of Turkey in January 2008. With this new law, smoking in all public places will be restricted in the near future. Moreover, most of the employers prefer non-smokers for new positions nowadays. All these point out that the trend for quitting smoking will be more popular in the near future. This trend in turn will increase the demand for formal methods of smoking cessation. In this case, professionals working in this area can immediately intervene with the utilization of treatments which are proven to be effective. In that sense, the program used in the present study can be regarded as a useful tool for professionals.

4.8 Conclusion

More people are getting health-conscious in recent years. They have become more aware of the negative consequences of unbalanced dieting, sedentary lifestyles and cigarette smoking. Therefore, they have been increasingly engaging in more health related behaviors like balancing their dieting, having increased exercising and quitting smoking.

In terms of cigarette smoking, this increased awareness about negative consequences and the need to engage in action for quitting would help to overcome people's hesitancy on seeking formal treatments.

Moreover, considering key elements like social support and self-efficacy in the treatment and approaching the issue from biopsychosocial perspective would increase the chances of successful quitting.

REFERENCES

Aşut, O. (1993). Sigara içme epidemiyolojisi. In Aşut, O. (Ed.), *Hekim ve Sigara* (pp.45-53). Ankara: Türk Tabipler Birliği Yayınları.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders*. Washington DC: Author.

Baer, J. S., Holt, C. S., & Lichtenstein, E. (1986). Self-efficacy and smoking reexamined: Construct validity and clinical utility. *Journal of Consulting and Clinical Psychology, 54*, 846-852.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Beck, A.T., Rush, A.J., Shaw, B.F., & Emery, G. (1979). *Cognitive Therapy of Depression.* New York: Guilford Press.

Beck, A.T., Steer, B.F., & Garbin, M.G. (1988). Psychometric Properties of the Beck Depression Inventory: Twenty-five Years Evaluation. *Clinical Psychology Review, 8,* 77-100.

Bjornson, W., Rand, C., Connett, J. E., Lindgren, P., Nides, M., Pope, F., Buist, A. S., Hoppe-Ryan, C., & O'Hara, P. (1995). Gender differences in smoking cessation after three years in the Lung Health Study. *American Journal of Public Health, 85*, 223-230.

Blondal, T., Franzon, M., & Westin, A. (1997). A double-blind, randomized trial of nicotine nasal spray as an aid in smoking cessation. *European Respiratory Journal, 10*, 1585-1590.

Blot, W. J., McLaughlin, J. K., Winn, D. M., Austin, D. F., Greenberg, R. S., Preston-Martin, S., Bernstein, L., Schoenberg, J. B., Stemhagen, A., & Fraumeni, J. F. Jr. (1988). Smoking and drinking in relation to oral pharyngeal cancer. *Cancer Research, 48*, 3282-3287.

Borrelli, B., & Mermelstein, R. (1994). Goal setting and behavior change in a smoking cessation program. *Cognitive Therapy and Research, 18*(1), 69-83.

Borrelli, B., & Mermelstein, R. (1998). The role of weight concern and self-efficacy in smoking cessation and weight gain among smokers in a clinic-based cessation program. *Addictive Behaviors, 23*, 609-622.

Borrelli, B., Hogan, J. W., Bock, B. Pinto, B., Roberts, M., & Marcus, B. (2002). Predictors of quitting and dropout among women in a clinic-based smoking cessation program. *Psychology of Addictive Behaviors, 16*, 22-27.

Bowers, T.G., Winett, R. A., & Frederiksen, L. W. (1987). Nicotine fading, behavioral contracting, and extended treatment: Effects on smoking cessation. *Addictive Behaviors, 12*, 181-184.

Brandon, T. H. (2001). Behavioral tobacco cessation treatments: Yesterday's news or tomorrow's headlines? *Journal of Clinical Oncology, 19* (Suppl.), 64-68.

Burchfiel, C. M., Marcus, E. B., Curb, J. D., Maclean, C. J., Vollmer, W. M., Johnson, L. R., Fong, K. O., Rodriguez, B. L., Masaki, K. H., & Buist, A. S. (1995). Effects of smoking and smoking cessation on longitudinal decline in pulmonary function. *American Journal of Respiratory and Critical Care Medicine, 151*, 1778-1785.

Burton, S. L., Gitchell, J. G., & Shiffman, S. (2000). Use of FDA-approved pharmacological treatments for tobacco dependence – United States, 1984-1998. *Morbidity and Mortality Weekly Report, 49*, 665-668.

Carey, M. P., Snel, D. L., Carey, K. B., & Richards, C. S. (1989). Self-initiated smoking cessation: A review of the empirical literature from a stress and coping perspective. *Cognitive Therapy and Research, 13*, 323-341.

Carey, K. B., & Carey, M. P. (1993). Changes in self-efficacy resulting from

unaided attempts to quit smoking. *Psychology of Addictive Behaviors, 7*(4), 219-224.

Centers for Disease Control and Prevention (1993b). Smoking cessation during previous year among adults- United States, 1990 and 1991. *Morbidity and Mortality Weekly Report, 42*, 504-507.

Centers for Disease Control and Prevention. (1997). Cigarette smoking among adults- United States 1995. *Morbidity and Mortality Weekly Report, 46*(51), 1217-1220.

Centers for Disease Control and Prevention. (2002). Annual smoking-attributable mortality, years of potential life lost, and economic costs-United States, 1995-1999. *Morbidity and Mortality Weekly Report, 51*, 300-303.

Cepeda-Benito, A. (1993). Meta-analytic review of the efficacy of nicotine chewing gum in smoking treatment programs. *Journal of Consulting and Clinical Psychology, 61*(5), 822-830.

Choi, W. S., Patten, C. A., Gillin, J. C., Kaplan, R. M., & Pierce, J. P. (1997). Cigarette smoking predicts development of depressive symptoms among U.S. adolescents. *Annals of Behavioral Medicine, 19*(1), 42-50.

Cinciripini, P. M., Lapitsky, L. G., Wallfisch, A., Mace, R., & Nezami, E. (1994). An evaluation of a multicomponent treatment involving scheduled smoking and relapse prevention procedures: Initial findings. *Addictive Behaviors, 19*(1), 13-22.

Cinciripini, P. M., Cinciripini, L. G., Wallfisch, A., Haque, W., & Vunakis, H. V. (1996) Behavior therapy and the transdermal nicotine patch: Effects on cessation outcome, affect, and coping. *Journal of Consulting and Clinical Psychology, 64*(2), 314-323.

Cofta-Woerpel, L., Wright, K. L., & Wetter, D. W. (2006). Smoking cessation 1: Pharmacological treatments. *Behavioral Medicine, 32*, 47-56.

Cofta-Woerpel, L., Wright, K. L., & Wetter, D. W. (2007). Smoking cessation 3: Multicomponent interventions. *Behavioral Medicine, 32*, 135-149.

Cohen, L. M., Collins, F. L., & Bert, D. M. (1997). The effect of chewing gum on tobacco withdrawal. *Addictive Behaviors, 22*, 769-773.

Condiotte, M. M., & Lichtenstein, E. (1981). Self-efficacy and relapse in smoking cessation programs. *Journal of Consulting and Clinical Psychology, 49*(5), 648-658.

Corby, E. A., Roll, J. M., Ledgerwood, D. M., & Schuster, C. R. (2000). Contingency management interventions for treating the substance abuse of adolescents: A feasibility study. *Experimental and Clinical Psyhopharmacology, 8*, 371-376.

Corty, E., & McFall, R. M. (1984). Response prevention in the treatment of cigarette smoking. *Addictive Behaviors, 9*, 405-408.

