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Nicotine Dependence and its relationship with General Health among male smoker staff in Urmia University of Medical Sciences, 2016

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ABSTRACT

Background and objective: One of the most common causes of death around the world is smoking, influencing the physical and mental health people. As selecting a healthy lifestyle in men is less than that of women and the health of men working in health area plays an important role in providing health services to people, the current research was conducted to examine the relationship between smoking dependence and general health among male smoker employees.
Materials and Methods: The current research is descriptive-correlational type of study, carried out on 350 male smoker employees of Urmia University of Medical Sciences, who were selected using convenient and targeted sampling. Research questionnaires included 28-Question general health questionnaire(GHQ-28) and Fagerstrom test for nicotine dependence. Data were analyzed using descriptive and inferential statistics through SPSS-16 software.
Results: The mean score for smoking dependence and general health were 3.33 ± 2.31 (range of scores was from 0 to 10) and 23.60 ± 13.27 (range of scores from 3-72), respectively. In general, findings revealed significant and direct correlation between general health scores and smoking dependence.
Conclusion: People with less nicotine dependence showed better health status. In fact, as nicotine dependence is low, the physical and mental health of people will be better and the risk of mental diseases, especially depression and anxiety disorders, will be less.

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Introduction

One of the greatest health problems is smoking, which threats the health of people, leaves deadly and disabling effects on health, and plays a major role in the development of diseases such as cancers and cardiovascular diseases and other chronic diseases and the death caused by them (1, 2). In addition, it is the only preventable factor of death and disability and other chronic diseases (3, 4). Nicotine and carbon monoxide found in the cigarette increases the sympathetic activity and the level of catecholamines, leading to increased risk of coronary artery diseases (4, 5). The World Health Organization estimates that in the case of continuation of the existing trend in cigarette smoking, the number of annual deaths caused by diseases related to tobaccos will increase from 5 million in 2000 to 10 million in 2020 (6). Tobacco dependence is a chronic state, accounting

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for early death in about a million people per year in the United States, which is considered as one of the most common preventable causes of death in world (6, 7). The prevalent form of tobaccos in the world is cigarette, which is important due to its dependence on nicotine. Nicotine provides the condition for nicotine dependence due to its ability to bind to the cholinergic receptor of nicotine, which this dependence leads into long-term physical, mental, behavioral, and physiological changes in the person (6). It is highly addictive behavior, which using it leads to physiological, behavioral and social symptoms due to creation of dependence syndrome (8).

Nicotine dependence is a set of behavioral, cognitive, and psychological phenomena, caused as a result of frequent using of tobaccos. It has some characteristics, including strong desire to use cigarette, difficult control of its using, continued using of cigarette despite having information on its adverse effects, increased level of nicotine needed by body, and the physical situation of cigarette deprivation. (9) Therefore, in addition to physical and mental harms, smoking predisposes people to substance abuse (8, 10). For this reason, permanent and frequent use of cigarette has been defined as nicotine dependency syndrome in the psychiatric classifications (10-12).

It seems that the habit of smoking to be caused by two social and psychological factors. Psychological factors such as low self-confidence or lack of self-confidence and external control source and social factors such as social anxiety are involved in this issue (13, 14).

Thus, smoking is one of the non-healthiest behaviors, which threatens not only the health of the person, but also the health of whole community (10, 15).

From the World Health Organization (WHO) point of view, health means full physical, psychological, and social well-being, rather than merely absence of disease or disability (16, 17). One of the criteria determining the general health of people is mental health. Its means "feeling good and being sure of self-efficacy, capacity to compete, intergenerational belonging, self-realization, potential intellectual and emotional capabilities, etc." (World Health Organization 2001). Mental health is in fact a "mental state along with an emotional health relatively free from anxiety and disability symptoms, and the ability to establish constructive relationships, to cope with stressful demands and stimuli of life" (18).

There is a correlation between smoking and mental disorders according to the clinical and epidemiological studies in two forms: 1. mental disorders increase the risk of smoking and reduce the likelihood of leaving smoking; and 2. Smoking increases the risk of mental disorders.

