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ORIGINAL RESEARCH

# The Effect of Turkish Green Crescent Society APTP Program on Students' Knowledge and Emotional Awareness about Tobacco, Alcohol, Drug, and Technology Addiction

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**Main Points**

- APTP was effective in increasing knowledge about addictions (tobacco, alcohol, drug, and technology) in primary, secondary and high school.
- APTP was effective in increasing emotional awareness only at technology addiction in primary school and tobacco addiction in secondary school.
- In terms of tobacco addiction, APTP was effective at secondary and high school, but not in primary school.
- While high school students increased their knowledge about alcohol and drug addiction, APTP did not have a significant effect on emotional awareness.
- Students' parents, teachers, school counselors, and school principal highlighted the increase in knowledge about addictions at all grade levels.

**Abstract**

This study aimed to test the effectiveness of the Addiction Prevention Training Program (APTP) of Turkey, (Türkiye Bağımlılıkla Mücadele Programı) and gather the perspectives of students and stakeholders about the program. APTP is an intervention program designed and implemented by the Turkish Green Crescent Society, which aims to increase knowledge and emotional awareness about addiction among primary, secondary, and high school students. APTP consists of 4 modules: tobacco, alcohol, drug, and technology addiction, and the knowledge and emotional awareness of each of these were tested. In the first phase of this mixed-method study, 2x3 Split Plot Factorial Design was used. A total of 5451 randomly assigned students (primary=600, secondary=2496, and high school=2355) participated in the experimental and control groups. In the second phase, focused group interviews with students (n=55), parents (n=26), and branch teachers (n=18); and individual interviews with school counselors (n=3) and principals (n=3) were conducted. The opinions of the participants regarding the training were analyzed using descriptive analysis. Results of the Two-way Analysis of Variance (ANOVA) revealed that receiving APTP had a significant effect, mostly on improving the knowledge level of students about tobacco, alcohol, drug, and technology addiction. Qualitative findings supported the quantitative results that parents, teachers, school counselors, and school principals reflected the increased knowledge of students about addiction.

**Keywords:** Addiction prevention, tobacco addiction, alcohol addiction, drug addiction, technology addiction

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## Introduction

The basic requirement for a healthy society is physically and psychologically healthy individuals. In this regard, addiction is the most important issue that affects public health negatively. Goodman (1990) defines addiction as a behavior that gives a sense of relaxation and pleasure but is difficult to control and continues despite negative consequences. The World Health Organization (WHO) defines the dependence syndrome, interchangeable with addiction, as being a cluster of physiological, behavioral, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviors that once had greater value (WHO, 2019). WHO also states that many people around the world are engaged in (video) gaming and gambling behaviors, which are recognized as addictive behaviors, but usually do not result in any significant health consequences (WHO, 2019). Addiction is classified on the basis of various factors (Tokur, 2019). A classification on the basis of the result of an addictive substance (drug) or behavior divides addiction into 2 categories, namely, physical and mental dependence (Tarhan & Nurmedov, 2011). Addiction (tobacco, alcohol, drug, technology, etc.) develops with continued substance use and harms both individuals and their environment because the individuals encounter numerous problems such as emotional imbalance, conflicts among family and friends, loneliness, spending too much money, academic failure, sleep problems, weakness, malnutrition, and physical disorders (Ergenç & Yıldırım, 2007; Ögel, 2002). It is known that each addiction has the potential to harm an entire society; however, the youth are the most vulnerable. Youth are the future of a society; that is, healthy generations will be shaped by young people. Therefore, all types of addiction (tobacco, alcohol, drug, technology) need to be carefully handled, especially among the youth.

### Tobacco Addiction

Tobacco addiction is a public health problem affecting around 1.3 billion people worldwide. According to the WHO Tobacco Outbreak Report (2008), it is estimated that more than 8 million people will die each year by 2030 unless measures are taken against tobacco. One in five adults use tobacco products worldwide (Ritchie & Roser, 2013), whereas in Turkey a total of 14.8 million people (27.1%) use tobacco products (Global Adult Tobacco Survey Turkey (GTATS), 2012). Research on the use of all other tobacco products, especially cigarette consumption, is very important because its widespread use leads to serious disease and death. Smoking is associated with up to 50 chronic diseases and close to 20 fatal diseases that may not result in death. Tobacco addiction is the main cause of liver cancer and chronic obstructive pulmonary disease (Karlıkaya, Öztuna, Solak, Özkan, & Örsel, 2006). It is also a major cause of heart and respiratory disease (GTATS, 2012) and emotional problems, including depression with negative life events associated with tobacco use among adolescents (National Institute on Drug Abuse [NIDA], 2020).

Various studies have been conducted on tobacco addiction. Some of these studies focus on the reasons for starting smoking (Doğan & Ulukol, 2010; İlhan et al., 2016), and others focus on prevention of tobacco addiction (Aktan, Yılmaz, & Yılmaz, 2018; Bektaş, 2009; Bektaş & Öztürk, 2012; Büyüköztürk et al., 2019; Storr, Ialongo, Kelam, & Anthony, 2002). In a study conducted with people aged 15 years and over, 96% of smokers and 96.2% of non-smokers were aware that smoking was harmful to health (GTATS, 2012). Similarly, in another study conducted with middle and high school students, 80% of students who smoke, 84.5% of those who try, and 97.7% of non-smokers were aware that smoking was harmful (Doğan & Ulukol, 2010). Therefore, just imparting information about the ill effects of smoking will not result in prevention. Most tobacco users start smoking in adolescence, and those who start younger are more likely to develop nicotine addiction and have problems with quitting (Walker & Loprinzi, 2014). A research of 18,520 students aged between 15 and 17 years in Turkey found that 63.9% of the students smoked at least once in their lifetime, 22% smoked every day, and 6.6% smoked heavily (Ögel, 2002). Moreover, 11% of the students stated that they started smoking before the age of 11 (Ögel, 2002). Research indicated that people often start smoking at a young age; 80% of smokers start smoking under the age of 18 (Doğan & Ulukol, 2010). Smoking can serve as a step toward other addictions (İlhan et al., 2016).

### Alcohol Addiction

Alcohol use disorder or addiction results in major psychosocial, physiological, and economic collapse (Farokhnia et al., 2019). The explanations for using alcohol change from biological to social, moral, or spiritual factors (Klingemann, Klingemann, & Moskalewicz, 2017). Moreover, the accessibility, price, socio-cultural, psychological, physiological, and genetic factors may trigger the individuals' potential to use alcohol (Altıntoprak & Coşkunol, 2019; Holder, 1998). There are various social, behavioral, and internal factors that predispose a person to early alcohol intake (Petraitis, Flay, & Miller, 1995). In a study in which these factors were investigated, the importance of social environment, behavioral problems, peer relationships, adaptive factors, and school adaptation came to the fore (Bergmark & Andersson, 1999). In a study, which examined the sociodemographic characteristics of 126 patients with alcohol and substance dependence who applied to the Substance Usage Disorders Unit of Gaziantep University in Turkey, it was found that the starting age of substance use was 13, and alcohol was the most frequently used substance (46.8%). To understand the science behind alcohol addiction better, some researchers studied the perspectives of alcohol users and the people who provide treatment to them (Kalema et al., 2019). Studies have shown that the age of starting alcohol increases the level of alcoholism (Dooley & Prause, 2006; Prescott & Kendler, 1999). Anderson and Baumberg (2006) pointed to an interesting finding regarding the starting age of alcohol use. They stated that almost all people aged 15 – 16 were drunk at least once, and over 13% were drunk more than 20 times in their lives. Dooley and Prause (2006) stated that alcohol use at an early age is an important factor in increasing the risk of alcohol dependence. In Turkey, according to the research by the Green Crescent Society, the age of starting alcohol decreased to 11 as of 2006. Varol (2011) concluded that among primary school students, the proportion of alcohol drinkers is 15.4%; in secondary school, it is 45% – 50%, and the proportion of those who drank alcohol at least once is 16.5% (31.5% for boys and 10.6% for girls); and in college students, the prevalence of alcohol use is 43.0% – 53.9% (Varol, 2011). These studies reveal that even though the results or policies differ among societies, early intervention programs or training for young people should be given priority to raise awareness toward alcohol addiction.

**Drug (Substance) Addiction**

According to the National Institute on Drug Abuse (NIDA, 2018[a]), drug addiction is defined as a chronic, relapsing disorder characterized by compulsive drug seeking, continued use despite harmful consequences, and long-lasting changes in the brain. The WHO defines substance abuse as the harmful or dangerous use of psychoactive substances, including alcohol and illicit drugs. Addiction is the most severe form of a full spectrum of substance use disorders and is a medical illness caused by repeated misuse of a substance or substances (NIDA, 2018[a]). NIDA uses the term "addiction" to describe compulsive drug seeking despite negative consequences. However, addiction is not a specific diagnosis in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V, 2013), which is a diagnostic manual for clinicians that contains descriptions and symptoms of all mental disorders as classified by the American Psychiatric Association (APA). In 2013, APA updated the DSM by replacing substance abuse and substance dependence with a single category "substance use disorder" with three sub-classifications - mild, moderate, and severe.