Cummings, K. M., Jaen, C. R., & Giovino, G. (1985). Circumstances surrounding relapse in a group of recent exsmokers. *Preventive Medicine, 14*(2), 195-202.

Curry, S., Wagner, E. H., & Grothaus, L. C. (1990). Intrinsic and extrinsic motivation for smoking cessation. *Journal of Consulting and Clinical Psychology, 58*(3), 310-316.

D'Agostino, R.B., Kannel, W.B., Belanger, A.J., & Sytkowski, P.A. (1989). Trends in CHD and risk factors at age 55-64 in the Framingham Study. *International Journal of Epidemiology, 18* (3. Supplement I),67-72.

Demirel, Y, & Sezer, R. E. (2005). Sivas bölgesi üniversite öğrencilerinde sigara kullanma sıklığı. *Erciyes Tıp Dergisi, 27*(1), 1-6.

Doherty, K., Kinnunen, T., Militello, F. S., & Garvey, A. J. (1995). Urges to smoke during the fist month of abstinence. *Psychopharmacology*, *119*(2), 171-178.

Dodgen, C. E. (2005). *Nicotine dependence: Understanding and applying the most effective treatment interventions*. Washington DC: American Psychological Association.

Durcan, M. J., White, J., Jorenby, D. E., Fiore, M. C., Rennard, S. I., & Leischow, S. J. (2002). Impact of prior replacement therapy on smoking cessation efficacy. *American Journal of Health Behavior, 26*, 213-220.

Eker, D. ve Arkar, H. (1995). Çok boyutlu algılanan sosyal destek ölçeği'nin faktör yapısı, geçerlik ve güvenirliği. *Türk Psikoloji Dergisi, 10(34*), 45-55.

Erbaycu, A, E., Aksel, N., Çakan, A., & Özsöz, A. (2004). İzmir ilinde sağlık çalışanlarının sigara içme alışkanlıkları. *Toraks Dergisi, 5*, 6-12.

Erickson, L. M., Tiffany, S. T., Martin, E. M., & Baker, T. B. (1983). Aversive smoking therapies: A conditioning analysis of therapeutic effectiveness. *Behaviour Research and Therapy, 21*, 595-611.

Etringer, B. D., Gregory, V. R., & Lando, H. A. (1984). Influence of group cohesion on the behavioral treatment of smoking. *Journal of Consulting and Clinical Psychology, 52*(6), 1080-1086.

Etter, J. F., Humair, J. P., Bergman, M. M., & Perneger, T. V. (2000). Development and validation of the attitudes towards smoking scale (ATS-18). *Addiction, 95*, 613-625.

Fagerström, K. (2002). The epidemiology of smoking: Health consequences and benefits of smoking. *Drugs, 62*, Suppl. 2., 1-9.

Fiore, M. C., Smith, S. S., Jorenby, D. E., & Baker, T. B. (1994a). The effectiveness of the nicotine patch for smoking cessation. A meta-analysis. *Journal of the American Medical Association, 271*, 1940-1947.

Fiore, M. C., Kenford, S. L., Jorenby, D. E., Wetter, D. W., Smith, S. S., & Baker, T. B. (1994b). Two studies of the clinical effectiveness of the nicotine patch with different counseling treatments. *Chest, 105*, 524-533.

Fiore, M. C., Bailey, W. C., Cohen, S. C., et al. (2000). *Treating Tobacco Use and Dependence. Clinical Practice Guideline.* Rockville, MD: U.S. Department of Health and Human Services. Public Health Service.

Foulds, J. (1996). Strategies for smoking cessation. *British Medical Bulletin, 52*, 157-173.

Garcia, M. E., Schmitz, J. M., & Doefler, L. A. (1990). A fine-grained analysis of the role of self-efficacy in self-initiated attempts to quit smoking. *Journal of Consulting and Clinical Psychology*, 58, 317-322.

Garcia-Vera, M. P. (2004). Clinical utility of the combination of cognitive-behavioral techniques with nicotine patches as a smoking-cessation treatment: Five-year results of the "Ex-Moker" program. *Journal of Substance Abuse Treatment, 27*, 325-33.

Gençöz, F., Soykan, Ç., Soykan, A., & Gençöz, T. (2003). *Sigara Bağımlılığı ve Tedavisi.* Art Matbaacılık. Ankara.

Glasgow, R. E., Klesges, R. C., Mizes, J. S., & Pechacek, T. F. (1985). Quitting smoking: Strategies used and variables associated with success in a stop-smoking contest. *Journal of Consulting and Clinical Psychology, 53*(6), 905-912.

Glasgow, R. E., Klesges, R. C., Klesges, L. M., & Somes, G. R. (1988). Variables associated with participation and outcome in a worksite smoking control program. *Journal of Consulting and Clinical Psychology, 50*(4), 617-620.

Glassman, A. H., Helzer, J. E., Covey, L. S., Cottler, L. B., Stetner, F., Tipp, J. E., & Johnson, J. (1990). Smoking, smoking cessation, and major depression. *The Journal of the American Medical Association, 264*, 1546-1549.

Godtfredsen, N. S., Holst, C., Prescott, E., Vestbo, J., & Osler, M. (2002). Smoking reduction, smoking cessation, and mortality: A 16-year follow-up of 19,732 men and women from the Copenhagen Centre for Prospective Population Studies. *American Journal of Epidemiology, 156*, 994-1001.

Gülbayrak, C., Açık, Y., Deveci, S. E., & Oğuzöncül, A. F. (2004). Elazığ il merkezinde iki eğitim araştırma sağlık ocağı bölgesinde kadınların sigara içme sıklığı. *Erciyes Tıp Dergisi, 26*(4), 158-164.

Hajek, P. (1996). Current issues in behavioral and pharmacological approaches to smoking cessation. *Addictive Behaviors, 21*, 699-707.

Hajek, P., West, R., & Foulds, J. (1999). Randomized comparative trial of nicotine polacrilex, a transdermal patch, nasal spray, and an inhaler. *Archives of International Medicine, 159*, 2033-2038.

Hall, S. M., Rugg, D., Tunstall, C., & Jones, R. T. (1984). Preventing relapse to cigarette smoking by behavioral skill training. *Journal of Consulting and Clinical Psychology, 52*(3), 372-382.

Hall, S. M., Munoz, R. F., Reus, V. I., & Sees, K. L. (1993). Nicotine, negative affect, and depression. *Journal of Consulting and Clinical Psychology, 61*, 761-767.

Hartge, P., Silverman, D., Hoover, R., Schairer, C., Altman, R., Austin, D., Cantor, K., Child, M., Key, C., Marrett, L. D., Mason, T. J., Meigs, J. W., Myers, M. H., Narayana, A., Sullivan, J. W., Swanson, G. M., Thomas, D., & West, D. (1987). Changing cigarette habits and bladder cancer: A case-control study. *Journal of the National Cancer Institute, 78*(6), 1119-1125.

Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K-O. (1991). The Fagerström Test for Nicotine Dependence: a revision of the Fagerström Tolerance Questionnaire. *British Journal of Addiciton, 86*, 1119-1127.

Heimberg, R G., Dodge, C. S., Hope, D. A., Kennedy, C. R., Zollo, L. J., & Becker, R. E. (1990). Cognitive behavioral group treatment for social phobia: Comparison with a credible placebo control. *Cognitive Therapy and Research, 14*(1), 1-23.

Henningfield, J. E., Fant, R. V., Buchhalter, A. R., & Stitzer, M. L. (2005). Pharmacotherapy for nicotine dependence. *CA Cancer Journal for Clinicians, 55*, 281-299.

Henningfiel, J. E., & Woodson, P. P. (1989). Dose-related actions of nicotine on behavior and physiology: Review and implications for replacement therapy for nicotine dependence. *Journal of Substance Abuse, 1*, 301-317.

