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Nicotine Dependence Levels of Individuals Applying to a Family Health Center and Their Status of Being Affected by Warnings on Cigarette Packs

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ABSTRACT

Objective: The aim of this study is to determine the frequency of smoking and the status of being affected by the textual and pictorial warnings on cigarette packs in individuals who apply to a family health center for any reason.

Methods: This is a descriptive study. After the sample size calculation, 320 individuals were included in the study. A questionnaire prepared by the researchers upon the literature review and Fagerström test for nicotine dependence were used to collect the data. In the study, the data were analyzed using SPSS 22.0 packaged software and the significance level was accepted as $p<0.05$.

Results: It was found that the average age of the participants was 38.53±14.21. 40.9% of the participants were smokers. 19.8% had a high level of nicotine dependence. 35.9% stated that they were affected by warnings on cigarette packs. In the study, all the participants' statuses of being affected by pictorial and textual messages on cigarette packs were compared in terms of their gender and it was found that while men found the textual message of "Smoking damages sperms and reduces fertility" more effective, women found the textual message of "Smoking during pregnancy is harmful to your baby" more effective. On the other hand, the picture showing the couple sitting side by side in bed among the pictures was effective.

Conclusion: Smoking cessation interventions, priority can be given to young people and those with low education. In addition, warnings about baby/child and sexuality can be involved more on cigarette packs.

Keywords: cigarette, dependence, effect, family health center, public health nurse.

1.INTRODUCTION

Cigarette causes dependence due to high rate of nicotine it contains, and thus leading to death of more than eight million people every year (1). In 2016, the smoking rate was 15.5% among American adults, 17.5% in men, and 13.5% in women (2). Smoking rate was found as 39.1% in a study conducted in the People's Republic of China (3), 35.1% in a study conducted with healthcare professionals in Croatia (4), 24.8% in a study conducted in Montenegro (5). A study conducted in Turkey reported that the smoking rate was 25.7% among participants, 39.2% for men, and 12.6% for women (6). According to result of Global Adult Tobacco Survey, the smoking rate is 27.1% in Turkey. While this rate is 41.5% in men, it is 13.1% in women (7). When data of OECD 2019 for Turkey are examined, it is seen that the rate of smokers aged 15 years and over is 26.5% (8).

Tobacco kills approximately half of its users. One-fifth of deaths in the United States of America are associated with the health problems caused by smoking (cancer, respiratory and cardiovascular diseases) (9). The American Center for Disease Control and Prevention estimates that averagely 430.700 people die each year due to smoking. Dependence, which occurs within months for alcohol and within days for heroin, is seen within hours for nicotine (10). Being one of the most important health problems in the world, nicotine dependence is responsible for one of every ten deaths in the world each year (11). A person dies every six seconds in the world due to tobacco use. It is predicted that the smoking-related deaths would reach to 8.4 million by 2030 (12).

The warnings on cigarette packs are important for informing the users about health risks in long-term smoking (13). A person who smoke one pack of cigarettes a day has to face these warnings on cigarette packs at least 7000 times a year. Therefore, one can resist against smoking whenever he/she wants to smoke (14). After seeing the warnings on the cigarette packs, the number of people thinking to quit smoking by considering them between 2008-2012 increased at the rate of 14.4% (7). Due to its positive effects, the use of textual and pictorial warnings on cigarette packs against smoking, fighting

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with tobacco use, and making various interventions to prevent smoking are very important (14). In their study, Ozkaya & Edinsel (15) investigated the effect of textual warnings on cigarette packs on high school students and determined that the students evaluated all warning texts as *important and very important*. While the rate of those who thought that these warning texts would create positive effects was 38.9%, the rate of those who believed that they would not create any positive effect was 61.1%. 22.5% of the students quitted smoking after reading these warnings. 44.4% were affected by the warnings but could not stop smoking, 33.1% were not affected at all and continued to smoke.