The Turkish Green Crescent Society, which contributes to the development of the society's capacity to fight against drug addiction, classifies people with at least 3 of the following situations as substance addicts within a period of 12 months: gradually increasing amount of substance use despite problems; unsuccessful attempts to quit; spending a lot of time supplying, consuming, or quitting a substance; and reducing or leaving social, vocational, or leisure activities (Green Crescent Society, n.d.[a]). Accordingly, 2 conditions are necessary for the development of an addiction. First, it is necessary to come in contact with the substance, and secondly, changes in the function of brain cells because of adaptations in these cells over the course of substance intake.

According to the WHO, approximately 450.000 people died in 2015 as a result of drug use, and 167.750 of these deaths were directly related to drug use disorders (mostly overdoses) (UNODC, 2018). It also highlights the fact that 35 million people worldwide suffer from drug use disorders. According to the Turkey Drug Report 2019 (TUBIM, 2019) which was conducted with 42.754 people via face-to-face interviews in 26 cities, 3.1% reported to have used the substance at least once in their lives. The report states that 94% of those who use substances at least once in their lives are men, and 6% are women. When the distribution of substance users according to age groups is examined, it is seen that the most intensive group is the 15-34 age group (65%). According to the study, the mean age at which the first use of the substance occurs is 19. In the study, the highest rate of substance abuse at least once in their life was among high school graduates (29.9%). This highlights the need to increase the knowledge about the drugs and changing their attitudes and behaviors toward drugs in the school years.

The potential impact of specific risk and protective factors varies with age. For example, while risk factors within the family have a greater impact on young children, relationship with drug-using peers may be a more important risk factor for an adolescent (Gerstein & Green, 1993; Kumpfer, Olds, Alexander, Zucker, & Gary, 1998). Early intervention in risk factors generally has a greater impact than subsequent intervention by turning the child's life away from problems and into positive behavior (Lalongo, Poduska, Werthamer, & Kellam, 2001). The highest risk periods for drug use among youth are most often during significant changes in their physical development or their social status (NIDA, 2003). The NIDA's guide aiming to prevent drug addiction among children and adolescents indicates for the first time that the experience of drug use is at highest levels in early adolescence.

**Technology Addiction**

As modern technological tools improve, their frequency of use tends to increase; especially, the Y and Z generations born in an age of rapid technological development experience it firsthand. The WHO noted that the most intense users of modern technologies are both adolescents and young people, therefore, technology addiction is most commonly seen in these age groups (WHO, 2015). In Turkey, according to the Turkey Statistical Institute (TUIK) 2017 data of "Computer and Internet usage rates according to age group and gender of individuals," 68% of youth in the 16-24 years age group use computers, and the number of internet users is 87.2%. In the 24-35 age group, computer use is 59%, and internet use 85.7%. The report also reveals that individuals in the 16-24 age group account for the highest computer and internet usage rates. In Turkey, Kırık, Arslan, Çetinkaya, and Mehmet (2015) determined that social media addiction increased from 14 to 17 years of age, but the level of addiction decreased at the age of 18 years. Yılmaz, Şahin, Haseski, and Erol (2014) found that 17% of high school students are low, 67% are medium, and 16% are high internet addicts. Horzum (2011) examined computer game addiction among 3$^{rd}$, 4$^{th}$, and 5$^{th}$ grade primary school students and determined that boys are more likely to be addicted to computer games than girls.

The risk of addiction increases with the development of every technological device with or without internet access such as television, mobile phones, smartphones, and digital games. At first, the use of technology starts with a simple curiosity toward digital games, applications, and programs. The second step is to use the technology to fit into a social group to have a sense of belonging. In the third step, technology is used for an operational purpose to maintain pleasure or to avoid problems. The fourth step is the addictive stage, where one uses the technology even if there is no need, reason, or sense of curiosity, and their life becomes dependent on the technology used from then on. The second stage is considered to be the onset of social use, which is when the addiction takes hold and is maintained. It is seen that overuse of the internet creates problems in the students' productivity and results in professional and academic failure (Çakır, Balta, & Horzum, 2008). Therefore, it is important to carry out preventive studies before it turns into an addiction (Dinç, 2015). In order to prevent technology addiction, the following precautions are suggested: Individuals should be able to express themselves; spend energy and socialize with their peers; create awareness-raising activities for parents and society; make legal arrangements on safe internet and technology use; and use of the internet as an effective teaching method (Dinç, 2015; Gökçearslan & Durakoğlu, 2014; Hılčenko & Jakovljević, 2019; Thamarai Selvi, Gayathri, & Priya, 2019; Yalçın & Karaçetin, 2016).

Research in this field yielded some similar and different results in terms of gender, grade level, and educational level of parents. In general, it was found that male students had higher game addiction and technology use risk scores than females (Arslan,

2019; Aydıner, 2017; Eryılmaz & Çukurluöz, 2018; Gökçearslan & Durakoğlu, 2014; Günüç, 2009; Jamir, Duggal, Nehra, Singh, & Grover, 2019; Sabbah et al., 2019; Şahin & Tuğrul, 2012), whereas female students had more use of social media or internet than males (Arslan, 2019; Griffiths, 1999; Yüksel Şahin & Öztoprak, 2019). Studies revealed that addiction scores increased as the grade level increased (Arslan, 2019; Günüç, 2009; Şahin & Tuğrul, 2012), and there were no differences according to grade level (Eryılmaz & Çukurluöz, 2018). Similarly, it was revealed that the addiction scores increased with the socioeconomic level (Arslan, 2019; Kayri & Günüç, 2016), whereas socioeconomic status did not affect addiction among undergraduates (Bülbül, Tunç, & Aydil, 2018; Yüksel Şahin & Öztoprak, 2019). There are studies that found that the high level of education of the mother and father increased the addiction level (Arslan, 2019; Gökçearslan & Durakoğlu, 2014; Şahin & Tuğrul, 2012), whereas other studies found that educational level of mother and father did not affect addiction level (Günüç, 2009; Şahin & Tuğrul, 2012).

**Addiction Prevention Studies**

Addiction prevention and treatment interventions which are both complementary but different form each other (O'Connell, Boat, & Warner, 2009a) commonly aim to reduce the burden of mental, emotional, and behavioral disorders on the healthy development of children and young people. The preventive interventions must be designed before having a disorder because they intend to prevent or reduce the risk for the disorder. Turkey, in recent years, has shown an increase in preventive efforts to cope with addiction problems. There are several programs initiated by hospitals or centers in Turkey. To illustrate, "Uyuşturucuya Karşı Toplumsal Mücadele Programı (UTOPYA-Social Struggle Program Against Drugs)" developed by Alkol Madde Araştırma ve Tedavi Merkezi (AMATEM- Alcohol Substance Research and Treatment Center) in Bakırköy Mental and Neurological Diseases Hospital; "Yaşam Becerilerini Geliştirme Programı (Life Skills Development Program)" to prevent drug addiction (Davaslıgil, Çakıcı, & Ögel, 1998); "Günebakan Madde Bağımlılığını Önleme Eğitim Programı (Gunebakan Education Program For Preventing Substance Abuse)" (Sevgi, Ögel, Tarı Cömert & Yılmazçetin Eke, 2007); a peer teaching program named "Kulaktan Kulağa Madde Bağımlılığını Önleme Programı (Ear to Ear Education Program for Preventing Substance Addiction)"; and "Bilgili Ol Bağımlı Olma (BOBO) Veli Eğitim Programı (Be Informed Don't Get Addicted Parent Training Program)" (as cited by Ermağan, 2010) are among these programs. However, these programs are mostly in the form of training or imparting information like seminars. In addition, the majority of community programs lack diverse student populations. Nevertheless, research shows that only information-oriented seminars are inadequate and do not attract attention (Ofsted, 2005). Therefore, in addiction prevention studies, it is recommended that training should be directed toward skills development after giving information, which includes psychosocial factors and on behavioral change (Tobler et al., 2000).

Preventive interventions should be provided throughout life. The concept of risk and protective factors is central in framing and interpreting the research needed to develop and evaluate interventions. In a prevention study, risk factor is defined as a measurable characteristic of a subject that precedes and associates with an outcome, and protective factor is defined as a characteristic at the individual, family, or community level that is associated with a lower likelihood of problem outcomes (O'Connell et al., 2009b). The potential impact of specific risk and protective factors varies with age. For example, whereas risk factors within the family have a greater impact on young children, relationship with drug-using peers may be a more important risk factor for an adolescent (Gerstein & Green, 1993; Kumpfer et al., 1998). Early intervention generally has a greater impact than subsequent intervention in its ability to affect a child's life positively (Lalongo et al., 2001). Risk and protective factors can be effective at different stages of children's lives. Risks that may arise at each stage can be altered by prevention interventions. NIDA (2003) emphasizes that prevention programs should provide appropriate support to each stage of development and consider how protective factors involved in these transitions can be strengthened because there are risks in every transition from early childhood to young adulthood. The high-risk period for addiction among youth is mostly during significant changes in their physical development or social status (NIDA, 2003). At this stage, they progress from primary to secondary school, often experience new academic environment and social situations, such as learning to get along with a larger peer group and having greater expectations from an academic perspective. Young people starting high school face additional social, psychological, and educational pressures and may have increased exposure to drugs, drug addicts, and social interactions with drugs.