Hermanson, B., Omenn, G. S., Kronmal, R. A., & Gersh, B. J.(1988). Beneficial six-year outcome of smoking cessation in older men and women with coronary artery disease: Results form the CASS registry. *The New England Journal of Medicine, 319*, 1365-1369.

Herrera, N., Franco, R. Herrera, L., Partidas, A., Rolando, R., & Fagerstrom, K. O. (1995). Nicotine gum, 2 and 4 mg, for nicotine dependence. A double-blind placebo-controlled trial within a behavior modification support program. *Chest, 108*, 447-451.

Hisli, N. (1988). Beck Depresyon Envanteri'nin Geçerliliği Üzerine Bir Çalışma. *Psikoloji Dergisi, 6, 22,* 118-122.

Hisli, N. (1989). Beck Depresyon Envanteri'nin Üniversite Öğrencileri için Geçerliliği, Güvenirliliği. *Psikoloji Dergisi, 7, 23,* 3-13.

Houtsmuller, E. J., & Stitzer, M. L. (1999). Manipulation of cigarette craving through rapid smoking: efficacy and effects on smoking behavior. *Psychopharmacology, 142*, 149-157.

Hughes, J. R. (1992). Tobacco withdrawal in self-quitters. *Journal of Consulting and Clinical Psychology, 60*, 689-697.

Hughes, J. R. (1993). Pharmacotherapy for smoking cessation: Unvalidated assumptions, anomalies, and suggestions for future research. *Journal of Consulting and Clinical Psychology, 61*, 751-760.

Hughes, J. R., Hatsukami, D. K., & Skoog, K. P. (1986). Physical dependence on nicotine in gum. A placebo substitution trial. *Journal of the American Medical Association, 255*, 120-125.

Hughes, J. R., Shiffman, S., Callas, P., & Zhang, J. (2003) A meta-analysis of the efficacy of over-the-counter nicotine replacement. *Tobacco Control, 12*, 21-27.

Jarvis, M. J., Tunstall-Pedoe, H., Feyerabend, C., Vesey, C., & Saloojee, Y. (1987). Comparison of tests used to distinguish smokers from nonsmokers. *American Journal of Public Health, 77*, 1435-1438.

Javitz, H. S., Swan, G. E., Zbikowski, S. M., Curry, S. J. McAfee, T. A., Decker, D. L., Patterson, R., & Jack, L. M. (2004). Cost-effectiveness of different combinations of bupropion SR dose and behavioral treatment for smoking cessation: A societal perspective. *The American Journal of Managed Care, 10*, 217-226.

Jha, P., Ranson, M. K., Nguyen, S. N., & Yach, D. (2002). Estimates of global and regional smoking prevalence in 1995, by age and sex. *American Journal of Public Health, 92*(6), 1002-1006.

Jolicoeur, D. G., Ahluwalia, J. S., Richter, K. P., Mosier, M., Harris, K. J., Gibson, C., & Moranetz, C. A. (2000). The use of nicotine patches with minimal intervention. *Preventive Medicine, 30*, 504-512.

Karanci, N. S. (1992). Self-efficacy-based smoking situation factors: The effects of contemplating quitting versus relapsing in a Turkish sample. *The International Journal of the Addictions, 27*(7), 879-886.

Kawachi, I., Colditz, G. A., Stampfer, M. J., Willett, W. C., Manson, J. E., Rosner, B., Speizer, F. E., & Hennekens, C. H. (1993). Smoking cessation and decreased risk of stroke in women. *The Journal of the American Medical Association, 269*(2), 232-236.

Kawachi, I., Colditz, G. A., Stampfer, M. J., Willett, W. C., Manson, J. E., Rosner, B., Speizer, F. E., & Hennekens, C. H. (1994). Smoking cessation and time course of decreased risks of coronary heart disease in middle-aged women. *Archives of Internal Medicine, 154*(2), 169-175.

Kazarian, S. S., & McCabe, S. B. (1991). Dimensions of social support in the MSPSS: Factorial structure, reliability, and theoretical implications. *Journal of Community Psychology, 19*, 150-160.

Kenford, S. L., Fiore, M. C. Jorenby, D.E., Smith, S. S., Wetter, D., & Baker, T. B. predicting smoking cessation: Who will quit with and without the nicotine patch. *The Journal of the American Medical Association, 271*(8), 589-594.

Killen J. D., Fortmann, S. P., Kraemer, H. C., Varady, A. N., Davis, L., & Newman,

B. (1996). Interactive effects of depression symptoms, nicotine dependence, and weight change on late smoking relapse. *Journal of Consulting and Clinical Psychology, 64*, 1060-1067.

Klesges, R. C., Ward, K. D., & DeBon, M. (1996). Smoking cessation: A successful behavioral/pharmacologic interface, *Clinical Psychology Review, 16*, 479-496.

Koob, G. F., & Le Moal, M. (2006). *Neurobiology of Addiction*. London: Elsevier Academic.

Kotlyar, M., & Hatsukami, D. K. (2002). Managing nicotine addiction. *Journal of Dental Education, 66*, 1061-1073.

Krishnan-Sarin, S., Duhig, A. M., McKee, S. A., McMahon, T. J., Liss, T., McFetridge, A., & Cavallo, D. A. (2006). Contingency management for smoking cessation in adolescent smokers. *Experimental and Clinical Psychopharmacology, 14*(3), 306-310.

Lando, H. A. (1982). A factorial analysis of preparation, aversion, and maintenance in the elimination of smoking. *Addictive Behaviors, 7*(2), 143-154.

Lewinsohn P. M., Rohde P., & Brown R. A. (1999). Level of current and past adolescent cigarette smoking as predictors of future substance use disorders in young adulthood. *Addiction, 94*, 913-921.

Lichtenstein, E. (1982). The smoking problem: A behavioral perspective. *Journal of Consulting and Clinical Psychology, 50*(6), 804-819.

Lichtenstein, E., & Mermelstein, R. J. (1986). Some methodological cautions in the use of the tolerance questionnaire. *Addictive Behaviors, 11*, 439-442.

Lowe, M. R., Green, L., Kurtz, S. M., Ashenberg, Z. S., & Fisher, E. B. (1980). Self-initiated, cue extinction, and covert sensitization procedures in smoking cessation. *Journal of Behavioral Medicine, 3*, 357-372.

Marlatt, G. A., Curry, S., & Gordon, J. R. (1988). A longitudinal analysis of

unaided smoking cessation. *Journal of Consulting and Clinical Psychology, 56*, 715-720.

Matarazzo, J. D. (1982). Behavioral health's challenge to academic, scientific, and professional psychology. *American Psychologist, 37*(1), 1-14.

McMahon, S. D., & Jason, L. A. (2000). Social support in a worksite smoking intervention. *Behavior Modification, 24*(2), 184-201.

Middleton, E. T., & Morice, A. H. (2000) Breath carbon monoxide as an indication of smoking habit. *Chest, 117*, 758-763.

Morgan, G. D., Ashenberg, Z. S., & Fisher, Jr., E. B. (1988). Abstinence from smoking and the social environment. *Journal of Consulting and Clinical Psychology, 56*(2), 298-301.

Morley, S., Eccleston, C., & Williams, A. (1999). Systematic review and meta-analysis of randomized controlled trials of cognitive behavior therapy for chronic pain in adults, excluding headache. *Pain, 80*, 1-13.

Mulder, I., Tijhuis, M., Smit, H. A., & Kromhout, D. (2001). Smoking cessation and quality of life: The effect of amount of smoking and time since quitting. *Preventive Medicine, 33*(6), 653-660.

