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ARAŞTIRMA MAKALESİ

Smoking Frequency of Nursing Students and the Extent to Which They Are Affected by the Warning Labels on Cigarette Packs

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Abstract

Background: Determining the smoking frequency of young people and their exposure to cigarette pack warnings is important in terms of developing new policies for smoking cessation. **Objectives:** This study was conducted to determine the smoking frequency of nursing students, their nicotine dependence, the extent to which they were affected by textual/graphic warning labels on cigarette packs, and the factors affecting them. **Methods:** The research is cross-sectional type. According to the sample calculation formula in cases where the universe is known, the universe was accepted as 855, the sample was calculated with 95% confidence interval and 0.05 error, and the number of people to be sampled was found to be 195. A total of 240 people were selected for the study, considering that there may be data losses. The students to be sampled were determined by the stratified sampling method. The data were collected via the survey created by the researchers and the Fagerstrom Test for Nicotine Dependence (FTND). Chi-squared test were used for statistical analysis. **Results:** The average age of the students was 20.95 ± 1.70. 22.5% of the participants smoked. 68.5% of students had a low addiction level, while 57.1% were affected by warnings on a cigarette packs. It was observed that the effect of textual warnings on the cigarette packs did not differ by gender. Graphics showing a person in intensive care and a dead person's foot in the morgue evoked higher levels of negative affect on women than on men. When the written warnings on the cigarette package and some variables are compared; It was found that there was a statistically significant difference between smoking status, presence of smokers in the family, level of smoking addiction and smoking status. No statistically significant difference was found when being affected by written warnings and gender were compared. **Conclusion:** In order to prevent early youth smoking initiation, preventive studies should be carried out on young people from childhood. Particularly male students should be observed more carefully. Nurses; should develop strategies that can be effective in smoking-related youth and conduct qualitative research on them.
Keywords: Nursing Students, Smoking, Warning.

Öz

Hemşirelik Öğrencilerinin Sigara İçme Sıklığı ve Sigara Paketleri Üzerindeki Uyarılardan Etkilenme Durumları

Giriş: Gençlerin sigara içme sıklığının ve sigara paketi uyarılarından etkilenme durumlarının belirlenmesi sigarayı bırakmada yeni politikalar geliştirmek açısından önemlidir. **Amaç:** Bu çalışma hemşirelik öğrencilerinin sigara içme sıklığını, nikotin bağımlılık düzeylerini, sigara paketleri üzerindeki yazılı/görsel uyarılardan etkilenme durumlarını ve etkileyen faktörleri belirlemek amacıyla yapılmıştır. **Yöntem:** Araştırma kesitsel tiptedir. Evrenin bilindiği durumlarda örneklem hesaplama formülüne göre evren 855 olarak kabul edilmiş, örneklem %95 güven aralığı ve .05 hata ile hesaplanmış ve örneklem alınacak kişi sayısı 195 olarak bulunmuştur. Veri kayıpları olabileceği düşünülerek 240 kişi çalışma için seçilmiştir. Örneklem alınacak öğrenciler tabakalı örnekleme yöntemiyle belirlenmiştir. Veriler, araştırmacılar tarafından oluşturulan anket formu ve Fagerström Nikotin Bağımlılık Testi ile toplanmıştır. İstatistiksel analizler için Ki-kare testi kullanılmıştır. **Bulgular:** Öğrencilerin yaş ortalaması 20.95 ± 1.70'dir. %22.5'i sigara içmektedir. Öğrencilerin %68.5'i düşük düzeyde sigara bağımlısı iken %57.1'i sigara paketi üzerindeki uyarılardan etkilenmektedir. Sigara paketi üzerindeki yazılı uyarıların cinsiyete göre etkili bulunmadığı görülmüştür. Görsel uyarılardan yoğun bakımda yatan bir insanı gösteren görsel ile, ölmüş bir insanın morgda ayağını gösteren görselin kızlar tarafından daha etkili bulunduğu saptanmıştır. Sigara paketi üzerindeki yazılı uyarılar ile bazı değişkenler karşılaştırıldığında; sigara içme durumu, ailede sigara içen varlığı, sigara bağımlılığı düzeyi ve sigara içme durumu arasında istatistiksel olarak anlamlı fark olduğu bulundu. Yazılı uyarılardan etkilenme ile cinsiyet karşılaştırıldığında istatistiksel olarak anlamlı bir fark bulunamamıştır. **Sonuç:** Sigaraya erken başlamanın önlenmesi için çocukluktan itibaren gençlerde önleyici çalışmalar yapılmalıdır. Erkek öğrencilerin daha dikkatli gözlenmesi gerektiği ortaya çıkmıştır. Hemşireler; sigara ile ilgili gençlerde etkili olabilecek stratejiler geliştirmeli ve bunlarla ilgili nitel araştırmalar yapmalıdır.
Anahtar Kelimeler: Hemşirelik Öğrencileri, Sigara İçmek, Uyarı.

