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AN EXAMINATION OF HIGH SCHOOL STUDENTS' SMOKING BEHAVIOR BY USING THE THEORY OF PLANNED BEHAVIOR

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Introduction

It has been stated, that the most common addictive drug in the world is tobacco, and that the most frequently used one among tobacco products is cigarettes (Eriksen, Mackay & Ross, 2006). A global health problem, smoking is one of the prevalent reasons of death all over the world. World Health Organization defines smoking as an epidemic. This epidemic is one of the most important tugs of wars in both developed and developing countries. It has been calculated that if the smoking habit continued as it does, it would have caused the death of 8 million people worldwide by 2030 (World Health Organization, 2008).

Smoking is the primary cause for several cancer types, primarily lung, pancreatic, laryngeal, esophagus cancers, cardiothoracic and respiratory diseases. Damaging almost every organ of the body, smoking is also related to many other diseases (Centers for Disease Control and Prevention, 2004). Dangers of smoking are not limited to the disease and death risk for the smokers. Passive smokers who are exposed to smoke are also in a risk group for serious health problems. Health problems caused by smoking decrease the quality of life and cause early death on the one hand, and bring a huge burden to economy because of health expenses on the other hand.

Tobacco consumption is rather high in Turkey, which is a tobacco producing country. Turkey is among the top 10 countries in tobacco consumption (Ministry of Health, General Directorate of Basic Health Services, 2010). In the study conducted by Family Research Institute and Turkish Statistical Institute in 2006, the frequency of +18 individuals smoking everyday is 33.4% (T.R. Prime Ministry General Directorate of Family and Social Researches and T.R. Turkish Statistical Institute, 2006).

As is the case with many other countries in the world, smoking is highly common among children and adolescents in Turkey (Ogel, Tamar, Evren

Abstract. *Smoking has been recognized as one of the most important health problems. Thus, several preventive measures have been taken worldwide in order to reduce smoking. For these measures to be effective, the source of the problem should be thoroughly explored. To this end, this study aims to determine high school students' smoking behavior and the factors affecting it. In the gathering of data, an interview form was used which was developed by the researchers in accordance with the directives of Planned Behavior Theory. Interviews were conducted according to problem-based interview method. Data were analyzed by using the qualitative data analysis program MAXqda, and was evaluated by using qualitative content analysis method. Findings of the research show that anti-smoking campaigns have been reflected in students' beliefs towards smoking behavior. Differences between female and male students in terms of the beliefs affecting their smoking behavior were detected. It was seen that having no economic difficulty in accessing cigarettes and the fact that cigarettes are being sold disregarding the age-limit are facilitating factors for students to try smoking.*

Key words: *health education, qualitative content analysis, smoking, theory of planned behavior.*

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& Cakmak, 2000; Karlikaya, 2002; Ogel et al., 2004; Nilden Arslan, Terzi, Dabak & Peksen, 2012). Results of Turkey Tobacco Survey of Global Youth indicate that approximately 3 out of every 10 students have smoked at some point of their lives, and 30% of these students smoked before they were 10 (Erguder, Cakir, Aslan, Warren, Jones & Asma, 2008). Research shows that although smoking frequency among the young change according to regions, there is a general increase (Ogel, Tamar, Evren & Cakmak, 2001; Ogel et al., 2004; Erguder et al., 2008).

Each part of society has important responsibilities in keeping our youth away from smoking. In order to decrease the number of smokers, various precautions have been put forth such as consciousness-raising campaigns, increase in taxes for tobacco products, advertisement bans; and support services in relation to quitting smoking have been provided prevalently. Nevertheless, the fact that the number of smokers is still high and that it still increases especially among the young shows that such studies should be maintained, and they should be maintained more vigorously. A great responsibility falls onto primary and secondary education institutions, school principals and teachers who can reach almost all young people.

Examination of students' smoking behavior from every aspect is a prerequisite for developing well-planned sustainable preventive measures in order to prevent smoking among the youth. To this end, in this study, high school students' smoking habits were examined based on Theory of Planned Behavior (Ajzen, 1985; 2005), which is a socio-psychological theory; and the study aims to determine students' smoking behaviors and the factors affecting these behaviors. To this end, following questions were tried to be answered:

1. What are students' behavior beliefs affecting their attitudes towards smoking?
2. What are students' normative beliefs affecting their subjective norms towards smoking?
3. What are students' control beliefs affecting their perceived behavior controls towards smoking?

It is thought, that the findings and the results of this study would contribute to eliminating the factors that are behind smoking and to developing various preventive measures such as developing school programs to prepare students for a smoking-free life.