The existing evidence suggests that when a mental disorder is activated, it begins to predict the onset of daily smoking after it. In fact, people with active mental disorders are at high risk of daily smoking .Depression is a major risk factor for daily smoking. In addition, smokers who are the beginning of daily smoking before improved mental disorders are more likely to become nicotine-dependent people (1).

Incorrect habits such as smoking and consequently low level of health increase the job-related diseases in the working people, leading to reduced productivity in them (19). Given 145 prevalence of using tobacco use in West Azarbaijan province, which using it is 3% higher than the national mean (20) and its effect on different aspects of life, the current research was conducted to examine the smoking dependence and its correlation with general health in male smokers who are working in Urmia University of Medical Sciences, as promoters of health, in 2016

Material and Methods

The current research is a descriptive-correlational type of study in which 350 male smokers who were employees in Urmia University of Medical Sciences were selected using convenient and targeted sampling method.

In order to achieve the goals of study, the Demographic Questionnaire, Fagerstrom Test of Nicotine Dependence (FTND), and the General Health Questionnaire (GHQ-28) were use.

Fagerstrom Test of Nicotine Dependence: This test is widely used to evaluate the level of nicotine dependence in a person. It is a short 6-option scale. Scores are in the range of 0 to 10. Higher scores suggest higher level of dependence (21-23). The low level of dependence is between scores 0 and 3, moderate level of dependence is between scores 4 and 6, and the high level of dependence is between scores 7 and 10 (22). The Cronbach's alpha level for this test was estimated to be 0.83. Different studies have also reported the reliability of this test to be $r = 0.90$ and $r = 0.94$ (21-23).

General health questionnaire: it is a screening questionnaire to diagnose the risk of mental disorders (24). It was developed by Goldberg and Williams (1988). It was specifically developed for research goals, while it is also used widely in non-clinical cases (25). It was also developed to measure mental health problems in four areas of depression, anxiety, physical symptoms, and social isolation (24). This questionnaire is scored in a simple Likert scale (0-1.2-3). The general health score is in the range of 0-84. High scores suggest high level of mental problem and poor general health (26). The general health score between 0-27 in each of the studied subjects indicates acceptale level of health, score betwee 28-55 suggests desired level of general health, and score between 56-84 is considered as undesired health (27). The questionnaire of study has an acceptable level of internal consistency reliability (alpha = 0.92) (26). GHQ-28 is a valid and reliable measurement scale (25), and its reliability coefficients have been reported in different studies to be between 0.78 and 0.95 (24).

In order to collect data, after obtaining necessary letters of information and coordinating with the head of each department, male smoker employees were identified using available and targeted method to participate in the study. They were ensured that their information would remain confidential. This research was approved by Research and Technology Deputy of Tabriz University of Medical Sciences.

Results

In this research, 350 smoker employees of Urmia University of Medical Sciences participated, which their demographic characteristics are shown in Table 1.

Mean and SD of general health score was 23.60 ± 13.27, respectively. Among the subscales of this variable, the dimension of social function had the highest mean (7.50 ± 3.05) and dimension of depression had the lowest mean (3.32 ± 4.26) compare to other dimensions of general health .The variable dependence on nicotine has a mean and standard deviation of 3.33 ± 2.31. Findings of Pearson correlation test revealed a significant and direct correlation between general health scores and nicotine dependence (correlation coefficient: 0.321 and significance value: 0.00) and there is a significant difference between the scores of general health dimensions and the nicotine dependence (Table 2).

The findings of statistical analysis of demographic variables with the main variables are shown in Table 1.

Discussion:

According to nicotine dependence classification, make smoker employees of Urmia University of Medical Sciences show a mild dependence on nicotine. As low general health score suggests better health, it could be concluded male smoker employees in Urmia University of Medical Sciences has normal health status in the present study, according to health status classification. In addition, a direct relationship between general health scores and nicotine dependence suggests that when smokers lave low tendency for smoking, their physical and mental health will be higher than those with high dependence on smoking.

The research conducted by Naomi Breslau revealed that the prevalence of health disorders, especially depression, is higher in nicotine-dependent smokers compared to other smokers. Findings of the studies revealed a mutual relationship between dependence on smoking and depression, so that the risk of anxiety and depression disorders is high in nicotine-dependent people compared to other smokers (1).