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Introduction

Smoking is the main cause of many chronic diseases and ranks first among the causes of death (1). More than eight million people die each year as a result of smoking. Seven million of these deaths are smokers, and about one million two hundred thousand are passive smokers (2). In some studies, conducted with nursing students in the world, the smoking rate was 29.1% in Germany (3), 18.2% in Kuwait (4), and 17.6% in Australia (5); in Turkey it was found to be 10.3% (6), 20.6% (7), 21.0% (8) and 12.9% (9).

The World Health Organization (WHO) adopted the "Framework Convention on Tobacco Control" in 2003, and Turkey signed this treaty in 2004. In the "National Tobacco Control Program", the WHO recommends training to inform the public about the harms of tobacco products, as well as practices such as preventing access to tobacco and increasing costs. One of these educational means is to put textual and graphic warning labels on cigarette packs (10). Between 2008 and 2012, the number of people who paid attention to the graphic warning labels on a cigarette packs and intended to quit increased by 14.4% (11). The use of textual and graphic warning labels on cigarette packs is extremely important in preventing individuals from starting smoking, reducing the continuation of for smoking, and implementing various initiatives in the fight against smoking (12).

"The Regulation on Procedures and Principles for the Form, Labelling and Inspection of Tobacco Products for Protection from Harm" was published in the official gazette dated January 6, 2005 in Turkey. According to this regulation, it is mandatory to write *"Warning: Smoking kills"* on cigarette packs. Since January 1, 2006, textual warnings such as *"Smoking kills"* and *"Smoking/tobacco seriously harms you and others around you"* on both sides of cigarette packs have been compulsory, and graphic warnings have been mandatory since January 2010 (13). With a regulation published on March 2019, the monotype packs started to be produced, and it was declared that brand logos/icons/signs on packs would no longer be included, while the warnings areas were increased from 65% to 85% (14). The goal of this regulation is to inform people about the risks of smoking, to prevent smoking and to promote attempts to quit.

In a study conducted with young people aged 17-26 in Jordan, the young people reported that images on cigarette packs were effective in quitting smoking (36.4%), and that graphic warnings were more effective than other means (motivation to quit smoking, arousing fear, etc.) (15). In a study with university students in Turkey, students' opinions about the warnings on cigarette packs were examined and as it was revealed that firstly *"Smoking can cause the death of a baby in the womb"* (the most effective warning %64.1); and secondly, *"Smoking clogs your arteries and causes to heart attacks and strokes,"* were the warnings that were the most effective ones (16). A study conducted with nursing students found that male students in the first year had a higher smoking rate than women. In the same study, there was no difference between men and women in third year; third-years smoked more in total than first-years (17).

Nurses can be considered to be in an important position given that nursing students will be a role model for the community in the future as an occupation in the first place, they can provide education/counselling to patients while working in clinics, and they can take part in a smoking cessation clinic to support patients. To prevent nursing students from starting smoking, it is important that they are properly informed about the risks of smoking and the fight against smoking, and that this information is correctly perceived by the students.

Aim

The objective of this study is to determine the frequency of smoking and nicotine dependence in nursing students, and whether their attention is drawn by the textual and graphic warning labels on cigarette packs.

Answers to following questions were sought in the study. Regarding nursing students:

- What is their frequency of smoking?
- What is their nicotine addiction level?
- To what extent are they affected by textual or graphic warning labels on cigarette packs?
- What is effective in drawing their attention to textual or graphic warnings on cigarette packs?
- Does the appeal of textual and graphic warnings on cigarette packs vary by gender?

Method

This study was prepared according to the STROBE checklist (18).