Murray, G.B. (1990). Nicotine as a psychoactive drug. *The Journal of Psychology, 125*, 5-25.

Murray, R.G., & Hobbs, S.A. (1981) Effects of self-reinforcement and self-punishment in smoking reduction: Implications for broad-spectrum behavioral approaches. *Addictive Behaviors, 6*(1), 61-67.

Niaura, R., & Abrams, D. B. (2002). Smoking cessation: Progress, priorities, and prospectus. *Journal of Consulting and Clinical Psychology, 70*, 494-509.

Niaura, R., Abrams, D. B., Shadel, W. G., Rohsenow, D. J., Monti, P. M., & Sirota, A.D. (1999). Cue exposure treatment for smoking relapse prevention: a controlled clinical trial. *Addiction, 94*(5), 685-695.

Nides, M. A., Rakos, R. F., Gonzales, D., Murray, R. P., Tashkin, D. P., Bjornson-Benson, W. M., Lindgren, P., & Connett, J. E. (1995). Predictors of initial smoking cessation and relapse through the first 2 years of the lung health study. *Journal of Consulting and Clinical Psychology, 63*(1), 60-69.

O'Connor, K.P., & Stravynski, A. (1982). Evaluation of a smoking typology by use of a specific behavioral substitution method of self-control. *Behaviour Research and Therapy 20*(3), 279-288.

Ockene, J. K., Kuller, L. H., Svendsen, K. H., & Meilahn, E. (1990). The relationship of smoking cessation to coronary heart disease and lung cancer in the Multiple Risk Factor Intervention Trial (MRFIT). *American Journal of Public Health, 80*(8), 954-958.

Ockene, J. K., Kristeller, J., Pbert, L., Hebert, J. R., Luippold, R., Goldberg, R. J., Landon, J., & Kalan, K. (1994). The physician-delivered smoking intervention project: Can short-term interventions produce long-term effects for a general outpatient population? *Health Psychology, 13*(3), 278-281.

Ockene, J. K., Emmons, K. M. Mermelstein, R. J. Perkins, K. A., Bonollo, D. S., Voorhees, C. C., & Hollis, J. F. (2000). Relapse and maintenance issues for smoking cessation. *Health Psychology, 19*(Suppl.), 17-31.

Orleans, C. T., Schoenbach, V. J., Wagner, E. H., Quade, D., Salmon, M. A., Pearson, D. C., Fiedler, J., Porter, C. Q., & Kaplan, B. H. (1991). Self-help quit smoking interventions: Effects of self-help materials, social support instructions, and telephone counseling. *Journal of Consulting and Clinical Psychology, 59*(3), 439-448.

Ögel, K., & Tamar, D. (2001). Lise gençleri arasında sigara, alkol ve madde kullanım yaygınlığı. *Türk Psikiyatri Dergisi*, 12, 47-52.

Örsel, O., Örsel, S., Alpar, S., Uçar, N., Şipit, T., & Kurt. (2005). Sigarayı bırakmada nikotin replasman tedavisi ve davranış eğitimi yöntemlerinin karşılaştırılması: Doğal izlem çalışması. *Tüberküloz ve Toraks Dergisi, 53*(4), 354-361.

Parrott, A. C., & Kaye, F. J. (1999). Daily uplifts, hassles, stresses and cognitive failures: In cigarette smokers, abstaining smokers, and non-smokers. *Behavioral Psychopharmacology, 10*, 639-646.

Perkins, K. A., & Grobe, J. E. (1992). Increased desire to smoke during acute stress. *Addiction, 87*(7), 1037-1040.

Peto, R., Darby, S., Deo, H., Silcocks, P., Whitley, E., & Doll, R. (2000). Smoking, smoking cessation, and lung cancer in the UK since 1950: Combination of national statistics with two case-control studies. *British Medical Journal, 321*, 323-329.

Pomerleau, C. S., Carton, S. M., Lutzke, M. L., Flessland, F. A., & Pomerleau, O. F. (1994). Reliability of the fagerstrom tolerance questionnaire and the fagerstrom test for nicotine dependence. *Addictive Behaviors, 19*, 33-39.

Pomerleau, C. S., & Pomerleau, O. F. (1992). Euphoriant effects of nicotine in smokers. *Psychopharmacology, 108*, 460-465.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*, 1102-1114.

Prochaska, J. O., DiClemente, C. C., Velicer, W. F., & Rossi, J. S. (1993). Standardized, individualized, interactive, and personalized self-help programs for smoking cessation. *Health Psychology, 12*(5), 399-405.

Prochaska, J. O., Velicer, W. F., Rossi, J. S., Goldstein, M. G., Marcus, B. H., Rakowski, W., Fiore, C., Harlow, L. L., Redding, C. A., Rosenbloom, D., & Rossi, S. R. (1994). Stages of change and decisional balance for 12 problem behaviors. *Health Psychology, 13*, 39-46.

Prochazka, A. V. (2000). New developments in smoking cessation. *Chest, 117* (Supl.), 169-175.

Razavi, D., Vandecasteele, H., Primo, C., Bodo, M., Debrier, F., Verbist, H.,

Pethica, D., Eerdekens, M., & Kaufman, L. (1999). Maintaining abstinence from cigarette smoking: Effectiveness of group counseling and factors predicting outcome. *European Journal of Cancer, 35*, 1238-1247.

Reynolds, W. M., & Coats, K. I. (1986). A comparison of cognitive-behavioral therapy and relaxation training for the treatment of depression in adolescents. *Journal of Consulting and Clinical Psychology, 54*(5), 653-660.

Richmond, R. L., Kehoe, L., & Almeida Neto, A. C. (1997). Effectiveness of a 24-hour transdermal nicotine patch in conjunction with a cognitive behavioral programme: one year outcome. *Addiction, 92*(1), 27-31.

Room, R., & Greenfield, T. (1993). Alcoholics anonymous, other 12-step movements and psychotherapy in the US population, 1990. *Addiction, 88*, 555-562.

Rose, J. S., Chassin, L., Presson, C. C., & Sherman, S. J. (1996). Prospective predictors of quit attempts and smoking cessation in young adults. *Health Psychology, 15*(4), 261-268.

Rosen, J. C., Orosan, P., & Reiter, J. (1995). Cognitive behavior therapy for negative body image in obese women. *Behavior Therapy, 26*(1), 25-42.

Russel, M. A. H., Wilson, C., Taylor, C., & Baker, C. D. (1979). Effect of general practitioners' advice against smoking. *British Medical Journal, 2*, 231-235.

Sachs, D. P. L., Hall, R. G., Pechacek, T. F., & Fitzgerald, J. (1979). Clarification of risk-benefit issues in rapid smoking. *Journal of Consulting and Clinical Psychology, 47*, 1053-1060.

Salepçi, B., Fidan A., Oruç, Ö., Torun, E., Çağlayan, B., & Kader, Ş. N. (2005). Sigara bırakma polikliniğimizde başarı oranları ve başarıda etkili faktörler. *Toraks Dergisi, 6*(2), 151-158.

Sarafino, E. P. (1990). *Health psychology: Biopsychosocial interactions*. New York: John Wiley & Sons.

Scanlon, P. D., Connet, J. E., Waller, L. A., Altose, M. D., Bailey, W. C., Buist, A. S., & Tashkin, D. P. (2000). Smoking cessation and lung function in mild-to-moderate chronic obstructive pulmonary disease. *American Journal of Respiratory and Critical Care Medicine, 161*, 381-390.

Scharf, D., & Shiffman, S. (2004). Are there gender differences in smoking cessation, with and without bupropion? Pooled and meta-analyses of clinical trials of Bupropion SR. *Addiction, 99*, 1462-1469.