Prevention interventions can be considered as a tripartite structure that takes into account family, school, and community areas. Family-based prevention programs should develop family bonding and relationships, and parenting skills, family policies on drug addiction, and training in drugs (Ashery, Robertson, & Kumpfer. 1998). Parental monitoring and supervision are critical in the prevention of drug addiction. Family focused interventions may positively change parenting behavior, which may later reduce the risk of drug use (Spoth, Guyll, & Day, 2002). These skills can be developed through training in setting rules, monitoring techniques, praise for appropriate behavior, and a moderate and consistent discipline that applies defined family rules (Kosterman, Hawkins, Haggerty, Spoth, & Redmond, 2001). Children are more likely to be at risk if there is no interdependence and nurturing by parents or caregivers, ineffective parenting, a chaotic home environment, a lack of meaningful relationships with a relevant adult, and a caregiver who abuses substances, suffers from mental illness, or indulges in criminal behavior (NIDA, 2018b).

After the 1990s, researchers working on the prevention of addiction adopted prevention programs for children and young people, and they agreed that the youth programs should improve life skills, values, and should integrate the family to the program (Cuijpers, 2002). The Turkish Green Crescent Society, one of the representatives of addiction prevention in Turkey, tries to combat harmful habits that harm the youth and society, such as cigarettes/tobacco, alcohol, drugs, internet and technology addiction, gambling, and addictions that destroy the physical and mental health of the society and youth (Green Crescent Society[b], n.d.) through prevention programs via a community-based combat program. Along with the above, one of the anti-addiction programs carried out at the national level by the Green Crescent Society is called the Addiction Prevention Training Program of Turkey (APTP).

APTP has been developed as an action plan against tobacco, alcohol, drug, and technology addiction and aims to develop a healthy life away from the risks of addiction (Büyüköztürk et al., 2019). APTP is an intervention which aims to increase knowledge and emotional awareness of addictive substances among children and adolescents and therefore, the public awareness against addiction (Table 1 for the content of APTP). The program is universally based, which will minimize the risk of individuals becoming addicts. APTP is a unique, well-designed, and comprehensive program that is both protective and preventive and aims to contribute to a safer and healthier life away from the risks of addiction. APTP has been developed taking into account the basic needs of students in the context of prevention. It aims to impart information and raise emotional awareness toward tobacco, alcohol, drug, and technology addiction at primary, secondary, and high school levels and to develop a positive attitude in these areas. It consists of 18 acquisition-based modules prepared for primary school, secondary, and high school students, and adults in 5 areas such as "Tobacco Addiction," "Alcohol Addiction," "Substance Addiction," "Technology Addiction," and "Healthy Living." This program was developed such that it could be applied at all schools in Turkey considering the sociological structure and the needs of the country (Yılmaz, 2015). APTP is the first program developed to fight against addiction in a large target group. APTP practices started in 2014 within the framework of the protocol signed between the Ministry of National Education (MoNE) and the Green Crescent Society.

Generally, the addiction prevention studies in Turkey is focused on risk groups (Albayrak & Balcı, 2014). The most important of the risk groups are children and young people of school age. MoNE carries out school-focused prevention activities that increase the awareness in the society. MoNE stated that alcohol and substance addiction is becoming increasingly common among youth in "Strategy and Action Plan for Preventing and Reducing Violence in Educational Environments (2006-2011)." It aims to increase the awareness among the families of students, their teachers, and administrators about substance use and its consequences. The plan also includes developing a healthy lifestyle and coping skills to prevent and/or reduce violent behaviors in students via individual counseling, classroom guidance, conference, seminar, booklet, brochure, posters and films, TV series, computer games, etc. (MoNE, 2006). It was aimed to create a school climate that enables a school-student-parent integration, collaboration, and communication with the "Circular letter on the Use of Harmful Substances and Violence against Students." Apart from MoNE, in 2012, the Turkey Monitoring Center for Drugs and Drug Addiction (TUBIM), teachers, and psychological counselors in schools carried out a training to prevent substance addiction at all levels in schools (TUBIM, 2012). However, the current prevention studies cannot be said to be sufficient and strong in terms of influence sustainability to reach large audiences, creating educational content, and material for all school levels (Müderrisoğlu, 2008).

One of the effective anti-addiction programs carried out at the national level is APTP. APTP was prepared taking into consideration the risk and protective factors and pedagogical suggestions. It aims to give information and raise emotional awareness about the negative effects of tobacco, alcohol, drug, and technology addiction among students at primary, secondary, and high school levels to help prevent addiction to these in the future. The abovementioned literature demonstrates that younger students are at a high risk for all addiction types, and prevention should take center stage. Hence, the aim of this study is to test the effectiveness of APTP in increasing the knowledge and emotional awareness toward tobacco, alcohol, drug, and technology addiction among primary, secondary, and high school students. The study was also based on the perspectives of both students and their families, teachers, school counselors, and school principals, that is, the influence of training was examined from a broad perspective, and the quantitative results were supported through qualitative findings.

## Methods

In this study, an explanatory sequential mixed-method design was used to test the effectiveness of the APTP because the aim of the program was to increase knowledge and emotional awareness toward addiction. Mixed-method design helps to collect and analyze data by using both quantitative and qualitative research methods, and an explanatory sequential mixed-method design helps in an in-depth understanding of the quantitative results (Creswell, 2012). The experimental study was conducted before

Table 1.
*Content of APTP*

| | Technology Addiction | Tobacco Addiction | Alcohol Addiction | Drug Addiction | Healthy Life |
|---|---|---|---|---|---|
| Primary School (4) | + | + | | | + |
| Secondary School (5-8) | + | + | | | + |
| High School (9-12) | + | + | + | + | + |

Table 2.
*The 2x3 Mixed (Split Plot Factorial) Design*

| Groups | Pre-test | Intervention | Post-test | | Follow-up |
|---|---|---|---|---|---|
| GE | M1 | APTP | M3 | 3 weeks | M5 |
| GC | M2 | - | M4 | 3 weeks | M6 |

GE: Experimental Group, GC: Control Group
M1M2M3M4M5M6: Pre-test, post-test, and follow-up measurements

the qualitative analysis of the case study (Creswell & Clark, 2014). Therefore, the research will be reported as Study 1 and Study 2.

**Study 1**

**Design**

The experimental design was used for the quantitative part of the study. Specifically, 2x3 mixed (split plot factorial) design was used in which the first factor included grouping variables (experiment and control groups); the second factor consisted of 3 measures (pre-test, post-test, and follow-up test). The dependent variable was knowledge and emotional awareness toward addiction (tobacco, alcohol, drugs, and technology). The independent variable was APTP whose effect was tested. Table 2 presents the 2x3 mixed (split plot factorial) design below.

The experimental study was conducted in 12 cities. In each city, 2 primary schools, 2 secondary schools, and 2 high schools were randomly assigned to experimental ($G_E$) and control groups ($G_C$). Experimental groups took the interventions prepared by the Turkish Green Crescent Society. The control group, which did not receive any intervention during the study, took the same training (APTP) after the research was completed.

**Sample**

In the study, the sample was selected according to the Nomenclature of Territorial Units for Statistics (NUTS1). In European Union (EU) integration process, a new regional classification was prepared by the Turkey State Planning Organization and the Turkey Statistical Institute like other countries in the EU. According to this classification called NUTS (Official Gazette of the Republic of Turkey, 2002/4720), the following 12 regions are defined by demographic, economic, cultural, and social differences instead of 7 regions. In collaboration with the Green Crescent Society, the sample was chosen among cities where a similar study was not carried out before. Table 3 presents the sample from each city and region according to school types.

**Instrument**

APTP Knowledge and Emotional Awareness Instrument-R. Büyüköztürk et al. (2019) developed the APTP knowledge and emotional awareness instrument. In the current study, this scale was revised by the researchers on the basis of related literature and expert opinions as well as taking APTP module into awareness. The APTP knowledge and emotional awareness instrument includes healthy living, tobacco addiction, and technology addiction modules in primary and secondary schools; 2 more modules, alcohol and drug addiction, are included for high schools. Therefore, 2 instruments were developed for each module: The first 12 items were used to measure knowledge about addiction, and the next 5 items were used to measure emotional awareness. One exception was that the measurement in high school had 13 items instead of 12 for alcohol addiction, and the other 5 items were similar to other scales in terms of emotional awareness. In the study, knowledge items were obtained via statements to be responded as true or false types, and items to measure emotional state were obtained via a 5-point Likert type scale. Higher scores meant that the students developed negative emotions about addiction, that is, they wanted to stay away from being an addict with positive emotions against addiction. Some of the sample items of knowledge from the scale included: "Occasional smoking is not harmless unless you use it constantly," "People with strong self-control will not be addicted"; and of emotion were: "I think smoking is (1) pleasant ⋯ unpleasant (5)," "I think using drugs (1) makes the person look cool ... shows the person as a loser (5)."