Type of Research

The study is cross-sectional type.

Location and Characteristics of the Research

The research was conducted with students of the Department of Nursing at Faculty of Health Sciences of a University. There are currently three departments in the Faculty: Nursing, Midwifery and Child Development. In the Department of Nursing, education is given in two divisions: Formal education and secondary education. The nursing department has six classrooms and a practice laboratory. Formal education is conducted in two sections, secondary education is conducted in two sections, and the total number of students is 855.

Population and Sampling

Between October and November 2020, students who gave their consent to participate in the study and who did not have internet problems were included in the study. The study conducted by Oguz and his colleagues (7) (smoking frequency 20.6%) was taken into account when calculating the sample in the study. According to the sample calculation formula in cases where the universe is known, the universe was accepted as 855, the sample was calculated with 95% confidence interval and 0.05 error, and the number of people to be sampled was found to be 195. A total of 240 people were selected for the study, considering that there may be data losses. The link of the questionnaire was sent to WhatsApp class groups through class representatives, but since each class exceeded the number determined by a stratified sample, random numbers were generated from the Excel program and

the participants were assigned to the relevant class. For example, 81 people in freshmen filled out the survey, but since the number determined by the sample was 45, 81 people were sorted in the Excel table respectively, and then numbers were randomly generated numbers in the program and ranked from high to low. The first 45 people were randomly included. This method was implemented for all classes. The students who would be sampled were selected from each class by stratified sampling method, as summarized in the table below.

Table 1. Determining the Students to be Sampled by Stratified Sampling Method

Year	Number of students	Strata	Sample Size
1	160	160/855=0.187	0.187x240=45
2	176	176/855=0.205	0.205x240=49
3	207	207/855=0.242	0.242x240=58
4	312	312/855=0.364	0.364x240=88

Data Collection Techniques and Tools

Since the schools were closed due to the Covid-19 pandemic, the data were collected online with a survey prepared via Google-Forms. In the study, a survey consisting of five parts prepared by the researcher was used, taking into account the literature (3,4,7-9,12,16). The survey link was delivered to students via social media with announcements that were posted to public student groups or shared from the researchers' personal accounts. Expert opinion was not taken while creating the survey questions and sections.

First Section

Sociodemographic features: Four questions related to age, gender, class, and perceived income adequacy,

Second Section

Smoking-related features: 12 questions about past and current smoking status, the age of starting smoking, the number of cigarettes smoked per day, smoking along with the presence of a chronic disease that has been diagnosed by a doctor, attempt to quit smoking in the past, the number of attempts to quit smoking, obtaining professional support to quit smoking, how long they quit for and started to smoke again, the presence of a family member who smokes, who this family member is, and the presence of a family member who drinks alcohol. No expert opinion on the questions was received in this part of the questionnaire.

Third Section

Features of textual and graphic warning labels: Three questions related to the appeal of textual warnings on cigarette packs, the appeal of visual warnings on cigarette packs, and whether graphic and textual warning labels on cigarette packs deter people from smoking.

Fourth Section

Textual and graphic warnings on cigarette packs: In this section, students were asked to mark the extent to which they were affected by textual and graphic warnings on cigarette packs as "very effective", "effective", "slightly effective", or "not effective at all". In this section, there are 28 warnings, including 14 textual warnings and 14 graphic warnings.

Fifth Section

The Fagerstrom Test for Nicotine Dependence: This test was developed to determine the level of smoking addiction in individuals by Karl O. Fagerstrom (1989) (19). The scale consists of six questions. In the scale, the first question is graded in the order 3, 2, 1, 0; the second and third questions are graded in the order 1,0; and the fourth question is first in the order 0, 1, 2, 3. One and 0 points are given respectively according to the answers to the fifth and sixth questions. Scores from 0-10 are obtained from the scale. A score of "0" obtained from the scale indicates that there is no addiction, while a score of "10" indicates that there is a high level of addiction. According to the scale:

- 0-2 points indicate **very low**, 3-4 points **low**, 5 points **moderately,** 6-7 points **high**, and 8-10 points indicate **very high** levels of addiction.

Cronbach's Alpha reliability coefficient was found by Fagerstrom to be 0.61. In Turkey, Uysal, Kadakal (20) found the Cronbach's Alpha reliability coefficient was found to be 0.56. In this study, the Cronbach's Alpha reliability coefficient was calculated as 0.67.