The findings of research conducted by Asadpour et al were in line with our study findings (28). In a study conducted by Norbert Schmitz et al, the relationship between nicotine dependence and health-related quality was evaluated and it was found that nicotine-dependent smokers have a worse quality of life, more disability, and more mental disorders compared to smokers without nicotine dependence, and the prevalence of chronic physical and mental diseases in nicotine-dependent people were higher than other people, and nicotine-dependent people suffered from mental diseases twice as other people did (29).

Among general health dimensions, social dysfunction has the lowest test statistic with nicotine dependence and as degree of nicotine dependence is low in this research; social dysfunction has the lowest test statistic. It means that people with low nicotine dependence have the lowest social dysfunction, and the highest test statistic with nicotine dependence in this research is related to physical symptoms dimension. It means that there is a relationship between the degree of dependence on smoking and physical symptoms, and as this relationship is direct, when there is higher nicotine dependence, disorders and physical symptoms will be greater. In addition, significant difference was found between anxiety and depression and nicotine dependence, which is in line with finding of our study (1).

Conclusion:

Considering the findings of this research, it was found that general health of male smoker employees of Urmia University of Medical Sciences is in the normal level, based health status classification into three levels. Based on this classification, of nicotine dependence in male smoker employees in Urmia University of Medical Sciences is at the mild level. Considering the direct relationship between general health scores and nicotine dependence, smokers with a lower level of nicotine dependence will have good general health and, in fact, they will have better physical and mental health compared to those with high nicotine dependence. As a result, low level of dependency will be associated with physical symptoms, social dysfunction, anxiety and low depression, which this finding is in line with findings of other studies.

Research limitations:

As using tobacco has been prohibited in public departments and organizations and due to great number of research questions, employees showed low willingness to participate in research. On the other hand, due to smoking in space outside of the departments and organizations, it was impossible to access all smokers. To control these limitations, employees were asked to complete the questionnaire at their leisure time, and proper time was given for them to complete the questionnaire. In addition, employees were ensured that their information would remain confidential.

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Table 1: frequency and percentage, mean and standard deviation, significance, and test statistics of Nicotine Dependence and general health scores by demographic characteristics

variable		frequency and percentage	mean and standard deviation of Nicotine Dependence	significance, and test statistics	mean and standard deviation of general health	significance, and test statistics

Age	Less than 30 years	70(22.0)	3.50±2.46	P=0.835 F=0.287	24.85±14.45	P=0.335 F=1.134
	Between 30-40 years	145(41.4)	3.21±2.28		24.05±12.28	
	Between 40-50 years	90(25.7)	3.38±2.27		23.25±14.60	
	More than 50 years	38(10.9)	3.34±2.31		20.21±10.78	
Marital status	Married	304(86.9)	3.39±2.32	P=0.472 F=0.753	23.45±13.17	P=0.579 F=0.548
	Single	44(12.6)	2.97±2.27		25.00±14.18	
	Divorced	2(0.5)	2.50±0.70		16.52±4.94	
Number of children	Without any children	77(22.0)	3.01±2.26	P=0.064 F=2.104	22.74±12.42	P=0.002 F=3.881
	One child	94(26.8)	3.45±2.46		26.05±13.62	
	Two children	135(38.6)	3.33±2.18		22.22±12.73	
	Three children	31(8.9)	3.58±2.04		23.70±13.69	
	Four children	12(3.4)	3.33±2.99		21.33±13.02	
	Five children	1(0.3)	10.00		72.00	
Education	Less than high school diploma	53(15.1)	4.01±2.35	P=0.111 F=1.891	23.58±14.32	P=0.922 F=0.229
	High school diploma	96(27.4)	3.44±2.49		24.44±13.84	
	Associate degree	63(18.0)	3.30±2.08		23.15±12.65	
	Bachelor’s	113(32.3)	3.01±2.22		23.55±13.38	
	Master’s degree and more	25(7.2)	3.00±2.36		21.80±10.06	
Type of employment	Permanent	103(29.4)	3.20±2.28	P=0.515 F=0.665	21.88±11.90	P=0.288 F=1.248
	Contractual	172(49.2)	3.48±2.31		24.41±12.99	
	Others	75(21.4)	3.18±2.39		24.12±15.47	
Duration of employment	1-10 years	178(50.9)	3.35±2.39	P=0.924 F=0.079	24.29±13.27	P=0.113 F=2.194
	10-20 years	101(28.9)	3.36±2.18		24.46±13.57	
	More than 20 years	69(20.2)	3.23±2.32		20.67±12.60	
Income	Between 1 and 2 million tomans	45(12.9)	3.42±2.32	P=0.624 F=0.587	26.08±15.82	P=0.466 F=0.852
	Between 2 and 3 million tomans	232(66.3)	3.33±2.33		23.56±13.07	
	More than 3 million tomans	62(17.7)	3.43±2.29		21.93±12.02	