Table 3.
*The Number of Participants per Cities*

| | | Primary School** | Secondary School** | High School** | Total |
|---|---|---|---|---|---|
| **Region** | **City** | **N** | **N** | **N** | **N** |
| TR1-İstanbul | İstanbul | 49 | 238 | 229 | 516 |
| TR2-West Marmara | Çanakkale | 61 | 162 | 233 | 456 |
| TR3-Egean | İzmir | 57 | 187 | 228 | 472 |
| TR4-East Marmara | Düzce | 20 | 127 | 188 | 335 |
| TR5-West Anatolia | Ankara | 60 | 256 | 199 | 515 |
| TR6-Mediterranean | Mersin | 56 | 205 | 190 | 451 |
| TR7-Middle Anatolia | Nevşehir | 42 | 254 | 207 | 503 |
| TR8-West Blacksea | Sinop | 40 | 182 | 229 | 451 |
| TR9-East Blacksea | Giresun* | 54 | 186 | -* | 240 |
| TR10-North-East Anatolia | Erzurum | 57 | 244 | 203 | 504 |
| TR11-Middle Anatolia | Van | 58 | 191 | 239 | 488 |
| TR12-South-East Anatolia | Adıyaman | 46 | 264 | 210 | 520 |
| Control Groups | 291 | 1232 | 1177 | 2700 | |
| Experimental Group | 309 | 1264 | 1178 | 2751 | |
| TOTAL | 600 | 2496 | 2355 | 5451 | |

* At high school level in Giresun, student IDs could not be taken; therefore, comparison between groups could not be done. **The number of students in primary, secondary and high schools were composed of two different schools (1 in experimental group, 1 in control group, the numbers for each group in Table 8)
Pre-test, post-test, and follow-up test of the measurements were conducted in 12 primary, secondary, and high schools with a total of 36 schools. The total number of participants in the experimental study was 5451 (600 in primary, 2496 in secondary, and 2355 in high schools).

Table 4.
*Exploratory Factor Analysis Results of the Instruments*

| | | Knowledge | | Emotion | |
|---|---|---|---|---|---|
| **Education Level** | **Instrument** | **Explained Variance for Unidimensionality (%)** | **Reliability (ten Berge & Hofstee, 1999)** | **Explained Variance for Unidimensionality (%)** | **Reliability (Alpha)** |
| Primary School | Tobacco addiction | 36.6 | 0.84 | 72.8 | 0.90 |
| | Technology addiction | 34.2 | 0.83 | 69.6 | 0.89 |
| Secondary School | Tobacco addiction | 39.0 | 0.86 | 64.6 | 0.85 |
| | Technology addiction | 35.0 | 0.83 | 65.8 | 0.87 |
| High School | Tobacco addiction | 47.0 | 0.90 | 65.0 | 0.86 |
| | Technology addiction | 55.0 | 0.92 | 74.0 | 0.91 |
| | Alcohol addiction | 47.0 | 0.90 | 74.0 | 0.90 |
| | Drug addiction | 52.0 | 0.92 | 76.0 | 0.89 |

As there were small changes in the scale, a pilot study was conducted before the main analysis in this study. The pilot study was conducted with a total of 887 students (176 in primary, 363 in secondary, and 348 in high schools) in Istanbul because Istanbul has 1/5 of the whole population in Turkey and reflects a great amount of difference regarding the socioeconomic characteristics. In this study, the healthy living module of APTP was excluded because only the addiction phase was reported within the scope of this study. Exploratory factor analysis (EFA) on knowledge items scored as 0-1 in FACTOR 10.7.01 program; EFA analysis for emotional items was performed in IBM SPSS 22. Factor analysis was based on the polychoric correlation matrix for the knowledge factor and Pearson correlation matrix for the emotion factor. The reliability index was determined according to ten Berge and Hofstee (1999) presented in the Factor program output for the knowledge factor in the study; Cronbach's alpha internal consistency coefficient was obtained for the emotion factor. The EFA results and internal consistency are presented in Table 4.

**Procedure**

After ethical approval and the necessary permission taken from the MoNE (No: 27250534-605.01-E.18734522), the pilot study for revised version of instrument and the main study were conducted, respectively. After the measurement tools were finalized, 12 provinces where the study would be conducted were determined. The research team consulted with the Turkish Green Crescent Society APTP coordinator in the cities to determine 2 primary, 2 secondary, and 2 high schools (1 school as experimental, 1 school as control group) (6 in total). While determining the schools, the important points taken into consideration were; there had to be a teacher who received APTP education in the school, APTP had not been applied before, and the schools had similar socioeconomic environments and success levels. The study was conducted in the 4$^{th}$ grade in primary school, 5$^{th}$, 6$^{th}$, 7$^{th}$, and 8$^{th}$ grades in secondary school, and 9$^{th}$, 10$^{th}$, 11$^{th}$, and 12$^{th}$ grades in high school.

The optical forms of the scales with informed consent form were packaged by the researchers based on the number of students at each school level, experimental and control groups, and the number of students in the classes. Afterwards, each of the researchers in the project group visited 2 provinces. The researchers visited the Turkish Green Crescent Society APTP coordinators and school counselors who would implement APTP in schools and informed them about the data collection tools and the process. Furthermore, the packages were checked together, that is, the optical forms to be filled by the students. In particular, the differences between the experimental and control groups were explained, both verbally and in writing. The coordinators were also informed about how to package the experimental-control groups' pre-test-post-test, follow-up tests, and how to provide school information before the data were sent back to the researchers. The whole application process was completed in one semester in which the pre-test, post-test, and follow-up measurements could be performed in each school. When all the follow-up tests were applied in experimental groups and sent back to researchers, the school counselors were informed to apply APTP to the control group with the same intervention procedure that they had conducted in experimental group at that school.

**Data Analysis**

In order to test the effectiveness of the APTP, a 2x3 mixed (split plot factorial) design of 2-way ANOVA was used to test the differences between experimental and control groups before and after application. Before the analysis, the necessary assumptions (1. Measurements were obtained with at least equal interval scale, 2. Dependent variables had normal distribution in each factor group, 3. The homogeneity of variances for dependent variables was provided in all groups) were tested and found to be met. During analysis, the main effects of the group and measurement were tested; however, the focus was to measure the interaction effect of the group and measurement demonstrating the effect of the experimental process. A significant interaction effect meant that the changes in experimental and control groups from pre-application to post-application differed.

**Study 2**

**Design**

In the qualitative part of the study, the case study was conducted to evaluate the program in all schools assigned as the experimental group in Istanbul. Kushner (2012) stated that each program evaluation is also a case study of the society and its institutions because all programs demand to be understood in their own terms through the analysis of context and contingency at the many levels of direct experience. The reason behind conducting a case study in Istanbul was the same as the pilot study of revised instrument. Istanbul, a city of migrants from all over the country, represents the general profile of Turkey regarding socioeconomic characteristics and is also convenient in terms of transportation and official permissions for all researchers.

In this study, the perceptions toward APTP and its effectiveness to increase knowledge about addiction and raise emotional awareness were obtained via interviews with the students, teachers, parents, school counselors, and school principals. The interviews were based on the process and outcomes of the program. Therefore, the case study was followed during the study. The case study was used to identify the details and develop possible explanations for an event and evaluate it (Gall, Borg & Gall, 1996). Thus, it was possible to investigate an up-to-date phenomenon under real conditions via an in-depth and holistic approach (Yin, 2003). The case study was conducted in all schools assigned as experimental in Istanbul. The data were collected by semi-structured interviews prepared by taking expert opinions. Interviews were conducted in primary, secondary, and high schools. The project team was divided into 3 groups as 2 researchers in each group. In a qualitative research, direct interviews of participants and researchers could affect the flow of the study. Therefore, the researchers should be as objective as possible and be able to identify an event or phenomenon under study in a realistic and clear manner. It is also important that the researchers ask appropriate questions, be impartial and good listeners, and do not reflect their prejudices on the research process. The researchers in this study also played a neutral role, trying to uncover the perspectives of the participants (Yin, 2003). Focus group interviews were conducted with students, teachers, and parents (Figure 1), and individual interviews were conducted with school counselors (as the implementers of APTP), and the school principal.

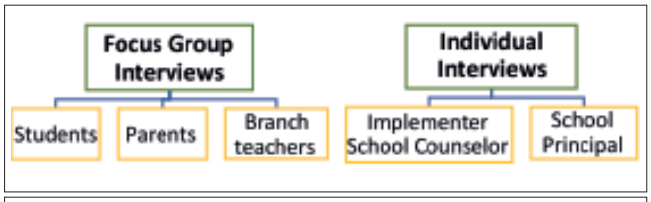


Figure 1. Type of Interviews.

**Sample**

The case study was conducted in three schools selected as experimental groups in Istanbul. The sample of the qualitative study consisted of students (n=55), teachers (n=18), school counselors (n=3), school principals (n=3), and parents (n=26) from primary, secondary, and high school levels. The number of samples from each level is presented in Table 5.