Pre-application

Pre-application in terms of the content, clarity, and time of the questions was made to ten smokers in another department other than the department where the research was conducted. At the end of the pre-application, there was no negative feedback, so the research was launched in its current state.

Data Analysis

The data were evaluated using the licensed SPSS 26.0 software package. In statistical analyses, the chi-square test was used to compare the percentage differences between groups, together with descriptive statistics such as number, percentage, and mean. The statistical significance was accepted as $p<0.05$.

Ethical Considerations

Before starting the study, institutional permission was obtained from the Dean's Office at Faculty of Health Sciences (number: 92802276-730.08.03), and ethical approval was obtained from university's non-interventional ethics committee (Decision Number: 2020-15/113), while prior informed consent was obtained from the individuals with whom the study was conducted via Google Forms, and the students who committed to participate in the study completed the survey. Research and publication ethics were followed in this study.

Results

Table 2. Descriptive Some Characteristics of Participants and Distribution of Smoking Addiction Levels (n = 240)

Age	***Mean±SD***	20.95±1.70
	n	***%***
Gender		
Male	68	28.3
Female	172	71.7
Year		
1	45	18.8
2	49	20.4
3	58	24.2
4	88	36.6
Perceived income adequacy		
Low	35	14.6
Medium	193	80.4
High	12	5.0
Smoking status		
Smoker	54	22.5
Non-smoker	186	77.5
Attempt to quit smoking in the past		
Yes	69	28.7
No	171	71.3
Smoker in the family		
Yes	164	68.3
No	76	31.7
Drinker in the family		
Yes	32	13.3
No	208	86.7
Attention drawn by textual warnings		
Yes	160	66.7
No	80	33.3
Attention drawn by graphic warnings		
Yes	169	70.4
No	71	29.6
Effect of textual and graphic warnings		
Affected	28	11.7
Affected to some extent	109	45.4
Not affected	103	42.9
Addiction levels of smokers (n = 54)		
Low	37	68.5
Medium and high	17	31.5
Total	**240**	**100**

The sample size was 240 people and the median age was 20.95 ± 1.70 (min.18, max.29). Some characteristics and smoking and addiction levels of individuals included in the study are seen in Table 2. 71.7% of participants were women, 36.6% were fourth years, and 80.4% had a moderate income.

Table 3. Comparison of Some Characteristics of Participants and Their Levels of Smoking and Addiction and with the Appeal of Written Warnings on Cigarette Packs

	People noticing the warnings		People not noticing the warnings		
Variables	**n**	**%**	**n**	**%**	**p**
Age					
Age 20 and under	66	69.5	29	30.5	.455
Age 20 over	94	64.8	51	35.2	
Gender					
Male	44	64.7	24	35.3	.685
Female	116	67.4	56	32.6	
Year					
1 and 2	65	69.1	29	30.9	.513
3 and 4	95	65.1	51	34.9	
Perceived income adequacy					
Low	26	74.3	9	25.7	.298
Medium	128	66.3	65	33.7	
High	6	50.0	6	50.0	
Smoking status					
Yes	30	55.6	24	44.4	**.049**
No	130	69.9	56	30.1	
Attempt to quit smoking in the past					
Yes	45	65.2	24	34.8	.762
No	115	67.3	56	32.7	
Smoker in the family					
Yes	99	60.4	65	39.6	**.002**
No	61	80.3	15	19.7	
Drinker in the family					
Yes	20	62.5	12	37.5	.591
No	140	67.3	68	32.7	
Addiction levels of smokers					
Low	24	64.9	13	35.1	**.042**
Medium and high	6	35.3	11	64.7	
Total					

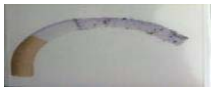
27.1% of participants had smoked in the past, while 22.5% of them currently smoked. 39.7% of male students and 15.7% of female students smoked. It was found that 28.7% of participants had previously tried to quit, 1.3% had received professional support to quit, and 8.3% had started again a few months after quitting. The rate of people who smoked and drank alcohol in their family was 68.3% and 13.3%, respectively. People who smoked the most in the family were the father at a rate of 38.8% and a brother or sister at a rate of 19.6%. Textual warnings on cigarette packs draw the attention of 66.7% of participants and graphic warnings drew the attention of 70.4% of participants. Textual and graphic warnings on cigarette packs were found to affect 11.7% of participants in abstaining from cigarettes. It was found that 31.5% of people who smoked were moderately and highly addicted to smoking. Some of the participants' characteristics, smoking status and smoking addiction levels, were compared with (Table 2) the extent to which they were affected by written warnings on cigarette packs (Table 3). It was found that there was a statistically significant difference between smoking status ($p = .049$), the presence of a smoker in the family ($p = .002$), smoking addiction level ($p = .042$), and the status of being affected by written warnings on cigarette packs.

Table 4. Comparison of Some Characteristics of the Participants and Their Smoking and Addiction Levels with and the Appeal of Graphic Warnings on Cigarette Packs

	People noticing the warnings		People not noticing the warnings		
Variables	**n**	**%**	**n**	**%**	**p**
Age					
Age 20 and under	68	71.6	27	28.4	.749
Age 20 over	101	69.7	44	30.3	
Gender					
Male	45	66.2	23	33.8	.365
Female	124	72.1	48	27.9	
Year					
1 and 2	69	73.4	25	26.6	.416
3 and 4	100	68.5	46	31.5	
Perceived income adequacy					
Low	25	71.4	10	28.6	.952
Medium	136	70.5	57	29.5	
High	8	66.7	4	33.3	
Smoking status					
Yes	32	59.3	22	40.7	**.041**
No	137	73.7	49	26.3	
Attempt to quit smoking in the past					
Yes	49	71.0	20	29.0	.897
No	120	70.2	51	29.8	
Smoker in the family					
Yes	107	65.2	57	34.8	**.010**
No	62	81.6	14	18.4	
Drinker in the family					
Yes	22	68.8	10	31.3	.824
No	147	70.7	61	29.3	
Addiction levels of smokers					
Low	26	70.3	11	29.7	**.015**
Medium and high	6	35.3	11	64.7	
Total					

Some of the participants' characteristics, smoking status and smoking addiction levels, were compared with the extent to which they were affected by graphic warnings on cigarette packs (Table 4). It was found that there was a statistically significant difference between smoking status (p = .041), the presence of a smoker in the family (p = .010), smoking addiction level (p = .015), and the status of being affected by graphic warnings on cigarette packs.

Table 5. Participants' Assessments of Graphic Warnings on Cigarette Packs According to Gender

			Very effective / effective		Slightly effective/ Not effective at all		Importance test	
Number	**Graphic Messages**	**Gender**	**n**	**%**	**n**	**%**	**χ^2**	**p**
1		M	32	47.1	36	52.9		
		F	71	41.3	101	58.7	0.666	.415
2		M	46	67.6	22	32.4		
		F	112	65.1	60	34.9	0.139	.710
3		M	41	60.3	27	39.7		
		F	115	66.9	57	33.1	0.924	.337
4		M	57	83.3	11	16.2		
		F	149	86.6	23	13.4	0.315	.575
5		M	61	89.7	7	10.3		
		F	162	94.2	10	5.8	1.486	.265
6		M	60	88.2	8	11.8		
		F	162	94.2	10	5.8	2.488	.115
7		M	50	73.5	18	26.5		
		F	148	86.0	24	14.0	**5.289**	**.021**
8		M	61	89.7	7	10.3		
		F	163	94.8	9	5.2	2.007	.162
9		M	36	52.9	32	47.1		
		F	108	62.8	64	37.2	1.970	.160
10		M	39	57.4	29	42.6		
		F	110	64.0	62	36.0	0.902	.342
11		M	57	83.8	11	16.2		
		F	157	91.3	15	8.7	2.804	.094
12		M	28	41.2	40	58.8		
		F	50	29.1	122	70.9	3.256	.071
13		M	33	48.5	35	51.5		
		F	117	68.0	55	32.0	**7.902**	**.005**
14		M	47	69.1	21	30.9		
		F	130	75.6	42	24.4	1.052	0.305

M: male n=68, F: female n=172

In the study, participants were compared in terms of whether their gender identity affected the extent to which their attention was drawn by the textual and/or graphic warning labels. None of the written warnings were found to be statistically significant in terms of influence according to gender. Graphic warnings are given in detail in Table 5, and a statistically significant difference was found according to gender in terms of being affected by the graphics 7th (image of the patient in the intensive care unit) (p = .021) and 13th graphics (image of human foot in morgue) (p = .005).

Discussion

In the study, the frequency of smoking was 22.5%; 39.7% of men and 15.7% of women smoked. The age of starting smoking was 17.43 ± 2.31 (min.12, max. 27). In studies conducted with nursing students in Turkey, the frequency of smoking ranged from 12.9% to 28% (9,17,21). In a study conducted in Montenegro with nursing students, the frequency of smoking was 25%

(22), in a multicentred study conducted with nursing students in Portugal and Spain, the frequency of smoking was 18.9%, while in the same study, the rate was 18.3% in Spain and 16.2% in Portugal (23); the rate was 24.8% in Scotland (24); and 13.9% in Yemen (25). In a meta-analysis study, which included 46 studies on the frequency of smoking in nursing students, the frequency of smoking was found to be 26.6% (26). The frequencies found this study (22.5%) and the literature are consistent in general. In a study conducted with nursing students, the age at starting smoking was 16.5 (27). In the study, it is also noteworthy that the age of starting smoking was young (17.43 ± 2.31), and that about one in five people smoked (22.5%), indicating that the problem is important. When the results of the study are evaluated together with the literature, it is necessary to take measures for nursing students, who may qualify as late adolescents, on the point of reducing smoking, and to show the seriousness in implementing these measures.

In the study, it was found that smoking, the presence of a smoker in the family, and a low level of addiction were found to be effective in the extent to which participants were affected by the textual and graphic warnings on the cigarette packs. It was found that 66.7% of textual warnings and 70.4% of graphic warnings drew attention. It was observed that the warnings on the cigarette packs were 11.7% effective in abstaining from smoking. When studies on the appeal of the warnings on the cigarette packs are examined in the literature, it is seen that the rate of those who intended to quit smoking after warnings was 19.5% (27), and that in a study conducted with young people in Jordan, it was found that 36.4% of participants were affected by the graphic warnings on the cigarette packs and intended to quit (15). A study conducted in Turkey found that the vast majority of participants were not affected by warnings on the cigarette packs, and that even if they were effective, this effect decreased over time (28). In the study, it was observed that warnings on a cigarette packs were largely effective (textual warnings 66.7%, graphic warnings 70.4%), but that the same warnings were not so effective in persuading participants to quit smoking (11.7%). Although this study was conducted with the renewed written warnings in March 2019 in Turkey, it is shows that the warnings were not effective enough on individuals. These results suggest that the important thing is to prevent smoking, and that once it is started, it is very difficult to quit.

One of the most important findings in the study was that 57.1% of participants were affected by warnings on cigarette packs. None of the textual warnings had any influence on both genders. Graphic warnings, which included the 7th graphic depicting a person in intensive care, and the 13th graphic depicting the foot of a person who died in the morgue, were found to be more effective by women than men. When the studies about being affected by written and visual warnings on cigarette packs made with nursing or university students are examined, in one study, the statement "*smoking while pregnant harms the baby*" and the image of this expression, the image depicting a child wearing an oxygen mask and the accompanying statement "*protect children: do not let them breathe the smoke*" and the image depicting a healthy lung and a smoker's lung with the statement "*smoking causes fatal lung cancer*" on it were found effective (27). A study that examined university students' opinions on warnings on cigarette packs found that textual warnings about smoking causing certain types of cancer and strokes were more effective. In the same study, graphic warnings about heart attack, and smoking causing the death of a baby in the womb, reducing fertility and increasing the risk of impotence were found to be effective (16). In another study conducted with university students in Turkey, the graphic warnings which women and men found the most effective were first, *"Smoking during pregnancy harms the baby"*, second, *"Smoking clogs your arteries, and can cause heart attacks and strokes"* and third, *"Protect children: don't let children breathe the smoke*". Female students found the graphic warning *"Smokers die young"*effective, while male students also found the graphic warning *"Smoking slows blood flow and causes sexual impotence"* effective (29). In a study conducted with adults in a family health center, the state of being affected by cigarette package warnings was compared with gender, and the statement "*Smoking damages sperms and reduces fertility*" was found to be more effective in men than in women. The statement "*Smoking during pregnancy is harmful to your baby*" was found to be more effective by women and visual warning showing the couple sitting next to each other on the bed were found to be more effective in men than in women (30). When the literature is examined, it can be said that the effective messages are mostly related to pregnancy, infancy/childhood, cancers, stroke, and sexuality. It is understood that none of the textual warnings were effective in this study, and also that the images found to be effective also differed from the literature in terms of the subject depicted. It is believed that research can be carried out to identify new warning messages on this issue. Accordingly, frequent changes to predetermined warnings can be effective in this sense.