Theoretical Framework

This study was conducted within the framework of Theory of Planned Behavior (TPB), a socio-psychological theory developed by Ajzen (1985; 2005). In addition to being used in socio-psychological fields, TPB has been employed successfully in various other fields such as smoking (Norman, Conner & Bell, 1999), sexual health behaviors such as AIDS prevention, using condoms (Plies & Schmidt, 1996; Reinecke, 1997; Albarracin, Blair, Fischbein & Muellerieile, 2001), and fields such as weight loss (Schifter & Ajzen, 1985), healthy diet (Armitage & Conner, 1999; Conner, Norman & Bell, 2002), environmental protection (Sparks & Shepherd, 1992; Bamberg & Schmidt, 1993; Wortmann, 1994), and biology didactics (Yaman, 2003; Kilic, 2011).

According to TPB, in any behavior, there is first an *intention* in relation to that particular behavior in the individual. The stronger the intention towards behavior, the higher is the possibility of that behavior to take place (Frey, Stahlberg & Gollwitzer, 1993). Intention of behavior is influenced by 3 variables (Ajzen, 2005): Attitude towards Behavior, Subjective Norm, and Perceived Behavior Control.

Attitude towards Behavior refers to the evaluation of a behavior as good or bad. *Subjective Norm* denotes the social pressure an individual perceives as to whether s/he should perform the behavior or not. *Perceived Behavior Control* indicates to what extent an individual finds the behavior easy or difficult to perform. Behavior control can have a direct influence on the behavior in cases where the person has no control.

The effect of attitude, subjective norm, and perceived behavioral control over behavior differs according to the individual himself/herself and the characteristic of the behavior. These factors are the main components that constitute the first part of the theory. The second part of the theory consists of the *belief* dimensions (behavioral beliefs, normative beliefs, control beliefs) related to the main components (Figure 1).



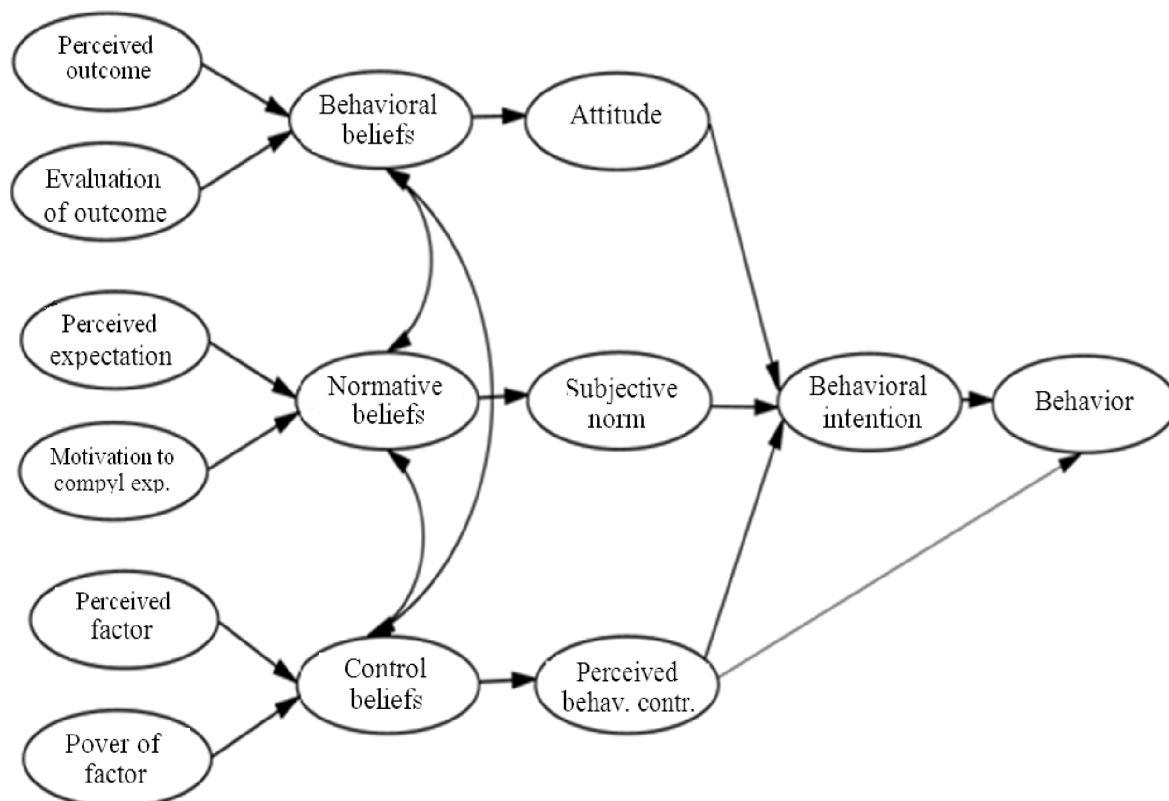


Figure 1: Theory of Planned Behavior (adapted according to Ajzen, 2005).