**Instrument**

Within the scope of the qualitative part of the research, semi-structured individual and focus group interview forms were created for primary, secondary, and high schools to be used in the case study. Semi-structured interview forms were prepared with the help of the APTP training materials and quantitative data collection tools to measure knowledge and emotional awareness for each module. Interview forms for teacher and parent focus groups were created with similar content to these forms. In addition, individual interviews were conducted with the school principal and school counselor. The content of the individual interview form was similar to that of the student form. Through interviews other than the student focus group, observations of stakeholders about the changes in the knowledge and emotional awareness for each addiction types among students were determined. In particular, the school counselors were asked about the strengths and weaknesses of APTP and how to increase its effectiveness. Thus, the qualitative study was carried out from holistic (primary, secondary, high school) and multiple perspectives (students, teachers, parents, school counselors, school principals). Sample items from the focused group and individual interviews were as follows: "Did you observe any difference in the use of technology (phones, tablets, computers) in students? If yes, what are the differences?," "After APTP, do you think that your students had increased awareness in terms of tobacco addiction? Can you provide examples?," and "What might be your child's reaction to relatives/friends who use alcohol?"

**Procedure**

For the qualitative study, each researcher had either a group or individual interview with the participants. To plan the interview process, school principals/counselors helped the researchers arrange the interview sessions in terms of the time and place of meeting. The interview process was implemented as follows (Figure 2). The interviews were recorded after taking the permission of participants. If participants did not want to be recorded, note-taking was followed by two researchers, and participants

Table 5.
*The Sample of Case Study*

| | Individual Interview | | Focus Group Interview | | |
|---|---|---|---|---|---|
| **School** | **School Principal** | **Implementer of APTP (School Counselor)** | **Students** | **Branch Teachers** | **Parents** |
| Primary | 1 | 1 | 6 | 6 | 4 |
| Secondary | 1 | 1 | 25 | 6 | 15 |
| High School | 1 | 1 | 24 | 6 | 7 |
| Total | 3 | 3 | 55 | 18 | 26 |

were asked to verify their statements. The voice-recorded interviews were transcribed, the notes were arranged and transferred to the electronic environment by the project team.

### Data Analysis

A descriptive analysis was used for the case study and the participants' perceptions were reported regarding the common codes. The responses were read and categorized by 2 researchers separately, and the responses were compared to finalize the common codes. Finally, a third researcher from the project team was asked to confirm the codes so that the reliability was sustained. The process was carried out in 4 stages. In the first stage, a framework for the descriptive analysis and the exploratory questions were created. The data were organized, and the framework was defined for the primary, secondary, and high schools from each module of the APTP and the research questions. In the second stage, data were organized to have a meaningful understanding and to define the direct quotations. The third stage included the definition of organized data, including direct quotations. The final stage consisted of discussion of the qualitative findings.

## Results

### Study 1

In Study 1, the quantitative data of the study were analyzed according to the APTP modules for primary, secondary, and high school levels. For each module, the effectiveness of APTP on developing knowledge levels and emotional awareness among students were tested. A 2x3 mixed-design 2-way ANOVA was used to test the differences in knowledge and emotional levels between the experimental and control groups before and after implementation. Descriptive statistics and findings obtained from the analysis of tobacco, alcohol, and drug addiction at primary, secondary, and high school levels were provided.

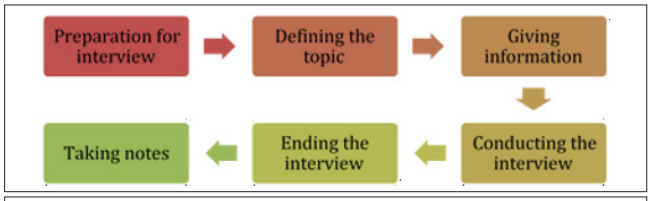


Figure 2. Process of Interviews.

The change in students' knowledge and emotional awareness about tobacco addiction was determined for primary, secondary, and high school levels. The mean and standard deviation values of the students' pre-test, post-test, and follow-up tests regarding knowledge and emotional awareness scales of Tobacco and Technology addiction modules are presented in Tables 6 and 7. In addition, the statistics for alcohol and drug addiction modules which were implemented only at the level of high school education are presented in Table 8.

### Tobacco Addiction

Table 6 shows that generally the tobacco addiction post-test scores obtained from the knowledge and emotional awareness scales of the students did not change regularly compared with the pre-test scores, and the follow-up test scores were slightly lower than the post-test scores in some cases.

### Alcohol and Drug Addiction

Table 7 shows that the post-test scores are slightly higher than the pre-test scores for alcohol and drug addiction in the experimental groups. In addition, the follow-up test scores generally decreased slightly in both groups compared with the post-test scores.

### Technology Addiction

Table 8 shows that generally the technology addiction post-test scores obtained from the knowledge and emotional awareness scales of the students were slightly higher than the pre-test scores, and the follow-up test scores are slightly lower than the post-test scores in experimental and control groups. In addition, the increase between pre and post-test scores was slightly higher in the experimental groups than in the control group.

Table 6.
*Mean and Standard Deviation Values of Students' Pre, Post, and Follow-Up Test Scores On Measuring Knowledge and Emotional Awareness for Tobacco Addiction*

| | | | Pre-test | | | Post-test | | | Follow-up | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Tobacco Addiction** | | **Groups** | **M** | **SD** | **N** | **M** | **SD** | **N** | **M** | **SD** | **N** |
| Primary School | Knowledge | Control | 88.53 | 11.63 | 291 | 89.67 | 11.72 | 291 | 87.88 | 14.17 | 291 |
| | | Experimental | 90.26 | 10.53 | 309 | 90.12 | 9.95 | 309 | 87.46 | 14.46 | 309 |
| | Emotion | Control | 23.16 | 4.21 | 291 | 22.92 | 4.88 | 291 | 23.54 | 3.77 | 291 |
| | | Experimental | 22.86 | 4.32 | 309 | 22.93 | 4.18 | 309 | 23.44 | 3.27 | 309 |
| Secondary School | Knowledge | Control | 86.32 | 12.78 | 1232 | 88.02 | 12.73 | 1232 | 85.92 | 16.29 | 1232 |
| | | Experimental | 86.68 | 12.66 | 1264 | 88.81 | 14.39 | 1264 | 88.43 | 14.29 | 1264 |
| | Emotion | Control | 22.29 | 4.98 | 1232 | 22.53 | 4.41 | 1232 | 22.29 | 4.72 | 1232 |
| | | Experimental | 22.71 | 4.56 | 1264 | 22.58 | 4.69 | 1264 | 22.81 | 4.17 | 1264 |
| High School | Knowledge | Control | 83.99 | 13.84 | 1177 | 81.57 | 16.97 | 1177 | 80.32 | 18.18 | 1177 |
| | | Experimental | 86.09 | 13.10 | 1178 | 86.78 | 13.16 | 1178 | 84.94 | 15.78 | 1178 |
| | Emotion | Control | 21.23 | 5.15 | 1177 | 21.30 | 5.04 | 1177 | 21.36 | 5.20 | 1177 |
| | | Experimental | 21.29 | 4.82 | 1178 | 21.35 | 4.84 | 1178 | 21.46 | 4.86 | 1178 |

Table 7.
*Mean and Standard Deviation Values of Students' Pre, Post, and Follow-Up Test Scores on Measuring Knowledge and Emotional Awareness for Alcohol and Drug Addiction in High School*

| | | | Pre-test | | | Post-test | | | Follow-up | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | **Groups** | **M** | **SD** | **N** | **M** | **SD** | **N** | **M** | **SD** | **N** |
| Alcohol Addiction | Knowledge | Control | 73.17 | 15.23 | 1177 | 71.49 | 16.76 | 1177 | 71.30 | 17.36 | 1177 |
| | | Experimental | 74.19 | 14.62 | 1178 | 76.74 | 15.06 | 1178 | 75.54 | 16.71 | 1178 |
| | Emotion | Control | 21.38 | 5.37 | 1177 | 21.56 | 5.21 | 1177 | 21.74 | 5.16 | 1177 |
| | | Experimental | 21.33 | 5.09 | 1178 | 21.79 | 4.85 | 1178 | 21.75 | 4.97 | 1178 |
| Drug Addiction | Knowledge | Control | 80.65 | 15.23 | 1177 | 78.63 | 18.00 | 1177 | 77.89 | 17.43 | 1177 |
| | | Experimental | 81.52 | 15.51 | 1178 | 81.48 | 14.82 | 1178 | 79.99 | 17.18 | 1178 |
| | Emotion | Control | 23.37 | 4.00 | 1177 | 23.05 | 4.28 | 1177 | 23.09 | 4.37 | 1177 |
| | | Experimental | 23.27 | 4.07 | 1178 | 23.31 | 3.91 | 1178 | 23.30 | 3.95 | 1178 |