Schneider, N. G., Olmstead, R., & Mody, F. V. (1995). Efficacy of a nicotine nasal spray in smoking cessation: A placebo-controlled, double-blind trial. *Addiction, 90*, 1671-1682.

Schneider, N. G., Olmstead, R., & Nilsson, F. (1996). Efficacy of a nicotine inhaler in smoking cessation: a double-blind, placebo-controlled trial. *Addiction, 91*, 1293-1306.

Sensky, T., Turkington, D., Kingdon, D., Scott, J. L., Scott, J., Siddle, R., O'Carroll, M., & Barnes, T. R. E. (2000). A randomized controlled trial of cognitive-behavioral therapy for persistent symptoms in schizophrenia resistant to medication. *Archives of General Psychiatry, 57*(2), 165-172.

Sherwood, N. E., Hennrikus, D. J., Jeffery, R. W., Lando, H. A., & Murray, D. M. (2000). Smokers with multiple behavioral risk factors: How are they different? *Preventive Medicine, 31*, 299-307.

Shiffman, S. (1982). Relapse following smoking cessation: A situational analysis. *Journal of Consulting and Clinical Psychology, 50*(1), 71-86.

Shiffman, S., Johnston, J. A., Khayrallah, M., Elash, C. A., Gwaltney, C. J., Paty, J. A., Gnys, M., Evoniuk, G., & Geiss, J. D. (2000). The effect of bupropion on nicotine craving and withdrawal. *Psychopharmacology, 148*, 33-40.

Shiffman, S., Khayrallah, M., & Nowak, R. (2000). Efficacy of the nicotine patch for relief of craving and withdrawal 7-10 weeks after cessation. *Nicotine and Tobacco Research, 2*, 371-378.

Shiffman, S., Dresler, C. M., Hajek, P., Gilburt, S. J. A., Targett, D.A., & Strahs, K.

R. (2002). Efficacy of a nicotine lozenge for smoking cessation. *Archives of Internal Medicine, 162*, 1267-1276.

Shiffman, S., Gorsline, J., & Gorodetzky, C. W. (2002). Efficacy of over-the-counter nicotine patch. *Nicotine and Tobacco Research, 4*, 477-483.

Shiffman, S., Dresler,C. M., & Rohay, J. M. (2003). Successful treatment with a nicotine lozenge of smokers with prior failure in pharmacological therapy. *Addiction, 99*, 83-92.

Shiffman, S., Shadel, W. G., Niaura, R., Khayrallah, M. A., Jorenby, D. E., Ryan, C. F., & Ferguson, C. L. (2003). Efficacy of acute administration of nicotine gum in relief of cue-provoked cigarette craving. *Psychopharmacology, 166*, 343-350.

Silagy, C., Mant, D., Fowler, G., & Lodge, M. (1994). Meta-analysis on efficacy of nicotine replacement therapies in smoking cessation. Lancet, 343, 139-142.

Silverman, D. T., Dunn, J. A., Hoover, R. N., Schiffiman, M., Lillemoe, K. D., Schoenberg, J. B., Brown, L. M., Greenberg, R.S. Hayes, R. B., Swanson, G. M., Wacholder, S., Schwartz, A. G., Liff, J. M., & Pottern, L. M. (1994). Cigarette smoking and pancreas cancer: A case-control study based on direct interviews. *Journal of the National Cancer Institute, 86*(20), 1510-1516.

Stevens, V. J., & Hollis, J. F. (1989). Preventing smoking relapse, using an individually tailored skills-training technique. *Journal of Consulting and Clinical Psychology, 57*, 420-424.

Stolerman, I. P., & Jarvis, M. J. (1995). The scientific case that nicotine is addictive. *Psychopharmacology, 117*, 2-10.

Sutherland, G., Stapleton, J. A., & Russel, M. A. (1992). Randomized controlled trial of nasal nicotine spray in smoking cessation. *Lancet, 340*, 324-329.

Taylor, D. H., Hasselblad, V., Henley, S. J., Thun, M. J., & Sloan, F. A. (2002). Benefits of smoking cessation for longevity. *American Journal of Public Health, 92*(6), 990-996.

Terry, P. D., & Rohan, T. E. (2002). Cigarette smoking and the risk of breast cancer in women: a review of the literature. *Cancer epidemiology, Biomarkers & Prevention, 11*, 953-971.

Tillmann, M., & Silcock, J. (1997). A comparison of smokers' and ex-smokers' health related quality of life. *Journal of Public Health Medicine, 19*(3), 268-273.

Tønnesen, P., Fryd, V., Hansen, M., Helsted, J., Gunnersen, A. B., Forchammer, H., & Stockner, M. (1988). Effect of nicotine chewing gum in combination with group counseling on the cessation of smoking. *New England Journal of Medicine, 318*(1), 15-18.

Türkcan, A., & Çakmak, D. (2004a). Nikotin bağımlılarında nikotin yerine koyma tedavisinin sigara bırakma programını sürdürme üzerine etkisi. *Klinik Psikofarmakoloji Bülteni, 14*, 198-203.

Türkcan, A., & Çakmak, D. (2004b). Sigara bağımlılarında solunum havasında karbonmonoksit düzeyleri. *Bağımlılık Dergisi, 5*, 133-138.

U.S. Department of Health and Human Services. (1988). *The health consequences of smoking: Nicotine addiction. A report of the Surgeon General* (DHHS Publication No. CDC 88-8406) Washington, DC: Office on Smoking and Health

U.S. Department of Health and Human Services. (1990). *The health benefits of smoking cessation. A report of the surgeon general*. (DHHS Publication No. CDC 90-8416) Washington DC: Office on Smoking and Health

U.S. Department of Health and Human Services. (2000). *Reducing tobacco use: a report of the surgeon general*. Washington DC: Office on Smoking and Health.

U.S. Department of Health and Human Services. (2004). *The health consequences of smoking: A report of the surgeon general*. Atlanta GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, Office on Smoking and Health.

Velicer, W. F., DiClemente, C. C., Prochaska, J. O., & Brandenburg, N. (1985). Decisional balance measure for assessing and predicting smoking status. *Journal of Personality and Social Psychology, 48*(5), 1279-1289.

Velicer, W. F., & Prochaska, J. O., Rossi, J. S., & Snow, M. G. (1992). Assessing outcome in smoking cessation studies. *Psychological Bulletin, 111*, 23-41.

Velicer, W. F., & Prochaska, J. O. (2004). A comparison of four self-report smoking cessation outcome measures. *Addictive Behaviors, 29*, 51-60.

Wennike, P., Danielsson, T., Landfeldt, B., Westin, A., & Tonnesen, P. (2003). Smoking reduction promotes smoking cessation: results from a double blind, placebo-controlled, trial of nicotine gum with 2-year follow-up. *Addiction, 98*(10), 1395-1402.

Wetter, D. W., Kenford, S. L., Smith, S. S., Fiore, M. C., Jorenby, D. E., & Baker, T. B. (1999). Gender differences in smoking cessation. *Journal of Consulting and Clinical Psychology, 67*(4), 555-562.

White, A. R., Resch, K., & Ernst, E. (1999). A meta-analysis of acupuncture techniques for smoking cessation. *Tobacco Control, 8*, 393-397.

Wolf, P. A., D'Agostino, R. B., Kannel, W. B., Bonita R., & Belanger, A. J. (1998). Cigarette smoking as a risk factor for stroke. The Framingham Study. *The Journal of the American Medical Association, 258*(7), 1025-1029.

World Health Organization (1999). *Making a Difference. World Health Report*, Geneva, Switzerland.