Belief dimensions indicate that TPB is also an “Expectation-Value Theory” (Frey et al., 1993). According to this theory, each variable in belief dimensions consists of 2 sub-dimensions that can be considered as expectation and value, and it is evaluated by multiplying the answers given to these sub-dimensions (Ajzen & Fishbein, 2008; Gagne & Godin, 2000). Being the predictor of Attitude, *behavioral beliefs* are determined based on the individual’s predictions about the end-result of the behavior and how he/she evaluates these results. Being the predictor of Subjective Norm, *normative beliefs* are a combination of the expectations of people who are important to the individual and the willingness of the individual to meet these expectations. Being the predictor of perceived behavior control (PBC), *control beliefs* are determined based on the individual’s predictions of his internal (ability, knowledge, etc.) and external (money, time, etc.) adequacy in order to realize the behavior and of his/her belief in whether this adequacy will facilitate or complicate the behavior. *Beliefs* which constitute the cognitive and affective basis of attitude, subjective norm and PBC play a central role in TPB. At the core of beliefs is the effect of such variables as emotions, personal characteristics, intelligence, value, age, gender, level of education, knowledge, experience and income, and race (Ajzen, 2005).

Methodology of Research

This is a qualitative research. Data were gathered via face-to-face interviews conducted in the spring semester of the 2012-2013 academic year.

Sample of Research

Sample consists of 20 male and 9 female high school students in Ankara who were selected on a voluntary basis by using appropriate sample method. In appropriate sampling method, objects and individuals to be used in sampling are selected from an environment that is familiar to the researcher (Aziz, 1994, p 58). There are



smoker and non-smoker female and male students in the sample. This enabled the researchers to thoroughly examine the beliefs towards smoking and to present different views on the topic in a detailed way. 15 of these students (12 boys, 3 girls) indicated that they smoke, 10 of them (5 boys, 5 girls) said they do not smoke, and 4 of them (3 boys, 1 girl) indicated that they occasionally smoke.

Data Collection and Instrument

Data were gathered through semi-constructed face-to-face interviews. In gathering the data, an interview form was developed by the researchers after a literature scan, and it was based on Theory of Planned Behavior directives (Ajzen & Fishbein, 1980; Ajzen, 1985; Ajzen, 1988). During the interviews, a *problem-based interview method* was adopted. Problem-based interview is a semi-constructed qualitative data gathering method in which individuals can answer the questions freely (Witzel, 1985). By employing this method, the researcher focuses on the problem case he or she has determined, and looks for the answers to the questions in the questionnaire. Questions asked here are always determined by a theoretical framework, and the interview form is as standardized as possible (Mayring, 2002).

The interview form used in this study consists of three columns. In the first column, the dimension of the theory to be measured is indicated, in other words, the first column expresses to what end the questions are asked. Araştırmada kullanılan görüşme formu üç sütundan oluşmaktadır. In the second column are the questions; and the third column consists of possible answers the students can give to the questions. The questions in the interview form consist of three groups. The first group questions are related to beliefs about smoking behavior and its possible outcomes as well as evaluating these outcomes. Questions in the second group aim to determine which institution or person is more influential on students' smoking habits. In the third group, there are questions related to determining how students perceive the conditions related to smoking.

Data Analysis

The content of face-to-face interviews was recorded by an audio-recorder, and then they were transcribed. The prepared interview protocols were evaluated by *qualitative data analysis method* (Mayring, 2002) using *MAXqda*. In this method, data is explored by dividing it into categories according to certain frameworks. There is *constructive content analysis* here, in which categories are determined beforehand within a certain theoretical framework, and *summarizer content analysis methods*, in which categories are determined by the researcher, using data material. In this study, category definitions were made for attitude, subjective norm, perceived behavior control, and behavior intention, all of which are the main dimensions of TPB, and this data was examined via constructive content analysis by taking these categories into consideration. Sub-dimensions of the theory, i.e. behavior beliefs, normative beliefs, and control beliefs were examined by using summarizer content analysis where similar expressions were gathered under common titles.

Results of Research

For the data that were categorized by taking into consideration the TPB dimensions, frequency (f) and percentage (%) tables were formed. These tables were used in interpreting the data.

Students' behavior beliefs regarding smoking were given in Table 1. Students were asked what positive and negative effects of smoking could be, and these negative and positive effects were summarized separately in the table in accordance with the answers they had given.