Considering the results of the study; it was revealed that approximately one out of every five students smoked, and that boys should be observed more carefully from childhood in order to prevent early youth smoking initiation, since men smoke more than women. None of the textual warnings on the cigarette packs were effective in terms of gender; among the graphic warnings, the 7th graphic depicting a person in intensive care, and the 13th graphic depicting the foot of a person who died in the morgue were found to be more effective by women than men. Given that textual and graphic warnings did not draw enough attention, it may be recommended to conduct qualitative research on what can affect young people.

Limitations

In the study, data were obtained from university students based on their self-reports. No observations were made. Smoking and quitting situations were evaluated based on students' self-reports. The nicotine level in the blood could not be measured. These are the major limitations of the study.

Implication for Nursing Practice

As a result of this study, it was revealed that cigarette pack warnings were not very effective in terms of gender. Therefore, nurses involved in smoking cessation interventions can develop other strategies instead of using cigarette pack warnings. Nurses can benefit smokers to quit smoking by giving individual trainings and cognitive behavioral therapies to quit smoking.

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References

1. Togawa K, Bhatti L, Roux L, Ullrich A, Ilbawi A, Varghese C, et al. WHO Tobacco Knowledge Summaries: Tobacco and Cancer Treatment Outcomes. World Health Organization; 2018.
2. WHO. Tobacco 2020. https://www.who.int/en/news-room/fact-sheets/detail/tobacco.
3. Vitzthum K, Koch F, Groneberg DA, Kusma B, Mache S, Marx P, et al. Smoking behaviour and attitudes among German nursing students. Nurse Education in Practice. 2013;13(5):407-12.
4. Omu FE, Al-Marzouk R, Al-Kandari I, Paulraj D, Rajagopal M, John P. The prevalence of tobacco products use among Kuwait nursing college students. International Journal of Nursing. 2015;2(2):157-67.
5. Moxham L, Dwyer T, Reid-Searl K. Graduate nurses and nursing student's behaviour: Knowledge and attitudes toward smoking cessation. Nurse Education Today. 2013;33(10):1143-7.
6. Gençtürk N, Bolat D, Bulut H, Yerli G. Bir grup sağlık yüksekokulu öğrencilerinin sigara içme ile ilgili görüş ve davranışları. Florence Nightingale Journal of Nursing. 2009;17(1):16-23.
7. Oğuz S, Çamcı G, Kazan M. The prevalence of cigarette smoking and knowing status for diseases caused by smoking among university students. Van Medical Journal. 2018;25(3):332-7.
8. Duran S, Gözeten A. Analysis of relationship between university students' smoking behaviour and coping formats with loneliness and stress. Bozok Med Journal. 2017;7(1):1-7.
9. Çapık C, Cingil D. Cigarette smoking, nicotine dependency level and associated factors among nursing students. Kafkas Journal of Medical Sciences. 2013;3(2):55-61.
10. Bayrak B, Bilir N, Yardım M, Gürkan H, Karakullukçuoğlu Z, Kaya A. Bir grup lise öğrencisinin sigara paketleri üzerinde bulunması planlanan birleşik (Yazılı ve Resimli) uyarı mesajlarının etkililiği hakkındaki görüşleri. Türk Toraks Dergisi. 2010;11:1-9.
11. TC Sağlık Bakanlığı. Küresel Yetişkin Tütün Araştırması Türkiye 2012. Ankara; 2014. Yayın No: 948.
12. Gerçek C, Doğan N. Sigara paketleri üzerindeki yazılı ve birleşik uyarıların üniversite gençleri üzerindeki etkisinin incelenmesi. Kuram ve Uygulamada Eğitim Bilimleri. 2012;12(4):2573-84.