Yalçınkaya-Alkar, Ö., & Karanci, A. N. (2007). What are the differences in decisional balance and self-efficacy between Turkish smokers in different stages of change? *Addictive Behaviors, 32*, 836-849.

Yüksel, N., Dereboy, Ç., & Çifter, İ. (1994). Üniversite öğrencileri arasında madde kullanımı. *Türk Psikiyatri Dergisi, 5*, 283-286.

Zelman, D. C., Brandon, T. H., Jorenby, D. E., & Baker, T. B. (1992). Measures of affect and nicotine dependence predict differential response to smoking cessation treatments. *Journal of Consulting and Clinical Psychology, 60*(6), 943-952.

Zevin, S., Gourlay, S. G., & Benowitz, N. L. (1998). Clinical pharmacology of nicotine. *Clinics in Dermatology, 16*, 557-564.

Zhu, S., Sun, J., Billings, S. C., Choi, W. S., & Malarcher, A. (1999). Predictors of smoking cessation in U.S. adolescents. *American Journal of Preventive Medicine, 16*,202-207.

Zimet, G. D., Dahlem, N. W., Zimet, S. G., & Farley, G. K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*(1), 30-41.

APPENDICES

APPENDIX A

Demographic Information Form

Program sırasında katılımcılardan toplanacak tüm bilgiler gizli tutulur. Doldurduğunuz anket bilgileri bilimsel amaçlı araştırmalarda ve eğitim materyali olarak ancak isminizin saklı kalması kaydıyla kullanılabilir.

Doç. Dr. Faruk Gençöz
Program Sorumlusu

Psikolog Nurhak Yorulmaz
Program Yöneticisi

Yukarıda belirtilen noktaları anladığımı ve kabul ettiğimi beyan ederim.

Adınız, Soyadınız:_____ Tarih: _____

İmza:

Aşağıdaki bilgiler sizi daha iyi tanımamızı ve dolayısıyla sigara bırakma konusunda size daha çok yardımcı olmamızı sağlayacaktır. İşbirliğiniz için teşekkürler.

1. Doğum tarihiniz:
2. Cinsiyetiniz: Kadın ☐ Erkek ☐
3. Yaşamınızın çoğunu geçirdiğiniz yer
   Büyük şehir ☐ Şehir ☐ Kasaba-köy ☐
4. Eğitim durumunuz
   Lisans öğrencisi ☐ Yüksek Lisans öğrencisi ☐ Doktora öğrencisi ☐
5. Evlilik durumunuz: _____
6. Eşiniz sigara içer mi?
   Evet ☐ Hayır ☐

APPENDIX B

Smoking History Form and Fagerström Tolerance Questionnaire

1. Kaç yıldır sigara içiyorsunuz? _____
2. Sigara bırakma ile ilgili başka tecrübeleriniz oldu mu? Evet ☐ Hayır ☐
3. Evetse kaç defa bırakmayı denediniz? _____
4. Sabah kalktıktan ne kadar zaman sonra ilk sigaranızı içiyorsunuz?
   İlk 5 dakikada ☐ 6-30 dakika arası ☐
   31-60 dakika arası ☐ Bir saatten daha fazla ☐
5. Sigara içmenin yasak olduğu yerlerde kendinizi sigara içmekten alıkoymakta zorlanıyor musunuz?
   Evet ☐ Hayır ☐
6. Bırakmaktan en hoşlanmayacağınız sigaranız kaçıncı sigaranız olurdu? _____
7. Günde ortalama kaç sigara içiyorsunuz? _____
8. Sabahları günün geri kalan zamanlarına oranla daha çok mu sigara içiyorsunuz?
   Evet ☐ Hayır ☐
9. Günün büyük kısmını yatakta geçirecek kadar hasta olduğunuzda dahi sigara içiyor musunuz?
   Evet ☐ Hayır ☐
10. Genellikle kullanmakta olduğunuz sigaranın nikotin düzeyi nedir?
11. Ne kadar sıklıkta sigarayı içinize çekiyorsunuz?
    Hiçbir zaman Bazen Her zaman
12. Bu programa katılmanızın en önemli sebebi nedir?
    a) Bir rahatsızlığımın tedavisi
    b) Önemli hastalıklardan korunma
    c) Ekonomik nedenler
    d) Çocuklara iyi örnek olmak
    e) Tütünün koku ve görüntü olarak yarattığı olumsuz durumlar
    f) Çevremdeki kişilerden tavsiye ya da baskılar
    g) Diğer (Belirtiniz) _____
13. Sigara bırakmaya ne derece isteklisiniz?

1	2	3	4	5
hiç	biraz	orta	oldukça	çok

14. Kendinizi sigara bırakmaya ne derece hazır hissediyorsunuz?

1	2	3	4	5
hiç	biraz	orta	oldukça	çok

APPENDIX C

Health Status Information Form

Aşağıdaki hastalıkları hiç geçirdiniz mi?

1. Şeker	Evet ☐	Hayır ☐
2. Kalp rahatsızlığı, ağrısı veya aritmi	Evet ☐	Hayır ☐
3. Kalp krizi	Evet ☐	Hayır ☐
4. Yüksek kolesterol	Evet ☐	Hayır ☐
5. Yüksek tansiyon	Evet ☐	Hayır ☐
6. Felç	Evet ☐	Hayır ☐
7. Kanser. Tipi	Evet ☐	Hayır ☐
8. Böbrek hastalığı	Evet ☐	Hayır ☐
9. Karaciğer hastalığı, siroz	Evet ☐	Hayır ☐
10. Epilepsi	Evet ☐	Hayır ☐
11. İlaç alerjisi. Tipi	Evet ☐	Hayır ☐

1. Alkol kullanır mısınız?

Evet ☐ Hayır ☐

2. Evetse ne kadar sık alkol kullanırsınız? (Sadece bir kategori seçiniz)

Yılda _____ defa
Ayda _____ defa
Haftada _____ defa

APPENDIX D

Decisional Balance Scale

Aşağıda sigara içmenin bazı olumlu ve olumsuz yönleri sıralanmıştır. Her cümleyi dikkatle okuyup belirtilen cümleye ne derece katıldığınızı belirtiniz. Ne derece katıldığınızı belirtmek için 1'den 5'e kadar derecelendirilmiş ölçekte uygun sayıyı seçip işaretleyiniz. Eğer verilen ifade sizin görüşlerinize tamamen uygunsa 5 numarayı, hiç uygun değilse 1 numarayı işaretleyiniz. Katılma derecenizi 1 ile 5 arasında seçeceğiniz bir sayı ile belirtiniz.

1	2	3	4	5
Hiç katılmıyorum	Katılmıyorum	Ne katılıyorum ne katılmıyorum	Katılıyorum	Tamamen katılıyorum