Table 1. Students' behavioral beliefs related to smoking.

	Total		Boys		Girls	
	f	%	f	%	f	%
<i>If I smoke... (Positive effects)</i>						
1. Reduces my stress.	18	62	13	65	5	56
2. I would be popular.	8	28	6	30	2	22
3. Relieves my headache.	7	24	6	30	1	11
4. I would make some new friends.	7	24	5	25	2	22
5. Increases my self-esteem.	5	17	4	20	1	11
6. I would enjoy.	5	17	3	15	2	22
<i>If I smoke... (Negative effects)</i>						
1.* My health deteriorates.	29	100	20	100	9	100
2. I would be addicted.	21	72	15	75	6	67
3. Health of the people around me deteriorates.	19	66	11	55	8	89
4. My friendship relations deteriorate.	15	52	9	45	6	67
5. I am excluded from the society.	14	48	11	55	3	33
6. My family relationships deteriorate.	13	45	7	35	6	67
7. I live economic difficulties.	13	45	10	50	3	33
8. I cause environmental pollution because of smoke and cigarette butts.	8	28	7	35	1	11
9. That directs me to bad habits (alcohol, gambling, theft).	6	21	5	25	1	11
10. My psychology deteriorates.	5	17	3	15	2	22
11. I smell bad.	4	14	3	15	1	11
12. I would be a bad example to children.	3	10	2	10	1	11

*Refer to Table 2 for more details.

As can be seen in Table 1, students think that smoking has a stress-reducing effect. This is the most frequently cited positive effect of smoking. When it comes to negative effects, all students indicated that smoking is hazardous to health. Students approached the negative effects of smoking from different angles. Thus, in order to have a more detailed analysis of their behavior beliefs, regarding health-related results of smoking Table 2 was formed.

Table 2. Behavioral beliefs, regarding health-related results of smoking

	Total		Boys		Girls	
	f	%	f	%	f	%
<i>If I smoke...</i>						
1. I would have cancer.	15	52	11	55	4	44
2. My lungs are damaged.	15	52	11	55	4	44
3. I would die early.	11	38	8	40	3	33
4. My heart is damaged.	4	14	2	10	2	22
5. My skin is damaged.	4	14	-	-	4	44
6. My liver is damaged.	3	10	2	10	1	11
7. My internal organs are damaged.	3	10	1	5	2	22
8. I lose strength.	2	7	2	10	-	-



	Total		Boys		Girls	
	f	%	f	%	f	%
9. My head aches.	2	7	2	10	-	-
10. I cough frequently.	2	7	1	5	1	11
11. My immune system gets weak.	1	3	1	5	-	-
12. I would have tuberculosis.	1	3	1	5	-	-
13. My teeth become yellow.	2	7	-	-	2	22
14. I would be losing hair.	1	3	1	5	-	-
15. I would be aging too early	1	3	1	5	-	-
16. My baby is damaged during pregnancy.	1	3	-	-	1	11

When students were asked what negative effects of smoking were on health, it was seen that the first thing they indicated was that they believed it caused cancer (Table 2). When frequencies were examined, it stands out that the belief that it causes cancer and the beliefs that lungs are damaged have the same frequency. Another frequently indicated belief is that smoking causes early death.

Students' normative beliefs, regarding smoking, were given in table 2. Here, students were asked about the people and institutions that support or do not support smoking. All students have the belief that their families do not support smoking. *Friends* are considered to be supportive by some students (34%), and for some they are said to be unsupportive (55%).

Table 3. Students' normative beliefs, regarding smoking

	Total		Boys		Girls	
	f	%	f	%	f	%
<i>They support my smoking:</i>						
1. Friends	10	34	6	30	4	44
2. My smoker acquaintance	3	10	2	10	1	11
3. Cigarette sellers	2	7	2	10	-	-
<i>They do not support my smoking:</i>						
1. Family	29	100	20	100	9	100
2. Friends	16	55	12	60	4	44
3. Relatives	8	28	6	30	2	22
4. Adults	4	14	4	20	-	-
5. Teachers	4	14	3	15	1	11
6. Call 171 Quit Smoking Hotline	3	10	2	10	1	11
7. Girlfriend	2	7	2	10	-	-
8. Turkish Green Crescent Society	1	3	1	5	-	-

Students' control beliefs regarding smoking were given in Table 4. Students' answers were summarized separately as factors facilitating and aggravating smoking. When Table 4 was examined, it was seen, that students' financial means (whether they have the means to buy cigarettes or not) is a decisive factor in their perceived behavior control, regarding smoking. Among the aggravating factors, the first one is the family's negative reaction. Having a place where they can smoke undetected is among the first factors that facilitate smoking.



