Research Article
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THE EFFECT OF NURSES' CHALLENGES TO STOPPING SMOKING ON NICOTINE DEPENDENCE

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Abstract: This study was conducted to examine the effects of nurses' difficulties in quitting smoking and their socio-demographic characteristics on Nicotine addictions. A cross-sectional study was conducted between August and November 2022. The study reached 410 nurses. The Fagerström Test for Nicotine Dependence and the challenges to stopping smoking were used in the study. In the analysis of data; percentage, number, and linear regression techniques were used. It was determined that 30.3% of the nurses had high Nicotine Addiction. It was determined that the mean score of the Internal factors sub-dimension of the Nurses' challenges to stopping smoking was 28.89±8.06, the mean score of the Extrinsic Factors sub-dimension was 23.07±8.36, and the mean Nicotine Addiction scale score was 4.20±2.51. It was determined that the smoking nurse's age, perceived income level, smoking duration, and internal factors sub-dimension of the difficulties in quitting smoking had a 34% effect on the Nicotine addiction test. It was determined that the smoking addiction levels of the nurses who had difficulties in quitting smoking were higher. The Extrinsic Factors sub-dimension of the challenges to stopping smoking of nurses who smoked did not affect Nicotine Addiction status.

Keywords: Smoking, Fagerstrom Nicotine Addiction Test, stopping, challenges, nursing

1. Introduction

Smoking addiction is one of the preventable public health problems that ranks first among the causes of mortality and morbidity [1]. Smoking ranks first among the risk factors for deaths from lung cancer, Ischemic Heart Disease, Cerebrovascular Diseases, and Chronic Obstructive Pulmonary Disease. By quitting smoking, the risk of catching these diseases caused by smoking decreases, and this decrease is higher in those who quit smoking at an early age [2,3].

According to WHO statistics, smoking causes more than 8 million deaths per year worldwide [4]. According to TUIK's 2019 data, 54.5% of Turkey has never used cigarettes or similar products, while 28% of them use tobacco products every day [5].

The nicotine in the tobacco in cigarettes is an addictive substance. Although most of the smokers were not satisfied with this, they said that they continued to smoke due to nicotine addiction [6,7]. In addition to this addiction, one of the most important reasons for the continuation of smoking behavior and the failure of treatment attempts is the lack of desire to quit smoking [8,9]. It is not possible to force

a person to quit smoking without the desire to quit [1]. For this reason, determining the degree of addiction and difficulties in quitting smoking in those who want to quit are of great importance in terms of quitting success [10].

Determining the behaviors that are effective in starting and quitting smoking and identifying the obstacles to quitting smoking are the most important factors in the fight against smoking. Social Cognitive Theory examines the interactions between internal and external stimuli and creates a framework in which individuals can explain their difficulties in starting and quitting smoking. According to this theory, personal factors, behavioral and environmental factors are potential stimuli to promote smoking behavior [11,12].

In studies in the literature, it has been determined that many factors are effective in people's decision to quit smoking [13,14,15]. A systematic review of 65 studies also showed the existence of many factors that prevent smoking cessation. These factors are lifestyle and personal factors [eg, withdrawal symptoms, nicotine addiction], social [eg, access to resources], and cultural and economic factors [16].

Tobacco use by health workers; primarily threatens their own health, as well as causing significant weakness in the fight against tobacco addiction. Due to their location, healthcare professionals are in the closest position to patients to encourage smoking cessation and treat tobacco addiction [17]. The importance of health professionals setting an example and role model for society by not using tobacco is emphasized in Article 14 of WHO's Tobacco Control Convention. Health professionals who use tobacco will not only reduce the credibility of the fight against tobacco use but also shake their authority [4].

Efforts to be made so that nurses, who are an important and powerful resource for tobacco control, do not quit smoking will also contribute to the health of society.

Objective: This study was conducted to examine the effects of nurses' difficulties in quitting smoking and their socio-demographic characteristics on Nicotine addictions.

2. Materials and Methods

2.1. Type of Research

The cross-sectional study was carried out in a Hospital between August and November 2022.

2.2. Population and Sample of the Research

The population of the study consisted of 1000 nurses working in a hospital. The sample size of the study was calculated to represent the population, with a 95% confidence interval and a 3% margin of error, and it was calculated that a minimum of 410 people should be included in the research sample, and a total of 410 nurses were reached in the study.