Table 8.
*Mean and Standard Deviation Values of Students' Pre, Post, And Follow-Up Test Scores on Measuring Knowledge and Emotional Awareness for Technology Addiction*

| | | | Pre-test | | | Post-test | | | Follow-up | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Technology Addiction** | | **Groups** | **M** | **SD** | **N** | **M** | **SD** | **N** | **M** | **SD** | **N** |
| Primary School | Knowledge | Control | 80.81 | 15.33 | 291 | 81.04 | 14.35 | 291 | 80.20 | 15.42 | 291 |
| | | Experimental | 77.56 | 15.51 | 309 | 81.88 | 15.42 | 309 | 81.25 | 16.00 | 309 |
| | Emotion | Control | 19.69 | 5.04 | 291 | 19.30 | 5.91 | 291 | 19.54 | 5.68 | 291 |
| | | Experimental | 19.25 | 5.57 | 309 | 20.86 | 4.80 | 309 | 21.13 | 5.00 | 309 |
| Secondary School | Knowledge | Control | 78.07 | 14.60 | 1232 | 77.74 | 15.56 | 1232 | 75.66 | 17.19 | 1232 |
| | | Experimental | 78.63 | 15.02 | 1264 | 78.85 | 15.72 | 1264 | 78.56 | 15.32 | 1264 |
| | Emotion | Control | 17.64 | 6.12 | 1232 | 18.14 | 5.90 | 1232 | 17.96 | 6.25 | 1232 |
| | | Experimental | 18.25 | 5.91 | 1264 | 19.04 | 5.80 | 1264 | 18.83 | 5.81 | 1264 |
| High School | Knowledge | Control | 79.18 | 16.10 | 1177 | 77.28 | 18.88 | 1177 | 77.10 | 18.68 | 1177 |
| | | Experimental | 79.91 | 16.53 | 1178 | 81.47 | 16.56 | 1178 | 80.98 | 17.06 | 1178 |
| | Emotion | Control | 17.92 | 5.65 | 1177 | 18.54 | 5.83 | 1177 | 18.77 | 6.13 | 1177 |
| | | Experimental | 18.12 | 5.49 | 1178 | 19.04 | 5.66 | 1178 | 19.42 | 5.50 | 1178 |

ANOVA test was performed to determine whether the differences mentioned above were significant. The interaction effect, which is a result of 2-way ANOVA, is provided in Table 9. In this study, the focus is the interaction effect because it determines whether the difference between students' scores before and after the implementation in experimental and control groups is significant.

Table 9 shows that receiving APTP had no significant effect on improving the knowledge level of students about tobacco addiction at the primary school level ($p>0.05$), but it had a significant effect on secondary and high school students ($p<0.05$). In addition, APTP was only effective at the secondary school level in increasing students' positive emotions against tobacco addiction. When the findings regarding technology addiction were examined, it was seen that receiving the program was effective in improving the knowledge of students about technology addiction at all school levels, but it had a significant effect only at the primary school level in increasing positive emotions. When the findings related to alcohol and drug addiction modules which were applied only in high schools were examined, it was observed that the program had a positive effect on increasing the knowledge of students toward both alcohol and drug addiction ($p<0.05$), but there was no significant effect on the students' positive emotions ($p>0.05$).

For technology addiction at the primary school level, the post-hoc tests revealed that knowledge and emotion scores in post-test and follow-up test levels were higher than pre-test scores. For tobacco addiction, students in experimental group had higher levels of tobacco addiction at post-test and follow-up tests compared with the pre-test scores obtained from knowledge scale. At the high school level, students had higher tobacco addiction post-test scores than the follow-up test scores from the knowledge scale and also had higher technology addiction post-test scores related to knowledge than pre-test scores. When alcohol addiction knowledge scores were considered, both post-test and follow-up test scores of high school students in the experimental group were higher than the pre-test scores. However, when the scores on drug addiction were examined, it was concluded that the post-test and pre-test scores were higher than the follow-up test scores.

**Study 2**

In Study 2, the interviews of the semi-structured focus group (students, parents, teachers) and individual (school counselors and managers) were transcribed, and descriptive analysis was conducted. In this study, not themes but the codes (in italics) were defined in terms of tobacco, alcohol, drug, and technology addiction in accordance with the school levels. The reason was that there were different groups of participants who were influenced by the program in a different way, and the main aim for conducting interviews was to gather a broader perspective about APTP. No common themes were defined, and only the codes (Table 10) were reported with striking quotations (Q1-Q22) under the addiction type. The remarkable finding was that APTP increased the students' knowledge about addiction at all school levels and across all addiction types.

**Tobacco Addiction**

Questions about tobacco addiction were asked to 3 groups of school types from primary to high school, including teachers, parents, school counselors, and school principals. The results were reported under the titles of primary, secondary, and high school.

*Primary school:* All the participants in primary school had one theme in common: Students' awareness (Q1) increased as a result of this training, and primary students started warning others who were smoking. The second code was that being a good role model (Q2) by not smoking was important for primary students. Specifically, students clearly stated that their cognitive awareness increased, and they stayed far away from places where smoking was allowed. They also stressed the protective role of sports in addiction. Parents and teachers also mentioned that students' knowledge and awareness increased, and they started warning people who smoked in the family and around and reacted against people's smoking. Parents and teachers emphasized that they were good role models for their children. School counselors also emphasized the increased awareness and reaction toward their relatives smoking. They stated that it is important for the people around to be a good role model so that the children can continue their positive gains, and APTP should continue in the following years. The school principal remarked that all teachers were good role models for tobacco addiction because smoking is prohibited both in and around the school garden.

Q1: *"In order not to be tobacco addicted, we should say "no" to people who asked us to smoke." (Student)*
Q2: *"We are good role models for students because when I entered the school garden, I cannot smoke." (Teacher)*

*Secondary school:* In terms of tobacco addiction, students in secondary school stated that their awareness about the harmful effects of passive smoking increased, they do not accept tobacco from others and choose to move away. According to the students, families were good role models for them; however, in contrast to primary school, teachers were not good role models (Q3) in secondary school because they were still smoking. This finding was also in line with the teachers' perspective because teachers thought that they were not good models for students as they were smoking in places where teachers were allowed to smoke, and the students could see the package of cigarettes in their pockets (Q4). Moreover, the school counselor mentioned that students were annoyed with their teachers smoking. The school counselor also stated that APTP was effective in terms of tobacco addiction and students' awareness increased; positive gains would continue if students had good role models in their friends and families, and they should be guided to do sports and art and crafts. The parents also stated that students were sensitive about tobacco, and they were against people smoking. Finally, the school principal mentioned that students had already been sensitive toward tobacco addiction. However, contrary to students' and teachers' perceptions, he emphasized that teachers should be good role models and smoke in places where the students would not see them, although it seemed that the secondary school students could figure out if their teachers were smoking. Hence, secondary students were conscious about tobacco addiction; however, the teachers were not good role models in secondary schools.

Q3: *"Some of our teachers are smoking, we know it, so their warning about not to smoke does not mean anything." (Student)*
Q4*: "Students can understand that we use to smoke, but this should not be the case." (Teacher)*

*High school:* High school students were aware of the harmful effects of passive smoking and provided some suggestions like doing sports, hobbies, saying "no," and staying away from people who smoked in order not to start smoking or quit smoking. Students who acquired some of this information in APTP training stated that some of their teachers smoked and hence were not good role models for them. The parents thought that students who did not smoke before were against smoking and would react to smokers. They believed that smokers started smoking by observing family or friends (Q5). The teachers emphasized that the number of students who smoked decreased; however, they did not know whether this was due to APTP training. Teachers should be good role models and enable some prevention activities (Q7) and explain the physical and social damages of smoking to students. The school coun-

Table 9.
*Effect of APTP on Addiction Awareness: 2x3 Mixed (Split Plot Factorial) Design ANOVA Results*

| | | Tobacco addiction | Technology addiction | Alcohol addiction | Drug addiction |
|---|---|---|---|---|---|
| | | Interaction Effect (F) | Interaction Effect (F) | Interaction Effect (F) | Interaction Effect (F) |
| Primary School | Knowledge | F(2,1196)=1.91 | F(2,1196)=6.88* | - | - |
| | Emotion | F(2,1196)=0.31 | F(2,1196)=13.04* | - | - |
| Secondary School | Knowledge | F(2,4988)=6.76* | F(2,4988)=6.70* | - | - |
| | Emotion | F(2,4988)=3.21* | F(2,4988)=0.92 | - | - |
| High School | Knowledge | F(2,4706)=9.95* | F(2,4706)=10.41* | F(2,4706)=15.53* | F(2,4706)=3.02* |
| | Emotion | F(2,4706)=0.03 | F(2,4706)=1.67 | F(2,4706)=0.73 | F(2,4706)=1.75 |

*The difference was statistically significant at 0.05 level; the test was not applied to groups.