Table 4. Students' control beliefs, regarding smoking

	Total		Boys		Girls	
	f	%	f	%	f	%
<i>Factors that facilitate my smoking</i>						
1. Enough financial opportunities to get cigarettes	15	52	9	45	6	67
2. Find an environment where I can smoke without appearing	12	41	8	40	4	44
3. No reaction of my family	11	38	10	50	1	11
4. Offering of my friends	7	24	6	30	1	11
5. Smoking of others around me	6	21	3	15	3	33
6. The sale of a single cigarette	5	17	3	15	2	22
7. Failure to comply with the ban indoor environment	3	10	2	10	1	11
8. Sale to anyone without regarding age restrictions	1	3	1	5	-	-
<i>Factors that complicate my smoking</i>						
1. Negative reaction of my family	19	66	14	70	5	56
2. Not enough financial opportunities	12	41	9	45	3	33
3. Negative reaction of my teacher	6	21	5	25	1	11
4. To be caught by the familial while smoking	6	21	4	20	2	22
5. Is prohibited in indoor environments	5	17	4	20	1	11
6. Negative reaction of my friends	1	3	-	-	-	-

Discussion

It was seen, that a great number of students used such expressions as *it reduces my stress* and *it takes away my headache* to list the positive effects of smoking (Table 1). It is thought, that these expressions may be resulting from students' family background, hardships of today's living conditions and their educational background. Most probably, students feel under a huge amount of stress due to the problems occurring within the family, or due to the feeling compelled to be competing against everyone because of the constant presence of exams in their lives; and they smoke in order to deal with this stress. Research shows, that the urge to get rid of stress-related anxiety and difficulties faced in life, is one of the main reasons of starting smoking (Bray, Fairbank & Marsden, 1999; Balbay, Annakkaya, Aytar, & Bilgin, 2003; Keskinoglu, Karakus, Picakciefe, Giray, Bilgic, & Kilic, 2006). In their studies, Arbak, Erdem, Karacan & Ozdemir, (2000) concluded, that factors that lead to stress and anxiety in adolescents, such as education, family structure, and social pressure should be examined thoroughly, and that appropriate directives should be given to them by counseling services. In this respect, it would be helpful to investigate family structure and problems of smoking students and provide them with necessary psychological support. Although smokers have an intense belief in the reducing effects of smoking over the feelings of stress and anxiety, it is also known that stress levels of smokers are higher than of non-smokers. Moreover, stress level of those who quit smoking is meaningfully reduced in the long run compared to those who continue to smoke (Gencoz, Soykan, Soykan & Gencoz, 2003). Thus, it is significant to make adolescents know, that smoking is not a stress-reducing agent; on the contrary, it is a source of stress in the long run.

When the expressions related to the negative effects of smoking are examined, it can be said, that female students experience the anxiety that their peer and familial relationships would suffer if they smoke more than male students do. It can be said that female students are more susceptible to harming people around them compared to male students.

Almost half of the students expressed, that smoking may cause them to be marginalized in society. Through the impressions got from the interviews, it can be said that students mean the adults around them, such as their neighbors or teachers, when they use the word *society*. Moreover, that 21% of students relate smoking with other bad habits (alcohol consumption, gambling, and theft) is another significant finding. These two findings are thought to be related to the nature of Turkish society. According to Turkish traditions, smoking in front of



the elders, women and adolescents, smoking in the streets are unwelcomed deeds. Moreover, they are usually considered to be a sign of disrespect, and are usually associated with other bad habits.

Another issue to draw attention to, in addition to their harm to health and social relations, is the harm cigarettes have on environment. Although 28% of students seem to have an awareness of the environmental danger of cigarette smoke and cigarette butts, it can also be said that this percentage is, in fact, rather low. Indeed, environmental pollution and fires caused by cigarette-butts also play an important role in cigarette-related environmental problems (Kaya, 2012). Findings of the study show, that there is a need for studies to raise awareness on this issue.

All of the participant students are aware, that their health would deteriorate should they smoke. Moreover, most of the students feel anxious, that they would become addicts should they start smoking. It is thought, that informative campaigns in the media on the hazardous effects of smoking have a hand in this anxiety. On top of the list of the primary problems related to smoking are *damage to lungs* and *smoking related to early death* (Table 2). It is significant, that these are the problems that are constantly brought to attention in the media. This makes one think that media has an impact on students' view on the negative effects of smoking. When Table 2 is examined, it can be seen that male students voice health-related problems more than female students do. When the fact, that 75% of male students and 44% of female students smoke is taken into consideration, it can be said, that male students continue smoking albeit knowing its hazardous effects. One can draw the conclusion that because smoking-related health problems occur in the long run, they are not paid much attention to.