1. Sigara içmek keyiflidir.	1	2	3	4	5
2. Bir süre sigara içmedikten sonra içtiğim sigara kendimi çok iyi hissettiriyor	1	2	3	4	5
3. Bazen sigara içmek veya bulmaya çalışmak zahmetlidir.	1	2	3	4	5
4. Sigara içme alışkanlığımın tutsağı olduğumu hissediyorum.	1	2	3	4	5
5. Sigara içtiğim zaman kendimi daha rahat ve daha keyifli hissediyorum.	1	2	3	4	5
6. Sigarayı bırakırsam diğer tiryakiler bunu kıskanacaktır.	1	2	3	4	5
7. Sigara içen kişi imajından hoşlanıyorum.	1	2	3	4	5
8. Sigara içmem diğer insanların da sağlığını etkiler.	1	2	3	4	5
9. Sigara içmeseydim şimdi daha enerjik olurdum.	1	2	3	4	5
10. Sigara içtiğim zaman sigara kullanan arkadaşlarım ve ailem tarafından daha fazla kabul gördüğümü hissediyorum	1	2	3	4	5
11. Sigarayı bırakmaya çalışırsam büyük olasılıkla çabuk sinirlenen ve çevresine rahatsızlık veren biri olurum.	1	2	3	4	5
12. Sigara yüzünden hastalanırsam yakınlarım acı çekecektir.	1	2	3	4	5
13. Ailem ve arkadaşlarım mutlu bir şekilde sigara içmemi, mutsuz bir şekilde sigarayı bırakmaya çalışmama tercih ederler.	1	2	3	4	5
14. Sigara içmeye devam edersem, bazı insanlar sigarayı bırakacak iradem olmadığını düşüneceklerdir.	1	2	3	4	5
15. Sigara sağlığıma zararlıdır.	1	2	3	4	5
16. Sigara alışkanlığından vazgeçemediğim için kendimden	1	2	3	4	5

utanıyorum.					
17. İçtiğim sigaranın dumanı ve kokusu çevremdeki insanları rahatsız eder.	1	2	3	4	5
18. Sigara ile ilgili uyarıları göz ardı ettiğim için insanlar benim akılsız olduğumu düşünüyorlar.	1	2	3	4	5
19. Sigara içtiğim zaman kendimi daha çok seviyorum	1	2	3	4	5
20. Sigara dikkatimi toplamama ve daha iyi çalışmama yardım ediyor.	1	2	3	4	5
21. Sigara gerginliği azaltır.	1	2	3	4	5
22. Yakınlarım sigara içmemi onaylamıyorlar.	1	2	3	4	5
23. Sigarayla ilgili uyarıları dikkate almadığım için aptalım	1	2	3	4	5
24. Sigara içmeye devam ederek kendi kararlarımı kendimin verdiğini hissediyorum	1	2	3	4	5

APPENDIX E

Self-efficacy Questionnaire

Aşağıda sigara içebileceğiniz bazı durumlar sıralanmıştır. Her durumu dikkatle okuyup belirtilen durumda sigara içip içmeyeceğinizden ne derece emin olduğunuzu belirtiniz. Ne derece emin olduğunuzu belirtmek için 1'den 5'e kadar derecelendirilmiş ölçekte uygun sayıyı seçip işaretleyiniz.

Eğer belirtilen durumda sigara içmeyeceğinizden kesinlikle eminseniz 5 numarayı, hiç emin değilseniz 1 numarayı işaretleyiniz. Emin olma derecenizi 1 ile 5 arasında seçeceğiniz uygun bir sayı ile belirtiniz.

1	2	3	4	5
İçmeyeceğimden hiç emin değilim				İçmeyeceğimden kesinlikle eminim

1. Sabah uyandığımda, beni zor bir günün beklemediğini bilsem bile.	1	2	3	4	5
2. Araba kullanırken veya bir araçla seyahat ederken.	1	2	3	4	5
3. Yalnız olduğumda ve kendimi belli bir ölçüde üzüntülü hissettiğimde.	1	2	3	4	5
4. Mutluyken ve mutlu bir olayı kutlarken.	1	2	3	4	5
5. Eşimle veya sigara içen bir arkadaşımla beraberken.	1	2	3	4	5
6. Evde veya dışarıda bir yerde içki içerken.	1	2	3	4	5
7. Telefonda bir arkadaşımla konuşurken.	1	2	3	4	5
8. Sıkıntılı veya zor bir telefon görüşmesi yaparken.	1	2	3	4	5
9. Bir arkadaşla beraberken veya bir arkadaş toplantısındayken.	1	2	3	4	5
10. İş yerimde**,** çalışmamla ilgili bir zorluk, baskı hissettiğimde.	1	2	3	4	5
11. İşten eve döndüğümde.	1	2	3	4	5
12. Bir arkadaşımla sohbet ederken.	1	2	3	4	5
13. Sabah uyanıp da, zor bir günün beklediğini düşündüğümde.	1	2	3	4	5
14. Belirli bir zorluk, sıkıntı olmadan iş yerimde çalışırken.	1	2	3	4	5
15. Kilo almaya başladığımı fark ettiğimde.	1	2	3	4	5
16. Hiç spor yapmadığım veya hareketsiz kaldığım zaman.	1	2	3	4	5
17. Sıkıldığım ve yapacak bir şey bulamadığım zaman.	1	2	3	4	5
18. Kahve veya çay içip sohbet ederken veya dinlenirken.	1	2	3	4	5

19. Duygusal bir kriz veya sıkıntı içindeyken. (örneğin, ailede bir kaza veya ölüm gibi)	1	2	3	4	5
20. Yemeklerden sonra.	1	2	3	4	5
21. İş ya da evde çalışmaya ara verdiğimde.	1	2	3	4	5
22. Arkadaşlarımı evlerinde ziyarete gittiğim zaman.	1	2	3	4	5
23. Sinirli olduğum zamanlarda.	1	2	3	4	5
24. Dinlenirken veya televizyon seyrederken.	1	2	3	4	5
25. Tuvaletteyken.	1	2	3	4	5

APPENDIX F

Beck Depression Inventory

Aşağıda, kişilerin ruh durumlarını ifade ederken kullandıkları bazı cümleler verilmiştir. Her madde, bir çeşit ruh durumunu anlatmaktadır. Her maddede o duygu durumunun derecesini belirleyen 4 seçenek vardır. Lütfen bu seçenekleri dikkatle okuyunuz. Son bir hafta içindeki (şu an dahil) kendi duygu durumunuzu göz önünde bulundurarak, size uygun olan ifadeyi bulunuz. Daha sonra, o madde numarasının karşısında, size uygun ifadeye karşılık gelen seçeneği bulup işaretleyiniz.

1. a) Kendimi üzgün hissetmiyorum.
   b) Kendimi üzgün hissediyorum.
   c) Her zaman için üzgünüm ve kendimi bu duygudan kurtaramıyorum.
   d) Öylesine üzgün ve mutsuzum ki dayanamıyorum.

2. a) Gelecekten umutsuz değilim.
   b) Geleceğe biraz umutsuz bakıyorum.
   c) Gelecekten beklediğim hiçbir şey yok.
   d) Benim için bir gelecek yok ve bu durum düzelmeyecek.

3. a) Kendimi başarısız görmüyorum.
   b) Çevremdeki birçok kişiden daha fazla başarısızlıklarım oldu sayılır.
   c) Geriye dönüp baktığımda, çok fazla başarısızlığımın olduğunu görüyorum.
   d) Kendimi tümüyle başarısız bir insan olarak görüyorum.

4. a) Herşeyden eskisi kadar zevk alabiliyorum.
   b) Herşeyden eskisi kadar zevk alamıyorum.
   c) Artık hiçbirşeyden gerçek bir zevk alamıyorum.
   d) Bana zevk veren hiçbir şey yok. Herşey çok sıkıcı.

5. a) Kendimi suçlu hissetmiyorum.
   b) Arada bir kendimi suçlu hissettiğim oluyor.
   c) Kendimi çoğunlukla suçlu hissediyorum.
   d) Kendimi her an için suçlu hissediyorum.

6. a) Cezalandırıldığımı düşünmüyorum.

b) Bazı şeyler için cezalandırılabileceğimi hissediyorum.
c) Cezalandırılmayı bekliyorum.
d) Cezalandırıldığımı hissediyorum.

7. a) Kendimden hoşnutum.
b) Kendimden pek hoşnut değilim.
c) Kendimden hiç hoşlanmıyorum.
d) Kendimden nefret ediyorum.

