PSYCHOLOGICAL CORRELATES OF TOBACCO, ALCOHOL AND DRUG USE AMONG ADOLESCENTS

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PSYCHOLOGICAL CORRELATES OF TOBACCO, ALCOHOL AND DRUG USE AMONG ADOLESCENTS

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Approval of the Graduate School of Sciences

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science.

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This is to certify that we have read this thesis and in our opinion it is fully adequate, in scope and quality, as a thesis for the degree of Master of Science.

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ABSTRACT

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The aim of the present study was to identify sociodemographic and psychological correlates of adolescent tobacco, alcohol and drug use. Participants were 854 high school students (485 girls, 369 boys) aged between 14-18. Participants were administered a Demographic Information Form, Arnett Inventory of Sensation Seeking, seven subscales of Drug Use Screening Inventory (DUSI) and Tobacco, Alcohol and Drug Use Questionnaire. Twelve point two percent of the students reported cigarette use, 23.5 % reported alcohol use and 2.3 % reported illicit drug use at least once in their lives. Independent Samples t-test Analysis revealed that smokers received higher scores than non-smokers on sensation seeking, psychiatric disorder, behavior patterns, school performance / adjustment, peer relations, family system and leisure subscales of DUSI but there was not a significant difference between smokers and non-smokers in terms of

social competency. Also, it was found that alcohol users scored higher than non-users on sensation seeking, psychiatric disorder, behavior patterns, school performance / adjustment, peer relations, family system but there was not a significant difference between alcohol users and non-users in terms of scores on leisure and social competency. Drug users scored significantly higher than randomly selected non-users on sensation seeking, behavior patterns and peer relations scales. Logistic regression analysis revealed that adolescent smoking was predicted by gender, age, G.P.A., place of birth, peer smoking, behavior patterns, social competency, school problems and family relations. Besides, alcohol use was predicted by gender, age, number of siblings, maternal education, peer smoking, peer alcohol use, social competency, school performance / adjustment and family relations. Findings are discussed within the context of the relevant literature.

Keywords: Smoking, alcohol use, substance use, Drug Use Screening Inventory, sensation seeking, adolescents.

ÖZ

ERGENLERDE TÜTÜN, ALKOL VE MADDE KULLANIMI İLE İLİŞKİLİ PSİKOLOJİK FAKTÖRLER

Karakaş, Özge

Yüksek Lisans, Psikoloji Bölümü

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Bu çalışmanın amacı, ergenlerde tütün, alkol ve madde kullanımı ile ilişkili sosyodemografik ve psikolojik faktörleri belirlemektir. Araştırmaya yaşları 14-18 arasında değişen 854 lise öğrencisi (485 kız, 369 erkek) katılmıştır. Katılımcılara Demografik Bilgi Formu, Arnett Heyecan Arama Ölçeği, Madde Kullanımı için Risk Faktörleri Tarama Formu ve Tütün, Alkol ve Madde Kullanımı Formu uygulanmıştır. Öğrencilerin % 12.2' si sigara, % 23.5' i alkol, % 2.3' ü ise hayatı boyunca en az bir kez madde kullandığını belirtmiştir. T-testi sonuçlarına göre, sigara içen öğrenciler içmeyenlere göre Madde Kullanımı için Risk Faktörleri Tarama Formu'nun davranış kalıpları, psikiyatrik bozukluk, okul performansı / uyumu, arkadaş ilişkileri, aile sistemi ve boş vakitleri değerlendirme alt ölçeklerinde ve heyecan arama ölçeğinde anlamlı olarak daha yüksek puanlar almışlardır. Diğer taraftan sosyal yeterlilik puanları bakımından sigara içenlerle içmeyenler arasında anlamlı bir fark bulunmamıştır. Alkol kullananlar kullanmayanlara göre davranış kalıpları,

psikiyatrik bozukluk, okul performansı / uyumu, arkadaş ilişkileri, aile sistemi ölçeklerinde anlamlı olarak daha yüksek puanlar almışlardır. Boş vakitleri değerlendirme ve sosyal yeterlilik puanları bakımından alkol kullanan ve kullanmayanlar arasında anlamlı bir fark bulunmamıştır. Madde kullananlar rasgele seçilen kullanmayanlara göre heyecan arama, davranış kalıpları ve arkadaş ilişkileri ölçeklerinde anlamlı olarak daha yüksek puanlar almışlardır. Lojistik Regresyon Analizine göre, cinsiyet, yaş, not ortalaması, doğum yeri, arkadaş sigara kullanımı, davranış kalıpları, sosyal yeterlilik, okul performansı / uyumu ve aile sistemi sigara kullanımını anlamlı olarak yordamıştır. Alkol kullanımını ise, cinsiyet, yaş, kardeş sayısı, anne eğitim düzeyi, arkadaş sigara kullanımı, arkadaş alkol kullanımı, sosyal yeterlilik, okul performansı / uyumu ve aile sistemi anlamlı olarak yordamıştır. Çalışmanın sonuçları ilgili literatür çerçevesinde tartışılmıştır.

Anahtar kelimeler: Sigara, alkol, madde kullanımı, Madde Kullanımı İçin Risk Faktörleri Tarama Formu, heyecan arama, ergenler.

To my lovely husband

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CHAPTER 1

INTRODUCTION

A drug or substance of abuse can be defined as 'a chemical substance that alters a person's mood, level of perception or brain functioning' (Schuckit, 1999). Substance dependence, according to DSM-IV (1987) refers to a pattern of self administration that often results in tolerance and withdrawal. Substance abuse, on the other hand, is defined as the interference with a person's ability to fulfill major obligations at work or home, the recurrent use of a drug in dangerous situations and repeated legal difficulties associated with substance use.

Drugs that are commonly abused throughout the world are: central nervous system depressants which are alcohol, barbiturates and benzodiazepines; central nervous system stimulants which are amphetamines, cocaine, nicotine and caffeine; opiates like heroine, morphine, opium, codeine and methadone; cannabinoids like marijuana and hashish and hallucinogens like LSD, mescaline and phencyclidine (PCP). Sometimes people use multiple drugs at the same time which is called polysubstance abuse. Polysubstance abuse is a widely seen phenomenon especially among adolescents (Sellers et. al., 1991; Cited in Segal & Stewart, 1996). It is estimated that between

70% and 98 % of adolescents in the treatment of substance use are polysubstance users (Brown, Vik & Creamer, 1989; Estroff, Schwartz & Hoffmann, 1989).

According to the 2004 National Mental Survey on Drug Use and Health in U.S.A., 7.9 % of the population aged 12 and older report current use of illicit drugs. Among youth aged between 12-17, 10.6 % report illicit drug use, moreover, 19.4 % of young adults aged between 18-25, 5.5 % of adults between the ages 26 and older report current illicit drug use. Among adolescents aged 12-17, 7.6 % use marijuana, 3.6 % use prescription-type drugs nonmedically, 1.2 % use inhalants, 0.8 % use hallucinogens, and 0.5 % use cocaine (NSDUH, 2004)

The reason why it is a widely studied issue by researchers is that substance use has serious physical, behavioral and social detrimental effects on adolescents. One of the important physical consequences of substance use is health problems due to unsafe sexual practices (e.g. having multiple sexual partners, failure to use condoms) which may result in transmission of HIV virus or teenage pregnancies (Santelli, Robin, Brener, & Lowry, 2001). Other health related consequences of adolescent alcohol and illicit drug use are accidental injuries, physical disabilities, possible effects of overdoses and death due to overdoses.

Criminal acts are among the important social consequences of adolescent substance use. It is obvious that adolescents who are dependent on alcohol or drugs, may get involved in criminal acts to find money for buying drugs or alcohol. Research has found significant relationship between adolescent drug use and criminal activities especially for alcohol and marijuana (Dawkins, 1997; Barnes, Welte & Hoffmann, 2002). Furthermore, significant relationship has also been found between drug use and school violence which include weapon-carrying and physical fighting among adolescents (Lowry & Cohen, 1999).

Plant, Peck & Stuart (1984) underlined six alcohol-related consequences that are found to be significantly positively correlated with both tobacco and illicit drug use: having had four or more hangovers in the previous 6 months, having had a drink in the morning to steady nerves or get rid of a hangover, having been advised by a doctor to drink less, having had an alcohol-related accident or injury, having missed a day at school due to drinking and having had a shaky hand in the morning after drinking.

Majority of research on adolescent alcohol and substance use focus on adolescent ages since it seems that adolescence is a critical period in which individuals become much more vulnerable to drug use than any other life period. Adolescence is also considered as the most risky period in terms of the experimentation with drugs and about 90 % of adult addicts report that they started using drugs during adolescence (Sheehan, Oppenheimer &

Taylor, 1988). Research suggest that individuals who have not experimented with licit or illicit drugs until age 21 are unlikely to experiment in the rest of their lives (Kandel & Logan, 1984). NHSDA (1997) results also indicate that illicit drug use tends to begin in adolescence, reach a high point in young adulthood and decrease in later ages. Based on these findings it has been questioned that what are the processes behind adolescent vulnerability to drugs?

Adolescence is characterized by a host of biological, cognitive and social changes and challenges of functioning. Included among these changes and challenges are physical changes like rapid skeletal development, sexual maturation and hormonal changes, pubertal onset and time course and psychological changes like movement toward personal autonomy and renegotiation of relationships with parents, greater involvement and more intense relationships with peers, and the initiation of and greater involvement in dating behavior. These biological and psychological changes can induce stress to adolescents and adolescents may try alcohol or other illicit drugs in order to cope with the stress that they feel (Beman, 1995).

Adolescents also begin to be preoccupied with their body images, therefore they develop an egocentric thought which shows itself in two ways. One of them is ‘imaginary audience’, which is the belief that others are preoccupied with her/himself as s/he is and the other is ‘personal fable’ which is the sense of personal uniqueness. This egocentrism makes adolescents vulnerable to

some threats like alcohol and drug use since they think that they know the best and whatever they do will be safe. On the other hand, it is nearly impossible for the parents to hinder their child's interest in drugs by advice because adolescents begin to think that they are wiser than their parents and they tend to ignore their parents' advice (Brook & Brook, 1990).

Adolescence is a critical period in which individuals shift their orientation from their parents to their peers. They have a strong desire to be accepted and approved by a peer group and they can change their clothing, hair style, favorite music or even their life styles in order to be accepted by a peer group. Starting to use cigarettes, alcohol or drugs can be an easy way to enter a group whose members are cigarette, alcohol or drug users (Diego, Field & Sanders, 2003). It is also shown that peers have the strongest influence on adolescent drug use (Hoffmann, 1993).

1.1. Theories of Etiology of Alcohol and Drug Use

Etiology of alcohol and drug use is widely studied by researchers. Since there is a need to identify predictors or risk factors of drug use in order to identify risk groups and provide essential prevention and treatment strategies, researchers have attempted to determine the etiology of adolescent alcohol and drug use. Several theories have been suggested in order to explain causes of adolescent drug use. In general, two different approaches have been followed. The first one is disease/addiction and

gateway theories which focus on how drug use behavior is initiated and maintained by the direct effects of drugs. Second one is the psychosocial theories which focus primarily on the interaction of personal variables and the social environment in the development of drug use. Disease/addiction theories emphasize drugs' ability to create physical or psychological dependency or both and to the related consequences to the user. Tolerance/withdrawal theory is one of the most influential disease/addiction theory. It claims that repeated exposure to drugs leads to tolerance which leads to increased use, and finally withdrawal symptoms when the drug is not taken which results in continued drug use. In order to avoid physical and psychological consequences of withdrawal, individuals continue to use the drugs. Tolerance/withdrawal theory has been criticized as being insufficient since not all of the drugs that adolescents abuse have tolerance and withdrawal effects when taken at low doses or frequencies. (Peele, 1985)

Gateway theories generally claim that adolescents begin using drugs in a particular sequence, therefore; there is a 'developmental progression' in drug use (Glantz, Weinberg, Miner & Colliver, 1999). These theories emphasize the process that taking a specific drug may create conditions that encourage further drug involvement. For instance, Kandel (1975) identified four distinct developmental stages that form a sequence from the use of legal drugs to the use of illegal drugs*:* The use of beer or wine, followed by the use of cigarettes or hard liquor, followed by the use of marijuana, followed by the use of illicit drugs other than marijuana like cocaine and heroine. However

this theory gives too much emphasis on the effects of drugs themselves and does not try to explain the main reasons that encourage adolescents for the initial use of drugs. Consequently according to this theory, treatment and prevention focus is solely on availability of drugs by adolescents which have little utility in preventing adolescent substance use (Oetting & Beauvais, 1987).

Psychosocial theories on the other hand, try to link psychological and social variables as they associate with adolescent drug involvement. One of the first and probably the most important psychosocial theory of etiology of adolescent substance use is the Problem Behavior Theory (Jessor & Jessor, 1977; as cited in Donovan, 1996). Problem behavior theory defines problem behavior as "behavior that is socially defined as a problem, a source of concern, or as undesirable by the norms of conventional society and its occurrence usually elicits some kind of social control response" (Jessor & Jessor, 1977; as cited in Donovan, 1996). According to this theory, major adolescent problem behaviors are alcohol use, cigarette smoking, use of other illicit drugs, delinquent behavior, and precocious sexual intercourse. The framework rests on the social-psychological relationships within and between the three systems of the individual: personality system, perceived environment system and behavior system. Within each system, there are variables which reflect either investigations through problem behavior or controls against it and together they generate a resultant state called

proneness which determines the likelihood of the problem behavior (Donovan, 1996).

Problem behavior theory is mainly based on the findings of two parallel longitudinal studies one of which includes high school students and the other is college students. Their first finding was that all the problem behaviors that are investigated were positively correlated in both studies and, a composite index of multiple problem behaviors, correlated negatively with measures of conforming or conventional behaviors, such as attendance at religious services and school performance; and third, the various problem behaviors correlated in a similar fashion with a number of personality and social environment variables that reflect unconventionality in the social-psychological framework of problem behavior theory (Donovan & Jessor, 1985). As a result of these findings, the overall relationships among these problem behaviors were attributed to an underlying syndrome which results in a proneness to engage in problem behaviors.

Peer cluster theory (Oetting & Beauvais, 1986) is another psychosocial theory which suggests that there are psychological and environmental variables which make adolescents vulnerable to drug use like family sanctions against drug use, strength of the family, religious identification, school adjustment, personality traits. Unlike the other theories, peer cluster theory suggests that these variables have only an indirect effect on the adolescent vulnerability to drug use, by creating a predisposition for the

selection of certain friends and a predisposition for a particular group of friends to move toward drug involvement. Peer relationships have the strongest direct and proximal influence on adolescent drug use and mediate the effects of all other psychosocial forces.

The major dominant variable in this theory is the peer effect which is applied by the peer group that the adolescent chooses. Drugs are made available in 'peer clusters' then, the youth learns to use them, that, to share beliefs, attitudes, values, and rationales for drug use and drug use plays an important role in group membership and identification. These groups can be small, consisting of a few friends, or can be dyad such as best friends or couples. Drug use plays an important role in defining the group, determining its typical behaviors and maintaining its identity and structure.

Oetting and Beauvais (1987) differentiated the function of peer clusters from the classical understanding of peer pressure. The image of coercive peers forcing a vulnerable, naive youth to use drugs is not accurate, implying too forceful role for peers and too passive role for the adolescent. Peer cluster theory suggests a more reciprocal process in which every member of a peer cluster is seen as an active, participating figure in shaping the norms and behaviors of that cluster, in deciding whether, when, and how to use drugs but every youth in a peer cluster is constantly and actively involved in deciding what is "right" (Oetting & Beauvais, 1987).

Contemporary research concerning the etiology of adolescent alcohol and drug use includes effects of specific risk factors and their possible interactions on adolescents. Risk factor is defined as 'variables or events that, if present in an individual, make it more likely that this individual rather than someone selected from the general population will develop that disorder or a state' (Swadi, 1999). Variables identified as risk factors are not necessarily causal factors; they may mediate or moderate risk or may represent noncausal markers of risk (Weinberg, 2001). Researchers have tried to identify risk factors for adolescent alcohol and drug use and as a result there is a huge literature concerning the risk factors.

1.2. Risk Factors for Alcohol and Drug Use

1.2.1. Genetic Factors

Parental substance use has been found to be significantly related to adolescent substance use (Hoffmann & Su, 1998). However the nature of the relationship, that is, whether it is due to modeling or genetic factors or both has been still a matter of debate. Attempts to identify the genetic basis of alcohol use was supported by the most part with the finding of Blum, Noble & Sheridan (1990) reporting that the presence of the 'Al' allele on the dopamine receptor D2 correctly classified 77% of alcoholics and its absence classified 72% of non-alcoholics. This finding led to acceptance of the idea that alcoholism is a result of a specific gene until the study of Comings, Comings

& Muhleman et al. (1991) which suggested that the 'Al' allele is associated with several behavior and psychiatric disorders and may act as a modifying gene rather than as the primary cause. These contrary findings supported the notion that alcoholism is not caused by a single gene.

Studies concerning the genetic basis of alcohol and drug abuse mainly include family studies, twin studies and adoption studies. Family studies show that individuals with an alcoholic first degree relative are at higher risk of using alcohol (Hesselbrock, Bauer & Hesselbrock, 1991). Schuckit (1984) found that non-alcoholic sons of alcoholics show greater tolerance for alcohol than matched controls.

Heath & Martin (1991) reported that twins have a high concordance rate in terms of adolescent drinking and having alcohol related problems in early adolescent years. Kendler, Heath & Neale (1992) reported significantly higher alcoholism concordance rate among monozygotic twins compared to dizygotic twins. In addition to these, alcohol using styles among monozygotic twins were found to have higher degrees of similarity compared to dizygotic twins (Heath & Martin, 1991). Pickens, Svikis, McGue & Lykken (1991) showed that there was a significantly greater MZ vs DZ twin concordance for alcohol abuse and/or dependence in males but not females which pointed out the heterogeneity in the inheritance of alcoholism.