Criteria for inclusion in the study
• Being open to communication.
 • Participating in the study voluntarily
Criteria for Exclusion from the Study
• Individuals with communication difficulties.

2.3. Data Collection

Data were collected between August and November 2022. In order to collect the data, the survey Form, Fagerström Test for Nicotine Dependence and Challenges to Stopping Smoking Scale-21, created by the researcher, was used. The data were filled in by face-to-face interviews with the nurses in Malatya Training and Research Hospital. It took an average of 15-20 minutes to fill out a questionnaire.

2.4. Data Collection Tools

2.4.1 Introductory features form

It includes introductory features consisting of questions in total, including age, marital status, economic status, education level and unit of employment, how long they have worked, smoking status, etc. of the nurses included in the study.

2.4.2 Challenges to Stopping Smoking Scale-21

The scale was created in 2016 by Thomas et al. Challenges to Stopping Smoking Scale [CSS-21] was created to identify difficulties or problems related to quitting smoking [18]. The Turkish validity study of the scale was carried out by Gür [19]. The scale consists of two sub-dimensions. It consists of 9 items on the individual aspect of smoking cessation (eg, "Feeling lost without smoking") and 12 items on the social and environmental factors of quitting smoking (eg, "Fear of failing to quit smoking]. The first sub-dimension is called internal factors (items 1-9) and the second sub-dimension is called external factors (items 10-21). The four-point Likert-type scale consists of 21 items. The total score of the scale is not calculated. The score of each sub-dimension is calculated separately. Accordingly, a score between 9-36 can be obtained from the intrinsic factors and a score of 12-43 from the extrinsic factors. A higher score indicates higher difficulties in quitting smoking. The CSS-21 subscales were Cronbach alpha 0.86 and 0.82, respectively [19]. In our study, Cronbach's alpha was 0.86 to 0.84, respectively.

2.4.3 Fagerström Test for Nicotine Dependence

The scale was created by Fagerström in 1989 to determine the degree of physical dependence of individuals against cigarettes [20]. Uysal et al. conducted a Turkish validity study of the scale in 2004. The Cronbach Alpha coefficient of the scale was found to be 0.56. The scores that can be obtained from the scale are between 0-10. A high score indicates that cigarette addiction is high. On the scale, 0-2 points are considered as very mild, 3-4 points as mild, 5 points as moderate, 6-7 points as high and 8-10 points as very high addiction [21]. In this study, the Cronbach's alpha coefficient of the scale was calculated as 0.72.

2.5. Variables of the Study

Dependent variable: Fagerström Test for Nicotine Dependence
Independent variable: Challenges to Stopping Smoking Scale-21 and sociodemographic characteristics

2.6. Evaluation of Data

Data analysis [SPSS] was done with the 22.0 package program. The socio-demographic characteristics of the nurses are shown with numbers, mean, standard deviation, and percentage distribution values. Linear regression analysis was used to determine the effect of the Challenges to Stopping Smoking Scale-21 and sociodemographic characteristics on the Fagerström Test for Nicotine Dependence.

2.7. Ethical Principles of Research

Approval was obtained from the İnönü University Health Sciences Non-Interventional Clinical Research Ethics Committee to conduct the study (No= 2022/4221). Before starting the research, the purpose of conducting research was explained to the nurses, and verbal consent was obtained.

3. Results

In this section, the findings obtained from the research conducted to determine the effect of the difficulties of the nurses working in the hospital to quit smoking on nicotine addiction are presented. The descriptive characteristics of nurses are given in Table 1.

Table 1. Socio-demographic characteristics of the nurses

Introductory features	n	%
Gender		
Female	290	70.7
Male	120	29.3
Marital status		
Married	247	67.1
Single/Divorced	121	32.9
Child presence		
Yes	240	65.2
No	128	34.8
Educational status		
High school	42	11.4
University	293	79.6
Master's/PhD	33	9.0
Perceived income level		
Good	68	18.5
Middle	258	70.1
Bad	42	11.4
Perceived health level		
Good	179	48.6
Middle	176	47.8
Bad	13	3.6
Shift work		
All day long	127	34.5
Perpetual night	69	18.8
Shift change	172	46.7
Year of study		
1-3 years	78	21.2
4-6 years	15	4.1
7-9years	30	8.2
10-12 years	50	13.6
13-15 years and above	195	53.0
Clinic studied		
Policlinic	9	2.4
Services	177	48.1
Intensive care/reanimation	65	17.7
Operating room	5	1.4
Urgent	42	11.4
Other	70	19.0
Smoking status		
Yes	132	35.9
I was drinking	14	3.8
No	222	60.3
* Thoughts to quit smoking		
Yes	65	49.3
No	67	50.7
X±SD		
Average age	37.09±9.61	
Smoking duration	16.47±1.54	

