Euras J Fam Med 2021;10(3):151-7. doi:10.33880/ejfm.2021100306 **Original Research**

The Effect of Health Literacy Levels on Successful of Smoking Cessation Therapy: A Survey Study

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ABSTRACT

Aim: In this study, it was aimed to evaluate the effect of the health literacy levels of patients given smoking cessation treatment on the success of smoking cessation treatment.

Methods: In this study, 152 participants between the ages of 18-70 applied to a tertiary hospital smoking cessation outpatient clinic. The Fagerström Test for Nicotine Dependence was used to determine the level of cigarette addiction of the participants, and the European Health Literacy Scale was used to evaluate the levels of health literacy.

Results: When the health literacy levels of the participants with cigarette addiction were evaluated, 38 (25%) were inadequate, 64 (42.1%) were problematic. When the participants' smoking cessation status and general health literacy levels were compared, it was found to be statistically significant. It was determined that as the health literacy level increased, the success rates of individuals increased in smoking cessation therapy.

Conclusions: We have shown that increasing the level of health literacy is effective in increasing the success of smoking cessation treatment. Increasing health literacy should be part of the fight against smoking. This effect should be demonstrated by future studies on large populations.

Keywords: smoking cessation, health literacy, addiction

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Introduction

Smoking is one of the most harmful habits which is directly related to cancer (1). It is an important public health problem due to its morbidity and mortality (2). Treatment of smoking cessation is considered as an addiction treatment. Like other addiction treatments, smoking addiction treatment involves both difficult and unsuccessful processes. There are two important components of smoking cessation treatment. The first one is cognitive-behavioral therapy which focuses on changing the relationship between smoking and emotions, thoughts, and behaviors, and the other one is pharmacotherapy and Nicotine Replacement Therapy (NRT) that facilitates the patient's quitting process. The treatment method is determined by evaluating the patient's history, physical examination, clinical features, and level of addiction as a whole (3).

Health literacy includes the ability to access, evaluate and use health information on preventing diseases, promoting health issues (4,5). Inadequate health literacy is a serious obstacle for individuals to take responsibility for their health and illness. Especially in individuals with chronic diseases, going to controls or using the drugs correctly and regularly fails (6). Inadequate health literacy should be considered as an overlooked factor in risky behaviors such as smoking, similar to its effects on chronic diseases (7).

Considering the literature, studies are generally conducted on the health literacy levels of individuals who smoke. For example, it has been shown that the level of knowledge about smoking is low in pregnant women with low health literacy (8). In addition, studies have shown that there is a relationship between low health literacy and smoking behavior in elderly individuals (9).

In the diagnosis and follow-up of many chronic diseases, the effects of health literacy have been revealed in the occurrence of complications (10,11). However, the number of studies on the effects of health literacy levels on the success of smoking cessation treatment is very limited.

This study was aimed to evaluate the effect of the health literacy levels of patients given smoking cessation treatment on the success of smoking cessation treatment.

Methods

First of all, the necessary permissions were obtained from the local ethics committee (2020/32) for the study. The sample size of the study was determined according to two dependent groups t-test in the G-power 3.1.9.2 program. Accordingly, the moderate effect size was determined as 0.5, and the sample size required for the study at %99 statistical power, and the 0.05 significance level was determined as 150 in total. The study was conducted with 152 participants who applied to Bolu University Training and Research Hospital Smoking Cessation Clinic between February and September 2020. Our study was designed as a survey study. Necessary consent was obtained from the patients who agreed to participate in the study. The patients who applied to the smoking cessation clinic and were planned to receive treatment after the necessary evaluations were made were included in this study.

Patients with psychiatric disease, comorbidities, and those who need to use drugs continuously were excluded from the study because they were thought to affect the results of the study. Patients who were planned for pharmacotherapy treatment such as bupropion and varenicline were included in our study. In addition, patients who received NRT or who were planned for behavioral smoking cessation treatment were excluded from the study. The patients were followed for 6 months. The patients who didn't smoke at the end of the 6th month were considered to have quit smoking. Additionally, the patients who have additional diseases and who use medication regularly were excluded from the study.

A sociodemographic form including questions such as age, marital status, socioeconomic level, body mass index (BMI), whether the patient tried to quit before, whether the patient received counseling if any were used in this study.

The Fagerström Test for Nicotine Dependence (FTND) was used to determine the level of smoking

addiction. The score obtained from this test which consists of six questions is scored as follows: 0-2 points as the low level, 3-7 points as the medium level, and 8 points and higher as the high level (12).

The European Health Literacy Scale (HLS-EU-Q: Health Literacy Survey in Europe) which was developed by Sorensen et al. (5) was used to evaluate health literacy. The analysis of the reliability and validity of the Turkish version of this scale was made in Turkey. The Cronbach alpha coefficient for the scale is 0.95. This scale is a four-point Likert-type scale consisting of 47 questions. The scores on the scale are analyzed and defined as follows: 0-24 points as inadequate health literacy, 25-32 points as problematic health literacy, 33-41 points as adequate health literacy, and 42-50 points defined as excellent health literacy. The scale consisted of three sub-parameters. Questions numbered 1-16 represent health care, questions numbered 17-31 represent disease prevention, and questions numbered 32-47 represent health development sub-parameters (13).