Table 10.
*Codes of APTP Interviews*

| School Types | Tobacco | Alcohol | Drug | Technology |
|---|---|---|---|---|
| Primary | - students' increased awareness<br>- warning others who were smoking<br>- importance of being a good role model | - | - | - biggest risk groups for technology addiction<br>- influence on social relations and friendship<br>- awareness in terms of duration of use of technology<br>- using technology less after the APTP training<br>- the need for training parents<br>- the need for student camps |
| Secondary | - awareness about harmful effects<br>- never accept tobacco from others<br>- teachers were not good role models<br>- against people who are smoking | - | - | - increased awareness after APTP training<br>- excessive use of technology by parents<br>- influence on face-to-face communication<br>- communication problems<br>- the need for training parents |
| High | - awareness of the harmful effects of passive smoking -suggestions<br>- teachers were not good role models<br>- reacting against smokers<br>- observing family or friends<br>- need for prevention activities<br>- smoking before high school | - drinking alcohol even when harmful<br>- not to be curious about drinking alcohol<br>- saying "no" so as not to be ashamed of using alcohol<br>- avoid places where alcohol was being used | - more serious than tobacco and alcohol<br>- importance of environment<br>- getting support<br>- saying "no" to others-no trial<br>- information given by authorities<br>- importance of family support | - decreased level of technology use<br>- influence on face-to-face communication & school success<br>- sports and hobbies |

selor pointed out that students generally started smoking before high school (Q6), and there was a decrease in the number of students smoking after the training. He pointed out the importance of fines, smoke detectors, and parent education to avoid smoking. He also mentioned that if teachers were allowed to smoke in restricted areas, they would not be good role models. Finally, the school principal stated that he had no observation about this issue, the number of smoking students decreased, although he was not aware whether it was due to the APTP training. Just as the teachers, the school principal mentioned that teachers were not good models as students were aware that their teachers smoked.

Q5: *"First of all, we should quit smoking because they observe us, learn from us." (Parent)*
Q6: *"If a student is smoking, most probably, s/he has started smoking before high school. The precautions should be taken before" (School counselor)*
Q7: *"We cannot succeed in this by organizing seminars or banning. You need to touch in different points via prevention activities." (Teacher)*

**Alcohol Addiction**

The questions about alcohol addiction were asked only to high school students. Firstly, students stated that they learnt that drinking alcohol even once was harmful for their bodies during the APTP. They suggested not to be curious about drinking alcohol (Q8), asking for help if one has started drinking alcohol, saying "no" when somebody offers a drink, and moving away from people and the environment where alcohol was being drunk. The parents emphasized that APTP increased the awareness about alcohol abuse. When teachers were asked about perceptions about the influence of APTP on high school students, they mentioned that they did not have enough observations about it. However, for high school students, alcohol addiction problems change according to gender, culture, religion, social environment, friendship, acceptance by others, and curiosity. The school counselor stated that students were reacting against alcohol, but they had no related observation. He emphasized that high school students had enough knowledge and awareness about using alcohol. In addition, he stressed that high school students paid attention not to be ashamed of using alcohol (Q9). Finally, the school principal mentioned that students were more sensitive about alcohol. They avoided places where alcohol was being used (Q10), and their reaction to alcohol being offered to them depended on their social environment and lifestyles.

Q8: *"Someone who drinks alcohol might think that he became an adult. It happens among students in our age, curiosity is very common." (Student)*

Q9: *"Students are afraid of being labelled as 'alcohol user.' " (School counselor)*
Q10: *"I observed that they avoided places if there was alcohol." (School principal)*

**Drug Addiction**

Similar to alcohol addiction, perceptions about drug addiction were gathered only in high schools. First of all, students' awareness was high about drug addiction, and they mentioned that the ones who think that drug addiction is more serious than tobacco and alcohol (Q11) avoid drugs more. They highlighted the importance of the environment where drugs could be sold such as public gardens and the need to stay away from those places. High school students provided a valuable list in order to avoid and protect themselves from drug use: they change the environment, decrease curiosity, get support (Q12), say "no" to others, no trial, and not take anything from foreigners. The parents of high school students mentioned no observation about change in terms of drug use, but their children were against it and stayed far away from risky places like public gardens. The teachers also had no observation about drug addiction. However, the students were sensitive about using drugs, and they categorized it differently compared with tobacco and alcohol addiction. They emphasized that the information given by authorities (Q13) including security and real-life stories were important as well as TV channels and series. Similar to parents and teachers, school counselors thought that high school students were quite serious about not using drugs, their awareness was high, and they say "no" when someone offered them drugs because it was harmful, expensive, and not easy to access. She also emphasized that alcohol, smoking at home, using drugs, and not being able to say "no" were the most important risk factors for addiction among children, and family support (Q14) was quite important to sustain what they learnt from this training. Finally, the school principal stated that the whole school was sensitive about drug use, and students' awareness was quite high.

Q11: *"When you use drugs only once, there comes next." (Student)*
Q12: *"I'll tell him to quit, but he won't, I'll make sure he gets treatment from somewhere like AMATEM which I learned in APTP training." (Student)*
Q13: *"Once upon a time, we invited a police officer to the school and he provided real life stories about people using drugs. It affected students quite a lot, they learnt that even taking once will harm their life." (Teacher)*
Q14: *"Family support is important, we are training students here and they should be good role models, observe, and protect their children. They need to check whether their students are on the right way" (School counselor)*

**Technology Addiction**

Like tobacco addiction, questions about technology addiction were put to 3 groups from primary to high school level, including students, teachers, school counselors, parents, and school principals. The codes are reported below with quotations attached to some of them.

*Primary school:* According to primary school students, a person with technology addiction is someone who is unhappy, restless, angry, a dreamer, and anti-social without technology. The students mentioned that they were using technology less after the APTP training, reading more books, and playing with friends outside, emphasizing that technology negatively affects social relations and friendship (Q15). Parents emphasized that technology interferes with face-to-face communication, and APTP is effective in fighting against technology addiction. In line with parents, teachers also stated that students were using technology less after the APTP training (Q16), and this finding was consistent with students' opinions. However, the parents should be careful about the risk of increased use of technology. A school counselor highlighted that the students' awareness about the duration of technology use increased; they used technology more for their homework and research than for playing games. They stressed that APTP brochures and booklets should be easily accessible, and parent training (Q17) should be organized. They also affirmed that the social environment, broken families, children with special needs, and children receiving psychological treatment are the biggest risk groups for technology addiction. Finally, the school principal revealed that students were not allowed to use phone, tablet, or computer at school. The Turkish Green Crescent Society should organize more activities in schools, and there should be student camps (Q18) rather than seminars organized for students, and students should be encouraged to do sports.

Q15: *"When we play on the computer, we go outside less and we do not have friends to play with." (Student)*
Q16: *"I think students were much aware of the bad effects of technology addiction, and they use computers, mobile phones or tablets less after APTP." (Teacher)*
Q17: *"To fight against technology addiction, parents should be trained as well because they use technology and disturb face-to-face communication at home, but their children are observing at all eye." (School counselor)*
Q18: *"I think student camps to attract attention towards technology addiction can be organized." (School principal)*

*Secondary school:* While describing a person with technology addiction as angry, asocial, shy, lonely, and without boundaries, the students emphasized that awareness increased after APTP training (Q19), but their use of technology did not decrease. They said that excessive use of technology adversely affects social relations, friendships, and academic performance, and they proposed having a hobby and interacting with friends to prevent the ill effects of technology overuse. Parents emphasized that their children only used technology during exam times; however, it affected their face-to-face communication. Instead, children should play with their friends. They also stated that they were not good role models because they used technology a lot (Q20). Teachers mentioned that secondary school students used social media, and this affected face-to-face communication negatively. Therefore, they suggested parent training similar to the school counselor in primary school. The school counselor emphasized communication problems (Q21) due to the use of excessive technology. It should be noted that the school counselor suggested APTP should be updated according to grades, and the training should be more skill-oriented, comprehensive, and longer. The school principal had no observation as students were not allowed to use technology at school; however, he underlined parent training as a requirement against technology addiction.

Q19: *"Before APTP training, we knew that excessive use of technology adversely affected friendships, but after training our awareness increased." (Student)*
Q20: *"We are not good role models. When my child is at home, I spend time with my smartphone." (Parent)*
Q21: *"According to my observation, students who used excessive technology do not have good communication skills and have bad relationships with friends." (School counselor)*

*High school:* High school students defined a person with technology addiction as someone who used phone or computer excessively and was asocial, with inability to communicate. The 9th and 10th grade students mentioned decreased level of technology use after APTP, which was a significant finding of this study. They acknowledged that excessive use of technology adversely affected face-to-face communication and academic success, similar to the views of the secondary school students. To prevent the excessive use of technology, students should be encouraged to engage in sports and hobbies (Q22). The parents also confirmed the overuse of technology had a negative impact on face-to-face communication, and reduction of time using technology was necessary. To prevent technology addiction, restrictions, stating rules, and being a good role model could be useful. The teachers emphasized the negative influence of technology on face-to-face communication, inability to use language effectively, unable to concentrate, and asocial behaviors. The school counselor and principal had no observations as students were not allowed to use technology at school. It can be concluded that high school students were more aware that technology addiction affects their relationships and academic success; and they behaviorally started to reflect the positive influence of APTP training.