8. a) Kendimi diğer insanlardan daha kötü görmüyorum.
b) Kendimi zayıflıklarım ve hatalarım için eleştiriyorum.
c) Kendimi hatalarım için her zaman suçluyorum.
d) Her kötü olayda kendimi suçluyorum.

9. a) Kendimi öldürmek gibi düşüncelerim yok.
b) Bazen kendimi öldürmeyi düşünüyorum fakat bunu yapamam.
c) Kendimi öldürebilmeyi isterdim.
d) Bir fırsatını bulursam kendimi öldürürdüm.

10. a) Herzamankinden daha fazla ağladığımı sanmıyorum.
b) Eskisine göre şu sıralarda daha fazla ağlıyorum.
c) Şu sıralar her an ağlıyorum.
d) Eskiden ağlayabilirdim, ama şu sıralarda istesem de ağlayamıyorum.

11. a) Herzamankinden daha sinirli değilim.
b) Herzamankinden daha kolayca sinirleniyor ve kızıyorum.
c) Çoğu zaman sinirliyim.
d) Eskiden sinirlendiğim şeylere bile artık sinirlenemiyorum.

12. a) Diğer insanlara karşı ilgimi kaybetmedim.
b) Eskisine göre insanlarla daha az ilgiliyim.
c) Diğer insanlara karşı ilgimin çoğunu kaybettim.
d) Diğer insanlara karşı hiç ilgim kalmadı.

13. a) Kararlarımı eskisi kadar kolay ve rahat verebiliyorum.
b) Şu sıralarda kararlarımı vermeyi erteliyorum.
c) Kararlarımı vermekte oldukça güçlük çekiyorum.
d) Artık hiç karar veremiyorum.

14. a) Dış görünüşümün eskisinden daha kötü olduğunu sanmıyorum.
b) Yaşlandığımı ve çekiciliğimi kaybettiğimi düşünüyor ve üzülüyorum.
c) Dış görünüşümde artık değiştirilmesi mümkün olmayan olumsuz değişiklikler olduğunu hissediyorum.
d) Çok çirkin olduğumu düşünüyorum.

15. a) Eskisi kadar iyi çalışabiliyorum.
b) Bir işe başlayabilmek için eskisine göre kendimi daha fazla zorlamam

gerekiyor.
c) Hangi iş olursa olsun, yapabilmek için kendimi çok zorluyorum.
d) Hiçbir iş yapamıyorum.

16. a) Eskisi kadar rahat uyuyabiliyorum.
b) Şu sıralar eskisi kadar rahat uyuyamıyorum.
c) Eskisine göre 1 veya 2 saat erken uyanıyor ve tekrar uyumakta zorluk çekiyorum.
d) Eskisine göre çok erken uyanıyor ve tekrar uyuyamıyorum.

17. a) Eskisine kıyasla daha çabuk yorulduğumu sanmıyorum.
b) Eskisinden daha çabuk yoruluyorum.
c) Şu sıralarda neredeyse herşey beni yoruyor.
d) Öyle yorgunum ki hiçbirşey yapamıyorum.

18. a) İştahım eskisinden pek farklı değil.
b) İştahım eskisi kadar iyi değil.
c) Şu sıralarda iştahım epey kötü.
d) Artık hiç iştahım yok.

19. a) Son zamanlarda pek fazla kilo kaybettiğimi sanmıyorum.
b) Son zamanlarda istemediğim halde üç kilodan fazla kaybettim.
c) Son zamanlarda beş kilodan fazla kaybettim.
d) Son zamanlarda yedi kilodan fazla kaybettim.

-Daha az yiyerek kilo kaybetmeye çalışıyorum. EVET ( ) HAYIR ( ) –

20. a) Sağlığım beni pek endişelendirmiyor.
b) Son zamanlarda ağrı, sızı, mide bozukluğu, kabızlık gibi sorunlarım var.
c) Ağrı, sızı gibi bu sıkıntılarım beni epey endişelendirdiği için başka şeyleri düşünmek zor geliyor.
d) Bu tür sıkıntılar beni öylesine endişelendiriyor ki, artık başka birşey düşünemiyorum.

21. a) Son zamanlarda cinsel yaşantımda dikkatimi çeken bişey yok.
b) Eskisine göre cinsel konularla daha az ilgileniyorum.
c) Şu sıralarda cinsellikle pek ilgili değilim.
d) Artık, cinsellikle hiçbir ilgim kalmadı.

APPENDIX G

Multidimensional Scale of Perceived Social Support (MSPSS)

Aşağıda 12 cümle ve her bir cümle altında da cevaplarınızı işaretlemeniz için 1'den 7'ye kadar rakamlar verilmiştir. Her cümlede söylenenin sizin için ne kadar çok doğru olduğunu veya olmadığını belirtmek için o cümle altındaki rakamlardan yalnız bir tanesini daire içine alarak işaretleyiniz. Lütfen sadece bir seçeneği işaretleyiniz.

1. İhtiyacım olduğunda yanımda olan özel bir insan var.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
2. Sevinç ve kederlerimi paylaşabileceğim özel bir insan var.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
3. Ailem bana gerçekten yardımcı olmaya çalışır.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
4. İhtiyacım olan duygusal yardımı ve desteği ailemden alırım.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
5. Beni gerçekten rahatlatan özel bir insan var.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
6. Arkadaşlarım bana yardımcı olmaya çalışırlar.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
7. İşler kötü gittiğinde arkadaşlarıma güvenebilirim.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
8. Sorunlarımı ailemle konuşabilirim.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
9. Sevinç ve kederlerimi paylaşabileceğim arkadaşlarım var.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
10. Yaşamımda duygularıma önem veren özel bir insan var.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
11. Kararlarımı vermemde ailem bana yardımcı olmaya isteklidir.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet
12. Sorunlarımı arkadaşlarımla konuşabilirim.
Kesinlikle hayır 1 2 3 4 5 6 7 Kesinlikle evet

APPENDIX H

Smoking Status Form

Adınız Soyadınız:

1- Geçen hafta içinde hiç sigara içtiniz mi?

☐ Evet ☐ Hayır

2- Evet ise sizce bunun en önemli nedeni ne idi?

☐ Destek yetersizliği
☐ Stresli durumlar
☐ Kilo artışı
☐ Alkolle bağlantılı durumlar
☐ Yoksunluk belirtileri
☐ Çevrede sigara içilmesi
☐ Motivasyon düşüklüğü

3- Sigarayı bırakmış durumda iseniz sizce bunda aşağıdakilerden hangisi ya da hangileri etkili olmuştur?

☐ Motivasyon
☐ Çevredeki ve gruptaki insanların desteği
☐ UBK stratejilerini uygulayabilmek
☐ Sigaranın yerine koyabileceğim şeyler bulabilmek
☐ Sigaranın zararlarını ve bırakmanın yararlarını sık sık kendime hatırlatmak

4- Sigarayı bırakmış durumda iseniz katıldığınız bu programın buna katkısı sizce nedir?

1	2	3	4	5
hiç katkısı olmadı				çok fazla katkısı oldu

APPENDIX I

Cessation Logbook

Adınız-Soyadınız: **Tarih:**

SAAT	DURUM	DÜŞÜNCELER	DUYGULAR 0-10

APPENDIX J

Smoking Cessation Contract

SİGARA BIRAKMA KONTRATI

Ben,
_____sigarayı_____
tarihinde bırakmaya söz veriyorum.

Eğer belirttiğim tarihte sigarayı bırakırsam kendime vereceğim ödül:
_____
_____

Söz verdiğim tarihte sigarayı bırakamamam halinde uygulayacağım durumlar :

1. Kendime ceza olarak
   _____
2. Yeni bir tarih belirlemek ve yeni bir kontrat hazırlamak.

İmza: Tanık: