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Relationship between Nicotine Addiction and Perceived Stress in Students of Faculty of Sport Sciences: Case of A Public University

Spor Bilimleri Fakültesi Öğrencilerinde Nikotin Bağımlılığı ve Algılanan Stres İlişkisi: Bir Devlet Üniversitesi Örneği

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ABSTRACT

The purpose of this study is to determine the relationship between nicotine addiction and perceived stress among students enrolled in the Faculty of Sport Sciences at a public university. The sample of the study consisted of 209 (n=66 female and n=143 male) volunteer students who were studying at Faculty of Sport Sciences at Aydin Adnan Menderes University during the Spring Semester of the 2023-2024 academic year. Fagerström Test for Nicotine Dependence (FTND) and the Perceived Stress Scale (PSS) were used to determine the nicotine dependency and perceived stress levels of the participants. The data obtained from the surveys were analyzed using the SPSS 26.0 software package. As a result of statistical analysis, a significant difference was found between female and male students in terms of nicotine addiction levels ($p<0.05$); however, there was no significant difference in perceived stress levels ($p>0.05$). In addition, a positive and very low relationship was found between nicotine addiction and perceived stress levels ($p<0.05$). Based on the research results, it was determined that the participants had a high level of nicotine addiction and perceived stress, gender had an impact on nicotine addiction but did not affect perceived stress, and stress was not a significant factor in starting or continuing smoking among the students of the Faculty of Sport Sciences.

Keywords: *Sport sciences, Nicotine sddiction, Perceived stress*

ÖZ

Bu araştırmanın amacı bir devlet üniversitesindeki Spor Bilimleri Fakültesinde öğrenim gören öğrencilerde nikotin bağımlılığı ve algılanan stres ilişkisinin belirlenmesidir. Araştırmanın örneklemi 2023-2024 Eğitim Öğretim Yılı Bahar Döneminde Aydın Adnan Menderes Üniversitesi Spor Bilimleri Fakültesinde öğrenim görmekte olan 209 (n=66 kadın ve n=143) gönüllü öğrenciden oluşmaktadır. Katılımcıların nikotin bağımlılığı ve algılanan stres düzeylerinin belirlenmesinde Fagerström Nikotin Bağımlılık Testi (FNBT) ile Algılanan Stres Ölçeği (ASÖ) kullanıldı. Anket uygulamalarından elde edilen veriler SPSS 26.0 paket programında analiz edildi. Yapılan istatistiki analizlerde nikotin bağımlılığı düzeyi açısından kadın ve erkek öğrenciler arasında istatistiksel olarak anlamlı bir farklılaşma olduğu ($p<0.05$); ancak algılanan stres düzeyi açısından istatistiksel olarak anlamlı bir farklılaşma olmadığı ($p>0.05$) bulgularına ulaşıldı. Buna ek olarak nikotin bağımlılığı ile algılanan stres arasında pozitif yönlü çok zayıf bir ilişki olduğu ($p<0.05$) bulgusu elde edildi. Araştırmada ulaşılan bulgulara istinaden katılımcıların nikotin bağımlılığı ve algılanan stres düzeylerinin yüksek olduğu, cinsiyetin nikotin bağımlılığı üzerinde bir etkilediği ancak algılanan stresi etkilemediği; stresin sigaraya başlanması ve devam ettirilmesinde önemli bir faktör olmadığı sonuçlarına ulaşıldı.

Anahtar Kelimeler: *Spor bilimleri, Nikotin bağımlılığı, Algılanan stres*

INTRODUCTION

Addiction is defined as an uncontrollable desire for another person, object, or substance that an individual is dependent on, making it impossible for them to distance themselves from it. This can lead to a loss of control over the object or action they use, and an inability to live without it (1). Addiction often involves an increase in usage over time, as well as withdrawal symptoms when the substance is unavailable, and a compulsive need to search for it when it cannot be found (2). The common feature of addictive substances is their ability to reinforce their own intake. The effects of these substances on the brain's reward system and their pleasurable properties lead individuals to become addicted through repeated use. Despite experiencing negative consequences, addicted individuals continue to use the substance regularly and compulsively (3).

Addiction is a condition that affects individuals both psychologically, biologically, and socially. Despite the increasing efforts to fighting addiction, it also continues to increase. Recent scientific studies have concluded that addictive and dysfunctional behaviours can occur not only with external substances such as drugs, alcohol, and tobacco, but also with behaviours and habits that do not involve the ingestion of these substances. On the other hand, it has been observed that non-substance behavioural addictions such as internet, games, computer, gambling, and shopping, similarly to addictions that have harmful effects on individuals and society, such as alcohol, drug, or tobacco use, can have serious negative impacts on an individual's work and family life, as well as interpersonal communication, in both economic and social contexts (4).

Tobacco and tobacco product addiction, or nicotine addiction, constitute the first step in accessing other addictive substances (5). Due to its easy accessibility and legal status, tobacco addiction is the most observed type of substance addiction (6). Nicotine existing in cigarettes is the main substance that causes tobacco addiction, which requires biological and behavioural treatment (7). Tobacco and tobacco products activate the brain's reward system, cause to addiction. Despite experiencing cognitive, behavioural, and physiological symptoms, individuals continue to use the substance in addiction, even though they may face problems (5).

Cigarette is a considerable public health problem caused by the health issues it causes (8). Cigarette is a major predisposing factor in many fatal diseases such as lung and laryngeal cancers, chronic bronchitis, emphysema, coronary artery disease, and cerebrovascular events (9). If urgent measures are not taken, it is estimated that by the year 2030, there will be more than 8 million deaths per year due to smoking, with 80% of them occurring in developing countries, and one billion people will die from smoking-related illnesses in the 21st century (10). Despite being known to be the most dangerous of all addictive habits, cigarette addiction is becoming more and more common among individuals from all segments of society and especially among young people (11,12). Cigarette addiction, especially starting at a very early age, continues at an increasing level in the following years (13).

Adult smokers are known to start smoking at a young age. In a study, it was observed that 80% of adults started smoking before the age of 18, and 25% of adolescent smokers started smoking before the age of 10 (14). As a known fact in all over the world, the prevalence of smoking among university students has been increasing in Turkey as well (15).

The university years are a period of physical, social, emotional, and intellectual changes where young adults transition into adulthood (16). During this period, anxiety and stress may arise due to leaving home and family, adapting to a new environment, uncertainty about finding a job and pursuing a career (17).

Young people may perceive smoking as a means of socialization and getting rid of loneliness (8). The stress symptoms such as anxiety disorders, restlessness, taking unnecessary risks, easily getting excited, emotional outbursts, complaining about discussions within the group, decreased productivity, sensitivity to criticism, disregard for rules, increase in illnesses, and disobedience during the student years are observed (18).

Especially for undergraduate students, university life is an important developmental period where many new academic, personal, and social experiences are experienced. During this period, students have to cope with many issues such as adapting to the new academic and social environment of the university, meeting academic expectations and demands, achieving independence within the social freedoms they have gained, questioning their relationships with peers of both genders, and exploring career opportunities (19,20). Newly enrolled university students try to adapt to their new environments, make new friends, get used to living apart from their families, and try to fulfil the task of 'being successful', causing them to experience stress. However, it has also been reported that university students face problems such as not finding what they expected, not being able to realize their thoughts, and not being able to embrace the department they were placed in (21). Graduating students, on the other hand, face certain levels of stress when conducting career planning activities (22). It is believed that the stress, anxiety, hopelessness, and pessimism that university students carry regarding their future after graduation have increased nowadays (23). Research shows that university students experience stress in issues related to their future such as career building and job finding (24,25,26). As seen, it is observed that university students experience common mental disorders such as stress and depression due to the problems they encounter in their daily lives. This has become a global problem and is quite alarming (27,28).

For these reasons, alcohol, and substance use and including smoking, can be preferred as a way to tackle the stress among young people during their university years (29). Looking like an adult, belonging to a group, being accepted, easily interacting in social environments, and having fun are the main reasons why young people begins smoking (30,31). A few cigarettes under the excuse of dealing with stress can eventually become an addiction. According to the majority of addicted who cannot quit smoking that they cannot cope with stress, feel anxious, have increased appetite, and are justified when they quit nicotine. Similarly, a significant percentage of those who try to quit smoking and fail also use the same explanation. Stress causes acid production in the body and this acid quickly spends nicotine. This consumption also leads to the emergence of nicotine withdrawal symptoms. After this whole process, the individual usually faces anxiety, restlessness, and discomfort. Since the individual is forced to believe by society and the media that smoking will remove this negativity, the desire to smoke becomes stronger. This desire which is purely psychological becomes a conditioned reflexive behavior in the individual. Consuming cigarette is a habit acquired to cope with the negative emotional state of stress. The deal with response refers to all cognitive and behavioral reactions that the individual has developed individually or environmentally against stressful situations that the individual cannot handle. In other words, the individual aims to move away from negative emotional states and transition to a positive mood (32). Individuals smoke to cope more easily with negative emotional states such as fear, anger, and anxiety. Therefore, they describe smoking as a relaxing, pleasurable, and satisfying habit. From this perspective, smoking may be regarded as a passive strategy for coping with stress (33).

Cigarette smoking, as well as in the entire society is a significant problem for athletes due to its potential to cause many fatal diseases and to shorten active athletic life while also leading to physical performance losses (34). Students of Faculty of Sport Sciences, who are mostly athletes, experience intense stress not only due to the nature of sports competitions but also due to the academic pressures of university life. Students of Faculty of Sport Sciences, despite being athletes themselves, may perceive smoking as a means to cope with stress, just like many other people do.

Therefore, it is vital to determine whether stress is an influential factor in students' initiation and continuation of smoking in the fight against smoking among students. Therefore, the aim of this research is to determine the relationship between nicotine addiction and perceived stress among students studying at Faculty of Sport Sciences at Aydin Adnan Menderes University in the spring semester of the 2023-2024 academic year.

MATERIAL and METHOD

Type of Study

The data of the study designed in analytical cross-sectional type were collected after the decision of the Aydin Adnan Menderes University Social and Humanities Research Ethics Committee dated 09.02.2024 and numbered 11/03.

Sample Size

The sample of the study consists of 209 (n=66 female and n=143 male) volunteer students who are studying in the Faculty of Sport Sciences at Aydin Adnan Menderes University during the spring semester of the 2023-2024 Academic Year.

Data Collection Methods

Fagerström Nicotine for Dependence Test

Fagerström Test for Nicotine Dependence (FTND), developed by Fagerström and Schneider (35), was used to evaluate the participants' nicotine addiction. The FTND was adapted to Turkish by Uysal et al. (36). It consists of six items, and each item is scored on a scale of 0-4. The highest possible score on the FTND is 10. As the total score increases, so does the addiction level on smoking. Based on the total score obtained from the FTND, the level of smoking addiction can be classified as follows:

- 0-2 points: no or very low-level dependency
- 3-4 points: low level dependency
- 5 points: moderate level dependency
- 6-7 points: high level dependency
- 8-10 points: very high-level dependency

Perceived Stress Scale

In order to the determine the perceived stress levels of participants, the Perceived Stress Scale (PSS) developed by Cohen et al. (37) was used. The PSS, adapted into Turkish by Yerlikaya and İnanç (38) consists of 14 items and 2 sub-dimensions: inadequate self-efficacy (items 4, 5, 6, 7, 9, 10, and 13) and stress/discomfort perception (items 1, 2, 3, 8, 11, 12, and 14). Each item in the PSS can be rated on a scale of 0 (never) to 4 (very often). Items 4, 5, 6, 7, 9, 10, and 13 are reverse scored in the PSS. A high score on the PSS indicates a high level of perceived stress. A total score of 11-26 on the PSS indicates low stress levels, 27-41 indicates moderate stress levels, and 42-56 indicates high stress levels.

Statistical Analysis of Data

The data obtained from the scale implementing were analysed in the SPSS 26.0 statistical package with a confidence interval of 95% and at a significance level of 0.05. Since the sample size was more than 70, normality of the data was tested using the Kolmogorov-Smirnov Test, and since it was found that the data showed normal distribution and the assumptions for parametric tests were fulfilled, parametric tests were used in statistical analyses.

The frequency distributions of participants' nicotine addiction and perceived stress levels were calculated, and the significance of the difference between the means of two independent groups for a continuous variable specified by a measurement was determined using the Independent Samples

T-Test. Pearson correlation coefficient (r) was used to determine the existence, direction, and to measure the relationship strength between two or more variables.
In the study, the following correlation coefficients expressed as absolute values were used to determine the relationship level between variables (39):

- 0.00-0.19: Very low relationship
- 0.20-0.39: Low relationship
- 0.40-0.69: Moderate level relationship
- 0.70-0.89: Strong (high) relationship
- 0.90-1.00: Very strong relationship

RESULTS

Table 1. shows the frequency distributions of participants' nicotine addiction levels. According to results, 27.3% of the participants (n=57) are not nicotine addicted or have a very low addiction, 19.6% (n=41) have a low addiction, 14.8% (n=31) have a moderate addiction, 23.0% (n=48) have a high addiction, and 15.3% (n=32) have a very high level of nicotine addiction.

Table 1: Frequency Distributions for Nicotine Addiction Levels

Addiction level	n	%
None or very low	57	27.3
Low	41	19.6
Moderate	31	14.8
High	48	23.0
Very high	32	15.3
Total	**209**	**100.0**

Table 2. shows a statistically significant difference ($p<0.05$) in terms of nicotine addiction between female and male participants. When the mean values are examined, it is understood that males are more addicted to nicotine than females.

Table 2: Comparison of Participants' Nicotine Addiction Levels by Gender

Variables	Gender	n	$\bar{X}$	Sd±	t	p
Nicotine addiction	Female	66	2.48	1.39	-2.116	*0.036*
	Male	143	2.93	1.45		

Table 3. shows the frequency distributions of participants' perceived stress levels. Accordingly, it was found that 5.7% (n=12) of the participants had low, 54.5% (n=114) had moderate, and 39.8% (n=83) had high levels of stress.

Table 3: Frequency Distributions of Perceived Stress Levels

Perceived stress level	n	%
Low	12	5.7
Moderate	114	54.5
High	83	39.8
Total	**209**	**100.0**

When Table 4. is examined, it is found that there is no statistically significant difference between female and male participants in terms of perceived stress and its sub-dimensions, inadequate self-efficacy perception, and stress/discomfort perception ($p>0.05$).

Table 4: Comparison of Perceived Stress by Gender Among Participants

Variables	Gender	n	X̄	Sd±	t	p
Inadequate self-efficacy perception	Female	66	10.84	4.88	-1.429	0.154
	Male	143	11.84	4.60		
Stress/discomfort perception	Female	66	16.25	4.94	0.558	0.578
	Male	143	15.83	5.20		
Perceived stress	Female	66	27.10	5.81	-0.613	0.540
	Male	143	27.67	6.46		

As seen in Table 5. there is a statistically positive and very low relationship between nicotine addiction and perceived stress in participants (r=0.190; p<0.05). However, there is no statistically significant relationship between nicotine addiction and inadequate self-efficacy perception (r=0.114) and stress/discomfort perception (r=0.128) (p>0.05).

Table 5: Relationship of Participants' Nicotine Addiction and Perceived Stress

Variables		Inadequate self-efficacy perception	Stress/discomfort perception	Perceived stress
Nicotine addiction	r	0.144	0.128	0.190
	p	0.102	0.066	*0.006**

DISCUSSION and CONCLUSION

This study aims to determine the relationship between nicotine addiction and perceived stress among students studying at the Faculty of Sport Sciences of Aydin Adnan Menderes University during the spring semester of the 2023-2024 academic year. It was found that more than half of the participants' nicotine addiction level (53.1% n=111) were moderate, high, or very high. Considered that a significant proportion of the samples were active athletes, it can be said that the ratio of nicotine addiction is quite high. In a similar study by Aslan et al. (40) which composed of active athletes and coaches who participated in the Turkish Weightlifting Championship, the frequency of smoking was reported to be 33.8%. This ratio found among participants who continue their active sports life can be considered high. However, the findings founded by Aslan et al. (40) in terms of smoking frequency show a proportional difference compared to the findings of this research. In the two studies cited, the proportional difference founded in terms of smoking habits can be explained by personal differences such as age, whether or not they are active athletes, and even if they are university students. In a similar study, Yıldırım et al. (41) stated that 41.5% of amateur football players in Afyonkarahisar province smoked and 64.5% of smokers defined themselves as nicotine addiction. In studies conducted with the participation of football players, Göral (42) reported that 54.2% of football players and Atamtürk et al. (43) reported that 55.2% of football players smoked. In a study by Bağkesen et al. (44) conducted with the participation of students engaged in fitness in Elazığ province stated that 60% of the participants used tobacco.

The men participant in this study are more nicotine-dependent than women. In the literature, it is founded that there are many studies supporting the findings in this study. Indeed, Kundur et al. (45) found that 92.34% of men and 87.17% of women smoked in their study conducted with the participation of elite boxers, which supports the results of this study. In a study conducted by Çelepkolu et al. (46), it was determined that men smoked approximately three times more than women. Similarly, in a study conducted with students from faculty of medicine in the Hatay region, Yengil et al. (47) reported that 75.2% of cigarette smoking students were male and 24.8% were female. Likewise, in another study conducted with university students by Vatan et al. (48), it was found that 77.8% of smokers were male and 22.8% were female. In a study conducted by Çelikel et al. (49) with the participation of 1946 students from 24 departments affiliated with six faculties at

Tokat Gaziosmanpasa University, the rate of male students currently smoking was reported as 46%, while the rate of female students was 24%. In the same study, it was found that 47% of men and 73% of women did not smoke at all.