Adoption studies from different countries generally point out that offspring of alcoholics are three to four times more likely to be alcoholic than those of non-alcoholic parents regardless of who raised them (Swadi, 1999). On the other hand Cadoret, Yates, Troughton, Woodworth & Stewart (1995) showed that children of parents with alcoholism were more likely to exhibit substance use disorders although they are separated from their biological parents. Mc Gue (1993) reviewed the findings of adoption studies and concluded that the offspring of alcoholic parents who are reared by non-alcoholic adoptive parents are more likely to develop drinking problems; besides, being reared by an alcoholic parent in the absence of other etiological factors does not appear to be a critical consideration in the development of alcohol use.

There are two major theories on the effect of genetic vulnerability on drug use. First one is endogenous opioid theory which assumes that alcoholism is associated with excessive production of endorphins. Endogenous opiod theory was supported by the findings of Froehlich (1997). He reported that in both rodents and humans, a genetic predisposition toward increased consumption of alcohol is associated with high levels of endogenous opiod system response to the ingestion of alcohol. Also it is known that when alcoholic patients take drugs which are endogenous opiod antagonists, they drink less alcohol.

The other is the serotonin hypothesis which explains the etiology of alcoholism by the effect of the genetically determined deficiency in serotonin activity in certain areas of the limbic system in the brain (Oltmanns & Emery,

2001). It was reported that animals with high preference of alcohol had lower levels of serotonin in their brains (McBride, Murphy, Yoshimoto, Lumeng & Li, 1993). Also it is reported that drugs like SSRI's which enhance serotonin activity can decrease voluntary alcohol consumption in humans (Oltmanns & Emery, 2001).

Although genetic studies have argued that the effect of parental substance use is direct, psychosocial studies have found mediating variables between parental and adolescent substance use. For instance, Hoffmann and Su (1998) have identified three mediating factors which are adolescent stress, family relations and peer drug use. They claim that children of parents with substance use problems inevitably get exposed to stressful life conditions, have poor family relations and are more oriented toward peers because of insufficient family relations. All of these factors may lead to increased risk of drug use.

1.2.2. Sociodemographic Factors

Age and gender are the most widely investigated demographic variables that are proved to be closely related to adolescent alcohol and drug use. Majority of studies have found that males have a higher rate of substance use than females (Johnson, Pentz & Weber et al., 1990; Myers, Aarons, Tomlinson & Stein, 2003). Toray, Coughlin, Vuchinich & Patricelli (1991) reported that males' experimentation with substances was higher than that of females.

Barnes and Welte (1986) found that males began drinking at earlier ages and exhibited more heavy drinking patterns than did females.

On the other hand, literature suggests that older adolescents are at higher risk than younger adolescents (Stephenson & Henry,1996). Donavan, Jessor, and Jessor (1983) reported that 50% of 7th grade students had experimented with alcohol as compared to 90% of high school seniors. Kandel and Logan (1984) report that the risk for the onset of alcohol and marijuana use reaches peak between the ages 16 and 18 and is completed for the most part at age 20 and the risk of trying other illicit drugs is highest at age 18 and declines by 21. Branhock, Schandler, & Oncley (1990; as cited in Stephenson & Henry, 1996) found that high school seniors consumed more alcohol than did high school freshmen.

Research based on the ethnic and cultural differences in terms of alcohol and drug use have managed to reach significant results. Myers et. al (2003) found in a sample of 866 9th -12th graders that substance use is associated with being male and white versus non-white. Nishimura, Hishinuma, Else, Goebert & Andrade (2005) found in their study with 7000 adolescents in Hawai that Hawaiian and Caucasian students reporting higher scores in Substance Abuse Subtle Screening Inventory than Japanese students and greater scores for female than male students. Babor (1994) reviewed the literature in order to determine sociodemographic variables of different illicit drug use in addition to nicotine and alcohol. He reported that: ‘Each drug has

its own demographic profile and these profiles differ across cultures'. He also reported that: 'Drug use tends to be more prevalent among males than females, among young adults than the elderly, and in the lower socio economic group than the middle or high. With nicotine being an exception, users tend to be more marginal as the substance gets more addictive (like heroine) and women are more likely to abuse drugs in developed countries than in developing countries'.

Numerous studies show that children who grow up in single-parent families have more negative outcomes (e.g. delinquency, illicit drug use) than those with both parents (e.g., Dornbusch et al., 1985; Flewelling & Bauman, 1990; Newcomer & Udry, 1987; Zill, 1988). Thomas & Farell (1996) found that for white adolescent males, nonresident father involvement buffers the negative effects of single-mother families on delinquency, heavy drinking, and illicit drug use. On the other hand for black male adolescents, fewer problem behaviors were reported when nonresident fathers are not involved in single-mother families.

The relationship between substance use and socioeconomic status which is usually defined as the composite measure of income, education level and occupational prestige is still unclear. Some authors report that substance use is more prevalent in low socioeconomic status groups than in middle or high unless the substance is easily and widely available in that society like nicotine and alcohol (Babor, 1994). On the other hand, O'Malley, Johnston &

Bachman (1998) reported that higher parental education was associated with increased rates of alcohol use and being drunk. Besides, in the same study it is reported that students in more rural areas (i.e., counties where the largest city has a population less than 50,000) reported the highest rates of getting drunk.

1.2.3. Psychological Factors

Despite the considerable evidence for an association between some personality traits and substance use, the degree to which the traits may be differentially associated with specific classes of substances is not known. It is thought that maladaptive personality traits, although seems to be present more or less in all substance abusers in a general sense, vary in intensity with the social deviance of the substance or to the diversity of substances used (Conway, Swendsen, Rounsaville & Merikangas, 2002). For instance, cocaine and heroin abusers have been found to be as more negative and impulsive than abusers of more socially accepted substances such as alcohol (Mc-Cormick, Dowd, Quirt, & Zegarra, 1998). Besides, poly substance abusers have been found to exhibit greater personality disturbance than abusers of single substances regardless of drug class (Allen, Moeller, Rhoades & Cherek, 1998; Donovan et al., 1998). Some of the well known personality traits which are considered to be risk factors for substance use are behavioral disinhibition characterized by undercontrol and impulsivity, sensation seeking, trait anxiety, anxiety sensitivity and negative affectivity (negative emotionality).

Sensation seeking is the most widely investigated psychological trait that is associated with substance use. Sensation seeking characterized by 'the need for varied, novel and complex sensations and experiences and the willingness to take physical and social risks for the sake of such experiences' (Zuckerman, 1979; as cited in Arnett 1994) has been found to be a significant predictor of substance abuse (Wagner, 2001; Comeau, Stewart & Lobab, 2001). Wagner found that sensation seeking was a significant predictor of substance abuse among 155 undergraduate students. Comeau et al (2001) reported that high scores of intensity seeking predicted enhancement motives for alcohol use. In an experimental study by Lane and Cherek (2001) adolescents with a history of substance use disorder were more likely to take risks than the control group. Ball, Carroll & Rounsaville (1994) reported that high sensation seeker cocaine abusers had an earlier age of onset for substance use and abuse and were more likely to be poly-substance abusers in contrast to low sensation seeker cocaine abusers.

Trait anxiety and anxiety sensitivity are the two personality attributes that are associated with substance use. Trait anxiety is defined as 'general tendency to experience anxiety symptoms across a wide variety of stressful situations' and anxiety sensitivity is defined as a specific fear of anxiety-related bodily sensations due to beliefs that such sensations will lead to catastrophic outcomes such as physical illness, social embarrassment, or loss of mental control (McNally, 1996). Tate, Pomerleau & Pomerleau (1994) found that trait anxiety was related to conformity motivated smoking. Stewart and Zeitlin

(1995) found that high trait anxiety scores are related to coping motives for alcohol use. Several studies have shown relations between anxiety sensitivity and coping motives for cigarette smoking (Stewart, Karp, Phil & Peterson, 1997). Wagner (2001) reported that anxiety sensitivity was a significant predictor of substance abuse among undergraduate students. Comeau et al. (2001) made a research with 508 adolescents from 7th to 12th grades and found that high anxiety sensitivity predicted conformity motives for alcohol and marijuana use, and high trait anxiety predicted coping motives for alcohol and cigarette use, anxiety sensitivity moderated the relation between trait anxiety and coping motives for alcohol and cigarette use.

Negative affectivity is another personality attribute that is associated with substance use and abuse (Krueger, Caspi, Moffitt, Silva & McGee, 1996). Negative affectivity (negative emotionality) refers to irritability, fussing, anger, and lack of control over emotions, as well as a propensity to experience negative emotions and interpret neutral events negatively (Caspi, 1998; as cited in Myers et al., 2003) and neuroticism is a personality construct which describes an individual who is easily disturbed, vulnerable to stress, and anxious in unpredictable situations. Myers et al. (2003) designed a study among 724 adolescents and found that adolescents who scored high on negative affectivity were more likely to report current substance use. Besides, the effect of negative affectivity was significant even after controlling for gender, G.P.A., and ethnicity. Conway et al. (2002) studied 325 adults and tried to determine whether there is a significant relationship between

some personality attributes like negative emotionality, positive emotionality and behavioral disinhibition and substance abuse. They found that participants with lifetime substance abuse or dependence scored marginally higher on negative emotionality and received lower scores on disinhibition than do those without substance-use disorders, after adjusting for socio-economic indicators and comorbid psychopathology. On the other hand they could not manage to find a significant relationship between positive emotionality and substance abuse.

Herken, Bodur & Kara (2000) found that among 278 female university students in Turkey, substance use is associated with neurotic tendencies and they also reported that cigarette use was associated more with social relationships than personality traits whereas alcohol use was significantly associated with neurotic tendencies and disobedience to social norms. Brook, Whiteman, Gordon & Cohen (1986) managed to prove that some of the childhood personality characteristics like unconventionality (measured by tolerance of deviance, greater rebelliousness, more sensation seeking, less responsibility), inability to exert control over one's emotions (as measured by more anger, temper tantrums, and impulsivity), and intrapsychic stress (such as depressive mood, obsessiveness, and poor ego integration) continue in adolescence and are associated with higher levels of substance involvement during adolescence.

Clinical experience and scientific research reveals that there is also a significant cooccurence among some kinds of psychopathology and substance use but it is not yet known whether psychopathology results in substance use or substance use results in psychopathology or a third variable determines the two, due to the lack of sufficient longitudinal studies.

According to the findings from adult clinical and community studies, 50 % to 80 % of substance abusers meet the criteria for a psychiatric disorder (Khanitzan & Treece, 1985). The most common comorbid disorders are antisocial personality disorder and mood disorders. When we turn to adolescents, comorbidity seems to be most common among depression; with an estimated range from 11 % to 32 % (Armstrong & Costello, 2002) and conduct disorder (Diego et al, 2003). It is also found that adolescent delinquency predict substance use in young adulthood (Ferdinand, Blüm & Verhulst, 2001).

Mood disorders, particularly major depression is widely studied in terms of its significant relationship with substance use. In a study by Diego et al. (2003), adolescents with a low grade point average, high popularity and high depression were found to be more likely to smoke cigarettes, drink alcohol and smoke marijuana than were their peers. White, Xie, Thompson, Loeber, Stouthamer-Loeber (2001) found that depression predicted higher levels of alcohol use in early adolescence. Kandel et al. (1997) reported that depression rates were 5% in abstaining adolescents whereas it was 23.8 %

in adolescents who use alcohol at least once a week and 24.1 % in adolescents who use illicit drugs at least once a year. In order to explain the association between depression and substance use, various explanations were made. For instance, some researchers suggested that there is a significant overlap between the risk factors for depression and substance use like internalizing behavior problems, poor coping skills, conflict with parents, and dissatisfaction with school (Lewinsohn, Gotlib & Seeley, 1995). However, it was proved by other researchers that depression is a risk factor for substance use since adolescents use substances as a self medication in order to relieve their depression (Paton, Kessler & Kandel, 1977). On the other hand, Tarter et al. (1995; as cited in Swadi, 1999) suggested that adolescents with depressive mood are marginalized by their peers and as a result these individuals are oriented toward more deviant friendships in which deviant behaviors like substance use are easily tolerated or encouraged.

The literature about the comorbidity between anxiety disorders and substance use is controversial. Myers et al. (2003) designed a research on 724 high school students and reported that adolescents with more social anxiety levels were less likely to report recent substance use and as a result social anxiety appeared to be protective against substance involvement. However, Armstrong & Costello (2002) reviewed 15 community studies of adolescent substance use and psychiatric comorbidity and concluded that the results concerning the relationship between anxiety disorders and substance use are inconsistent.

Researchers often emphasize that many individuals may use psychoactive substances, particularly sedatives and alcohol, to reduce negative emotions, such as panic attacks and anxiety (e.g., Kushner, Sher, & Beitman, 1990). On the other hand, it is also recognized that use and withdrawal of some substances can precipitate panic attacks or other negative emotions (Clark & Neighbors, 1996). For example, Breslau and Klein (1999) reported that tobacco use contributes to the subsequent development of panic disorder, presumably through the chronic withdrawal symptoms typically associated with chronic cigarette smoking. Contemporary theorists (e.g. Kushner, Abrams, & Borchardt, 2000) now view dual diagnosis as related to a mutual influence and interplay between substance use behaviors and psychological symptoms.

On the other hand, childhood ADHD is also found to be associated with adolescent substance use (e.g. White et al 2001). The nature of the relationship between childhood ADHD and adolescent substance use is a matter of debate and some researchers consider conduct disorder as a mediating factor and they attribute the association between ADHD and substance use to the overlap between ADHD and conduct disorder (Flory, Milich, Lynam, Leukefeld & Clayton, 2003). Although some studies have managed to prove that ADHD is related to nicotine use, even after controlling for conduct disorder (Disney, Elkins, McGue & Iacano, 1999; Burke, Loeber & Lahey, 2001), many studies have failed to prove a significant relationship between ADHD and adolescent substance use (Loeber, Stothamer-Loeber,

White, 1999 ; Burke et al., 2001) after controlling for conduct disorder. It has been also proposed such a solution to this dilemma, that is, children with social skills deficit may be more vulnerable and are more at risk for substance use (Greene, Biederman, Faraone, Sienna & Garcia-Jetton, 1997), children with persistent ADHD in adulthood (Biederman & Wilens, 1995) and children with severe forms of ADHD (Weinberg & Glantz, 1999).

1.2.4. Social Factors

Studies reported that social factors might also lead to adolescent substance use. Peer effect, family relations and even school performance are among the social risk factors.

It has been proved by a host of research that adolescents who use drugs are likely to have friends who also use drugs (Hawkins, Catalano, Miller, 1992). It is also known that there are huge similarities between drug use patterns between adolescent friends including drug selection and drug use styles (Dinges & Oetting, 1993). Findings generally indicate that peers have the strongest influence on adolescent drug use followed by parental relations and family structure (Hoffmann, 1993). As a result of these findings, peer effect has generally been considered as one of the major risk factors for adolescent drug use.

Peer effect has been considered as being constituted by two factors: modeling and persuasion. Farell & White (1998) reported that both peer pressure and peer drug use were significantly related to the reported frequency of drug use and the relationship between peer pressure and drug use was stronger among girls than boys. Windle (2000) found that peer and sibling substance use were strongly related to adolescent substance use. Swadi (1989; as cited in Swadi,1999) found that 12% of illicit drug users said that they were pressured into drug use by their friends. Among a sample of 64 adolescents calling a cocaine hot-line, 84% said that they tried drugs because of direct peer pressure (Dupre, Miller, Gold & Rospenda, 1995). In Monitoring the Future Study, among 12th graders surveyed between 1994 and 1997, 73 % reported the reason why they drink alcohol as 'to have good time with friends' and 8 % reported 'to fit in with a group I like' (O'Malley et al., 1998).

According to Urberg, Değirmencioğlu & Pilgrim (1997), best friend appears to be more influential than the friendship group on both initiation and persistence of alcohol use. On the other hand, Aloise-Young, Graham & Hansen (1994) found that adolescents without a reciprocal friend (whom they called group outsiders) were affected more by their desired friends than by members of the group. In a 6- month longitudinal study, it was (Bot, Engels, Knibbe, & Meeus, 2005) found that adolescent alcohol use is associated with friendship characteristics, that is, adolescents are more influenced by their unilateral friends (by whom they are not considered as a close friend) and

friends with higher status (who are considered as highly popular by the group). Surprisingly when the data was cross sectionally analyzed, the relationship was different, that is, mutual friends (in which both sides report each other as close friends) with lower status (considered as not popular by the group) were found to be more influential on alcohol consumption.

Some researchers oppose the peer influence model with the argument of 'selection model'. According to the selection model, adolescents do not begin to use drugs by peer influence, rather they choose friends according to their own preferences about using drugs. In other terms, drug users choose other users as friends, non-users choose other non-users as friends. Friendships end when the drug behavior of friends becomes dissimilar (deselection), and peer groups restrict membership to people with drug behaviors like their own (Bauman & Ennett, 1996). This model defends that drug related behaviors are critical when forming friendships and as a result studies which do not take selection effect into account can overestimate peer influence. Some studies, although they are insufficient by number, support the selection model. Fisher & Bauman (1988) studied beer drinking and cigarette smoking in two separate studies of seventh and ninth graders, respectively. They concluded that selection and influence make equal contributions to drug using behavior of peer groups. Aseltine (1995) reported that while studying the association between drug behaviors of adolescent friends, failure to control for selection effects can lead to overestimation of peer influence by nearly 60%. Cohen (1977) found in his study with 49 high school friendship

groups that contribution of selection effect was for boy peer groups were 44%, 55% and 40% for hard liquor drinking, smoking frequency and beer drinking frequency, respectively. The contributions for girls were 69%, 52% and 79%, respectively.

Research on the relationship between certain family characteristics and adolescent alcohol and drug use mainly rests on four issues: family bonding, parental monitoring, family structure and family interaction patterns.

Bonding is the amount of attachment, connection or closeness that family members feel toward each other. It is reported that family bonding has a significant effect on both the frequency and amount of alcohol use among adolescents both directly and indirectly (Bahr, Maughan, Marcos, & Li, 1998). Anderson & Henry (1994) found a negative relationship between parental bonding and adolescent substance use. Strong bonds between adolescents and parents tend to decrease the likelihood of initiation of alcohol and drugs while weak bonds tend to increase (Barnes & Welte, 1986). Furthermore, longitudinal studies have succeeded to prove the association between the levels of parent-child bonding with one to four years later drug use (Huizinga et. al., 1995; as cited in Bahr, Maughan, Marcos, & Li, 1998).

Parental monitoring is another variable that is associated with adolescent substance use and is defined as the extent to which parents watch, supervise, and are aware of their children's activities. Dishion (1997)

reported that poor parental monitoring is associated with later use of marijuana among adolescents. Steinberg and Fletcher (1994) found a negative association between parental monitoring and adolescent drug use in a longitudinal study. Brook, Lukoff & Whiteman (1980) reported that adolescents are more likely to use marijuana if their mothers had low expectations and were not involved or were not aware of their children's activities. Coombs and Landsverk (1988) reported that adolescents report lower levels of alcohol and drug use whose parents set clear rules, expectations and guidance. On the other hand, some researchers claimed that the effect of parental monitoring is due to the tendency that adolescents with poor parental monitoring tend to associate with peers who use alcohol or drugs (Chassin, Pillow, Curran, Molina & Barrera, 1993). Steinberg and Fletcher (1994) found that specifically, adolescents with poor parental monitoring are more likely to use drugs, and drug-using adolescents seek out like-minded friends.

Family structure is another issue that takes attention in the adolescent drug use. Parental absence due to break-ups, death or divorce increases the likelihood that children will use drugs. Needle, Su, & Doherty (1990) compared three groups of adolescents in a longitudinal study: Those experiencing parental divorce during childhood, those experiencing parental divorce during adolescence and those with nondivorce. The second group, that is, individuals experiencing divorce during their adolescence were found to have greater drug involvement than the other two groups. Hoffmann &

Johnson (1998) have succeeded to prove that adolescents who live with their biological parents are at lower risk for drug use than their peers who live with single parents or stepparents. As an example of the indirect effect of family structure on adolescent drug use, Farell & White (1998) reported that the relationship between peer pressure and drug use was stronger among adolescents in families without fathers or stepfathers. The association between peer pressure and drug use also increased as a function of the level of mother-adolescent distress among adolescents who were not living with fathers or stepfathers (Farell & White, 1998)

Family interaction pattern is another issue that is considered to be important as a risk factor for adolescent drug use. Kafka & London (1991) found that openness of communication between adolescent and parent is negatively correlated with adolescent substance abuse; and presence of at least one open parental figure is associated with lower levels of substance use. Alcohol and drug use is proved to be seen more in the families which have high conflicts (Hawkins et al.,1992). Simcha-Fagan, Gersten, & Langner in 1986 found a significant relationship between parent-adolescent conflict and marijuana use. Dornbusch et al. (1985) found that patterns of family decision making were important risk factors, and Simons and Robertson (1989) found that parental rejection, particularly when combined with the presence of deviant peers, low self-esteem, and an avoidant coping style, was predictive of adolescent drug use. Farell & White (1998) concluded that the association

between peer drug models and drug use increased as a function of the level of mother-adolescent distress.

Parental use of drugs has been also cited as a risk factor for adolescent drug use in the literature. Anderson & Henry (1994) reported that frequency of parental substance use was positively related to adolescent substance use. Stephenson & Henry (1996) found that adolescents' perception of maternal substance use is positively correlated with adolescent substance use whereas such a correlation does not exist among paternal substance use and adolescent substance use. Consistent with the social learning theory, researchers suggested that adolescents tend to model their parents' behaviors regardless of the social desirability of that behavior. Social learning theory (Bandura & Walters, 1963; as cited in Andrews, Hops, & Duncan, 1997) postulates that only the behaviors of valued individuals are modeled. In the light of this point, Andrews et. al. (1997) hypothesized that whether an adolescent will model use or nonuse of his parents will be determined by the quality of the relationship between them. That is, adolescents will model their parents' behaviors only if they have a good relationship. They tested this hypothesis and found that all adolescents modeled their mother's use of cigarettes and their father's use of marijuana if they had a relatively moderate or good relationship with that parent and did not model the substance use of the parent if the relationship was relatively poor. On the other hand, some theorists have identified mediating variables that are responsible from the indirect effect of parental substance use and adolescent substance use.

These variables are adolescent stress, family relations and peer drug use (Hoffmann & Su, 1997). Hoffmann & Su (1998) conducted a research in order to determine the effect of parental drug use on adolescent drug use and they concluded with a model that involves a reciprocal relationship between parental substance use disorder, adolescent drug use, involvement with drug-using peers and attenuated family attachments.

Poor academic achievement is generally considered as a risk factor for adolescent substance use on the basis of the literature. (Hawkins et al 1992; Petrairis, Flay, & Miller, 1995). Myers and colleagues (2003) in his study with 866 (9th through 12th grade) students found that increased substance use was associated with having lower grade-point average. Diego et al (2003) in their study with 89 high school seniors reported that adolescents with a low grade point average, high popularity, and high depression were more likely to smoke cigarettes, drink alcohol, and smoke marijuana than were their peers. They add that school performance, which is measured by the students' grade point average, accounted for the greatest portion of the variance in alcohol, marijuana, and cocaine use and the second highest portion of the variance in cigarette use.

Some researchers argue that demographic factors can mediate the relationship between low school achievement and adolescent substance use like gender. It is known that girls report higher grades than boys (Frome & Eccles, 1998) and low achievement seems to influence girls more negatively

than boys (Bryant, 2003) which makes girls with low achievement more vulnerable to substance use than boys with low achievement.

The opposite side of the relationship has also been proved: Adolescents who have high motivation of achievement at school, who like school and who have high self perceptions of academic success are less likely to use substances (Roeser, Eccles, & Freedman-Doan, 1999; Voelkl & Frone, 2000). In addition it was found that having high academic goals is another protective factor against adolescent substance use (Bachman, Johnston, & O'Malley, 1981; Schulenberg, Bachman, O'Malley, & Johnston, 1994). Desire to enter a college, involving in homework, giving importance to grades and liking school are all found to be associated with low level of drug use among adolescents (Mc Bride, Joe, & Simpson, 1991).

It is also possible that substance use can serve as a risk factor for low academic achievement and this has been proved in the literature. Jeynes, (2002) found that increased frequency of cigarette smoking and being under the influence of marijuana, cocaine, and alcohol did have a negative impact on adolescent academic achievement. Mc Garvey & Canterbury (1996) studied 904 students ranged from 11 years to 18 years and found that inhalant users were almost twice as likely as nonusers to report failing to complete or turn in assignments, receiving lower grades than nonusers and were more than four times more likely to have skipped classes in the past month than were nonusers.

1.3. Studies in Turkey

There is limited research on adolescent alcohol and drug use in Turkey and most of the studies include epidemiology and sociodemographic correlates of alcohol and drug use. Studies show that drug use rate is lower than in European countries and United States and the most commonly used illicit drug is marijuana followed by inhalants (Ögel, Tamar, & Çakmak, 1998).

In a study by Ögel, Tamar, Evren and Çakmak (2001) including 18599 students between the ages 15-17 from 15 different cities in Turkey, smoking rate was 22 %, using alcohol at least once a week was 9 % and the rate of having used a substance at least once was 3.6 % for cannabis, 8.6 % for inhalants, 3.3 % for other substances. Ögel et al. (2004) study with 11.989 elementary, 12.270 secondary schools from 9 big cities of Turkey revealed that lifetime tobacco use was 16.1 %, 15.5 % for alcohol and 1.7 % for other drugs. Ögel et al. (2003) found that in 9 big cities of Turkey with 11.991 10th grade students life-time prevalence of ecstasy use was 2.5%. The mean age of first use of ecstasy was 13.4. More than half of ecstasy users have reported use of other substances and they have a user among close relatives.

In a study by Turkish Psychological Association (2002) in 71 cities of Turkey with 7681 participants, it was found that among the age group 15-17, smoking rate was 13.4 % and alcohol use rate was 2.8 %. Besides, mean age of onset was 12.83 for smoking and 13 for alcohol use. It was also

reported that 52.9 % of smokers and 47.2 % of alcohol users reported that they started by the influence of their friends. Researchers also have proved significant relationships with smoking/alcohol use and certain dimensions of familyfunctioning.

Çorapçıoğlu & Ögel (2004) published a research report including two studies that are conducted in 1998 and 2001 about ecstasy use among adolescents in Turkey. The studies included 18556 high school students from 15 cities and 11911 high school students from 9 cities respectively. They reported that ecstasy use rate increased by 25 % from 1998 to 2001. Besides, they found that ecstasy use is more prevalent among students who have low school performance, students who attend private schools whose parents are divorced or deceased and students with higher maternal education level.

Bilir, Doğan, & Yıldız (1997) conducted a study with 2503 participants including secondary and high school students and adults from different occupational groups. They found that among secondary school students, 4.4 % of boys and 2.6 % of girls reported cigarette use and among high school students, 31.5 % of boys and 19.9 % of girls reported cigarette use.

Taşçı, Atan, Durmaz, Erkuş, & Sevil (2005) made a research on 102 high school students in İzmir and found that 31.4 % of adolescents use cigarette, 31.4 % use alcohol and 15.4 % use drug. Besides 47.1 % of students have a friend who uses drug and 26.5 % reports parental drug use. Yaşan & Gürgen

(2004) interviewed 113 adolescent inhalant users in Diyarbakır and reported that mean age of onset of inhalant use was 10.8; 83.5 % of the users had left school, 35.1 % had legal problem for various reasons and 18.9 % had a family member who uses illicit drug. Tokdemir, Aksu, & Baransel (2003) made a research on 1100 high school students in Elazığ and found that lifetime substance use was 6.8 % and most commonly used substance was inhalants followed by marijuana.

Altındağ, Yanık, Yengil, & Karazeybek (2005) made a study with 253 first year university students in Şanlıurfa and found that smoking rate was 64.4 %, alcohol use rate was 30.4 %, and illicit drug use rate was 2.3 %. Besides, boys were found to report more cigarette use than girls however there was not a gender difference in terms of alcohol use. Peer alcohol use was found to be a predictor of alcohol use among students. Yüksel, Dereboy, & Çifter (1994) found that among 1382 university students in Ankara, lifetime cigarette use rate was 60 %, lifetime alcohol use rate was 70 % and lifetime illicit drug use rate was between 5-9 %. Akvardar, Aslan, Ekici, Öğün, & Şimşek (2001) found that among 124 university students in İzmir, smoking rate was 27.3 %, alcohol use rate was 47.9 % and lifetime illicit drug use was 6.7 %.

Akvardar, Türkcan, & Yazman (2003) conducted a research in order to assess the prevalence of alcohol use in İstanbul. Participants were 1550 people aged between 12-65. They reported that men report earlier onset and

higher amounts of alcohol use than women and majority of alcohol use behavior starts in ages between 16-19.

Herken, Bodur and Kara (2000) conducted a research among 278 female university students in Turkey, and found a significant relationship between substance use and neurotic tendencies, social relationships and disobedience to social norms. Aytaçlar, Erkıran, Kirişçi, & Tarter (2003) reported that there was a significant difference between adolescent substance users and non-users in terms of all subscales of drug use screening inventory.

In sum, it can be concluded that there is an insufficient literature concerning the etiology, epidemiology and consequences of adolescent alcohol and substance use in Turkey. More studies are needed in order to identify major risk and protective factors.

1.4. Aims of the Study

Alcohol and drug use and abuse is a widely investigated topic throughout the world. Epidemiology, etiology, comorbidity and consequences of substance use and abuse are the major titles that take scientific attention related to alcohol and drug use. With the growing need to provide necessary prevention and treatment strategies for adolescent alcohol and drug use and to determine risk groups, it is essential to determine biological, social and psychological correlates of adolescent alcohol and drug use. Although it is

studied widely in the world, the literature concerning adolescent alcohol and drug use in Turkey is very limited and insufficient both in number and content despite the fact that it is one of the growing social problems in Turkey today.

At the more specific level, majority of studies in Turkey related to adolescent alcohol and drug use are mainly focused on epidemiology and sociodemographic correlates of drug use. Data concerning psychological correlates or predictors of alcohol and drug use are very limited in terms of the number of measured variables. Therefore, in the present study sociodemographic and psychological correlates of adolescent alcohol and drug use will be examined in high school students. In the light of the literature, main purposes of the study are: To determine drug and alcohol use profile in adolescents; to determine sociodemographic predictors of drug and alcohol use in adolescents, to determine psychological correlates of drug and alcohol use in adolescents measured by The Drug Use Screening Inventory and to use this screening tool in a nonclinical adolescent population for the first time in Turkey.

1.5. Hypotheses of the Study

In the light of the literature it is hypothesized that;

1) There will be significant difference between girls and boys in terms of alcohol and drug use behaviors. More specifically; boys will report significantly more cigarette use, alcohol use and drug use, than girls and

boys' age of onset of smoking, alcohol use and drug use will be significantly lower than girls'.

2) There will be significant difference between cigarette, alcohol, drug users and non-users in terms of psychological correlates measured by Arnett Sensation Seeking Scale and subscales of DUSI (Behavior patterns, psychiatric disorder, family relations, school performance & adjustment, peer relations, social competency and leisure)

3) Smoking, drug and alcohol use will be predicted by sociodemographic variables and behavioral measures.

a) Smoking, alcohol and drug use will predicted from sociodemographic variables such as: gender, age, GPA, number of siblings, birth order, place of birth, place of living, maternal education, paternal education, marital status of parents, people residing with, perceived economic status.

b) Cigarette, drug and alcohol use will be predicted from peer and parental cigarette, alcohol and drug use.

c) Cigarette, alcohol and drug use will be predicted from subscales of DUSI and Arnett Sensation Seeking Scale scores of adolescents.

CHAPTER 2

METHOD

2.1. Participants

Participants were 854 volunteer high school students (485 girls, 369 boys) from 7 different high schools in Ankara, Turkey. The mean age of students was 15.82 (SD = 0.77, range: 14-18). Mean age of girls was 15.76 (SD = .76), and mean age of boys was 15.89 (SD = 0.80). Among 854 students, 10.6 % were prep class (N=91), 42.9 % were 1st year (N=367) and 45.6 % were 2nd year students (N=390). Sociodemographic characteristics of the participants are presented in Table 1.

2.2. Instruments

2.2.1. Demographic Information Form

Demographic information form was prepared by the researcher and it included both open ended and multiple choice questions about participants' gender, age, class, grade point average, order of birth among siblings, number of siblings, place of birth (village, country, city etc.), place of living,

maternal education, paternal education, occupation of mother, occupation of father, whether mother and father are alive, whether mother and father are married, divorced or separated, with whom participants are living, family income and participants' opinion about the general economic status of their families.

2.2.2. Sensation Seeking / Risk Taking Scale

The Arnett Sensation Seeking Scale (Arnett, 1994) is a 20 item scale assessing levels of sensation seeking in adolescents and adults. It contains two subscales which are Intensity and Novelty. For each item respondents are asked to indicate on a four-point scale, the extent to which the item is true for them (1= true, 2= a little bit true, 3= a little bit false, 4= false). Six of the items in the original scale are reverse keyed in order to avoid affirmation bias and internal reliability of AISS is reported as .70 by Arnett, 1994.

Sümer (2003) reconstructed the scale by excluding one item and adding 4 items from thrill seeking/risk taking subscale of Multidimensional Self Destructiveness Scale (Persing & Schick, 1999) and adding two new items. In the current study 4 items that were not

Table 1. Sociodemographic characteristics of participants

Variable	N	Percent (%)
Age		
14	17	2
15	274	32.5
16	389	46.1
17	134	15.9
18	13	1.5
Economic status of the family		
low	31	3.7
lower-middle	65	7.7
middle	526	62.4
upper-middle	185	21.9
upper	28	3.3
Place of living at most		
village	20	2.4
town	9	1.1
city	125	14.8
metropolis	688	81.6
Maternal education		
illeteral	29	3.4
literal but no school	23	2.7
primary school	316	37.5
secondary school	152	18
high school	209	24.8
university left	12	1.4
university	89	10.6
master	12	1.4
doctorate	-	-
Paternal education		
illeteral	2	.2
literal but no school	8	.9
primary school	201	23.8
secondary school	177	21
high school	243	28.8
university left	27	3.2
university	149	17.7
master	31	3.7
doctorate	3	.4
Marital status of parents		
married	796	94.4
divorced	23	2.7
living apart	9	1.1
Residence		
with family	771	91.5
with mother	45	5.3
with father	3	.4
with relatives	12	1.4
with friends at home	2	.2
in the dormitory	1	.1
other	-	-

appropriate for adolescents were excluded from the scale and 21 item sensation seeking/risk taking scale was used.

2.2.3. The Drug Use Screening Inventory

Drug Use Screening Inventory is a 149 item self report inventory that is used to screen and evaluate the multiple problems of adolescents and adults who abuse alcohol and/or other drugs (Tarter & Hegedus, 1991). It helps clinicians assess the severity of drug use in addition to physical and mental health and psychosocial adjustment to family, work and school. DUSI has 149 yes/no items including 10 domains which are:

I- Substance Use: Evaluates psychoactive drug use patterns and its severity.
II- Behavior Pattern: Evaluates behavioral maladjustment, anger expression, social isolation, acting out and self control.
III- Health Status: Evaluates current history of disease or injuries.
IV- Psychiatric Disorder: Screens psychiatric disturbance particularly anxiety, depression, antisocial behavior and psychotic symptoms.
V-Social Competency: Evaluates social skills like assertiveness or refusal skills.
VI- Family System: Measures family dysfunction, conflict and parental supervision.
VII- School Performance/Adjustment: Measures academic performance and adjustment to school.

VIII- Work Adjustment: Measures work competency and motivation

IX- Peer Relationships: Evaluates peer group with respect to gang behavior, antisocial propensities and peer involvement with alcohol and other drugs.

X- Leisure/Recreation: Assesses whether the person uses free time constructively or in a goal directed way.

Validation studies of DUSI have managed to reveal satisfactory results (Tarter & Kirişçi, 2001). Turkish version of DUSI and its reliability and validity studies have been performed by Aytaçlar et al. (2003) on a Turkish adolescent sample. They reported that alpha reliability coefficients for the subscales ranged between .48 - .89. Besides, the correlation between overall problem density score and DSM-IV SUD diagnosis was .68.

Some researchers have attempted to adapt the instrument to adolescent nonclinical samples to be used within epidemiological research (Siewert, Stallings, & Hewitt, 2004). They used four of the subscales which are Behavior Pattern, Psychiatric Disorder, Social Competency and School Performance/Adjustment. Through factor analysis, they have found three new subscales which are Conduct problems/hyperactivity, low self esteem/neuroticism and social withdrawal. They reported that Cronbach's Alpha coefficients for the subscales were in the range .68 - .82. and have predictive validity.

Since a nonclinical sample is used, 'health problems' scales was not included in the study. Besides, work adjustment scale was also excluded since participants are non-working high school students. 'Substance use' subscale was reconstructed to get more detailed information about cigarette, alcohol and drug use behaviors of adolescents. Remaining seven subscales of DUSI that were used in the study are Behavior Pattern, Psychiatric Disorder, Social Competence, Family System, School Performance-Adjustment, Peer Relationships, Leisure/Recreation. Fifteen items were excluded from the whole scale (3 items from family system, 3 from leisure, 5 from school problems and 4 from peer relations) either because they do not fit into Turkish culture like 'Are the parents absent at the parties you have gone to recently', or they have been asked in other scales of the study like 'Has a member of your family ever used marijuana or cocaine?'. Finally, a total of 91 items was used.

2.2.4. Smoking, Alcohol and Substance Use Questionnaire

A questionnaire including alcohol and drug use prepared by the researcher was also used in order to obtain information about participants' choice of drugs and the frequency and intensity of use. The questionnaire included both open ended and multiple choice questions including cigarette, alcohol and drug use, age of onset of cigarette, alcohol and drug use, amount and frequency of cigarette, alcohol and drug use and names of preferred drinks and drugs. A fake substance name was added to the substance list which is

called ‘luxor’ in order to identify participants who complete the questionnaire dishonestly. Seven participants (0.8 %) have reported having used luxor and these cases were excluded from the analysis. Questionnaires of adolescents who reported having used luxor have been excluded from the analysis.

Participants were also asked whether they think they have an alcohol or substance use problem. Besides, parental and peer cigarette, alcohol and drug use were also asked by yes/no questions. These six yes/no questions were prepared by the researcher and are as follows:

1. Does anyone in your family smoke regularly? Yes/No
2. Does anyone in your family use alcohol regularly? Yes/No
3. Does anyone in your family use drugs regularly? Yes/No
4. Does any of your friends smoke regularly? Yes/No
5. Does any of your friends use alcohol regularly? Yes/No
6. Does any of your friends use drugs regularly? Yes/No

2.3. Procedure

In order to reach the target sample, high schools were preferred to collect data. Also, to control the effect of S.E.S., three different regions of Ankara were selected according to the socioeconomic status of residents which are Çankaya, Keçiören and Mamak. Three high schools from Çankaya, two high schools from Keçiören and two high schools from Mamak were randomly

selected. First, official permission was taken from the Ministry of Education to be able to apply the questionnaires to the students at schools.

The researcher has gone to schools alone, and by the help of a vice principal of the school, classes that are going to attend the study were chosen. Questionnaires were administered to the students in the classrooms during the class hour and the teachers were asked to stay in the class to help the researcher keep the silence. When the researcher entered the class, she introduced herself and her study briefly and after making sure that the participation is voluntary, administered the informed consent forms. After the participants signed the informed consent forms, questionnaires were administered. Since each scale has its own instructions, the researcher did not give any instruction to the participants but participants were free to ask their questions to the researcher about the items that they don't understand. Participants' names were not asked in order to provide confidentiality. Participants were informed about the researcher's e-mail address in case of having any questions about the study in the future. Filling the questionnaires took approximately 25 minutes.

2.4. Data Analysis

Prior to statistical analysis of the data, accuracy of data was checked using Statistical Package for Social Sciences (SPSS). Among 854 cases, 5 cases were deleted because of missing data and 6 cases were deleted because of

univariate outlier. As a result 843 cases entered the analysis. Independent samples t-test was performed in order to determine differences between cigarette, alcohol or substance users and non-users in terms of sociodemographic variables and behavioral measures. Chi square analysis was performed to determine whether there is a significant relationship between parental tobacco and alcohol use and adolescent tobacco and alcohol use, and between peer tobacco and alcohol use and adolescent tobacco and alcohol use. Besides, logistic regression analysis was performed to identify predictors of cigarette and alcohol use separately.

CHAPTER 3

RESULTS

3.1. Factor Structure and Reliability of Sensation Seeking/Risk Taking Scale

In the present study, Arnett Sensation Seeking Scale which is adapted to Turkish by Sümer (2003) has been used. However, some items not appropriate because of the age of participants were excluded from the scale. That is why, factor structure and reliability of the scale were reevaluated. Firstly, item analysis was performed for 21 items and six items with item-total correlations less than .20 were excluded (e.g. 'I like meeting new people', 'I think it is best to order something familiar when eating in a restaurant'). Cronbach alpha coefficient for the remaining 15 items was .75 and Guttman split-half reliability was .72. The range of item-total correlations was .20 - .49. Table 3 displays item-total statistics of the Sensation Seeking/Risk taking Scale.

Then, to determine factor structure of the scale, principal components analysis with varimax rotation was performed with 15 items and applying an eigenvalue of 1.0 as a criterion resulted in 3 factors explaining 40.1 % of the

total variance. On the other hand scree plot offered a two-factor solution and also it was impossible to name the factors theoretically. The first factor had an eigenvalue which was more than two times bigger than the second factor which was an evidence of one-factor solution. Therefore one factor solution was preferred for the scale. One factor solution explained 23.6 % of the total variance with eigenvalue of 3.55. Factor loadings of the items are displayed in Table 2.

Table 2. Item-total statistics of Sensation Seeking Scale

Items	Scale mean if item deleted	Scale variance if item deleted	item-total correlation	Alpha if item deleted	Factor loadings
01. I can see how it would be interesting to marry someone from a foreign country.	43.21	47.73	.31	.74	.41
05. If I were to go to an amusement park I would love to ride the fastest rides.	42.63	46.99	.42	.73	.55
06. I would like to travel to places that are strange and far away.	42.40	48.22	.40	.73	.52
07. I have a tendency to take risks.	42.80	46.65	.48	.72	.63
08. I like standing next to the edge on a high place and looking down	43.30	45.27	.44	.73	.58
09. I like movies where there are a lot of explosions and car crashes.	42.83	47.66	.33	.74	.47
10. Instead of saving money for the future, I prefer enjoying myself and have a good time.	43.99	48.45	.29	.74	.37
12. I want to go and look when there is a fight, fire or an accident around me.	42.86	49.30	.24	.75	.31
14. I take instantaneous decisions.	42.91	49.68	.25	.75	.34
15. If it were possible to visit another planet or the moon for free, I would like be the first one.	42.59	49.54	.24	.75	.31
17. I love exciting activities.	42.25	49.07	.47	.73	.61
18. I would have enjoyed being one of the first explorers of an unknown land.	42.22	51.53	.20	.75	.28
19. I like trying new things even though they are dangerous.	42.83	46.32	.49	.72	.63
20. I like climbing very high places.	43.38	44.50	.49	.72	.63
21. When I listen to music, I like it to be loud.	42.52	49.41	.26	.75	.34

3.2. Reliability and Validity Analysis of The Drug Use Screening Inventory

Seven subscales of DUSI (Behavior Pattern, Psychiatric Disorder, Social Competency, Family System, Leisure, School Performance / Adjustment and Peer Relations) were subjected to reliability analysis seperately and items with item-total correlations less than .10 were excluded from the analysis. Through this way, 2 items from Behavior Pattern Scale, 1 item from Social Competency Scale, 3 items from Leisure Scale, 1 item from School Problems Scale and 1 item from Peer Relations Scale were deleted. Cronbach alpha coefficients for the subscales are displayed in Table 3. Cronbach alpha coefficient for the DUSI is .85 and Guttman split half reliability is .76. As can be seen in Table 4, seven subscales of DUSI are significantly correlated with r's ranging from 0.19 to 0.62 as an evidence of convergent validity of the scale.

Table 3. Cronbach alpha coefficients for the scales

Subscales	**Number of items**	**α**
Behavior Patterns	18	.71
Psychiatric Disorder	20	.71
Social Competency	13	.58
Family Systems/Relations	11	.70
Lesiure	6	.57
School Problems	14	.73
Peer Relations	9	.56
Total	91	.85

Table 4. Intercorrelations among subscales of DUSI

	beh.pat.	psyc.dis	soc.comp.	fam.sys.	leisure	sch.prob.	peer.rel.
Behavior Pattern	1.00	0.62*	0.19*	0.39*	0.22*	0.44*	0.45*
Psychiatric Disorder		1.00	0.39*	0.42*	0.39*	0.45*	0.47*
Social Competency			1.00	0.30*	0.41*	0.31*	0.29*
Family System				1.00	0.36*	0.41*	0.41*
Leisure					1.00	0.28*	0.28*
School Problems						1.00	0.52*
Peer Relations							1.00

p<.01,two-tailed

3.3. Demographic Characteristics of the Students Smoking Cigarette and Using Alcohol and Drug

Cigarette, alcohol and drug use rates according to gender are presented in Table 5. Among 843 adolescents, 102 (12.2 %) reported cigarette use, 193 (23.5 %) reported alcohol use, 17 (2 %) reported marijuana use at least once in their lives. As can be seen from Table 5, only 6 students reported use of either amphetamine, mescaline, ecstasy or hallucinogens. Demographic characteristics of smokers and non-smokers and alcohol and substance users and non-users are presented in Table 6.

Table 5. Frequency of cigarette, alcohol and drug use rates among adolescents by gender

	Girls		Boys		Total	
	N	%	N	%	N	%
Cigarette	44	9.2	58	16.2	102	12.2
Alcohol	79	16.8	114	32.5	193	23.5
Marijuana	1	0.2	16	4.4	17	2
Amphetamine	-	-	1	0.3	1	0.1
Cocaine	-	-	-	-	-	-
LSD	-	-	-	-	-	-
Mescaline	-	-	1	0.3	1	0.1
Opiates	-	-	-	-	-	-
Barbiturates	-	-	-	-	-	-
Tranquilizers	-	-	-	-	-	-
PCP	-	-	-	-	-	-
Ecstasy	-	-	2	0.6	2	0.2
Hallucinogens	1	0.2	1	0.3	2	0.2

Table 6. Demographic properties of participants according to cigarette, alcohol and drug use

	Cigarette use		Alcohol use		Substance use	
Variable	Smoker (N)	Non-smoker (N)	User (N)	Non-user (N)	User (N)	Non-user (N)
Gender						
Male	58	299	114	237	18	343
Female	44	435	79	390	2	480
Total	102	734	193	627	20	823
Class						
Prep	2	88	10	80	1	90
1	37	323	78	276	4	359
2	63	318	103	268	14	370
Place of birth						
Village	1	36	5	31	1	39
bucak	-	2	-	2	-	2
Town	3	24	5	21	-	27
City	19	157	43	132	4	173
metropolis	79	512	140	438	15	579
Place of living at most						
Village	1	18	3	17	-	20
bucak	-	-	-	-	-	-
Town	2	7	3	6	-	9
City	12	111	28	94	3	122
metropolis	87	597	159	509	17	671
Maternal education						
illeteral	3	25	5	23	-	29
literal but no school	3	20	4	18	-	23
primary school	35	280	54	255	8	308
secondary school	14	136	30	117	-	152
high school	35	172	59	143	9	200
university left	2	10	5	7	-	12
university grad.	9	79	30	57	2	87
master	1	11	6	6	1	11
Ph. D	-	-	-	-	-	-
Paternal education						
illeteral	-	2	-	2	-	2
literal but no school	2	5	2	6	-	8
primary school	20	181	32	165	4	197
secondary school	25	150	37	130	3	174
high school	32	208	58	181	4	239
university left	6	21	9	18	2	25
university grad.	14	134	41	104	2	147
master	2	29	11	19	1	30
Ph.D	-	3	2	1	-	3

Table 6 continued

	Cigarette use		Alcohol use		Substance use	
Variable	Smoker (N)	Non-smoker (N)	User (N)	Non-user (N)	User (N)	Non-user (N)
Marital status of parents						
Married	91	698	177	598	16	780
Divorced	6	17	9	13	1	22
Living apart	2	7	3	5	3	6
Economic status of the family						
Low	5	26	6	23	1	30
Lower-middle	13	51	19	45	3	62
Middle	63	459	102	405	13	513
Upper-middle	19	164	55	129	3	182
Upper	2	26	9	19	-	28
Residence (with)						
Mother and father	90	677	171	581	16	755
Mother	9	35	18	24	4	41
Father	1	2	-	3	-	3
Relatives	-	11	1	10	-	12
Friends	-	2	-	2	-	2
Dormitory	-	1	1	-	-	1

3.4. Smokers

3.4.1. Descriptive Statistics for Smoking

Among 843 participants, 102 (12.2 %) of them (58 boys and 44 girls) reported cigarette use; and also 69.6 % of smokers reported alcohol use at the same time. Mean number of cigarettes smoked per day is 9.63 for girls (SD = 8.36), 15.12 for boys (SD = 12.08) and 13.05 for the whole sample (SD

= 11.10). Independent samples t-test results showed that boys smoke significantly more cigarettes than girls (t (90) = 2.38, p < .05). Mean age for the onset of cigarette use is 14.43 for girls (SD = 1.20) and 13.54 for boys (SD = 2.29) and 13.86 for the total sample (SD = 2.01). It was found that boys start smoking significantly at earlier ages than girls (t (92.11) = -2.47, p < .05). Table 7 displays results of the t-test analyses.

Table 7. T-test results for gender differences in terms of amount of smoking and age of onset.

Variable	Group	Mean	SD	t	df
Amount of cigarettes per day	**Girls**	9.63	8.36	2.38*	90
	Boys	15.12	12.08		
Age of onset of smoking	**Girls**	14.43	1.20	-2.47*	92.11
	Boys	13.54	2.29		

* p < .05

Seventy two percent of smokers reported parental regular use of cigarette. A two-way contingency table analysis was conducted to evaluate whether there is a significant relationship between adolescent smoking and parental smoking. Results showed that adolescent smoking behavior and parental smoking behavior were significantly related (χ^2 (1, N) = 818) = 3.83, p < .05, Phi = .07). Furthermore, adolescents whose parents smoke, use cigarettes more than adolescents whose parents do not smoke (χ^2 = 19.06, df=1, p< .01).Table 8 displays the results.

Table 8. Crosstabulation table for adolescent smoking and parental smoking

		Parental Smoking		
Adolescent smoking		**No**	**Yes**	**Total**
No	N	274	446	720
	% within adolescent nonsmokers	38.1	61.9	100
	% within parental non-smokers	91	86.4	88.1
	% of total	33.5	54.6	88.1
Yes	N	27	70	97
	% within adolescent smokers	27.8	72.2	100
	% within parental smokers	9	13.6	11.9
	% of total	3.3	8.6	11.9
Total	N	301	516	817
	% of total N	36.8	63.2	100

Eighty nine point eight percent of adolescents reported having a friend smoking cigarette. Again a two-way contingency table analysis was conducted to determine whether there is a significant relationship between adolescent smoking and peer smoking. Results showed that there was a significant relationship between adolescent smoking and peer smoking ($\chi 2$ (1, N) = 817) = 48.62, $p < .001$, Phi = .24). Furthermore, adolescents who have smoker friends smoke significantly more than adolescents who do not have smoker friends ($\chi 2 = 62.08$, df=1, $p< .01$). Table 9 displays the results.

Table 9. Crosstabulation table for adolescent smoking and peer smoking

		Peer smoking		
Adolescent smoking		**No**	**Yes**	**Total**
No	N	341	379	720
	% within adolescent nonsmokers	47.4	52.6	100
	% within peer non-smokers	97.2	81.2	88
	% of total	41.7	46.3	88
Yes	N	10	88	98
	% within adolescent smokers	10.2	89.8	100
	% within peer smokers	2.8	18.8	12
	% of total	1.2	10.8	12
Total	N	351	467	818
	% of total N	42.9	57.1	100

3.4.2. Differences Between Smokers and Non-Smokers in Terms of Behavioral Measures

In order to find out whether there is a significant difference between smokers and non-smokers in terms of behavioral measures of the study, independent samples t-test was performed. Results suggested that smokers scored significantly higher than non-smokers on sensation seeking scale ($t(834) = 6.75$, $p < .001$), behavior patterns scale ($t(834) = 9.95$, $p < .001$), school problems scale ($t(123.24) = 9.82$, $p < .001$), peer relations scale ($t(123.62) =$

8.44, p < .001), psychiatric disorder scale (t (834) = 7.69, p < .001), family systems scale (t (121.7) = 7.42, p < .001) and leisure scale (t (834) = 2.26, p < .05). On the other hand there was not a significant difference between smokers and non-smokers in terms of scores on social competency scale. Results are summarized in Table 10.