In the study, it was determined that 29.5% of the nurses had very mild, 28.0% mild, 12.1% moderate, 16.7% high, and 13.6% very high scores, and they generally had a score between 4.20 and mild-moderate.

Table 2 shows the item score averages of the scales used in the research.

Table 2. Scale score averages

Fagerström Test for Nicotine Dependence	Points	Number	%
So light	0-2 points	39	29.5
Light	3-4 points	37	28.0
Middle	5 points	16	12.1
High	6-7 points	22	16.7
Very high	8-10 points	18	13.6
Average ±sd	4.20±2.51		
Challenges to stopping smoking scale (CSS-21)			
Intrinsic Factors	28.89±8.06		
Extrinsic Factors	23.07±8.36		

Tablo 3. Explanation of Challenges to Stopping Smoking and Socio-Demographic Factors Affecting Fagerström Test for Nicotine Dependence with Regression Analysis (n=132)

Independent variables	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.872	2.793		.670	.204
Age	-.087	.042	-.312	-2.063	**.041**
Gender	-.135	.0544	-.025	-.248	.804
Marital Status	.088	.351	.021	.251	.802
Child Status	.377	.659	.066	.573	.568
Level of education	-.131	.426	-.026	-.307	.759
Perceived income level	-.762	.337	-.188	-2.258	**.026**
Perceived health level	.657	.366	.153	1.795	.075
Working clinic	.013	.123	.008	.102	.919
Working in shifts	.317	.241	.115	1.320	.190
Smoking status	.045	.289	.027	.156	.876
Smoking duration	.114	.036	.436	3.148	**.002**
Thoughts to quit smoking	.462	.428	.091	1.078	.283
Instrinsic Factors	.087	.034	.281	2.601	**.011**
Extrinsic Factors	.001	.028	.004	.045	.964
	R=.583	R Square= .340	Adj R= .257	F=.4082	**p=.000**

The dependent variable: Fagerström Test for Nicotine Dependence

In Table 3, the difficulties of smoking cessation nurses (n=410) and the effect of socio-demographic characteristics on Nicotine addiction status were examined. The effect of characteristics based on qualitative data on Nicotine addiction status was determined and it was found as R=.583, R^2=.340, Ajd R=.257. It was determined that 34% of the total variance of the variables affecting the Nicotine Dependence Scale was explained by these variables, and the result was statistically significant (p<0.05). Age, perceived income level, duration of smoking, and internal factors sub-dimension of difficulties in quitting smoking were found to be effective on the Nicotine addiction test (p<0.05). It was determined that age and perceived income level had a negative (-.087,-.762) effect on the Nicotine addiction test, and the Nicotine addiction scores of the younger ones and nurses with low perceived income were higher.

It was determined that the duration of smoking and the difficulties of quitting smoking internal factors sub-dimension had a positive (.114, .087) effect on the Nicotine addiction test. According to this, it was determined that the nicotine addiction test scores of the nurses increased as the duration of smoking increased. In addition, it was determined that as the scores of the Internal factors sub-dimension of the nurses' Difficulty to Quit Smoking scale increased, their Nicotine addiction test scores increased.

It was found that gender, marital status, having a child, education level, perceived health level, clinic worked, working type, thought of quitting smoking, and the extrinsic factors sub-dimension of the scale of difficulties to quit smoking had no effect on the Nicotine addiction test (p>0.05) (Table 3).

4. Discussion

The findings obtained from this study, which was conducted to determine the effect of nurses' difficulties in quitting smoking, were discussed in line with the literature.

In the study, 35.9% of the nurses stated that they smoke. 45.5% of smokers stated that they were considering quitting smoking. In studies on nurses' smoking in our country, it has been determined that nurses smoke with a prevalence ranging between 30% and 52.8% [22- 28].
The international review found nurses' smoking rates at 25.8% in Northern Ireland and over 30% in Italy, Serbia and Spain [29]. In studies conducted around the world, the prevalence of smoking among healthcare workers was found to be between 21.7% and 65% [30-32].