In another study conducted in Turkey concerning the opinions of university students about the warnings on cigarette packs, it was determined that while "*smoking can cause the fetal death*" expression ranked the first (64.1%), the second one was the expression of *"smoking occludes the veins and causes heart attacks and strokes"* (16). Again, in a study conducted with the ninth, tenth, and eleventh-grade high school students in Turkey, it was observed that while male students paid attention mostly to the picture pointing out impotence, female students paid attention to the picture pointing out the negative effects of smoking during pregnancy on babies. More than half of the male students and one-fourth of female counterparts considered the picture of impotence as effective (17). In their study, Mazlum and Mazlum (18) determined that the most effective picture was "*Smoking during pregnancy is harmful to your baby*" and the second effective one was "*smoking occludes the veins and causes heart attacks and strokes*".In a qualitative study investigating the awareness about warnings on cigarette packs in Saudi Arabia, most of the participants emphasized that they were aware of warnings on packs, more discouraging written expressions should be included on packs, and these warnings should be addressed in terms of cultural ethnic/religious perspectives and renewed periodically (19). In a study conducted in the United States of America, it was concluded that the pictures on cigarette packs recommended by the U.S. Food and Drug Administration were effective in reducing smoking but individuals with low self-efficacy were not affected by these pictures (20). In another study conducted with 5439 participants from Australia, USA, Canada and Mexico, they saw pictures on cigarette packs used in their country. It was found that the pictures led them to exhibit negative emotional reactions such as disgust and fear and these negative emotions increased the smoking cessation attempts by encouraging the behavioral changes (21).

Based on these facts, the purpose of this study designed on smoking affecting human health is to determine smoking frequency and status of being affected by the textual and pictorial warnings on cigarette packs in individuals who applied to a family health center for any reason. In the study, the answers to the following questions were sought;

-What is the smoking frequency of the participants?

-What are the dependence levels of the participants?

-What are the variables affecting smoking frequency?

-What are the variables affecting the dependence levels of individuals?

-How is the individuals' status of being affected by pictorial and textual warnings on cigarette packs?

2.METHODS

2.1.Purpose of the Study: This study was conducted to determine smoking frequency, dependence levels, and status of being affected by textual/pictorial warnings on cigarette packs in individuals who applied to a family health for any reason as well as the influencing factors.

2.2.Study Type: The study was conducted with descriptive design.

2.3.Place of the Study and Its Characteristics: The study was conducted in Kale Family Health Center (FHC) determined using simple random sample method among 21 FHCs located in city center of Kırşehir. Three family physicians, a midwife and a nurse work at the related FHC. The professionals in this FHC provide healthcare services to approximately 8000 people. An average of 2600 individuals are enrolled per physician.

2.4.Population and Sample of the Study: The sample size was calculated based on the study conducted by Uysal, Sonmez (22) reporting that the smoking frequency was 26.7%. In the case of known population, sample size was calculated according to the sample calculation formula at significance level of 0.05 and confidence interval of 95% by accepting the population as 8000 and the number of people to be included in the sample was found as 292. Due to possibility of data losses, 320 participants were included in the study.

2.5.Dependent Variable: Smoking status, dependence level, and status of being affected by pictorial and textual warnings on cigarette packs.

2.6.Independent Variable**:** *Sociodemographic characteristics* (age, gender, educational status, and marital status) and smoking-related characteristics (previous attempts to quit smoking and presence of a smoking family member).

2.7.Data collection technique and tools: The researcher collected the data by using face-to-face interview technique. Individuals, who applied to the related FHC for any reason between November 2018 and April 2019 and agreed to participate in the study, were included in the study. In the study, a questionnaire with three parts prepared by the researcher based on the literature was used. The first part of the questionnaire includes sociodemographic and smoking – related characteristics, the second part includes features related to textual and pictorial warnings on cigarette packs, and the third part includes nicotine dependence test which was reviewed by Fagerstrom et al., (23) and whose Turkish validity and reliability study was conducted by Uysal et al., (24). In the its reliability analysis, Cronbach's alpha value of the scale was calculated as 0.56. Each item of the test with six items is scored between 0 – 3 points and score interval of the test varied between 0-10 points. According to total scores taken from the scale, nicotine dependence is rated under

three groups as low (0-3 points), moderate (4-6 points), and high (≥7 points).

2.8.Preliminary application: Before the study, a preliminary application was conducted with ten smokers enrolled in another FHC in terms of the content, comprehensibility, and time of the questions.

2.9.Data Analysis: In the statistical analyses, the chi-square test was used to compare percentage differences between the groups along with the descriptive statistics such as number, percentage and mean. Statistical significance level was accepted as p<0.05.

2.10.Ethical considerations: Before starting the study, the institutional permission from Kırsehir Provincial Directorate of Health (number: 13389610-806.99, date: 02.11.2018), Ethics committee approval from Kırsehir Ahi Evran University Non-invasive Ethics Committee (2018-18/164, 09.10.2018), and informed consents from the participants were obtained.

3.RESULTS

A total of 320 people who applied to Kale FHC for any reason were included in the study. Their mean age was 38.53±14.21. Table 1 shows some descriptive characteristics, smoking-related characteristics and dependence levels of the participants. Of the participants, 54.7% were male, 41.6% had secondary school or lower education level, and 55.3% were married. 37.2% of the participants were working and 67.8% had a moderate income.

It was found that 40.9% of the participants were smokers including 49.1% of male participants and 31% of female counterparts. The rate of having a smoking family member was 48.4%. The mean age of starting smoking was 17.71±5.13 (min.7, max.42). 19.8% of the participants had a high level of nicotine dependence.

Pictorial warnings on cigarette packs attracted the attention of 58.8% of the participants and 35.9% stated that they were affected by the warnings on cigarette packs.

The participants' some descriptive characteristics, smoking status and status of being affected by the warnings on cigarette packs were compared (Table 2). It was determined that there was a statistically significant difference between smoking status (p<0.004), the presence of previous attempts to quit smoking (p<0.025), the status of drawing attention by pictorial warnings (p<0.000) and the status of being affected by the warnings on cigarette packs.(Table 2)

It was determined in the study that 19.8% of the participants were highly dependent on nicotine. Some descriptive characteristics and Fagerström nicotine dependence levels of the participants were compared and given in Table 3. There was a significant difference between the dependence level and age (p<0.001). Although the rate of being highly dependent was higher in men (23.3%) than women (13.3%), there was no statistically significant difference between genders in terms of dependence level (p=0.176). When the dependence level was evaluated in terms of education level, those with secondary school and lower education level (71.9%) and those with high school and higher education levels (86.5%) had mostly low and moderate dependence levels. There was a significant difference between education level and dependence degree (p<0.038). The dependence level of single participants (23.7%) was higher than the level of the married counterparts (16.7%). While one-third of the respondents (29.8%) who stated "not effective at all" for the warnings on cigarette packs were highly dependent, 89.5% of those who stated "effective" option were lowly and moderately dependent. There was a statistically significant difference between the status of being affected by the warnings on cigarette packs and the nicotine dependence level (p<0.040). Dependence level and status of paying attention to pictorial warnings (p=0.147), previous attempts to quit smoking (p=0.456) and the presence of a smoking family members (p=0.435) were similar and there was no statistically significant difference between them. (Table 3)

Table 1 *The distribution of some descriptive characteristics of the participants (N=320)*

Age	**Mean±S.D**	**38.53±14.21**
	Number (n)	Percentage (%)
Gender		
Male	175	54.7
Female	145	45.3
Education level		
Secondary school and below	133	41.6
High school and above	187	58.4
Marital status		
Married	177	55.3
Single	143	44.7
Smoking status		
Smoker	131	40.9
Non-smoker	189	59.1
Individual smoking in the family		
Yes	155	48.4
No	165	51.6
Dependence Levels of Smokers*		
Low	65	49.6
Moderate	40	30.5
High	26	19.8
Affected by textual and pictorial warnings		
Affected	115	35.9
Slightly affected	99	30.9
Never affected	106	33.2
Previous attempt to quit smoking**		
Yes	115	65.3
No	61	34.7
Attention to pictorial warnings		
Get your attention	188	58.8
Unobtrusive	132	41.2
Total	320	100

**A total of 131 places are indicated with *. Totally 176 in the places indicated with **.*

In the study, the participants' status of being affected by textual and pictorial warnings on cigarette packs was compared according to genders and given in Tables 4 and 5.

The expression of "*Smoking damages sperms and reduces fertility"* was found to be more effective in men (59.4%) than women (41.4%) and the difference between them was statistically significant (p=0.005). Although this textual warning was more effective in men, pictorial warnings did not differ between genders. The expression of *"Smoking during pregnancy is harmful to your baby"* was considered as more effective by women (69.1%) compared to men (66.9%) and the difference between them was statistically significant (p=0.038). It was found that the picture of this textual warning did not make an effective difference between the genders.

When the status of the images to affect the participants were examined in the study, it was determined that the picture showing the couple sitting side by side in bed (no.9) was more effective in men (65.7%) than women (47.6%) and the difference between the genders was statistically significant (p=0.004), but there was no statistically significant difference between the genders since the written message on the same picture ("*Smoking slows the blood flow and causes sexual impotence*") was effective.

Table 2 *Comparison of some descriptive characteristics of the participants with smoking status and the warnings on cigarette packs*

	Effective		Less effective		Non-effective		Total		
Variables	n	%	n	%	n	%	n	%	p
Age									
40 age and under	62	33.0	57	30.3	69	36.7	188	100	0.231
Over 40 years	53	40.2	42	31.8	37	28.0	132	100	
Gender									
Male	58	33.1	55	31.4	62	35.4	175	100	0.475
Female	57	39.4	44	30.3	44	30.3	145	100	
Education level									
Secondary school and below	48	36.1	37	27.8	48	36.1	133	100	0.517
High school and above	67	35.8	62	33.2	58	31.0	187	100	
Marital status									
Married	60	33.9	60	33.9	57	32.2	177	100	0.431
Single	55	38.5	39	27.3	49	34.3	143	100	
Smoking status									
Smokers	38	29.0	36	27.5	57	43.5	131	100	0.004
Non-smokers	77	40.7	63	33.3	49	25.9	189	100	
Individuals smoking in the family									
Yes	53	34.2	48	31.0	54	34.8	155	100	0.771
No	62	37.6	51	30.9	52	31.5	165	100	
Dependency level**									
Less	19	29.2	21	32.3	25	38.5	65	100	0.111
Medium	15	37.5	10	25.0	15	37.5	40	100	
High	4	15.4	5	19.2	17	65.4	26	100	
Previous attempt to quit smoking *									
Yes	40	34.8	37	32.2	38	33.0	115	100	0.025
No	14	23.0	14	23.0	33	54.1	61	100	
Attention to pictorial warnings									
Get your attention	81	43.1	66	35.1	41	21.8	188	100	0.000
Unobtrusive	34	25.8	33	25.0	65	49.2	132	100	
Total							320	100	

** is 176 in total. ** is 131 in the places indicated with.*

Table 3 *Comparison of some descriptive characteristics of the participants with their Fagerström nicotine dependence levels*

	Fagerström Test for Nicotine Dependence						
	Low and Medium grade		High grade		Total		
Variables	n	%	n	%	n	%	p
Age							
40 age and under	72	88.9	9	11.1	81	100	0.001
40 age and over	33	66.0	17	34.0	50	100	
Gender							
Male	66	76.7	20	23.3	86	100	0.176
Female	39	86.7	6	13.3	45	100	
Education status							
Secondary school and below	41	71.9	16	28.1	57	100	0.038
High school and above	64	86.5	10	13.5	74	100	
Marital status							
Married	60	83.3	12	16.7	72	100	0.313
Single	45	76.3	14	23.7	59	100	
Attention to pictorial warnings							
Get your attention	53	85.5	9	14.5	62	100	0.147
Unobtrusive	52	75.4	17	24.6	69	100	
Affected by textual and pictorial warnings							
Affected	34	89.5	4	10.5	38	100	0.040
Slightly affected	31	86.1	5	13.9	36	100	
Never affected	40	70.2	17	29.8	57	100	
Previous attempt to quit smoking							
Yes	61	82.4	13	77.2	74	100	0.456
No	44	17.6	13	22.8	57	100	
Individual smoking in the family							
Yes	64	78.0	18	22.0	82	100	0.435
No	41	83.7	8	16.3	49	100	
Total					131	100	

Table 4 *The Participants' assessment of textual warnings on cigarette packs by gender*

	TEXTUAL WARNİNGS		1. Smoking is highly dependent.			2. Ask the doctor and your nearest health center to quit smoking.			3.Health organizations can help you quit smoking.			4.Protect your children: do not have them breathe smoke.			5. Stopping smoking reduces the risk of fatal heart and lung diseases.			6. Smoking cessation can cause a slow and painful death.			7.Smokers die at a young age.		
			V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E	L.E.	N.E.	V.E.	L.E.	N.E.
GENDER	M	%	46.9	21.7	31.4	40.6	24.6	34.9	41.7	25.7	32.6	62.9	16.6	20.6	62.3	17.1	20.6	59.4	18.9	21.7	58.9	18.3	22.9
		N	82	38	55	71	43	61	73	45	57	110	29	36	109	30	36	104	33	38	103	32	40
	F	%	43.4	18.6	37.9	39.3	26.2	34.5	41.4	24.1	34.5	64.1	21.4	14.5	54.5	28.3	17.2	56.6	25.5	17.9	52.4	24.8	22.8
		N	63	27	55	57	38	50	60	35	50	93	31	21	79	41	25	82	37	26	76	36	33
	X^2		1.552			0.119			0.168			2.648			5.713			2.288			2.186		
	P		0.460			0.942			0.920			0.266			0.057			0.318			0.335		
	TEXTUAL WARNİNGS		8. Smoking reduces fertility by damaging sperm.			9.Smoking slows blood flow and causes sexual impotence.			10. Smoking causes fatal lung cancer.			11. Smoking during pregnant is harmful to your baby.			12. Smoking occludes the veins and causes heart attacks and strokes.			13.Smoking causes premature skin aging.			14.Cigarette smoke contains carcinogenic substances such as benzene, nitrosamine, formaldehyde, and hydrogencyanide.		
			V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.
GENDER	M	%	59.4	21.7	18.9	56.0	23.4	20.6	64.6	13.1	22.3	66.9	15.9	17.2	65.7	12.0	22.3	61.7	12.0	26.3	45.7	17.7	36.6
		N	104	38	33	98	41	36	113	23	39	97	23	25	115	21	39	108	21	26	80	31	64
	F	%	41.4	28.3	30.3	44.1	31.0	24.8	59.3	20.7	20.0	69.1	7.4	23.4	60.7	15.2	24.1	60.7	19.3	20.0	37.2	22.8	40.0
		N	60	41	44	64	45	36	86	30	29	121	13	41	88	22	35	88	28	29	54	33	58
	X^2		10.772			4.549			3.275			6.544			1.027			4.118			2.613		
	P		0.005			0.103			0.194			0.038			0.598			0.128			0.271		

V.E: Very effective, L.E: Less effective, N.E: Not effective, M: Male n = 175, F: Female n = 145

Table 5 *The Participants' assessment of pictorial warnings on cigarette packs by gender*

	PICTORIAL WARNINGS																						
			V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E	L.E.	N.E.	V.E.	L.E.	N.E.
GENDER	M	%	31.4	25.1	43.4	30.3	28.6	41.1	37.7	24.0	38.3	65.1	13.7	21.1	53.1	19.4	27.4	60.6	13.7	25.7	56.6	15.4	28.0
		N	55	44	76	53	50	72	66	42	67	114	24	37	93	34	48	106	24	45	99	27	49
	F	%	36.6	26.2	37.2	35.2	26.9	37.9	43.4	25.5	31.0	66.2	18.6	15.2	48.3	26.9	24.8	60.0	17.9	22.1	68.3	11.0	20.7
		N	53	38	54	51	39	55	63	37	45	96	27	22	70	39	36	87	26	32	99	16	30
	X^2		1.399			0.869			1.912			2.745			2.512			1.345			4.612		
	P		0.497			0.648			0.384			0.254			0.285			0.511			0.100		
	PICTORIAL WARNINGS																						
			V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.	V.E.	L.E.	N.E.
GENDER	M	%	34.3	22.3	43.4	65.7	17.7	16.6	60.6	12.6	26.9	67.4	8.6	24.0	60.6	9.1	30.3	37.7	21.7	40.6	58.9	13.1	28.0
		N	60	39	76	115	31	29	106	22	47	118	15	42	106	16	53	66	38	71	103	23	49
	F	%	42.8	23.4	33.8	47.6	23.4	29.0	58.6	14.5	26.9	73.8	6.2	20.0	58.6	15.9	25.5	42.1	22.8	35.2	60.0	15.9	24.1
		N	62	34	49	69	34	42	85	21	39	107	9	29	85	23	37	61	33	51	87	23	35
	X^2		3.425			11.306			0.266			1.620			3.629			1.024			0.876		
	P		0.180			0.004			0.875			0.445			0.163			0.599			0.645		

V.E: Very effective, L.E: Less effective, N.E: Not effective, M: Male n = 175, F: Female n = 145

4.DISCUSSION

In the study, smoking frequency was 40.9% and 49.1% of men and 31% of women were smokers. The age of starting smoking was 17.71±5.13. The studies conducted in Turkey have revealed that smoking frequency varies between 25.6% and 35.6% (7, 25-27). Smoking frequency was found to be 39.1% in a study conducted in the People's Republic of China (3), 35.1% in a study conducted with healthcare professionals in Croatia (28), 60.2% in Bangladesh (29), 16% in a study conducted in Singapore (30), and 26.9% in a study conducted in the United States of America (31). The frequency found in the study (40.9%) and the literature were similar in general. In addition, when the literature information is examined, the small age of starting smoking shows how important the problem is. When the study results are evaluated with the literature information, it is obvious that serious measures should be taken against smoking in adolescence period and necessary attention should be paid for the application of these measures.

It was found that 35.4% of the participants were affected by warnings on cigarette packs. When the studies conducted on the status of drawing attention by the warnings on cigarette packs were examined, 40% of the participants stated that textual warnings were not very effective while 60% stated that they started to think quitting to smoke or reduced smoking after textual warnings (32). When studies in the literature were examined, it was found that most of the participants were affected by warnings, the expressions on the packs should be more effective about deterrence (19); high self-efficacy along with these warnings (20), also the images' causing feelings such as fear, worry and disgust among users were effective in smoking cessation (20). Based on these results, there is no clear information indicating that warnings on cigarette packs are not effective. It is believed that studies can be conducted to determine new warning messages on this subject.

In this study, one out of five smokers (19.8%) and one out of every three people aged 40 and over were highly nicotine dependent, which is an important result needing to think. In a study comparing the nicotine dependence level and age, the rate of the individuals with "very high" nicotine dependence level at the age group of "<20" years (7.9%) was found to be significantly lower than the rate of individuals with "very high" nicotine dependence level at the age groups of 41-50 and 51-60 years (25.2%-21.8%) (33). In another study, it was determined that those with "highly dependent" (45.9%) were in the age range of 20-39 (34). In an another study conducted in Egypt, those with "very highly dependent" were found to be in the age group of 25 years (15%) (35).

When the literature is examined, it can be asserted that a very high level of dependence is generally seen in the middle ages. When considering that 40 years and older individuals were highly dependent in the study, it will be understood that the study shows similar characteristics with the literature. It is a remarkable result that the highly dependent group is concentrated at the onset ages of chronic diseases.

Another noteworthy result of the study was that the rate of those with high level of dependence was higher in the group having low education level (secondary school and lower). In a study examining nicotine dependence levels of patients who applied to the smoking cessation outpatient clinic, 40.4% were found to be heavy smokers. In the same study, it was found that most of the heavy smokers had high school and higher education level (36). In a study conducted with university students, it was determined that the rate of those with low dependence level was 56.4% and those with high dependence level was 12.7% (37). In two studies, it was determined that one fourth (25%) of those with high dependence level had primary school education level (31, 34). These results are important in terms of showing that there is an inverse positive correlation between education level and nicotine dependence levels. Individuals with low education levels status should be evaluated as being in the risky group.

The combined use of textual and pictorial warnings rather than only using textual warnings on cigarette packs is important in terms of increasing the effectiveness of the desired message. The studies revealed that pictorial warnings could be more effective in generating cognitive responses than textual warnings (38, 39), they attracted the smokers more and directed them to quit smoking (40), pictorial warnings could be quite understandable even in individuals without reading habits since they are more easily and rapidly understood compared to the textual warnings (41). In a study conducted in Jordan, it was found that images on cigarette packs were reported to be more effective in smoking cessation (36.4%) and pictorial warnings were more effective than the other warnings (in cases such as motivating smoking cessation, causing fear) (42).

The most important one among remarkable results of the study is that one out of every three people (35.9%) was affected by the warnings on cigarette packs. It was important that while the expression of *"smoking damages sperms and decreases fertility"* was more effective in men, the expression of *"Smoking during pregnancy is harmful to your baby"* was more effective in women. In addition, the picture showing that a couple sitting side by side in bed was more effective in men than in women. According to a study conducted in New Zealand, increasing the area of warnings on cigarette packs from 30% to 75% was found to be more effective in increasing the smoking cessation rate (43). In a study conducted on the status of being affected by the images on cigarette packs, it was determined that the majority of the participants were not affected by these warnings, even if they were effective, their effectiveness diminished over time, the most striking image was the "lung" image (33.3%), the second one was the "baby" image (14.2%), the most striking written expressions were "*smoking can cause painful and slow death*" and "*smokers die younger*"(44). In another study conducted to examine the opinions of university students about the warning on cigarette packs, it was found that the written expressions about the damages of smoking on body were more effective and warnings among the images pointing out that smoking

causes heat attack, smoking can cause the fetal death and reduces fertility and increases the impotence risk were more effective (16). In a study conducted with 579 students in Turgut Ozal University, it was determined that female and male students evaluated the pictures on cigarette packs differently, gender was a distinctive factor in the evaluation and female students was evaluated by giving higher scores than male students. When messages found to be most effective by male and female students in picture evaluation in the same study were examined, the most effective one was found to be "*Smoking during pregnancy is harmful to your baby*", the second one was "*smoking occludes the veins and causes heart attacks and strokes*" and the third one was "*Protect children: don't let them breath your smoke*". While female students found the disease of *"smokers die younger"* effective as fourth, the picture of *"Smoking slows the blood flow and causes sexual impotence"* was more effective in male students (18). In a study conducted in Ukraine, it was determined that 70% of the participants were affected by the expression of *"smoking causes cardiovascular diseases and lung cancer"*, expressions about pregnancy affected women more; whereas, the expressions about that smoking causes impotence and kills affected men more (45). The effect rates of textual and pictorial warnings indicating that fertility and sexuality can be affected are more remarkable than others in both men and women.

5.CONCLUSION

In the study, smoking frequency was 40.6%. 49.1% of the male participants and 31% of women were smokers. It was determined that 80.2% of the participants had low and moderate of nicotine dependence and 19.8% had high level of nicotine dependence. In the middle age group, those with high school and lower education levels had higher dependence levels.

The status of finding the textual and pictorial warnings on cigarette packs effective varied based on the smoking frequency of the participants, their previous attempts to quit smoking and attraction level of pictorial warnings. The warnings *"Smoking damages sperms and reduces fertility" and "Smoking during pregnancy is harmful to your baby"* among textual warnings and; The picture of "*the couple sitting side by side in bed*" among pictorial warnings were found to be effective.

In the light of the results of the study; it can be recommended to

- Attach more importance to this age group and drawing young people's attention to other matters (sport, music, art, etc.) since the age of starting smoking is in adolescent period,
- Consider the individuals with low education level as a priority group in smoking cessation interventions,
- Emphasize these warnings more on cigarette packs since the textual and pictorial warnings found to be effective are mostly about sexuality, damage on body caused by smoking, death, and baby/child, ,
- Give gender-specific trainings (for example, more on pregnancy and infant in women, more on sexuality in men) in smoking related interventions.

Legally, written and illustrated warnings are placed on cigarette packages. But many of these warnings have been found to be of no interest to individuals. Warnings about sexuality and fertility have been found to attract more attention. It has emerged that research on this must be carried out before new warning articles and images are placed. By conducting qualitative research on this issue, pictures and articles that people are affected by can be checked into. It will be pertinent to decide on written and illustrated warnings, taking into account cultural factors at the regional or national level.

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