Table 10. T-test results for differences between smokers and non-smokers in terms of behavioral measures

Scale	Group	Mean	SD	t	df
Sensation Seeking	smokers	49.58	6.41	6.75**	834
	nonsmokers	45.01	7.37		
Behavior Pattern	smokers	9.44	3.34	9.95**	834
	nonsmokers	6.25	2.99		
Psychiatric Disorder	smokers	9.70	3.25	7.69**	834
	nonsmokers	6.95	3.39		
Social Compet.	smokers	4.27	2.33	0.21	834
	nonsmokers	4.22	2.23		
Family System	smokers	4.07	2.43	7.42**	121.7
	nonsmokers	2.19	2.05		
Leisure	smokers	2.75	1.59	2.26*	834
	nonsmokers	2.36	1.60		
School Problems	smokers	6.51	2.95	9.82**	123.24
	nonsmokers	3.49	2.57		
Peer Relations	smokers	3.60	1.86	8.44**	123.62
	nonsmokers	1.96	1.63		

* p< .05

** p< .001

3.4.3. Predictors of Smoking

Before regression analysis, the relationship between cigarette use and predictors were examined. As can be seen in Table 11, cigarette use is significantly and positively correlated with gender ($r = .11$, $p < .05$), age ($r = .26$, $p < .01$), place of birth ($r = .07$, $p < .05$) , parental marital status ($r = .07$, $p < .05$) , behavior patterns ($r = .33$, $p < .05$), school performance / adjustment ($r = .35$, $p < .01$), peer relations ($r = .31$, $p < .01$), psychiatric disorder ($r = .26$, $p < .01$), family system ($r = .28$, $p < .01$), sensation seeking / risk taking ($r = .20$, $p < .01$), parental alcohol use ($r = .10$, $p < .01$), parental substance use ($r = .13$, $p < .01$), peer cigarette use ($r = .24$, $p < .01$), peer alcohol use ($r = .20$, $p < .01$), and peer substance use ($r = .22$, $p < .01$). On the other hand, cigarette use is significantly and negatively correlated with grade point average ($r = -.23$, $p < .01$).

In order to identify predictors of smoking among adolescents, hierarchical logistic regression analysis was performed. Cigarette use was the criterion variable and the demographic predictors were entered in the first step which are gender, age, G.P.A., number of siblings, birth order of the participant, birth place, place of living, maternal education, paternal education, marital status of parents, people they reside with, economic status of the family. In the second step, parental smoking, parental alcohol use, parental drug use, peer smoking, peer alcohol use and peer drug use were entered.

Table 11. Zero-order correlations among smoking, demographic variables, DUSI subscales and sensation seeking/risk taking

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Cigarette use	1.00	.11*	.26**	-.23**	.02	.03	.07*	.03	.02	-.02	.07*	.01	-.07
2.Gender		1.00	.08*	-.12**	-.10**	-.01	-.09**	-.08*	.06	.01	-.07*	-.05	.02
3. Age			1.00	-.26**	.12**	.11**	-.03	-.00	-.11**	.03	-.12**	.09*	.03
4.G.P.A				1.00	-.10*	-.08*	.03	.05	.13**	.05	.10*	-.09	-.16
5.Number of siblings					1.00	.66**	-.17**	-.12	-.39	.05	.14**	-.01	.06
6.Birth order						1.00	-.10**	-.04	-.27	-.19	-.04	01	-.06
7.Place of birth							1.00	.44**	.23**	.23**	-.01	-.12**	.16**
8.Place of living								1.00	.15**	.13**	-.01	-.22**	.13**
9.Maternal education									1.00	.66**	.08*	.02	.35**
10.Paternal education										1.00	.05	.02	.37**
11.Parental marital status											1.00	.35**	-.06
12.People living with												1.00	-.07
13.Economic status													1.00

Table 11 continued

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. Cigarette use	.33*	.01	.08*	.35**	.31**	.26**	.28**	.20**	.07	.10**	.13**	.24**	.20**	.22**
2. Gender	.05	.02	-.26*	.11**	.09**	-.18*	-.00	.13**	-.04	.10**	.05	.11**	.16**	.12**
3. Age	.09*	.03	.10	.22**	.11**	.06	.10**	.11*	.08*	.04	.09*	.18**	.11**	.12**
4. G.P.A	-.09*	-.16**	-.12**	-.29**	-.22**	-.14**	-.17**	-.11**	-.02	.05	-.15**	-.24**	-.10*	-.09*
5. Number of siblings	-.01	.06	.12**	.06	.04	.05	.17**	-.04	-.01	-.03	.03	-.01	-.05	.06
6. Birth order	-.00	.01	.05	.08*	.01	-.00	.11**	.00	.04	-.02	.01	.02	-.02	-.00
7. Place of birth	.03	-.11**	-.11*	-.02	-.09**	-.02	-.09*	.07*	.05	-.04	-.01	.01	-.01	-.02
8. Place of living	-.08	-.14*	-.11**	-.07	-.13**	-.07*	-.13**	.04	.06	.00	.04	.01	.02	-.00
9. Maternal education	.10**	-.07*	-.20**	-.01	-.08	.02	-.13**	.16**	-.03	.01	-.00	-.02	.05	.02
10. Paternal education	.06	-.04	-.18**	-.02	-.07*	-.05	-.12**	.13**	-.09*	-.08*	-.01	-.01	.06	.02
11. Parental marital stat.	.07*	.06	.03	.12**	.04	.11	.09	.02	.11**	.10**	.07*	.04	.05	.06
12. People living with	.00	.05	.04	.03	.02	.01	.04	-.01	.04	.03	.02	-.01	.01	.04
13. Economic status	.04	-.10**	-.15**	-.03	-.08*	-.04	-.13**	.09**	-.08*	-.09*	-.02	-.04	-.09**	-.08*

Table 11 continued

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
14. Behavior patterns	1.00	.19**	.22**	.44**	.45**	.62**	.34**	.38**	.05	.11**	.09**	.28**	.24**	.23**
15. Social competency		1.00	.41**	.31**	.29**	.39**	.30**	.19	-.04	.08*	.10**	.07*	.13**	.09**
16. Leisure			1.00	.28**	.28**	.39**	.36**	-.06	.03	.01	.02	.07*	.08*	.05
17. School performance				1.00	.52**	.45**	.41**	.26**	.07*	.16**	.13**	.27**	.29**	.27**
18. Peer relations					1.00	.47**	.41**	.21**	.07*	.13**	.08**	.32**	.37**	.34**
19. Psychiatric disorder						1.00	.42**	.28**	.05	.10**	.06	.22**	.21**	.16**
20. Family system							1.00	.13**	-.01	.16**	.06	.17**	.18**	.19**
21. Sensation seeking								1.00	.04	.08*	.04	.18**	.17**	.12**
22. Parental smoking									1.00	.15**	.03	.25**	.10**	.01
23. Parental alcohol use										1.00	.11**	.09**	.24**	.09*
24. Parental drug use											1.00	-.05	.01	.22**
25. Peer smoking												1.00	.45**	.16**
26. Peer alcohol use													1.00	.31**
27. Peer drug use														1.00

*p<.05,**p<.01

In the third step, sensation seeking, behavior pattern, psychiatric disorder, social competency, family system, leisure, school problems, peer relations scores were entered as predictors. Results are presented in Table 12. In the first step demographic variables significantly predicted cigarette use ($\chi 2$ (12, N) = 96.32, $p < .001$, Nagelkerke $R^2 = .27$). After addition of peer and parental substance use variables in the second step ; $\chi 2$ (18, N) = 133.23, $p< .001$, Nagelkerke $R^2 = .37$ and after addition of sensation seeking and DUSI subscales in the third step; ($\chi 2$ (26, N) = 209.19, $p < .001$) and Nagelkerke $R^2 = .55$, the model was significant.

On the basis of demographic variables alone in the first step, classification rate was 99.1 % for non-smokers and 18.7 % for smokers. In the second step after addition of parental and peer substance use variables, the predictors correctly classified 98.7 % of non-smokers and 24 % of smokers. In the final step, all variables correctly classified 96.9 % of non-smokers and 41.3 % of smokers. Overall, 90.3 % of participants were correctly classified.

In the final step of the regression analysis Wald statistics indicated that among demographic predictors, gender, age, GPA, place of birth significantly predicted cigarette use. The odds ratio for gender indicated that boys are two times more likely to smoke than girls. Also, as the age increases, likelihood of smoking increased two times, one unit decrease in GPA is associated with the increase in the probability of smoking by 45 % and one unit increase in place of birth resulted in increase in the probability of smoking by 84 %.

Peer smoking was another predictor of smoking behavior among adolescents and odds ratio showed that adolescents who have friends smoking cigarette are six times more likely to smoke cigarette.

Among DUSI scales, behavior patterns, social competency, school problems and family system scores predicted cigarette use among adolescents. Odds ratio showed that one unit increase in behavior patterns score resulted in increase in the probability of smoking by 26 %, it was 17 % for school problems and 24.7 % for family system scores. On the other hand, one unit decrease in the social competency score was related with increase in the probability of smoking by 32 %.

Table 12. Results of hierarchical logistic regression analysis for smoking

Predictors	B	S.E.	Wald	df	Exp(B)
Gender	.859	.398	4.650*	1	2.360
Age	.999	.216	21.407**	1	2.71
GPA	-.593	.228	6.750**	1	.553
Number of siblings	-.030	.200	.022	1	.971
Birth order	-.111	.216	.266	1	.895
Place of birth	.613	.302	4.106*	1	1.845
Place of living	.327	.324	1.021	1	1.387
Maternal education	.246	.159	2.384	1	1.279
Paternal education	-.111	.150	.551	1	.895
Marital status of parents	.259	.719	.130	1	1.296
People residing with	.013	.584	.000	1	1.013
Economic status	-.448	.255	3.097	1	.639
Parental smoking	-.691	.405	2.920	1	.501
Parental alcohol use	.775	.493	2.470	1	2.171
Parental drug use	.460	1.267	.132	1	1.584
Peer smoking	1.849	.584	10.024*	1	6.354
Peer alcohol use	-.284	.410	.479	1	.753
Peer drug use	.122	.621	.039	1	1.130
Behavior pattern	.231	.076	9.245**	1	1.260
Social competency	-.379	.101	14.068**	1	.685
Leisure	-.058	.127	.209	1	.943
School problems	.160	.074	4.715*	1	1.173
Peer relations	.092	.127	.531	1	1.097
Psychiatric disorder	.132	.073	3.225	1	1.141
Family system	.220	.087	6.431*	1	1.247
Sensation seeking	-.006	.027	.054	1	.994
Constant	-23.839	4.613	26.703	1	.000

3.5. Alcohol Users

3.5.1. Descriptive Statistics for Alcohol Users

Among 843 participants, 193 (23.5 %) participants (114 boys, 79 girls) reported alcohol use. Seventy one (36.8 %) of alcohol users reported cigarette use at the same time and 112 of alcohol users (59.9 %) reported having used alcohol during the past 30 days. Mostly preferred drinks are beer, followed by rakı, wine and whisky. Table 13, 14, 15 display frequency of mostly preferred drinks, frequency of alcohol use per week and amount of alcohol use on a typical day respectively.

Table 13. Mostly preferred drinks by gender

	Girls		**Boys**		**Total**	
Name of Drink	**N**	**%**	**N**	**%**	**N**	**%**
Beer	71	89.8	103	90.3	174	90.6
Wine	40	50.6	63	55.2	103	53.6
Rakı	14	17.7	53	46.4	67	34.8
Vodka	6	7.5	44	38.5	50	26
Whisky	11	13.9	35	30.7	46	23.9

Table 14. Frequency of alcohol use by gender

	Girls		Boys		Total	
Frequency of Alcohol use	**N**	**%**	**N**	**%**	**N**	**%**
Once a month or less	65	82.2	61	53.5	126	65.6
2 or 4 times a month	18	22.7	16	14	34	17.7
2 or 3 times a month	3	3.7	10	8.7	13	6.7
4 times a week or more	0	0	15	13.1	15	7.8

Table 15. Amount of alcohol use by gender

	Girls		Boys		Total	
Number of glasses	**N**	**%**	**N**	**%**	**N**	**%**
1 or 2	70	88.6	46	40.3	116	60.4
3 or 4	23	29.1	33	28.9	56	29.1
5 or 6	6	7.5	17	14.9	23	11.9
7 or 9	1	1.2	5	4.3	6	3.1
10 or more	0	0	12	10.5	12	6.2

Mean age for using alcohol for the first time is 13.13 for girls (SD = 2.80), 12.31 for boys (SD = 3.08) and 12.63 for the total group (SD = 2.99). Gender differences among alcohol users in terms of frequency, amount and age of first drinking experience was analyzed using independent samples t-test and results suggested that boys report significantly more frequent alcohol use than girls (t (144.30) = 3.79, p < .001), boys report significantly higher amount of drinking than girls (t (164.94) = 4.71, p < .001). On the other hand there is not a significant difference between girls (M = 13.13) and boys (M = 12.31) in terms of age of first drinking experience (t (170) = -1.75, p > .05) (See Table 16).

Table 16. T-test results for gender differences in terms of age of onset of alcohol use, amount and frequency of drinking.

Variable	Group	Mean	SD	t	df
Amount of drinking	**girls**	1.50	0.71	4.71*	164.94
	boys	2.21	1.29		
Frequency of drinking	**girls**	1.32	1.12	3.79*	144.30
	boys	1.82	0.55		
Age of first drinking experience	**girls**	13.13	2.80	-1.75	170
	boys	12.31	3.08		

p < .001

Among alcohol users, 19.6 % reported parental alcohol use. A two-way contingency table analysis was performed to assess whether there is a significant relationship between adolescent alcohol use and parental alcohol use. Results showed that adolescent alcohol use behavior and parental alcohol use behavior were significantly related ($\chi 2$ (1, N) = 801) = 13.57, p < .001, Phi = .13). Furthermore, adolescents whose parents drink alcohol reported less alcohol use compared to adolescents whose parents do not use alcohol ($\chi 2$ = 68.17, df=1, p< .01). Table 17 displays the results.

Table 17. Crosstabulation table for adolescent alcohol use and parental alcohol use

		Parental alcohol use		
Adolescent alcohol use		**No (N)**	**Yes (N)**	**Total (N)**
No	N	558	59	617
	% within adolescent nonusers	90.4	9.6	100
	% within parental nonusers	79	62.1	77
	% of total	69.7	7.4	77
Yes	N	148	36	184
	% within adolescent users	80.4	19.6	100
	% within parental users	21	37.9	23
	% of total	18.5	4.5	23
Total	N	706	95	801
	% of total N	88.1	11.9	100

Among adolescents who reported alcohol use, 52.7 % reported having a friend who uses alcohol. A two-way contingency table analysis was run to see whether there is a significant relationship between adolescent alcohol use and peer alcohol use. Results showed that adolescent alcohol use behavior and peer alcohol use behavior were significantly related ($\chi 2$ (1, N) = 802) = 69.31, $p < .001$, Phi = .29). There was not a significant difference between adolescents whose friends use alcohol and adolescents whose friends do not use alcohol in terms of alcohol use ($\chi 2 = 0.54$, df=1, $p > .05$). Table 18 displays the results.

Table 18. Crosstabulation table for adolescent alcohol use and peer alcohol use

		Peer alcohol use		
Adolescent alcohol use		**No (N)**	**Yes (N)**	**Total (N)**
No	N	489	131	620
	% within adolescent nonusers	78.9	21.1	100
	% within peer nonusers	85	57.7	77.3
	% of total	61	16.3	77.3
Yes	N	86	96	182
	% within adolescent users	47.3	52.7	100
	% within peer users	15	42.3	22.7
	% of total	10.7	12	22.7
Total	N	575	227	802
	% of total N	71.7	28.3	100

3.5.2. Differences Between Alcohol Users and Non-Users in Terms of Behavioral Measures

Independent samples t-test was performed to determine whether there is a significant difference between alcohol users and non-users in terms of behavioral measures. Results showed that alcohol users scored significantly higher than non-users on sensation seeking scale ($t(370.02) = 7.52$, $p < .001$), behavior pattern scale ($t(818) = 9.21$, $p < .001$), psychiatric disorder scale ($t(818) = 6.31$, $p < .001$), school problems scale ($t(274.96) = 9.20$, $p < .001$), peer relations scale ($t(282.23) = 7.61$, $p < .001$) and family system scale ($t(279.56) = 5.03$, $p < .001$). On the other hand there was not a significant difference between alcohol users and non-users in terms of scores on social competency scale ($t(818) = -.558$, $p > .05$) and leisure scale ($t(818) = -.512$, $p > .05$). Results are summarized in Table 19.