13. Bilir N, Çakır B, Dağlı E, Ergüder T, Önder Z. Tütün kontrolünde AB müktesebatına uyum. In: Türkiye'de Tütün Kontrol Politikaları. Ankara: WHO Regional Office for Europe;2010.p.53-6.
14. T.C. Tütün Mamüllerinin Üretim Şekline, Etiketlenmesine ve Denetlenmesine İlişkin Usul ve Esaslar Hakkında Yönetmelik: Tarım ve Orman Bakanlığı; 2019. https://www.resmigazete.gov.tr/eskiler/2019/03/20190301-5.htm.
15. Bader RK, Shihab RA, Al-Rimawi DH, Hawari FI. Informing tobacco control policy in Jordan: Assessing the effectiveness of pictorial warning labels on cigarette packs. BMC Public Health. 2018;18(1):1-7.
16. Özpulat F, Bilir N. Opinions of university students regarding pictorial warnings on cigarettes packs. Journal of Human Sciences. 2017;14(1):987-99.
17. Yıldırım C, Mayda AS. Evaluation of cigarette smoking, perceptions of problem solving skills and locus of control in health profession students. Duzce Medical Journal. 2017;19(3):70-4.
18. Karaçam Z, Von Elm E, Altman DG, Egger M, Pocock SJ, Gotzsche PC, et al. Strobe bildirimi: Epidemiyolojide gözlemsel araştırma raporu yazımının güçlendirilmesi için bir rehber. Anadolu Hemşirelik ve Sağlık Bilimleri Dergisi. 2014;17(1):64-72.
19. Fagerstrom K-O, Schneider NG. Measuring Nicotine Dependence: A review of the Fagerstrom tolerance questionnaire. Journal of Behavioral Medicine. 1989;12(2):159-82.
20. Uysal MA, Kadakal F, Karşidağ C, Bayram NG, Uysal O, Yilmaz V. Fagerstrom test for nicotine dependence: Reliability in a Turkish sample and factor analysis. Tuberküloz ve Toraks Dergisi. 2004;52(2):115-21.
21. Selçuk KT, Avcı D, Mercan Y. Smoking addiction among university students and the willingness and self-efficacy to quit smoking. Clinical and Experimental Health Sciences. 2018;8:36-43.
22. Ljaljević A, Mugoša B, Terzić N. Smoking status, knowledge and attitudes towards tobacco among health profession students in Montenegro. Acta Medica Saliniana. 2017;46(1):52.
23. Fernández-García D, Ordás B, Fernández-Peña R, Bárcena-Calvo C, Ordoñez C, Amo-Setién FJ, et al. Smoking in nursing students: A Prevalence Multicenter Study. Medicine. 2020;99(14):1-7.
24. Evans JM, Eades CE, Cameron DM. Health and health behaviours among a cohort of first year nursing students in Scotland: A Self-Report Survey. Nurse Education in Practice. 2019;36:71-5.
25. Nasser AM, Salah BA, Regassa LT, Alhakimy AA, Zhang X. Smoking prevalence, attitudes and associated factors among students in health-related departments of community college in rural Yemen. Tobacco Induced Diseases. 2018;16(31):1-7.
26. Zeng L-N, Zong Q-Q, Zhang J-W, An F-R, Xiang Y-f, Ng CH, et al. Prevalence of smoking in nursing students worldwide: A Meta-Analysis of Observational Studies. Nurse Education Today. 2020;84:104205.
27. Ceylan E, Uysal N, Koç A. Nursing students' views about graphic warnings and texts on cigarettes and their nicotine dependence. Journal of Dependence. 2020;21(4):285-96.
28. Çelik R, Durmaz M, Yorulmaz R, Polat FN. Visual communication within the risk warning on cigarette packs transmitted messages smoking effect of nature. Journal of Süleyman Demirel University Institute of Social Sciences. 2016;3(25):1-22.
29. Mazlum FS, Mazlum Ö. Effect of visual and written warnings on cigarette boxes on university students and some suggestions. Fine Arts. 2014;9(1):12-32.
30. Akdeniz E, Öncel S. Nicotine Dependence levels of individuals applying a family health center and their status of being affected by warnings on cigarette packs. Clinical and Experimental Health Sciences. 2021;11(2): 1.