Students indicated that smoking enabled them to become popular, make new friends, and that it has a self-esteem boosting effect (Table 1). As mentioned in the previous paragraph, it can be inferred, that public service ads have an effect on students' answers. However, public service ads are mostly on the hazardous effects of smoking and on how to quit smoking. Thus, it is thought, that there is a need for preparing public service ads, which target to show, that smoking is not a socialization or popularity-gaining tool.

In Subjective Norm (Table 3), *friends* play an important role both as people who encourage smoking and as people who do not support smoking. This shows the important effect of the expectations of one's friends on students' smoking behavior. All students expressed, that their families do not support smoking, which is an expected result. However, smoker male students (75%) and smoker female students (44%) can be said to be presenting a contradictory behavior against their parents' expectations. Students listed relatives/elders and their teachers as other people who do not support their smoking.

When control beliefs (Table 4) are examined, it can be seen, that the expression *having sufficient financial means* takes the first place among the facilitative and deterrent factors. In other words, whether the student has the financial means to buy cigarettes or not is an important factor in their smoking behavior. Another parallel finding is that both female (33%) and male (50%) students indicated, that smoking may lead them experience financial difficulties. At this stage, increasing the price of cigarettes would be a good preventive measure. Increase in cigarette prices, due to additional taxes, may be thought of as a factor that affects smoking behavior negatively. In several studies (Karagoz, Albeni, & Buyuktatli, 2010; Aslan & Bilir, 2011), it was found, that increase in cigarette prices and taxes decreased smoking. Selling cigarettes one by one instead of in packs, was considered among the facilitating factors. Preventing this would play an important role in blocking the access to cigarettes, particularly of this age group. Students listed being offered cigarettes by their friends and selling cigarettes to anyone, regardless of their age as facilitating factors. Taking this into consideration, it can be said, that making it difficult to access would decrease smoking behavior.

Family reaction also affects students' smoking behavior to a great extent. In this case, it can be said, that parents being concerned for their children's wellbeing and showing a determined attitude against smoking, would be a deterrent factor. Another influential factor is *having a place where one can smoke undetected*. Based on students' expressions given during the interviews, it can be said that students shy away from being seen smoking by their elders (teachers, family members, relatives) because they are afraid or ashamed of their reaction. At this point, students in fact do not consider smoking as something normal for themselves. As a matter of fact, *negative reaction of teachers* and *being seen by someone known* were listed as important factors that make smoking difficult.



Conclusions

Students' expressions during the interviews show, that they are under stress due to such reasons as familial relationships and the forceful and exam-oriented nature of the education system. Being under stress for various reasons, students indicated that smoking is a stress-reducing factor. In order to eliminate the stress-inducing factors, it is necessary to provide them with psychological counseling and raise their awareness on the fact that smoking cannot be a solution to their problems.

Results indicate that there are differences in the male and female students' beliefs affecting smoking behavior. It was seen, that compared to male students, female students are more sensitive to the harm smoking has on people around them and to the deterioration of relationships due to smoking. It was also seen, that male students are more concerned with being an addict, marginalized, picking other bad habits such as drinking or gambling, and having financial difficulties. Thus, it is important to take these differences into consideration when preparing programs or issuing preventive measures.

Research findings show, that anti-smoking campaigns running in the media in recent years have been effective on students. This is most explicitly seen in students' behavior beliefs regarding health-related results of smoking. Here, students mostly voiced the health problems that were touched upon in the media, and mentioned other health, environmental, and economic problems less. Thus, it is thought that increasing such campaigns and including similar studies in school curricula would be effective in preparing students for a smoking-free life. Moreover, it is thought, that handling the negative effects of smoking other than the health-related ones, would have a positive effect in raising awareness about the dangers of smoking from a different angle.

A huge responsibility falls unto biology and health teachers in the studies and activities to be conducted in schools. Students smoke despite knowing that smoking would cause serious health problems such as cancer. This was interpreted as because smoking-related health problems occur in the long run, students usually disregard such problems. In this respect, having activities in biology and health classes such as animations, simulations, various experiments, hospital visits, doctor and/or patient interviews would help students comprehend the severity of the situation.

The available prices of cigarettes and their being sold disregarding the age of the buyer were counted among the facilitating factors for smoking. This proves that more attention should be paid to applying existing preventive measures and taking more preventive measures that would make it difficult to access cigarettes. Another factor that affects smoking among adolescents is the social pressure they feel. They frequently mentioned that they shy away from being seen smoking by their parents or elders who would chastise them. Preparing public service ads or activities such as seminars, plays or shows addressing this would emphasize the social disadvantages of smoking; they would underline that smoking is not a means of popularity; on the contrary it causes social, health-related and aesthetic losses.