Table 19. T-test results for differences between alcohol users and non-users in terms of study scales

Scale	Group	Mean	SD	t	df
Sensation seeking	**Users**	48.77	6.32	7.52*	370.02
	Non-users	44.67	7.44		
Behavior pattern	**Users**	8.41	3.20	9.21*	818
	Non-users	6.10	3.00		
Psychiatric disorder	**Users**	8.64	3.50	6.31*	818
	Non-users	6.88	3.34		
Social competency	**Users**	4.16	2.42	-.558	818
	Non-users	4.26	2.20		
Family systems	**Users**	3.17	2.45	5.03*	279.56
	Non-users	2.19	2.04		
Leisure	**Users**	2.35	1.56	-.512	818
	Non-users	2.42	1.63		
School performance	**Users**	5.60	3.07	9.20*	274.96
	Non-users	3.37	2.50		
Peer relations	**Users**	3.06	1.90	7.61*	282.23
	Non-users	1.91	1.61		

*p<.001

3.5.3. Predictors of Alcohol Use

Before regression analysis, the relationship between alcohol use and predictors were examined. As can be seen in Table 20, alcohol use is significantly and positively correlated with gender ($r = .18$, $p < .01$), age ($r = .22$, $p < .01$), maternal education ($r = .16$, $p < .01$), paternal education ($r = .12$, $p < .01$), parental marital status ($r = .07$, $p < .05$) , behavior patterns ($r = .31$, $p < .01$), school performance / adjustment ($r = .34$, $p < .01$), peer relations ($r = .28$, $p < .01$), psychiatric disorder ($r = .22$, $p < .01$), family system ($r = .19$, $p < .01$), sensation seeking / risk taking ($r = .24$, $p < .01$), parental cigarette use ($r = .10$, $p < .01$), parental alcohol use ($r = .13$, $p < .01$), peer cigarette use ($r = .26$, $p < .01$), peer alcohol use ($r = .29$, $p < .01$), and peer substance use ($r = .15$, $p < .01$). On the other hand, alcohol use is significantly and negatively correlated with grade point average ($r = -.15$, $p < .01$) and number of siblings ($r = -.10$, $p < .01$).

Hierarchical logistic regression analysis was performed in order to identify predictors of alcohol use. Alcohol use was the criterion variable and the predictors were the same as in the analysis for cigarette use. Demographic predictors were entered in the first step which are gender, age, G.P.A., number of siblings, birth order of the participant, birth place, place of living, maternal education, paternal education, marital status of parents, people they reside with, economic status of the family. In the second step, parental

smoking, parental alcohol use, parental drug use, peer smoking, peer alcohol use and peer drug use were entered.

Table 20. Zero-order correlations among alcohol use, demographic variables, DUSI subscales and sensation seeking/risk taking

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Alcohol use	1.00	.18**	.22**	-.15**	-.10**	-.01	.05	.02	.16**	.12**	.07*	.02	.06
2.Gender		1.00	.08*	-.12**	-.10**	-.01	-.09**	-.08*	.06	.01	-.07*	-.05	.02
3. Age			1.00	-.26**	.12**	.11**	-.03	-.00	-.11**	.03	-.12**	.09*	.03
4.G.P.A				1.00	-.10*	-.08*	.03	.05	.13**	.05	.10*	-.09	-.16
5.Number of siblings					1.00	.66**	-.17**	-.12	-.39	.05	.14**	-.01	.06
6.Birth order						1.00	-.10**	-.04	-.27	-.19	-.04	01	-.06
7.Place of birth							1.00	.44**	.23**	.23**	-.01	-.12**	.16**
8.Place of living								1.00	.15**	.13**	-.01	-.22**	.13**
9.Maternal education									1.00	.66**	.08*	.02	.35**
10.Paternal education										1.00	.05	.02	.37**
11.Parental marital status											1.00	.35**	-.06
12.People living with												1.00	-.07
13.Economic status													1.00

Table 20 continued

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1. Alcohol use	.30**	-.02	-.02	.33**	.27**	.21**	.19**	.23**	.09**	.13**	.02	.26**	.29**	.15*
2. Gender	.05	.02	-.26*	.11**	.09**	-.18*	-.00	.13**	-.04	.10**	.05	.11**	.16**	.12**
3. Age	.09*	.03	.10	.22**	.11**	.06	.10**	.11*	.08*	.04	.09*	.18**	.11**	.12**
4. G.P.A	-.09*	-.16**	-.12**	-.29**	-.22**	-.14**	-.17**	-.11**	-.02	.05	-.15**	-.24**	-.10*	-.09*
5. Number of siblings	-.01	.06	.12**	.06	.04	.05	.17**	-.04	-.01	-.03	.03	-.01	-.05	.06
6. Birth order	-.00	.01	.05	.08*	.01	-.00	.11**	.00	.04	-.02	.01	.02	-.02	-.00
7. Place of birth	.03	-.11**	-.11*	-.02	-.09**	-.02	-.09*	.07*	.05	-.04	-.01	.01	-.01	-.02
8. Place of living	-.08	-.14*	-.11**	-.07	-.13**	-.07*	-.13**	.04	.06	.00	.04	.01	.02	-.00
9. Maternal education	.10**	-.07*	-.20**	-.01	-.08	.02	-.13**	.16**	-.03	.01	-.00	-.02	.05	.02
10. Paternal education	.06	-.04	-.18**	-.02	-.07*	-.05	-.12**	.13**	-.09*	-.08*	-.01	-.01	.06	.02
11. Parental marital stat.	.07*	.06	.03	.12**	.04	.11	.09	.02	.11**	.10**	.07*	.04	.05	.06
12. People living with	.00	.05	.04	.03	.02	.01	.04	-.01	.04	.03	.02	-.01	.01	.04
13. Economic status	.04	-.10**	-.15**	-.03	-.08*	-.04	-.13**	.09**	-.08*	-.09*	-.02	-.04	-.09**	-.08*

Table 20 continued

	14	15	16	17	18	19	20	21	22	23	24	25	26	27
14. Behavior patterns	1.00	.19**	.22**	.44**	.45**	.62**	.34**	.38**	.05	.11**	.09**	.28**	.24**	.23**
15. Social competency		1.00	.41**	.31**	.29**	.39**	.30**	.19	-.04	.08*	.10**	.07*	.13**	.09**
16. Leisure			1.00	.28**	.28**	.39**	.36**	-.06	.03	.01	.02	.07*	.08*	.05
17. School performance				1.00	.52**	.45**	.41**	.26**	.07*	.16**	.13**	.27**	.29**	.27**
18. Peer relations					1.00	.47**	.41**	.21**	.07*	.13**	.08**	.32**	.37**	.34**
19. Psychiatric disorder						1.00	.42**	.28**	.05	.10**	.06	.22**	.21**	.16**
20. Family system							1.00	.13**	-.01	.16**	.06	.17**	.18**	.19**
21. Sensation seeking								1.00	.04	.08*	.04	.18**	.17**	.12**
22. Parental smoking									1.00	.15**	.03	.25**	.10**	.01
23. Parental alcohol use										1.00	.11**	.09**	.24**	.09*
24. Parental drug use											1.00	-.05	.01	.22**
25. Peer smoking												1.00	.45**	.16**
26. Peer alcohol use													1.00	.31**
27. Peer drug use														1.00

*p<.05,**p<.01

In the third step, sensation seeking, behavior pattern, psychiatric disorder, social competency, family system, leisure, school problems, peer relations scores were entered as predictors.

Results are presented in Table 21. In the first step demographic variables significantly predicted alcohol use ($\chi 2$ (12,N) = 82.09, $p < .001$, Nagelkerke $R^2 = .19$). At the second step, $\chi 2$ (18,N) = 133.32, $p < .001$ Nagelkerke $R^2 = .29$ and at the third step, after addition of sensation seeking and DUSI subscales, the model was significant $\chi 2$ (26, N) = 205.61, $p < .001$ and Nagelkerke $R^2 = .43$. On the basis of demographic variables alone in the first step, classification rate was 97 % for non-users and 19.4 % for users and overall 78.9 %. After addition of parental and peer drug use predictors, classification rate was 94.1 % for non-users and 32.6 % for users and overall 79.7 %. At the final step, all variables correctly classified 93.6 % of non-users and 47.2 % of users. Overall, 82.8 % of participants were correctly classified.

In the final step of the regression analysis, Wald statistics indicated that among demographic predictors gender, age, number of siblings and maternal education predicted alcohol use. Odds ratio showed that boys are two times more likely to use alcohol than girls and one unit increase in age results in increase in the probability of alcohol use by 88 %. As the number of siblings decreased, the probability of alcohol use increased by 40 % and also one unit increase in the maternal education level resulted in the increase in the probability of alcohol use by 25 %.

Peer alcohol use was a significant predictor of alcohol use and odds ratio indicated that, having a friend who uses alcohol is related with the increase in the probability of alcohol use by 74 %. Peer smoking, on the other hand is another predictor of alcohol use and it was found that adolescents who have smoker friends are two times more likely to use alcohol.

Among DUSI scales, social competency, school problems and family system scores predicted alcohol-drug use among adolescents. Odds ratios indicated that one unit decrease in the social competency scores resulted in increase in the probability of alcohol use by 20 %. On the other hand, one unit increase in the scores of school problems resulted in increase in the probability of alcohol use by 18 % and one unit increase in the scores of family system scores resulted in increase in the probability of alcohol use by 13 %.

Table 21. Results of hierarchical logistic regression analysis for alcohol use

Predictors	B	S.E.	Wald	df	Exp(B)
Gender	.743	.271	7.492**	1	2.102
Age	.633	.158	16.138**	1	1.883
GPA	-.165	.162	1.046	1	.847
Number of siblings	-.502	.166	9.138**	1	.605
Birth order	.265	.164	2.625	1	1.304
Place of birth	-.021	.157	.019	1	.979
Place of living	.094	.214	.192	1	1.098
Maternal education	.229	.108	4.483*	1	1.258
Paternal education	.076	.102	.552	1	1.079
Marital status of parents	-.013	.473	.001	1	.987
People residing with	.224	.200	1.246	1	1.251
Economic status	-.021	.177	.015	1	.979
Parental smoking	.176	.271	.422	1	1.192
Parental alcohol use	.397	.359	1.227	1	1.488
Parental drug use	-.664	1.010	.432	1	.515
Peer smoking	.818	.320	6.554**	1	2.266
Peer alcohol use	.559	.281	3.959*	1	1.749
Peer drug use	-.643	.464	1.919	1	.526
Behavior pattern	.088	.050	3.129	1	1.092
Social competency	-.217	.065	11.026**	1	.805
Leisure	-.097	.092	1.098	1	.908
School problems	.173	.054	10.238**	1	1.189
Peer relations	.148	.089	2.737	1	1.159
Psychiatric disorder	.072	.052	1.936	1	1.075
Family system	.128	.064	4.006*	1	1.136
Sensation seeking	.012	.019	.425	1	1.013
Constant	-15.694	3.214	23.849	1	.000

* p< .05, ** p< .01

3.6. Drug Users

Twenty adolescents (2 female and 18 male) reported drug use at least once in their lives and among 20 participants 5 of them reported drug use during the past 30 days. Mean age for the first experience of drug use is 13.43 (SD = 3.79) for the whole group. Two out of the 20 adolescents reported parental drug use and 11 of them reported having a friend who uses drug.

To make a comparison between drug users and non-users in terms of scores on study scales, independent samples t-test was used. However, number of users (20) was much lower than number of non-users (826) and it was impossible to compare the groups statistically. As a result, it was decided to choose 20 non-users randomly by keeping age and gender constant.

Twenty non-drug users were selected randomly by keeping age and gender constant and independent samples t-test was performed. Results showed that drug users scored significantly higher than randomly selected non-users on behavior patterns scale ($t(38) = 2.17$, $p < .05$), sensation seeking scale ($t(38) = 2.18$, $p < .05$) and peer relations scale ($t(38) = 2.04$, $p < .05$). Results are summarized in Table 22.

Table 22. T-test results for differences between drug users and non-users in terms of study scales.

Scale	Group	Mean	SD	t	df
Sensation seeking	**Users**	52.40	5.22	2.18*	38
	Non-users	48.15	6.98		
Behavior patterns	**Users**	10.65	3.23	2.17*	38
	Non-users	8.30	3.60		
Psychiatric disorder	**Users**	10.20	3.73	1.38	38
	Non-users	8.65	3.34		
Social competency	**Users**	5.05	2.68	0.87	38
	Non-users	4.30	2.73		
Family systems	**Users**	4.20	1.98	0.63	33.38
	Non-users	3.70	2.94		
Leisure	**Users**	2.30	1.30	1.61	38
	Non-users	1.60	1.43		
School problems	**Users**	7.55	2.87	1.41	38
	Non-users	6.20	3.17		
Peer relations	**Users**	4.65	1.49	2.04*	38
	Non-users	3.45	2.16		

* $p < .05$

CHAPTER 4

DISCUSSION

4.1. General Evaluation of the Results

Adolescent substance use and abuse is an increasingly serious problem throughout the world. Researchers have been trying to identify risk factors of substance use. Identifying risk factors for substance use is very important in terms of identifying risk groups and determining strategies for prevention studies. There is a rich literature in U.S.A. and European countries concerning epidemiology and etiology of substance use but studies in Turkey are insufficient in terms of both number and scientific content. Majority of them include epidemiological research and associations with basic demographic variables like gender and age. The current study is a novel attempt to investigate both epidemiology and etiology of adolescent tobacco, alcohol and drug use in terms of both a wide range of sociodemographic variables and psychosocial factors with a large sample size in Turkey. Results of the study are discussed regarding the literature.

4.1.1. Frequency of Cigarette, Alcohol and Drug Use in the Current Sample

Alcohol and drug use prevalence rates are lower in Turkey compared to western countries (Ögel et al, 1998). This finding is supported in this study. Among 843 adolescent participants, 12.2 % reported cigarette use, 23.5 % reported alcohol use and 0.7 % reported lifetime illicit drug use in the present study. Also illicit drug use during the last 30 days was 0.5 %. These findings indicate that tobacco, alcohol and drug use rates among adolescents are lower than western countries (NHSDA, 2004; O'Malley et al., 1998). In addition, results of the current study point out that adolescents participated in the current study reported lower rates of tobacco use compared with the other studies conducted among adolescents in Turkey (Ögel et al., 2001; TPA, 2002). Majority of studies conducted with adolescents report cigarette use rates ranging between 20-30 % whereas 12.2 % reported cigarette use in the present study. This difference can be attributed to a procedural handicap. Since there were teachers in the class during the administration of the questionnaires students may have hesitated to report cigarette use.

There are diverse findings in terms of prevalence of alcohol use epidemiology in Turkey. Ögel et al. (2001) found that, among 18599 high school students, alcohol use rate at least once during the past month was 17.3 %. On the other hand in a study by Turkish Psychological Association (2002) with 7681 participants, it was found that among the age group 15-17

alcohol use rate was 2.8 %. Taşçı et al. reported that alcohol use rate among high school students was 31.4 %. In the present study alcohol use rate was 23.5 %. Similar findings have been obtained for drug use rates that is, drug use prevalence is slightly lower than previous findings (Tokdemir et al., 2003; Çorapçıoğlu & Ögel, 2004; Ögel et al., 2003a). Results of the previous studies reveal that lifetime drug use rates among adolescents ranges between 2 – 8 %. In the present study lifetime drug use rate was 0.7 %. Again this difference can be attributed to the presence of teachers in the classrooms during the application of the questionnaires. In fact, in order to make an accurate comparison between current results and results of other studies, there should be more studies concerning alcohol and drug use rates among adolescents in Turkey.

4.1.2. Sociodemographic Correlates of Cigarette and Alcohol Use

Consistent with the literature, boys reported significantly more amount of smoking, alcohol and drug use compared to girls (e.g. Myers et al., 2003; Ögel et al., 2004). Results of logistic regression analysis supported these findings, gender appeared as a significant predictor of adolescent smoking and alcohol use furthermore, boys are found to be two times more likely to smoke than girls. There are also contradictory findings in the literature. For instance Ögel et al. (2003) reported that there was not a significant difference between adolescent girls and boys in terms of cigarette use in Turkey. They propose that unlike alcohol use, smoking behavior is widely prevalent and

socially acceptable behavior for females in Turkey. In the literature, gender difference in terms of substance use have been attributed to gender difference in terms of psychosocial predictors of substance use like peer and parental influences and reactions to stress (Rutter, 1970; Emery, 1988, cited in Toray et al., 1991). Blazina & Watkins (1996) argued that societal pressures that give males the role of masculinity may lead to increased amounts of drinking. Another possibility is that girls are less willing to report substance use because of societal norms (Toray et al., 1991).

As hypothesized, boys reported earlier onset of smoking than girls. In the present study, as hypothesized, age of adolescents also appeared as a significant predictor of both smoking behavior and alcohol use. That is, older adolescents are at higher risk than younger adolescents as expected. This finding is consistent with the literature (Stephenson & Henry, 1996). The relationship between age and cigarette/alcohol use is attributed to the increased peer influence determined by differential peer associations and reinforcement of substance use at older ages by social learning theorists (Akers & Lee, 1999).

A striking finding of the present study was the appearance of place of birth as a significant predictor of smoking. In the questionnaire, place of birth is categorized into 5 levels ranging from village to metropolis. It was found that adolescents born in big cities are at higher risk than adolescents who are born in more rural regions. There is a significant and positive correlation

between place of birth and maternal education level ($r = .66$, $p < .001$) and paternal education level ($r = .23$, $p < .001$) among current sample implying that adolescents who are born in big cities have parents who have higher education levels. Since higher parental education level is associated with adolescent substance use in the literature (O'Malley et al., 1998), this finding can be explained by this correlation.

Number of siblings appeared as a significant predictor of alcohol use but not smoking. Based solely on this finding it can be interpreted that adolescents who have less siblings are more at risk than their counterparts who have more siblings. In fact there is not sufficient information about this issue in the literature so it is hard to discuss this finding. However, similar with the previous finding, significant negative correlation between parental education level and number of siblings was obtained implying that parents with higher education level tend to have less children. In addition, significant negative correlation was also obtained between economic status of the family and number of siblings. Therefore, it can be proposed that low number of siblings might be a sign of higher socioeconomic status of the family which leads to adolescent alcohol use .