A significant percentage of the students participated to this study (94.3%; n=197) have moderate and high levels of stress. Another study supporting this research was conducted by Savcı and Aysan (50) with students from the Faculty of Education at Fırat University. According to the research results, 42.6% of the students experienced high levels of stress, 57.4% experienced moderate levels of stress, and there were no students with low levels of stress. The similar results obtained in both studies can be explained by the fact that the students participated in both studies are university students and therefore may experience stress due to reasons such as anxiety about the future, adaptation to academic and social environment, and efforts to meet expectations.

In this study, no difference was observed in the perceived stress levels between female and male participants. A study conducted by Öncü et al. (51) with the students from Faculty of Medicine in Ankara University supports the findings of this study, as no difference was found between female and male students in terms of stress.

Akbağ et al. (52) found no difference between female and male students in terms of social stress, self-perception, locus of control, and depression in their studies with 314 students in public universities; only a significant difference was found in the sensitivity level to physical stress sources, and it was found that women were more sensitive to physical stress stimuli.

In the literature, it is generally seen that women perceive more stress than men. Aşcı et al. (53) reported that the ratio of declaring that course intensity, failing fear in courses, memorization-based exams, inadequate understanding of course topics, not knowing what to do after graduation, unemployment, lack of sufficient vocational training, prejudiced attitudes and behaviors caused stress was higher in girls than in boys in their studies conducted with the participation of students studying at Artvin Çoruh University's Faculty of Education, Faculty of Science and Literature, and School of Health in 2014 and 2015. In a similar study, Savcı and Aysan (50) reported that the perceived stress level differed according to gender, and that woman perceived more stress than men. Özgan and Balkar (54) stated that the perceived stress level of female students was significantly higher than male students in their study with a sample of 110 students studying in the Kilis Muallim Rıfat Faculty of Education of Gaziantep University.

In this study, a very low positive relationship was found between nicotine addiction and perceived stress level, and it can be said that smoking increases slightly as stress increases. However, no relationship was found between nicotine addiction and inadequate self-efficacy perception (r=0.114) or stress / discomfort perception.

According to findings indicate that stress has no effect on smoking behavior of the students in the sample group. However, when the literature on the subject is examined, many studies shows that smoking initiation and continuation are related to stress. Çapık and Özbıçakcı (55) reported that

24.5% of students started smoking due to stress and 33.5% continued to smoke because it relieved school-related stress, in a study conducted with 250 students studying in Nursing Faculty of Dokuz Eylül University. Çapık and Dingil (56) reported that 34.8% of nursing students at Atatürk University continued to smoke due to school and courses related stress. Işıktaş et al. (57) found that 36.13% of students started smoking due to distress and stress in a study conducted to compare the coping strategies and anxiety levels of smokers and non-smokers in Northern Cyprus Turkish Republic. Baykan and Naçar (5) found that 34.8% of first semester students at Faculty of Medicine of Erciyes University started smoking due to boredom and stress.

This research shows that the level of nicotine addiction and stress among students at the Faculty of Sports Sciences at Aydin Adnan Menderes University in the 2023-2024 academic year was high, and male students were more nicotine-dependent than female students. Literature reviews have shown that stress is a factor in university students starting and continuing to smoke. However, based on the findings that 'the relationship between perceived stress level and nicotine addiction is very 'weak' and "there is no significant relationship between nicotine addiction and inadequate self-efficacy perception and stress / discomfort perception,' it can be expressed as another result that stress is not an important factor in starting and continuing to smoke among students studying at the Faculty of Sports Sciences at Aydin Adnan Menderes University in the 2023-2024 academic year. Also, no study was found in the literature that questioned the reasons for starting smoking among students of the Faculty of Sport Sciences. For these reasons, studies should be conducted to determine other factors that may be effective in this regard, as stress is not an effective factor in starting and continuing to smoke among students of the Faculty of Sport Sciences. It is believed that an important step can be taken from the very beginning in fighting nicotine addiction and other possible addictions by identifying these factors.

Declaration of Ethical Code: In this study, we undertake that all the rules required to be followed within the scope of the 'Higher Education Institutions Scientific Research and Publication Ethics Directive' are complied with, and that none of the actions stated under the heading 'Actions Against Scientific Research and Publication Ethics' are not carried out. The ethical approval for this study was granted by the Aydin Adnan Menderes University Social and Humanities Research Ethics Committee with decision number 11/03 dated 09.02.2024.

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