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References

- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. *Action-control: From cognition to behavior*. Kuhl, J. and Beckmann, J. (eds.), Springer, Heidelberg. pp. 11-39.
- Ajzen, I. (1988). *Attitudes, personality and behavior*. Open University Press, Milton Keynes, 175p.
- Ajzen, I. (2005). *Attitudes, personality, and behavior* (2nd. Edition). Open University Press / McGraw- Hill, Milton-Keynes, England, 178p.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behaviour*. Prentice-Hall, New Jersey, 278p.
- Ajzen, I., & Fishbein, F. (2008). Scaling and testing multiplicative combinations in the expectancy-value model of attitudes. *Journal of Applied Social Psychology, 38*, 2222-2247.
- Albarracin, D., Blair, T. J., Fishbein, M., & Muellerieile, P. A. (2001). Theories of reasoned action and planned behavior as models of condom use: meta-analysis. *Psychological Bulletin, 127*, 142-161.
- Arbak, P., Erdem, F., Karacan, O., & Ozdemir, O. (2000). Smoking habits in high-school students in Düzce. *The Journal of Turkish Respiratory Society, 2* (1), 17-21.



- Armitage, C. J., & Conner, M. T. (1999). Distinguishing perceptions of control from self-efficacy: Predicting consumption of a low fat diet using the Theory of Planned Behavior. *Journal of Applied Social Psychology, 29*, 72-90.
- Aslan, D., & Bilir, N. (2011). Tutun kontrolunde cok önemli bir yaklasim: Vergi miktarinin artisti. *Surekli Tip Egitimi Dergisi, 19* (5), 8-9.
- Aziz, A. (1994). *Arastirma Yontemleri-Teknikleri ve Iletisim*, Turhan Kitabevi, Ankara.
- Balbay, O., Annakkaya, A. N., Aytar, G., & Bilgin, C. (2003). The results of smoking cessation programmes in chest diseases department of Duzce Medical Faculty. *Düzce Medical Journal, 3*, 10-14.
- Bamberg, S., & Schmidt, P. (1993). Verkehrsmittelwahl – eine Anwendung der Theorie des geplanten Verhaltens. *Zeitschrift für Sozialpsychologie, 24*, 25-37.
- Bray, R. M., Fairbank, J. A., & Marsden, M. E. (1999). Stress and substance use among military women and men. *American Journal of Drug and Alcohol Use, 25* (2), 239-256.
- Centers for Disease Control and Prevention, (2004). 2004 Surgeon General's Report—The Health Consequences of Smoking. Retrieved 10/12/2013 from http://www.cdc.gov/tobacco/data_statistics/sgr/2004/complete_report/index.htm
- Conner, M., Norman, P. & Bell, R. (2002). The theory of planned behavior and healthy eating. *Health Psychology, 21*, 194-201.
- Erguder, T., Cakir, B., Aslan, D., Warren, C.W., Jones, N. R., & Asma, S. (2008). Evaluation of the use of Global Youth Tobacco Survey (GYTS) data for developing evidence-based tobacco control policies in Turkey. *BMC Public Health, 8* (Suppl 1): S4.
- Eriksen, M., Mackay, J., Ross, H. (2012). *The Tobacco Atlas*. Fourth Ed. Atlanta, GA: American Cancer Society; New York, NY: World Lung Foundation. Retrieved 18/01/2014 from http://tobaccoatlas.org/uploads/Images/PDFs/Tobacco_Atlas_2ndPrint.pdf
- Frey, D., Stahlberg, D., & Gollwitzer, P. M. (1993). Einstellung und Verhalten: Die Theorie des überlegten Handelns und die Theorie des geplanten Verhaltens. *Kognitive Theorien der Sozialpsychologie*, Frey, D. und Irle, M. (Hrsg.), Bern:Huber, Band I, s.368-398.
- Gagne, C., & Godin, G. (2000). The Theory of Planned Behavior: Some measurement issues concerning belief-based variables. *Journal of Applied Social Psychology, 30*, 2173-2193.
- Gencoz, F., Soykan, C., Soykan, A., & Gencoz, T. (2003). *Sigara Bagimlilik ve Tedavisi*, ART Ofset Matbaacilik San. ve Tic. Ltd. Sti., Ankara
- Karagoz, M., Albeni, A., & Buyuktatli, F., (2010). Effects of regulatory reforms on cigarette consumption, *International Journal of Alanya Faculty of Business, 2* (2), 19-36.