There are inconsistent findings in the literature concerning the relationship between parental education and adolescent alcohol and drug use. Waldron & Lye (1990) found that parental education is inversely related to adolescent smoking. However, O'Malley et al. (1998) found that higher maternal

education is significantly related with both adolescent alcohol use and adolescent problem drinking. Parental education is considered as an indicator of socioeconomic status and the inverse relationship between socioeconomic status and adolescent substance use is attributed to the mediators like low parental support, low self-esteem, and negative life events due to financial problems. Results of the current study indicated that adolescent alcohol use is predicted by higher maternal education level. However, a significant relationship could not be obtained between parental education level and adolescent smoking. As mentioned before there is an inconsistent literature therefore it is hard to discuss the present findings with regard to the previous findings. One possible variable that mediates the relationship between parental education and adolescent alcohol use can be parental attitudes toward alcohol use if it can be proved that social drinking is a widely accepted behavior among higher socioeconomic settings but there is a need for such studies. It can also be suggested that possible mediators between maternal education level and adolescent alcohol should be further investigated like parenting styles or family relationships.

As hypothesized, an important finding of the current study was the significant relationship between adolescent smoking and peer smoking. Besides, logistic regression analysis supported this finding and revealed that adolescents whose friends use cigarettes are six times more likely to smoke than those whose friends do not use. Similar findings have also been obtained for alcohol use. Results of the current study revealed that there is a significant

relationship between peer alcohol use and adolescent alcohol use. These results are consistent with the literature. The strong association between adolescent alcohol/substance use peer alcohol/substance use is explained by two concepts in the literature. One of them is peer influence, that is, adolescents are influenced by their substance using friends through modeling or persuasion (Farell & White, 1998). The second one is adolescents who use substances choose other substance users as friends (Bot et al., 2005). It is not possible to determine whether influence or selection leads to the significant relationship between peer cigarette/alcohol use and adolescent cigarette/alcohol use in the present study since they are not measured separately.

Furthermore, peer smoking was found to be another predictor of alcohol use indicating that adolescents who have friends who use cigarette are two times more likely to use alcohol than adolescents who do not have friends using cigarette. This finding may stem from the high positive correlation between cigarette and alcohol use and it makes sense regarding the conceptual framework of the gateway hypothesis. According to this hypothesis, there is a developmental progression in adolescent substance use. From this perspective, the correlation between cigarette and alcohol use is not unexpected. It can be concluded that this finding supports the previous finding that there is a significant relationship between peer alcohol use and adolescent alcohol use.

As expected, significant relationship was also obtained both between adolescent smoking and parental smoking and between parental alcohol use and adolescent alcohol use. This finding is also consistent with the literature (Andrews et. al., 1997). The relationship between adolescent smoking/alcohol use and parental smoking / alcohol use can be attributed to modeling effect as depicted by the social learning theorists (Bandura & Walters, 1963).

4.1.3. Psychosocial Correlates of Adolescent Cigarette and Alcohol Use

Sensation seeking scale that is used in the present study measures desire for novel and intense experiences in addition to risk taking tendencies. It is proved in the literature that high sensation seeking is related with increased alcohol and substance use (Wagner, 2001; Comeau et. al, 2001). In the light of the literature it was hypothesized that adolescents who use cigarette and/or alcohol will get higher scores on sensation seeking scale. The hypothesis was confirmed and smokers, alcohol users and substance users scored significantly higher on sensation seeking scale than nonusers. However, contrary to the literature, sensation seeking was not a predictor of adolescent smoking and adolescent alcohol use. This unexpected result may be due to the low variance in the sensation seeking scores of adolescents. Besides this, the nature of the scale may have been inappropriate for adolescents. A sensation seeking scale designed specifically for adolescents might have been more suitable.

Behavior patterns scale of DUSI measures behavioral maladjustment, anger expression, social isolation and acting out (Tarter & Hegedus, 1991). Research findings reveal that behavioral problems are associated with increased rates of substance use among adolescents (Diego et al., 2003). It was confirmed in the present study that cigarette, alcohol and substance users had higher levels of behavioral problems than non-users consistent with the literature. Logistic regression analysis results supported this finding, that is, behavior patterns was one of the predictors of adolescent smoking. In fact these findings are supportive of the literature. On the other hand alcohol users scored significantly higher than non-users on behavior patterns scale but behavior patterns did not reach statistical significance in terms of prediction of alcohol use. This unexpected finding can be attributed to the fact that among adolescents who reported that they use alcohol, 65 % reported using alcohol once a month or less and 60 % reported that they drink one or two glasses which do not indicate problematic drinking. Hence this finding can be attributed to the fact that behavior problems are generally associated with problematic drinking patterns among adolescents.

Social competency scale of DUSI measures social skills like assertiveness and refusal skills. There is contradictory literature about the relationship between social competency and substance use. Some of the researchers have found significant associations between social skills deficit and adolescent substance use disorders (Greene et al., 1997) and between low self esteem and tobacco, alcohol and drug use (Young and Werch, 1990).

On the other hand majority of research have failed to prove the relationship between the two variables (Goddgard, 1990; as cited in Swadi, 1999, Dryfoos, 1991). In the present study it was found that low scores on social competency scale indicating higher social competency predicted tobacco and alcohol use among adolescents. That is, adolescents who have good social skills like assertiveness and refusal skills are more likely to use tobacco and alcohol than adolescents with low social skills. This is an unexpected finding since it contradicts with the literature. More studies are needed to clarify the relationship between the two constructs.

Literature suggests that there is a significant relationship between school problems and adolescent substance use (Hawkins et al., 1992; Myers et al., 2003). De Micheli & Formigoni, (2004) reported that high scores on school adjustment / performance scale of DUSI implying school problems predicted drug use among adolescents. Tarter & Kirişçi (1996) found that school performance/adjustment scale of DUSI was able to detect 92 % of adolescent with substance abuse problems. In the present study, consistently with the literature, smokers received higher scores than non smokers and alcohol users received higher scores than non-users on school performance / adjustment scale. Furthermore school problems was a significant predictor of adolescent smoking and adolescent alcohol use. Another supportive finding of the study was the prediction of tobacco use from grade point average of the adolescents. It was found that low G.P.A. was a significant predictor of tobacco use among adolescents. The results are consistent with the

literature. In fact it is impossible to draw a causal relationship and determine the direction of the relationship since there is evidence that low school achievement/adjustment serves as a risk factor for tobacco and substance use (Diego et al., 2003) but substance use can also be a risk factor for school problems (Jeynes, 2002). In order to determine whether school problems lead to tobacco use or tobacco use leads to school problems directly or indirectly, longitudinal studies are needed.

Family system scale measures family dysfunction, conflict and parental supervision. It is declared in the literature that there is a significant association between both family conflicts (Hawkins et al.,1992), familial dysfunction and lack of parental supervision (Dishion, 1997) and adolescent alcohol and substance use. Supporting the literature, it was found that adolescent smokers scored significantly higher than adolescent nonsmokers and alcohol users scored significantly higher than non-users on family system scale. In addition, regression analysis supported these results and revealed that adolescent cigarette and alcohol use can be predicted by family problems. It can be inferred from these results that adolescents who have problems in their families like family conflicts and family dysfunction are at greater risk for tobacco and alcohol use this finding is in line with findings of other studies using DUSI (De Micheli & Formigoni, 2004; Aytaçlar et.al., 2003).

Smokers scored higher than non-smokers on psychiatric disorder scale. This was an expected result. Besides, alcohol users scored significantly higher

than non-users on psychiatric disorder scale. On the other hand, contrary to the literature, psychiatric disorder did not appear to be a significant predictor of neither smoking nor alcohol use. In fact, in the light of the literature, it is expected that adolescents who have psychiatric problems are at greater risk for alcohol use (White et al., 2001). It should be paid attention that rates of alcohol use more than 4 times a week, which is considered to indicate problematic drinking, is very low in the sample. Namely, 1.8 % of the whole sample and 7.3 % percent of alcohol users reported problematic drinking. Nonsignificant relationship between psychiatric problems and alcohol use can be evaluated in relation to this finding.

There is a relationship between unstructured and aimless leisure activities and adolescent substance in the literature. (Caldwell & Darling, 1999; Vicary et al., 1998). As hypothesized, there was significant difference between smokers and non-smokers and alcohol users and non-users in terms of scores on leisure scale implying that adolescents who use tobacco and/or alcohol spend their free time more aimlessly, or in a non goal-directed way than adolescents who do not use tobacco and/or alcohol. However, the present study failed to exhibit that adolescent cigarette and alcohol use can be predicted by leisure activities. Leisure subscale of DUSI which is used in the current study has been reported to accurately discriminate adolescent alcohol and/or substance abusers with non-abusers (Aytaçlar et al., 2003). Since a nonclinical sample has been used in this study, problematic drinking rate is very low. This may be a possible reason for nonsignificant findings in

the regression analysis. Hence, the relationship between leisure activities and adolescent substance use should be investigated further since there is not sufficient research in the literature about the relationship between leisure activities and substance use.

4.2. Limitations of the Study

There are some limitations of the study that should be taken into account while examining the findings. One of the very first limitations of the current study is that it is based on self report data. Since questionnaires were distributed in the classroom setting and the teachers were in, students might have been dishonest. Although they were assured about confidentiality and were not asked to report their names, it is possible that they were uncertain about whether the school directors would learn about them.

One of the main purposes of the study was to obtain information about sociodemographic and psychological correlates of drug use among Turkish adolescents. The huge difference between number of drug users and non-users led to difficulties in statistical comparison between the two groups. Unfortunately, the sample size was not large enough to make statistical inference in terms of prediction of drug use. Sociodemographic characteristics of adolescents who use drugs are also insufficient because of the sample size of users. It can be claimed that the current study did not give sufficient information about adolescent drug users and as a result, failed to

determine drug use profile among Turkish adolescent sample. It would be erroneous to make statistical inference regarding the current data. A possible reason for this can be social desirability effect. It is possible that some students would have tried to hide substance use problems since substance use is not a socially acceptable behavior in the society.

The questionnaire that is used in the current study included a broad range of sociodemographic variables including whether participants' mothers and/or fathers are stepparents. This question was missed by majority of the students because of the page setting. A similar handicap was that vast majority of students misunderstood the term 'inhalant' which is in Turkish 'uçucu madde'. They reported use of adhesive substances that they use in their daily lives. As a result, inhalant use among the current sample could not be measured. Besides, use of analgesics was also misunderstood by the students, although nonmedical use was intended to ask, students have reported medical use of analgesics. This question was also excluded from the study and rate of nonmedical use of analgesics could not be measured.

4.3. Suggestions for Future Research

Etiology of substance use is a very complex issue. There seems to be a wide variety of risk factors that are interacting in a dynamic system. It is reported that more than 70 risk factors exist in the literature (Swadi, 1999). Taking into direct and indirect mediators account, it is hard to determine the pathway

through adolescent substance use, abuse and dependency. Also, it is known that risk factors differ for onset of use, maintenance of use and abuse of different types of substances. Furthermore, it is claimed that effects of potential risk factors may change during developmental processes and this leads to a reciprocal interaction between drug use and psychological development (Glantz et al., 1999). In order to be able to gain a clear understanding of the phenomena, all possible sociodemographic, biological, social and psychological variables, possible mediators and their interactions should be more deeply investigated in a developmental perspective. Related with this, further meta analytic studies will be efficient in order to provide an accurate combination of separate findings. On the other hand protective factors are as much important as risk factors in terms of drug use etiology. More studies are needed to determine protective factors which may also give information in terms of preventive work

At the more specific level, some suggestions can be made with regard to the present study. For instance, as mentioned before, peer effect appeared as the most powerful predictor of adolescent tobacco and alcohol use. However, it is not still known whether adolescents use substances by the influence of their peers (influence), or adolescents using substances choose friends who already uses substances (selection). Further longitudinal studies are needed in order to determine at which contexts and under which circumstances are peers influential or under which circumstances are adolescents more

vulnerable to peer influence. Possible effects of demographic and psychological mediators should be investigated in the peer effect process.

Drug Use Screening Inventory is an assessment tool which is used for identifying various problems of adolescents who abuse or are dependent on alcohol or drugs. However, some researchers have documented its validity and reliability in terms of epidemiological use among nonclinical samples (Siewert et al, 2004). This study one of them and is the first to adapt this instrument for epidemiological research in Turkey. More studies with Turkish adolescents and adults are needed in order to make accurate comparisons among different findings and reach accurate conclusions in terms of etiology of alcohol and drug use. Also, another suggestion for future researchers can be to include secondary school students in the future studies to be able to make a comparison among different age groups and identify at-risk adolescents earlier.

4.4. Clinical Implications and Conclusion

In the present study, frequency of tobacco, alcohol and illicit drug use, and their sociodemographic and psychosocial predictors among Turkish high school students were investigated with a large sample size. Results of the study revealed that tobacco, alcohol and illicit drug use rates are lower than in the western countries. Results also pointed to the importance of age, gender, place of birth as sociodemographic predictors of adolescent smoking

and age, gender, number of siblings and maternal education level as sociodemographic predictors of adolescent alcohol use. It was thought that number of siblings and maternal education level can be indicators of socioeconomic status of the family. From this perspective this study has provided strong support for the relationship between high socioeconomic status and adolescent alcohol use. Besides, behavioral maladjustment, low school performance and adjustment, problems in family relations and low social competency were found to be significant psychosocial predictors of both tobacco and alcohol use. The most striking finding was the peer tobacco and alcohol use as a strong predictor of adolescent tobacco and alcohol use giving support for the peer effect phenomena. In general it can be concluded that findings of the present study are consistent with the world literature.

The aim of the present study was to fill a gap in the alcohol and drug use research in Turkey concerning psychosocial predictors. It is believed that results of the study will give way to the further research investigating psychosocial risk factors for adolescent alcohol and drug use in order to be able to identify risk and protective factors to be used within preventive work.

It is obvious that becoming aware of the risk factors for adolescent alcohol and drug use will help professionals identify risk groups and design appropriate preventive work for specific target groups. Moreover, identification of risk factors will contribute to early intervention in the clinical management which is thought to be of great importance since literature

suggests that early onset alcohol/drug users are at greater risk of developing more severe forms drug abuse (Kandel, 1984).

Strategies can be developed by educationists in order to increase school performance and adjustment which is one of the most important risk factors for adolescent substance use. School based preventive studies including both educationists and mental health professionals would be useful in terms of informing the students about substance abuse and dependency, its onset and maintenance and consequences. Family based programs would also be helpful in terms of informing the parents about alcohol and drug use and its relationships between various risk factors which will help parents become aware of their children's experience with drugs earlier. Furthermore, social and sports activities can be organized for adolescents to spend their free time and energy effectively.

In terms of clinical practice, it can be claimed that being aware of the risk factor enables clinicians to assess multiple problems of adolescents like school problems, behavioral problems or family conflicts which are associated with adolescent alcohol or drug abuse and by this way, multidirectional treatment including problematic areas of functioning would be possible. This would also aid decrease relapse rates and provide more long-lasting treatment outcome.

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APPENDICES

APPENDIX A

INFORMED CONSENT

(ÇALIŞMA ÖNCESİ KATILIMCI BİLGİ FORMU)

Bu araştırmanın amacı, yaşamınızın farklı alanları (okul, aile ilişkileri gibi) ile ilgili davranış ve tutumlarınıza ilişkin bilgi toplamaktır. Sizden kimlik belirtici hiçbir bilgi istenmemektedir. Cevaplarınız tamamiyle gizli tutulacak ve sadece araştırmacı tarafından değerlendirilecektir. Anketi doldurmadan önce size çalışma hakkında ayrıntılı bilgi verilecek ve gönüllü katılma formları imzalamanız istenecektir. Anket sonunda ise çalışmaya yönelik sorularınız cevaplanacaktır.

Katılım sırasında sorulardan ya da herhangi bir başka nedenden ötürü kendinizi rahatsız hissederseniz cevaplama işini yarıda bırakmakta serbestsiniz. Böyle bir durumda anketi uygulayan kişiye, anketi tamamlamadığınızı söylemeniz yeterli olacaktır. Katıldığınız için şimdiden teşekkür ederiz. Şimdi lütfen, aşağıdaki formu doldurup imzalayarak uygulayıcıya geri veriniz.

Bu çalışmaya tamamen gönüllü olarak katılıyorum ve istediğim zaman yarıda kesip bırakabileceğimi biliyorum. Verdiğim bilgilerin bilimsel amaçlı olarak kullanılmasını kabul ediyorum.

Ad ve soyadı:

Tarih:

İmza:

APPENDIX B

DEMOGRAPHIC INFORMATION FORM

LİSE ÖĞRENCİLERİNİN GENEL DAVRANIŞ VE TUTUMLARI ANKETİ

ÖZGE ALTINTAŞ
ORTA DOĞU TEKNİK ÜNİVERSİTESİ
PSİKOLOJİ BÖLÜMÜ
2005

YÖNERGE

Bu araştırmanın amacı, yaşamınızın farklı alanları (okul, aile ilişkileri gibi) ile ilgili tutum ve davranışlarınıza ilişkin bilgi toplamaktır. Sizden kimlik belirtici hiçbir bilgi istenmemektedir. Cevaplarınız tamamıyla gizli tutulacak ve sadece araştırmacı tarafından değerlendirilecektir. Anketi doldurmadan önce size çalışma hakkında ayrıntılı bilgi verilecek ve gönüllü katılım formları imzalamanız istenecektir. Anket sonunda ise çalışmaya yönelik sorularınız cevaplanacaktır.

Bu anket birden fazla ölçek içermektedir. Lütfen her bir ölçeğin başındaki yönergeyi çok dikkatli okuyunuz ve her bir soruya sizi en iyi ifade eden cevabı vermeye çalışınız. Çalışmaya yönelik sorularınızı Orta Doğu Teknik Üniversitesi Psikoloji Bölümü öğretim üyesi Doç. Dr. Belgin Ayvaşık ve Klinik Psikoloji Yüksek Lisans öğrencisi Özge Altıntaş'a iletebilirsiniz.