In the study, it was shown that the mean score of the nicotine addiction scale of the nurses was between 4.20 ± 2.51 and mild to moderate, and 30.3% of them had high nicotine addiction [high and very high]. In a study conducted with students of the Faculty of Medicine, 41.8% were found to have high nicotine addiction [33]. In the study of Sağlam et al. on healthcare workers, it was determined that 28.4% of them had high nicotine addiction [34]. In the Yiğitalp study, it was determined that the nicotine addiction scale score of nursing students was 4.7 ± 2.8 and they had a high nicotine addiction of 35% [35].

In the study, it was determined that the smoking nurses [n=410] had a 34% effect on the Fagerstrom Nicotine addiction test for age, perceived income level, duration of smoking, and internal factors sub-dimension of difficulties in quitting smoking. In the study, it was determined that there was a negative relationship between the age of the nurses and Nicotine Addiction and that the younger ones used more cigarettes. In our study, it was determined that especially nurses in the 30-40 age group experienced higher nicotine addiction, and serious use decreased after the age of 40. In the study of Hassoy and Özvurmaz, it was determined that nurses aged 40 and over smoked significantly more than those under the age of 40 [27]. Our study is similar to the study of Üzer [25]. In their study with nurses working in the province of Muş, Sezgin, and Pirinçci reported that the rate of smoking is higher in nurses aged 31 and over [23]. It has been determined that more smoking patterns in women with higher education, such as nurses, disappear primarily in younger generations [36]. In the study of Sayan et al., it was observed that the rate of smoking increased as age increased and decreased after 34 years of age. This situation; It can be interpreted that as the number of years of smoking increases, the tendency to quit increases or the rate of starting smoking in this age generation is low [28]. In a study in the literature, the highest smoking age was found between the ages of 31-40 [37].

In the study, it was determined that there was a negative effect on the perceived economic level of nurses and nicotine addiction. It was determined that those with low economic level had higher nicotine addiction levels. In the study of Valencia et al. on patients, it was determined that all nicotine addictions were among poor and low-income individuals [38]. In the study of Maksimovic et al. on medical school students, it was determined that those with low family income had higher cigarette addiction [33].

In the study, it was determined that the smoking duration of the nurses had a positive effect on nicotine addiction. Accordingly, as the duration of smoking increases, nicotine addiction scores also increase.

In the study, the internal factors sub-dimension of the nurses' difficulties in quitting smoking positively affected nicotine addiction. Accordingly, it was determined that those who were forced to quit smoking due to internal factors had higher nicotine addiction scores.

Intrinsic factors sub-dimension of the scale determines the self-efficacy of the individual. The greater the internal difficulties experienced by the person, the lower their self-efficacy. The external factors sub-dimension covers the difficulties related to the external environment. At the same time, this scale is used to determine the difficulties experienced by individuals during their previous smoking cessation experiences. At the same time, the scale is suitable for detecting changes in difficulties over time and developing specific interventions [18]. A study conducted on smokers in Spain; stated that the most effective intervention to help smokers quit is a combination of medication and psychological support [54.6%], with willpower [37%] being the second-best treatment [40]. Maksimovic, in his study on medical students, stated that among the reasons that push students to become addicted to cigarettes, are affected by internal and external factors such as the habit of consuming coffee and alcohol, the thought of cigarettes in their spare time, the pressure of parents and their use [33].

5. Conclusion

In the study, it was determined that 30.3% of the nurses had high nicotine addiction. It was stated that 35.9% of the nurses were smokers and 45.5% of the smokers had the thought of quitting smoking. In the study, it was determined that the smoking nurses [n=410] had a 34% effect on the Fagerström Test for Nicotine Dependence for age, perceived income level, duration of smoking, and internal factors sub-dimension of difficulties in quitting smoking.

Ethical Statement

Approval was obtained from the İnonu University Health Sciences Non-Interventional Clinical Research Ethics Committee to conduct the study (No= 2022/4221).

Conflict of Interest

The authors declare that there is no conflict of interest.

Funding

No financial support has been received for this study.

Author's Contribution

The author's contribution to the study is equal.

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