IBM SPSS v.21 version was used for statistical analysis of the data. For numerical data, the mean ± standard deviation and median (min-max) were calculated, and the qualitative data were presented as percentages (%). Since the study included a questionnaire, its reliability analysis was made and the Cronbach Alpha value was found as 0.825. T-test and Chi-square test were used in group comparisons. Kruskal Wallis test or Mann-Whitney U-test were used to evaluate the levels of health literacy of the groups. The statistical significance level was $p<0.05$.

Results

A total of 152 patients between the ages of 18-70 who applied to the Bolu University Training and Research Hospital Smoking Cessation outpatient clinic were included in this study. Of the participants, 116 (76.3%) were male and 36 (23.7%) were female. The mean age of the participants was 35.37±11.03. Additionally, 102 (67.1%) of the participants were married and 50 (32.9%) were single. Considering FTND levels of the patients, the mean was 6.89±1.90 (min=2, max=10), and 13.2% (n=20) were mild addicted, 23.7% (n=36) were moderate addicted and 63.2% (n=96) were severe addicted (Table 1).

Table 1. Analysis of the participants

		n	%
Gender	*Male*	116	76.3
	Female	36	23.7
Marital status	*Single*	50	32.9
	Married	102	67.1
Socioeconomic status	*Low*	16	10.5
	Middle	128	84.2
	High	8	5.3
Trying to quit smoking before	*No*	62	40.8
	Yes	90	59.2
Status of receiving smoking cessation counseling before	*No*	136	89.5
	Yes	16	10.5
Smoking cessation	*No*	52	34.2
	Yes	100	65.8
GHL*	*Insufficient*	38	25.0
	Limited	64	42.1
	Enough	36	23.7
	Excellent	14	9.2
FTND**	*Light*	20	13.2
	Middle	36	23.7
	Severe	96	63.2

** General health literacy (GHL); **Fagerström Test for Nicotine Dependence (FTND)*

The mean general health literacy regarding HLS_EU_Q score (GHL) of the participants was 30.11±8.98 (min=4, max=49). Considering the participants' GHL levels, 38 (25%) had inadequate GHL, 64 (42.1%) had problematic GHL, 36 (23.7%) had adequate GHL and 14 (9.2%) had excellent GHL. When the mean values of three sub-parameters of GHL are examined, it is determined that the mean value of the health service was 32.43±8.55, the mean value of the disease prevention was 29.39±9.06 and the mean value of the health development was 28.16±11.27.

No statistically significant relationship was found between GHL levels and age, sex, and FTND levels ($p=0.159$, $p=0.315$, $p=0.235$). When the literacy levels of the participants and their marital status were compared, a statistically significant relationship was found ($p=0.027$). It was determined that the health literacy levels of those who are single are higher than those who are married.

When the smoking cessation status of the participants in this study was evaluated, it was determined that 65.8% (n=100) quit smoking and

34.2% (n=52) did not quit smoking. When the participants' smoking cessation status and GHL levels were compared, it was found to be statistically significant (p<0.001). It was determined that as the level of health literacy increases, the success rates of individuals in smoking cessation treatment also increase (Figure 1,2).

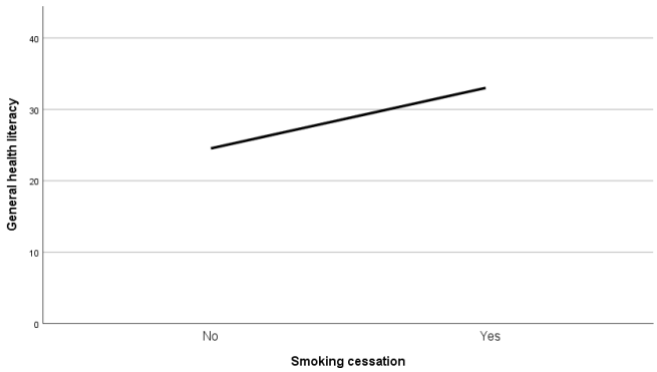

Figure 1. Participants' smoking cessation status and general health literacy levels

When the relationship between smoking cessation status and age, sex, socioeconomic status, and FTND levels were analyzed, no significant relationship was detected (p=0.082, p=0.196, p=0.731, p>0.05).