- Karlikaya, C. (2002). Smoking prevalence among high school students in edirne smuggling, advertising and adolescence access to cigarettes. *Turkish Thoracic Journal, 3* (1), 7-12.
- Kaya, A. (2012). Sigaranin muhasebesi: Sigara kullanimina ekonomi ve saglik acisindan bir bakis. II. Bölgesel Sorunlar ve Türkiye Sempozyumu 1-2 Ekim, 2012.
- Keskinoglu, P., Karakus, N., Picakciefe, M., Giray, H., Bilgic, N., & Kilic, B. (2006). Smoking prevalence among high school students in Izmir and influences of social learning on smoking behaviour. *Turkish Thoracic Journal, 7* (3), 190-195.
- Kilic, D. S. (2011). *Biyoloji Dersinde Evrim Konusunun İhlenmesini Etkileyen Faktorler*, Doktora tezi, Hacettepe Üniversitesi Fen Bilimleri Enstitüsü, Ankara.
- Mayring, P. (2002). *Einführung in die qualitative Sozialforschung*. Beltz Verlag. Weinheim und Basel, 170S.
- Nilden Arslan, H., Terzi, O., Dabak, S., & Peksen, Y. (2012). Substance, cigarette and alcohol use among high school students in the provincial center of Samsun, Turkey. *Erciyes Medical Journal, 34* (2), 79-84.
- Norman, P., Conner, M., & Bell, R. (1999). The theory of planned behavior and smoking cessation. *Health Psychology, 18*, 89-94.
- Ogel, K., Tamar, D., Evren, C., & Cakmak, D. (2000). Prevalance of substance use among high school students in Istanbul. *Journal of Clinical Psychiatry, 4*, 242-245.
- Ogel, K., Tamar, D., Evren, C., Cakmak, D. (2001). Tobacco, alcohol and drug use among high school students. *Turkish Journal of Psychiatry, 12* (1), 47-52.
- Ogel, K., Corapcioglu, A., Sir, A., Tamar, M., Tot, S., Doğan, O., Uguz, S., Yenilmez, C., Bilici, M., Tamar, D., & Liman, O. (2004). Tobacco, alcohol and substance use prevalence among elementary and secondary school students in nine cities of Turkey. *Turkish Journal of Psychiatry, 15* (2), 112-118.
- Plies, K., & Schmidt, P. (1996). Intention = Verhalten? Eine repräsentative Längsschnittstudie zur Überprüfung der Theorie des geplanten Verhaltens im Kontext der AIDS-Prävention1, *Zeitschrift für Sozialpsychologie, 27*, 70-80.
- Reinecke, J. (1997). *AIDS-Prävention und Sexualverhalten: Die Theorie des geplanten Verhaltens im empirischen Test*. Westdeutscher Verlag, Opladen.
- Ministry of Health, General Directorate of Basic Health Services [Sağlık Bakanlığı Temel Sağlık Hizmetleri Genel Müdürlüğü]. (2010). *Küresel Yetiskin Tutun Arastirmasi Turkiye Raporu*. Saglik Bakanligi Yayin No: 803.
- Schifter, D. B., & Ajzen, I. (1985). Intention, perceived control, and weight loss: An application of the theory of planned behaviour. *Journal of Personality and Social Psychology, 49*, 843-851.
- Sparks, P., & Shepherd, R. (1992). Self-Identity and the theory of planned behavior. Assessing the role of identification with "green consumerism". *Social Psychology Quarterly, 55*, 388-399.
- T.R. Prime Ministry General Directorate of Family and Social Researches and T.R. Turkish Statistical Institute [T.C. Başbakanlık Aile ve Sosyal Araştırmalar Genel Müdürlüğü ve T.C. Türkiye İstatistik Kurumu]. (2006). *Aile Yapisi Arastirmasi*. Türkiye İstatistik Kurumu Matbaasi, Ankara.
- Witzel, A. (1985). Das Problemzentrierte Interview. In Jüttemann, G.(Hrsg.): *Qualitative Forschung in der Psychologie* (S. 227-256). Weinheim:Beltz



- World Health Organisation, (2008). Who Report On The Global Tobacco Epidemic. Retrieved 18/01/2014, from http://www.who.int/tobacco/mpower/mpower_report_full_2008.pdf,
- Wortmann, K. (1994). *Psychologische Determinanten des Energiesparens*. Weinheim: Psychologie Verlags Union.
- Yaman, M. (2003). *Die Berücksichtigung der Robinsohnschen Curriculumdeterminanten bei der Behandlung des Themas Ernährung. – Eine empirische Untersuchung bei Lehrern und Studierenden in Deutschland und in der Türkei auf der Grundlage der Theory of Planned Behavior*, Dissertation. Justus-Liebig-Universität Gießen, Gießen.

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