Belgin Ayvaşık; e-posta:abelgin@metu.edu.tr
Özge Altıntaş; e-posta:altintasozge@yahoo.com

KİŞİSEL BİLGİ FORMU

1.Cinsiyetiniz: ☐ Erkek ☐ Kız

2. Yaşınız: _____

3. Sınıfınız: ☐ Hazırlık ☐ Lise 1 ☐ Lise 2 ☐ Lise 3

4. Genel not ortalamanız (5 üzerinden): _____

5. Ailenizin kaçıncı çocuğusunuz? _____

6. Varsa kız kardeşlerinizin sayısı: _____

7. Varsa erkek kardeşlerinizin sayısı: _____

8. Kardeşleriniz arasında kendiniz de dahil olmak üzere üveylik var mı?

☐ Evet ☐ Hayır

9. Doğduğunuz yerleşim birimi:

a) Köy

b) Bucak

c) Kasaba

d) Şehir

e) Büyük şehir

10. En uzun süreli yaşadığınız yerleşim birimi:

a) Köy

b) Bucak

c) Kasaba

d) Şehir

e) Büyük şehir

11. Annenizin eğitim durumu:

a) Okur-yazar değil
b) Okur-yazar fakat herhangi bir okul bitirmemiş
c) İlkokul mezunu
d) Ortaokul mezunu
e) Lise mezunu
f) Üniversite terk
g)Üniversite mezunu
h)Yüksek lisans
i) Doktora mezunu
j) Diğer : _____

12. Babanızın eğitim durumu:

a) Okur-yazar değil
b) Okur-yazar fakat herhangi bir okul bitirmemiş
c) İlkokul mezunu
d) Ortaokul mezunu
e) Lise mezunu
f) Üniversite terk
g)Üniversite mezunu
h)Yüksek lisans
i) Doktora mezunu
j) Diğer: _____

13. Annenizin mesleği:_____

14. Babanızın mesleği:_____

15. Anneniz: Sağ _____ Sağ değil _____
Öz _____ Öz değil _____

16. Babanız: Sağ _____ Sağ değil _____
Öz _____ Öz değil _____

17. Anne ve babanız:

a) Evli **b)** Boşanmış **c)** Ayrı yaşıyorlar

18. Şu an kiminle/kimlerle yaşıyorsunuz?

a) Anne ve babanızla
b) Annenizle
c) Babanızla
d) Akrabaların yanında
e) Evde tek başına
f) Evde arkadaşlarla
g) Yurtta
h) Diğer (lütfenaçıklayın)_____

19. Ailenizin ortalama aylık geliri: _____TL.

20. Sizce ailenizin genel ekonomik durumu:

a) Alt

b) Ortanın altı

c) Orta

d) Ortanın üstü

e) Üst

APPENDIX C

SENSATION SEEKING / RISK TAKING SCALE

(Heyecan Arama/Risk Alma Envanteri)

Aşağıda yaşamın çeşitli alanlarına ilişkin ifadeler sunulmuştur. Lütfen aşağıdaki ifadelerin, sizin için ne kadar doğru ya da yanlış olduğunu her maddenin sonundaki uygun ifadenin altındaki boşluğa işaret koyarak belirtiniz.

	Doğru	Biraz Doğru	Biraz Yanlış	Yanlış
1.Yabancı ülkeden biriyle evlenmek ilgimi çekerdi.				
2.Uzun bir kuyrukta beklemek zorunda kaldı genellikle sabırlıyımdır.				
3.Korku ve gerilim filmlerinden hoşlanmam.				
4.Bilmediğim bir ilacı asla kullanmam.				
5.Luna parka gidecek olsam en hızlı araçlara binmeye bayılırdım.				
6.Çok uzak ve hiç bilinmeyen yerlere seyahat etmeyi isterdim.				
7.Risk alma eğilimim vardır.				
8.Yüksek bir yerden ya da uçurumdan aşağıya bakmak hoşuma gider.				
9.İçinde patlama ve çarpışma sahneleri bol olan macera filmlerinden hoşlanırım.				
10.Geleceği düşünüp para biriktirmek yerine, günümü gün ederek yaşamayı tercih ederim.				

	Doğru	Biraz Doğru	Biraz Yanlış	Yanlış
11.Çalışırken radyo ya da televizyonun hep açık olmasını isterim.				
12.Yakınımda bir kavga, yangın ya da kaza olduğunda hemen gidip bakmak isterim.				
13.Yeni insanlarla tanışmaktan hoşlanırım.				
14.Ani kararlar alırım.				
15.Eğer bir gezegene ya da aya bedava gitmek mümkün olsaydı, ilk ben gitmek isterdim.				
16.Yeni yiyecekleri denemek yerine bildiğim yiyecekleri tercih ederim.				
17.Heyecanlı işlere bayılırım.				
18.Bilinmeyen bir yeri keşfeden ilk kişi olmayı çok isterdim.				
19.Tehlikeli bile olsa yeni şeyler denemek isterim.				
20.Çok yüksek yerlere tırmanmaktan hoşlanırım.				
21.Yüksek sesle müzik dinlemekten hoşlanırım.				

APPENDIX D

THE DRUG USE SCREENING INVENTORY

(Madde Kullanımı için Risk Faktörleri Tarama Formu)

Aşağıda yaşamınızın farklı alanlarına (okul,aile, arkadaş ilişkileri gibi) ilişkin sorular yer almaktadır. Eğer soru sizin tutum ve davranışlarınızı çok iyi yansıtıyorsa 'evet', yansıtmıyorsa 'hayır' olarak sorunun sonundaki kutuya işaret koyunuz.

	Evet	**Hayır**
1. Sık sık başkalarıyla tartışır mısınız ?		
2. Kendinizi çok över misiniz ?		
3. Hayvanları rahatsız eder ya da zarar verir misiniz ?		
4. Sık sık bağırıp çağırır mısınız ?		
5. İnatçı mısınız ?		
6. Başkalarından şüphelenir misiniz ?		
7. Sık sık kötü kelimeler kullanır ya da küfreder misiniz ?		
8. Başkalarını sık sık rahatsız eder misiniz ?		
9. Hırçın mısınız?		
10. Çok utangaç mısınız ?		
11. Başkalarını canlarını yakmakla tehdit eder misiniz?		
12. Diğer çocuklardan daha yüksek sesle konuşur musunuz?		
13. Keyfiniz kolay (çabuk) kaçar mı?		
14. Sık sık sonuçlarını önceden düşünmeden bir şeyler yapar mısınız?		
15. Sık sık riskli ya da tehlikeli şeyler yaparmısınız?		

	Evet	Hayır
16. Her fırsatta diğer insanlardan yararlanmaya çalışır mısınız ?		
17. Genellikle öfkeli misiniz?		
18. Boş vakitlerinizi çoğu zaman kendi kendinize mi geçirirsiniz ?		
19. Yalnızlıktan hoşlanan biri misiniz ?		
20. Eleştirilere karşı çok hassas mısınız?		
21. Hiç bilerek başka birisinin malına zarar verdiniz mi ?		
22. Birkaç kez birşeyler çaldığınız oldu mu ?		
23. Diğer çocuklardan daha fazla kavgaya karışır mısınız ?		
24. Huzursuz bir kişi misiniz?		
25. Sürekli gezinen yerinde duramayan bir kişi misiniz?		
26. Kolaylıkla kendinizi engellenmiş ya da hayal kırıklığına uğramış hisseder misiniz?		
27. Zihninizi toplamakta (bir şeye konsantre olmakta) zorluk çeker misiniz?		
28. Sık sık kendinizi üzgün hisseder misiniz ?		
29. Tırnaklarınızı yer misiniz ?		
30. Uyku sorununuz var mı?		
31. Sinirli bir kişi misiniz ?		
32. Kolaylıkla (çabuk) korkar mısınız?		
33. Sık sık endişelenir misiniz ?		
34. Bazı şeyleri aklınızdan uzaklaştırmakta zorlanır mısınız?		
35. İnsanlar sizi bakışlarıyla inceler mi ?		
36. Başkalarının duymadığı sesler duyduğunuz olur mu?		
37. Başka insanlarda olmayan özel güçleriniz var mı ?		

	Evet	Hayır
38. İnsanların arasında olmaktan korkar mısınız ?		
39. Sık sık ağlayacakmış gibi hisseder misiniz ?		
40. Kendi kendinize nasıl baş edeceğinizi bilemeyecek kadar fazla enerjiye sahip misiniz?		
41. Yaşıtlarınız sizden hoşlanır mı ?		
42. Arkadaşlarınızla birlikte yaptığınız faaliyetlerde genellikle kendi performansınızdan hoşnut musunuz?		
43. Yeni bir grupta arkadaş edinmekte zorlanır mısınız ?		
44. İnsanlar sizi kullanır mı ?		
45. Haklarınızı savunmaktan korkar mısınız ?		
46. Başkalarından yardım istemek size zor gelir mi ?		
47. Diğer çocuklardan kolay etkilenir misiniz ?		
48. Sizden yaşça büyük çocuklarla vakit geçirmeyi tercih eder misiniz?		
49. Yaptıklarım diğer insanları nasıl etkiler diye endişelenir misiniz ?		
50. Kendi fikirlerinizi savunmakta zorlanır mısınız ?		
51. Başkalarına “hayır” demekte güçlük çeker misiniz ?		
52. Başkaları sizi övdüğü zaman huzursuzluk hisseder misiniz ?		
53. İnsanlar sizin arkadaş canlısı olmadığınızı düşünür mü?		
54. İnsanlarla konuşurken gözlerine bakmaktan kaçınır mısınız ?		
55. Anne babanız ya da bakımınızdan sorumlu olan kişilerle sık sık bağırıp çağırarak tartıştığınız olur mu?		

	Evet	Hayır
56. Ailenizin bir araya gelip bir şeyler yaptığı zamanlar çok nadir midir?		
57. Anne-babanız ya da bakımınızdan sorumlu olan kişiler sizin hoşunuza giden ve gitmeyen şeylerin farkındalar mı?		
58. Aile içinde neyi yapıp neyi yapmayacağınıza dair açık kurallar var mı?		
59. Anne-babanız ya da bakımınızdan sorumlu olan kişiler sizin için önemli olan şeyler hakkında ne düşündüğünüzün ya da ne hissettiğinizin farkındalar mı?		
60. Anne-babanız ya da bakımınızdan sorumlu olan kişiler birbirleriyle sık sık tartışır mı ?		
61. Anne-babanız ya da bakımınızdan sorumlu olan kişilergenellikle sizin nerede olduğunuzla ve ne yaptığınızla ilgilenirler mi?		
62. Anne-babanız ya da bakımınızdan sorumlu olan kişilerçoğunlukla evden uzakta mı olurlar ?		
63. Anne-babanız ya da bakımınızdan sorumlu olan kişilerin sizi umursamadığını hissediyor musunuz?		
64. Yaşam düzeninizden mutlu musunuz?		
65. Evde kendinizi tehlikede hisseder misiniz ?		
66. Hafta içinde, geceleri izin almadan çoğunlukla eğlence için dışarı çıkar mısınız?		
67. Bir günde iki saatten fazla televizyon izler misiniz ?		
68. Yaşıtlarınıza kıyasla daha az mı spor yaparsınız?		
69. Boş vakitlerinizi sadece arkadaşlarınıza takılarak mı geçirirsiniz?		
70. Çoğu zaman sıkılır mısınız?		
71. Eğlenme veya dinlenme için yaptığınız faaliyetlerde çoğunlukla yalnız mısınız ?		

	Evet	Hayır
72. Hobi ya da ev dışı faaliyetlere yaşıtlarınıza kıyasla daha mı az katılırsınız?		
73. Boş zamanlarınızı geçirme şeklinizden memnun musunuz?		
74. Bir şey yapmak için enerji harcadığınızda çabuk yorulur musunuz?		
75. Okulu seviyor musunuz ?		
76. Okulda ya da ders çalışırken dikkatinizi toplamakta zorlanır mısınız?		
77. Ayda 2 günden fazla okulu asar mısınız ?		
78. Sık sık okula gitmediğiniz ya da devamsızlık yaptığınız olur mu?		
79. Ciddi olarak okulu bırakmayı düşündünüz mü?		
80. Okul ödevlerinizi çoğu kez yapmadığınız olur mu?		
81. Derslerde sık sık uykunuz gelir mi?		
82. Genellikle derse geç kalır mısınız ?		
83. Bu yıl okulda geçen yıldan farklı arkadaşlarınız var mı ?		
84. Okuldayken sık sık kendinizi huzursuz ve kötü hisseder misiniz?		
85. Okuldayken sıkılır mısınız ?		
86. Okul başarınız daha öncekinden kötü mü ?		
87. Kendinizi okulda tehlikede hisseder misiniz ?		
88. Hiç sınıfta kaldınız mı ?		

	Evet	Hayır
89. Hiç okuldan uzaklaştırıldınız mı ?		
90. Arkadaşlarınızdan herhangi birileri, sınavlarda kopya çeker mi ?		
91. Anne-babanız ya da bakımınızdan sorumlu olan kişilerin hoşlanmadığı arkadaşlarınız var mı?		
92. Arkadaşlarınızdan herhangi birilerinin yasalarla hiç başı derde girdi mi ?		
93. Arkadaşlarınızın çoğu sizden yaşça büyük mü ?		
94. Arkadaşlarınız sık sık okuldan kaçar mı?		
95. Geçen yıl içinde arkadaşlarınız dükkanlardan herhangi bir şey çaldı ya da kasıtlı olarak okul eşyasına zarar verdi mi ?		
96. Herhangi bir çeteye dahil misiniz ?		
97. Bir arkadaşınızla yaşadığınız sorunlardan dolayı şu anda sıkıntı duyuyor musunuz?		
98.Güvenebileceğiniz bir arkadaşınız var mı ?		
99.Çoğu çocukla kıyaslanınca, arkadaşlarınızın sayısı az mı?		

APPENDIX E

TOBACCO, ALCOHOL, DRUG USE QUESTIONNAIRE
(Sigara, Alkol ve Madde Kullanımı Formu)

1. Sigara içiyor musunuz? ☐ Evet ☐ Hayır

2. Cevabınız evet ise sigara içmeye kaç yaşınızda başladınız? ____

3. Günde kaç paket veya kaç tane içiyorsunuz? _____ tane ya da
_____ paket

4. Aşağıdaki maddeleri hiç kullandınız mı?

	Evet	**Hayır**
Esrar / mariyuana / joint		
Amfetamin(ler)		
Kokain / Krek kokain		
LSD		
Meskalin		
Eroin / Morfin / diğer opiyatlar		
Barbitüratlar		
Trankilizanlar (Diazem, Xanax vb.)		
PCP		
Luxor		
Ecstasy		
Halusinojenler (Meskalin gibi)		
Uçucu Maddeler (Tiner, bali, uhu gibi)		
Ağrı kesiciler		
Diğer (adını biliyorsanız lütfen yazınız)		

5. Yukarıdaki maddelerden herhangi birini bir kez bile olsa kullandıysanız ilk kez kaç yaşınızda kullandınız? _____

6. Son 30 gün içinde aşağıdaki maddeleri hiç kullandınız mı?

	Evet	**Hayır**
Esrar / mariyuana / joint		
Amfetamin(ler)		
Kokain / Krek kokain		
LSD		
Meskalin		
Eroin / Morfin / diğer opiyatlar		
Barbitüratlar		
Trankilizanlar (Diazem, Xanax vb.)		
PCP		
Luxor		
Ecstasy		
Halusinojenler (Meskalin gibi)		
Uçucu Maddeler (Tiner, bali, uhu gibi)		
Ağrı kesiciler		
Diğer (adını biliyorsanız lütfen yazınız)		

7. Eğer son 30 günde yukarıda verilen maddelerden herhangi birini kullandıysanız son bir ay içinde ne kadar sıklıkta kullandınız?

a) Bir kez

b) İki kez

c) Üç ya da daha fazla kez

8. Alkol kullanır mısınız? ☐ Evet ☐ Hayır

9. Cevabınız evet ise ilk kez alkol kullandığınızda kaç yaşınızdaydınız?

_____

10. Eğer alkol kullanıyorsanız alkol içeren ne tür içecekler kullanırsınız? (örn: Bira, şarap, alkollü kokteyller...)
Lütfen isim ya da isimlerini
yazınız:_____

11. Son 30 günde hiç alkol kullandınız mı? ☐ Evet ☐ Hayır

12. Eğer alkol kullanıyorsanız ne kadar sıklıkla alkol kullanırsınız?
a) Ayda bir ya da daha az
b) Ayda iki ya da dört kez
c) Haftada iki ya da üç kez
d) Haftada dört ya da daha fazla

13. Alkol almaya başladığınızda genellikle kaç kadeh (şarap rakı gibi içecekler için) ya da şişe (bira gibi içecekler için) içersiniz?
a) 1 ya da 2
b) 3 ya da 4
c) 5 ya da 6
d) 7 ya da 9
e) 10 ya da daha fazla

14. Alkol yada madde kullanma sorununuz olduğunu düşünüyor musunuz?
☐ Evet ☐ Hayır

15. Ailenizden herhangi birileri düzenli olarak sigara kullanır mı?

☐ Evet ☐ Hayır

16. Ailenizden herhangi birileri düzenli olarak alkol kullanır mı?

☐ Evet ☐ Hayır

17. Ailenizden herhangi birileri düzenli olarak madde kullanır mı?

☐ Evet ☐ Hayır

18. Arkadaşlarınızdan herhangi birileri düzenli olarak sigara kullanır mı ?

☐ Evet ☐ Hayır

19. Arkadaşlarınızdan herhangi birileri düzenli olarak alkol kullanır mı ?

☐ Evet ☐ Hayır

20. Arkadaşlarınızdan herhangi birileri düzenli olarak madde kullanır mı ?

☐ Evet ☐ Hayır