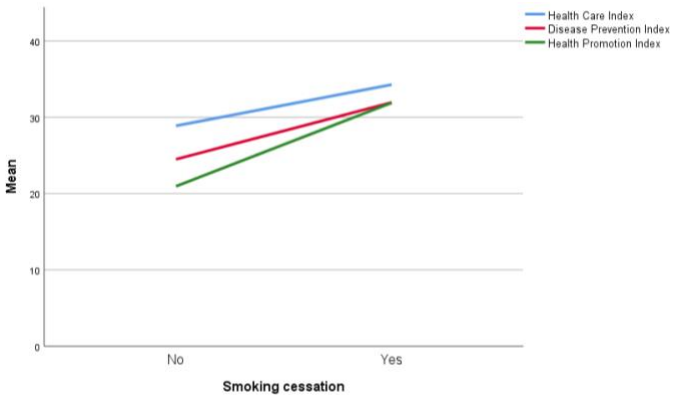

Figure 2: Participants' smoking cessation status and three sub-parameters of GHL

When the relationship between GHL and sub-parameters and FTND levels was analyzed, it was found to be statistically significant between GHL and FTND levels (p=0.034). In addition, SGT and FTND levels were found to be statistically significant (p=0.011). Mean± standard deviations of the GHL levels and sub-parameters are shown in Table 2.

Table 2: The relationship between FNBT scores of GHL sub-parameters (a,b,c) and GHL

	Mean±Std. Deviation	Min-Max	Q1	Q2	Q3	p*	r**
Health Care Index[a]	32.43 ±8.52	8-49	27	33	39	0.069	-0.148
Disease Prevention Index[b]	29.395 ±9.03	3-50	24.25	29.50	34	0.583	-0.045
Health Promotion Index[c]	28.16 ±11.24	0-50	22	28.50	34	**0.011**	**-0.207***
GHL***	30.11 ±8.95	4-49	24.50	30.50	35	**0.034**	**-0.172***

** Correlation between FNBT scores and health literacy;*
*** Correlation coefficient between FNBT scores and health literacy parameters; *** General health literacy (GHL)*

Discussion

Health literacy is a global issue in the health policies of all countries. The aim of increasing health literacy levels is to improve and increase the health level of societies (14). When we consider the fight against smoking as a public health problem, any steps to increase the level of health literacy can take us one step further in this struggle.

The sufficient health literacy level in Iran is 39.4% and there is no difference between sexes (15). In this study, the sufficient health literacy level was 23.7%, and no difference was found between the sexes. While the health literacy levels of married people were high in the same study, the health literacy levels of single people were found to be significantly higher in this study. In a study conducted in Turkey, the rate of sufficient health literacy in the elderly was found to be 8.7% (16). The fact that the range between these rates is so high indicates that we need to develop different approaches to increase health literacy for different ages, chronic diseases, or special conditions.

In a study conducted on patients with HIV, it has been shown that as patients' health literacy increases, they go and do not miss their appointments, and this also benefits viral suppression, that is treatment (4). In addition, studies on the health literacy levels of patients with type 2 diabetes mellitus have shown that health literacy is important for the patient to cope with clinical recommendations, prevent complications, and

provide public savings (17,18). In a study conducted on patients with cystic fibrosis, it was emphasized that the health literacy levels of the patients were above the general population and should be prioritized in providing patient-centered care (19). Studies on the relationship between smoking addiction treatment and health literacy levels are very limited. This study showed that health literacy is important for smoking cessation treatment as well as other chronic diseases to achieve successful results in treatment. Studies are showing lower health literacy and higher FTND levels in individuals with low socioeconomic status. In addition, in this study, it was stated that low health literacy and low socioeconomic level may be independent risk factors for unsuccessful smoking cessation. It has been shown that smoking cessation is more difficult in these individuals (7). We did not find a relationship between health literacy and FNTD levels.

In a study, it has been shown that recurrence rates are higher in smoking cessation treatment in those with low health literacy levels (20). We did not assess patients' starting smoking again. In a study conducted in a rural area in the USA, low levels of social support were mentioned in individuals with low health literacy in smoking cessation treatment. It was stated that the treatments should be planned for these individuals accordıng to health literacy levels (21). In addition, different studies are needed to evaluate the effects of health literacy levels in patients who are planned to receive smoking cessation therapy.

It has been shown that with low levels of health literacy, smoking increases, and the probability of quit smoking decreases in middle school students (20). It is similar to our results. In a study conducted with pregnant women who smoke, it has been shown that there is a relationship between health literacy level and smoking status. More studies have been proposed on the effects of health literacy levels in enhancing smoking cessation activities during pregnancy (21). Our study may also answer these question marks.

The limitations of this study are that it was conducted in a single center and the patients were followed for only 6 months. Therefore, these study results can not be generalized. Patients were not evaluated for recurrence of smoking. In addition, only patients who received pharmacotherapy such as bupropion and varenicline were included in our study. Patients receiving NRT or behavioral smoking cessation treatment were not included in our study. Therefore, the effects of health literacy level on different treatment methods could not be evaluated. New studies are needed on this subject. Longer-term and larger population studies should be conducted.

Conclusion

The treatment of cigarette addiction is a difficult process like other addictions. In this study, we determined the health literacy levels of individuals with cigarette addiction. We have shown that increasing the level of health literacy is effective in increasing the success of smoking cessation treatment. Increasing health literacy should be part of the fight against smoking. This effect should be demonstrated by future studies on large populations.

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