Q22: *"Instead of using mobile phones or tablets, we can do sports and find different hobbies for ourselves." (Student)*

## Discussion

This study aimed to test the effectiveness of APTP in primary, secondary, and high school students from a broad perspective, including the opinions of their teachers, parents, school counselors, and principals. The results revealed that APTP was more effective at the knowledge level (significance at tobacco, alcohol, drug, and technology addiction) compared with increase in emotional awareness (significance only at technology addiction in primary school and tobacco addiction in secondary school). More specifically, the results indicated that APTP had no significant effect on improving the knowledge level of students about tobacco addiction in primary school, but had a significant effect on secondary and high school students in terms of increasing knowledge. Furthermore, it was effective in improving the students' emotional awareness at the secondary school level. Secondly, findings regarding alcohol and drug addiction indicated that high school students increased their knowledge, but the training did not significantly influence their emotional awareness. Finally, the results of technology addiction indicated the effectiveness of the training for knowledge at all levels, but positive emotions developed only among primary school students. Therefore, to increase awareness of technology addiction, training should be provided at the primary school level as a prevention intervention. Generally, APTP was the most effective in increasing the knowledge and emotional awareness about tobacco addiction among secondary school students and about technology addiction among primary school students. It can be concluded that knowledge and awareness toward technology addiction could be provided in primary school, and tobacco addiction in secondary school. The qualitative findings were in line with the empirical findings that participants also reported that their knowledge about addiction changed after the implementation of APTP.

Overall, the findings were in line with the literature that prevention programs were effective in increasing knowledge about addiction (Dabaghi & Valipour, 2016; Davasligil et al., 1998; Dusenbury, Falco, & Lake, 1997; Griffin & Botvin, 2010; Moskowitz, 1989; Ögel, 2010; Sevgi et al., 2007). The APTP proved to be effective in increasing knowledge about all types of addiction. However, it was not effective in increasing emotional awareness at most of the levels. These results imply that APTP is informative about addiction, but further applied training is required to change emotions. The qualitative findings supported the previous quantitative results. It showed clearly that awareness increased in students; however, there was not enough time to see what they learned in action. The parents also supported the view that students had increased awareness about addiction. One of the significant findings was that the students were not tolerant about any of their relatives smoking. The teachers also mentioned that the number of students who smoked decreased. However, it should be noted that teachers who smoked in the school were enemies of the prevention programs because secondary school students, especially, were quite aware of the fact that their teachers smoked at school. In light of the "smoking before high school" code, it could be concluded that prevention studies were considered as a protective factor against tobacco addiction at younger ages. Therefore, increasing awareness at an early age could decrease the rate of smoking in high school. In addition, for alcohol and drug addiction, students, teachers, parents, school counselors, and principals all approved the quantitative results through their opinions that students were very aware of the negative effects and how to prevent addiction. Moreover, for technology addiction, APTP was effective in increasing knowledge for primary, secondary, and high school students, and a significant outcome of the study was that students increased their awareness about destruction of friendships due to excessive use of technology. Their parents were aware of the fact that they were not good role models for their children. Importantly, after the training, students learned how and where to refer people with specific addictions.

This study of the APTP pertaining to tobacco addiction was found to be successful in improving the knowledge of secondary and high school students about tobacco addiction. Similarly, the results on tobacco addiction in this study were found to be consistent with those of previously implemented prevention programs (Aydemir, 1992; Bektaş, 2009; Bektaş & Öztürk, 2012; Büyüköztürk et al., 2019; Gökgöz, 2004; Sarı & Öztürk, 2005; Storr et al., 2002). The program's effect on improving emotional awareness is not statistically significant at the primary and high school levels. Only the secondary school students had increased emotional awareness via APTP. The results of this study regarding improving emotional awareness about tobacco addiction were consistent with those of previous studies on tobacco addiction and prevention programs in the literature (Büyüköztürk et al., 2019). However, similar to many studies evaluating the effective-

ness of addiction prevention programs (Moskowitz, 1989), this study showed that preventive studies did not make a significant change in the emotional awareness, although they increased the knowledge level. With this in mind, the program can be interpreted as being effective in improving students' knowledge about tobacco addiction but not in improving emotional awareness. Further training or programs should be conducted to raise emotional awareness and bring about a behavioral change. Students should be given time and opportunities to implement what they have learned through the program into their own life.

Specifically, the literature supported the idea that prevention programs for primary school children should focus on academic and social emotional learning skills (self-control, emotional awareness, communication, social problem-solving, and academic support) to deal with drug addiction risk factors such as early aggression, academic failure, and drop-outs (Lalongo et al., 2002). Prevention programs for middle or high school students should increase study habits and academic support, communication skills, peer relationships, self-efficacy and assertiveness, drug resistance skills, strengthen anti-drug attitudes, and personal determination against drug use (Botvin, Baker, Dusenbury, Botvin, & Diaz, 1995). According to "Preventing Drug Use - A Research Based Guide" (NIDA, 2003), children with poor academic performance and inappropriate social behavior at ages 7 to 9 years may be more likely to be involved in substance abuse by the age of 14 or 15 years. Therefore, the earlier the prevention programs, the less risk the students have. On taking the previous literature and the significant findings into account, APTP can be considered as an important step in prevention programs to be applied in primary, secondary, and high schools.

In general, people use drugs to feel good, to not feel bad, perform better at school or at work, curiosity, and social pressure. The risk of becoming a drug addict includes the relationship between the number and type of risk and protective factors (Wills, McNamara, Vaccaro, & Hirky, 1996). The more the risk factors a person has, the higher the likelihood that drugs will lead to addiction; however, protective factors reduce a person's risk of addiction (NIDA, 2018b). Among risk factors are environmental factors related to family, school, and neighborhood. The results of this study indicated that APTP was effective in increasing the knowledge of high school students about drug addiction. In the quantitative phase of the study, there was a significant increase in the knowledge level of high school students about drug addiction. Consistent with this finding, in the qualitative research, it was observed that students stated that in order to avoid drug addiction, it was necessary to stay away from natural gardens and streets where the use and sale of drugs were common. Some parents also stated that their children developed behaviors of avoiding drug use; for example, they were away from gardens and environments where the drug was sold and used. In this regard, this study made an important contribution in increasing the knowledge and emotional awareness for some modules, which can lead to a possible behavioral change in preventing drug addiction in the future. Additionally, the fact that friends and other peers may have an increasingly powerful influence in teen years (Biederman, Faraone, Monuteaux, & Feighner, 2000), increasing awareness that "even the use of drugs only once is harmful" can be considered among the most important contributions of this study.

It is possible to characterize risks and protective factors in 5 domains (NIDA, 2018b), consisting of individual, family, peer, school, and community, which can then serve as a focal point for prevention. Protective factors respectively corresponding to these risk factors include parental monitoring and support (Brook, Brook, Gordon, Whiteman, & Cohen, 1990), positive relationships (Duncan, Wilkerson, & England, 2006), anti-drug policies of the school (Guo, Hawkins, Hill, & Abbott, 2001), and neighborhood resources (Chalk & Phillips, 1996). Finally, this study emphasized the opinions of the teachers, parents, school counselors, and principals regarding addiction so that environmental awareness increased toward students' actions. The results were provided from a broad perspective, which enabled the researchers to have a comprehensive view. Considering the abovementioned literature, increasing awareness toward parental monitoring and support as well as following an anti-drug policy at schools were important outcomes of the current APTP.

**Limitations, Suggestions for Future Research, and Implications for Practice**

This study had some limitations that should be taken into account while evaluating the findings. First, the data collected in this study were based on self-report. To fully understand what was reflected in the self-report measurement, focused group interviews were conducted; however, the number of parents who attended the interviews was low. Moreover, even though most of the interviews were recorded, some of them were based on written notes. Although the participants were asked to validate what they explained to sustain reliability, there could be some missing points because one group of participants were primary school students, and they might forget what they mentioned. The other group was school principals who were busy, and there was no time to validate their opinions. Furthermore, this study did not take the age and developmental levels of the students into consideration as risk factors, but some background situations that could be protective factors such as the socioeconomic levels of the participants, family life, and whom they lived with could not be controlled. In addition, qualitative data were collected only from Istanbul, but future research should be conducted by including participants from each experiment group.

Further recommendations can be provided for future research. On the basis of these findings, APTP could be used at all grade levels in the coming years. Although the study was based on true experimental design and the findings can be generalizable to the whole population, follow-up studies should be conducted to observe any possible increase in the emotion level. Moreover, the researchers can conduct longitudinal studies to test the long-term effects of the training. Finally, random assignments can be utilized for the qualitative phase of the study as well, that is, the interviews can be conducted at randomly chosen experimental schools.

There are some practical implications of this study, especially for school counselors, teachers, parents, school principals, and practitioners. First, school counselors should continue implementing prevention programs about addiction. The findings supported that as students grow older, they become more aware of the harmful effects. Consequently, school counselors, especially in primary and secondary schools, should give priority to addiction prevention studies in order to decrease the detrimental effects in future. Moreover, teachers can work collabora-

tively with school counselors in designing informative banners, brochures, and billboards about addiction, or they can integrate information about addiction in their courses when appropriate. Parents can also benefit from the findings of this study. Parents must be monitored to prevent addiction, and they should collaborate with school counselors, teachers, and administration to create opportunities to experience what students have learned through these preventive addiction programs. School principals can work on designing other types of prevention or information imparting programs at school level in line with the qualitative findings, which revealed the importance of having "student camps" about addiction. In addition, they can put in place a school atmosphere in which teachers are good role models for their students regarding addiction. Finally, all practitioners including the ones working in addiction centers/clinics can take the advantage of this study because they will realize that even though acting on the knowledge might take time, imparting information is crucial in this process.

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