	Between 1 and 2 million tomans	11(3.1)	2.45±2.11		23.72±13.16	
Income status	Expenditures > income	273(78)	3.35±2.32	P=0.515 F=0.665	24.14±13.33	P=0.229 F=1.481
	Expenditures = income	65(18.6)	3.40±2.33		22.32±13.49	
	Expenditures < income	13(3.4)	2.58±2.19		18.33±9.24	
Living place	City	312(89.1)	3.25±2.25	P=0.020 F=3.940	23.33±12.99	P=0.217 F=1.252
	Village	28(8.0)	3.53±2.23		24.46±13.77	
	Outskirts	10(2.9)	5.30±2.94		29.90±19.53	
Housing status	Personal	220(62.9)	3.38±2.36	P=0.640 F=0.219	22.14±12.68	P=0.007 F=7.373
	Leased	130(37.1)	3.26±2.24		26.09±13.91	
Smoking status	Smoking	309(88.3)	3.39±2.32	P=0.202 F=1.635	24.01±13.31	P=0.118 F=2.458
	Quitted	41(11.7)	2.90±2.23		20.56±12.73	
Duration of smoking	Between 1-10 years	132(37.7)	3.00±2.26	P=0.183 F=1.628	23.55±12.79	P=0.456 F=0.872
	Between 10-20 years	119(34.1)	3.46±2.29		23.87±13.32	
	Between 20-30 years	67(19.1)	3.53±2.26		21.89±11.46	
	More than 30 years	32(9.1)	3.81±2.62		26.43±17.91	
Age of commencement of smoking	Under 18 years	122(34.8)	3.89±2.58	P=0.000 F=8.006	24.88±14.48	P=0.137 F=1.996
	Between 18-28 years	192(54.9)	3.18±2.16		23.49±13.83	
	More than 28 years	36(10.3)	2.27±1.61		19.88±10.60	
Daily cigarette consumption	Under 10 cigarettes	167(47.7)	2.101±1.7	P=0.000 F=57.158	21.40±11.66	P=0.001 F=9.166
	Between 10-20 cigarettes	151(43.1)	4.06±2.03		23.76±12.90	
	Between 20-30 cigarettes	21(6.0)	6.00±2.30		34.66±16.66	
	More than 30 cigarettes	11(3.2)	6.90±1.97		33.81±19.61	
Weekly cigarette consumption	Under 70 cigarettes	165(47.1)	2.06±1.66	P=0.000 F=64.571	21.39±12.05	P=0.001 F= 5.739
	Between 70-140 cigarettes	57(16.3)	3.28±1.81		23.43±12.57	
	Between 140-210 cigarettes	16(33.2)	4.79±2.12		25.63±13.74	
	More than 210 cigarettes	12(3.4)	7.00±2.08		35.25±19.46	

Table 2: Distribution of mean scores of nicotine dependence in terms of general health dimensions.

		Mean	**Standard Deviation**	ANOVA test statistics	P-Value
Physical Symptoms	Low Dependence	5.15	3.49	13.97	0.000
	Moderate Dependence	6.85	4		
	High Dependence	8.06	4.75		
Anxiety	Low Dependence	5.81	4	11.27	0.000
	Moderate Dependence	7.40	4.57		
	High Dependence	8.95	5.10		
Social Isolation	Low Dependence	7.12	2.68	3.99	0.019
	Moderate Dependence	7.78	3.26		
	High Dependence	8.41	3.74		
Depression	Low Dependence	2.37	3.56	12.62	0.000
	Moderate Dependence	4.14	4.57		
	High Dependence	5.37	5.13		

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