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Smoking and nicotine dependence in relation to depression, anxiety, and stress in Egyptian adults: A cross-sectional study

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Abstract:

BACKGROUND: Much research has found that smoking is one of the major risk factors for a variety of physical diseases and mental disorders; however, few studies have been conducted on smoking in Egypt. Furthermore, to the researcher's best knowledge, no study in Egypt has compiled data on smoking prevalence, motives, and levels of nicotine dependency. In order to fill in this gap, the current study has attempted to summarize the situation and construct an accurate picture of smoking in Egypt.

MATERIALS AND METHODS: This cross-sectional study included 2000 Egyptian adults in Fayoum through a multistage cluster sampling technique. For data collection, the Socioeconomic Status Scale was deployed. In addition, Depression, Anxiety, Stress Scale (DASS), the Modified Reasons for Smoking Scale (MRSS), and Fagerstrom Test for Nicotine Dependence (FTND) were used. Data analysis performed using SPSS version 22.0. For qualitative data, Chi-square test was used to determine statistical significance. Bivariate Pearson correlation was used to test for the association between quantitative variables.

RESULTS: Of the total sample of 2000 adults, 40.4% had anxiety and 24.3% had stress, and 19.5% showed severe to extremely severe level of depression. For MRSS, tension reduction or relaxation was found in 46.5% adults while 9.8% had high level of nicotine dependence. There was a statistically significant association between psychometric disorders, on one hand, and both smoking motivation and nicotine dependence, on the other ($P < 0.001$). The DASS score had a statistically significant correlation with age, smoking duration, nicotine dependence level, and MRSS subscales.

CONCLUSION: Smoking is linked to psychological symptoms and shows a moderate to high level of nicotine dependence, with a higher level of dependency, smoking pleasure, stress reduction/relaxation, and hand-mouth movement as motives for smoking. Furthermore, there was a correlation between nicotine dependence, on one hand, and depression and stress on the other.

Keywords:

Depression, nicotine, smoking

Introduction

Smoking is known as a chronic nicotine dependence disorder that is considered as a major risk factor for a variety of diseases and disabilities affecting physical health of all body organs as well as mental health.^[1,2] Tobacco was responsible for more than 7 million

deaths worldwide in 2017.^[3] If the current smoking patterns continue, the number of deaths by tobacco related diseases will have reached more than 8 million deaths by 2030. In other words, for every person who dies of smoking, at least 30 others live with a serious disease related to smoking.^[4] According to World Health Organization's (WHO) reports, smoking has become more common in many developing countries, including Egypt.^[5]

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Anxiety, depression, bipolar disorder, and schizophrenia are examples of mental disorders that affect an individual's thought, mood, emotion, and behavior. Several studies have stressed that substantial impairment of health, disability, and inability to perform major tasks are the results of long-term use of alcohol, drugs, and tobacco. Approximately, one out of every four adults suffers from mental illness in the United States (US) and about 40% of adults smoke cigarettes.^[6] The majority of psychiatric disorders have been linked to cigarette smoking. Cigarette smoking has been associated with an elevated risk of psychiatric disorders.^[7]

From another perspective, nicotine dependence has proven to be difficult, especially, for people with psychiatric disorders since nicotine has mood-altering effects that can partially mask the negative symptoms of mental health issues. It induces a sense of relaxation, misleading users to believe that it decreases stress and anxiety.^[8] It was found that smoking rates among people with those disorders are significantly higher than in the general population; i.e., it is 2-5 times higher in patients with multiple disorders such as schizophrenia, mood disorders, binge eating disorders, attention deficit and hyperactivity disorder, bulimia, and substance use disorders.^[9]

Some studies have found that smoking and depression have a complicated relationship because nicotine causes the release of the chemical substance dopamine (the brain's positive trigger). From another angle, since depressive patients' dopamine levels are low, they rely on cigarettes to boost their dopamine levels to feel better. Furthermore, smoking has dopamine-producing mechanism effect in the brain, resulting in a decrease in dopamine supply and thus prompting people to smoke more.^[1]

Similarly, depression, anxiety, and emotional disorders have been found to increase the risk of smoking experiments, frequent smoking, and nicotine dependence. They also lead to maladaptive cognitive and emotional responses to tobacco.^[10] Evidence suggests that clinicians' lack of active involvement in urging smokers to quit may be due to their belief that depressed smokers are not motivated to quit, thinking that smoking is a form of self-medication and that quitting would exacerbate depression symptoms.^[11] In other words, high levels of depression, anxiety, and stress in addition to low motivation for change are the main obstacles to the failure of smoking cessation programs.^[12]

A review of the literature has revealed a high failure rate in smoking cessation.^[12] In order to contribute to successful smoking cessation, high motivation and multiple quitting attempts are required.^[13] Quitting the use of tobacco requires special attention. For instance, the offer of quit-smoking assistance, which is the focus of the

WHO's seventh report on the global tobacco epidemic, is an important part of any tobacco-control plan. Current tobacco users will quit if the global targets for lowering tobacco use are met. For instance, WHO monitors the implementation of the six MPOWER tobacco-reduction measures and encourages nations to adopt them.^[13]

Owing to the significance of smoking and the resultant diseases and psychological disorders, the low rate of success of smoking cessation programs, and the lack of research in these areas in Egypt, the current study attempts to address these research gaps by determining the association between psychometric disorders (depression, anxiety, and stress) and each of smoking motivations and levels of nicotine dependence in the study group to improve the success rate of cessation programs.

Materials and Methods

This is a cross-sectional descriptive study of Al-Fayoum governorate population, Egypt. The multistage cluster sampling used in the study was carried out in four stages. The first stage was a cluster random sample of six governorate districts from which three were chosen. In the second stage, four primary healthcare facilities were chosen in each district. The third stage was to select one population block in each primary healthcare facility catchment area. In each population block, a street was randomly selected for the fourth stage. The first house was also randomly chosen, followed by a normal selection of every second house. Epi Info 2000 software version (Atlanta, Georgia) was used to compute sample size.^[14] The minimum sample size was 2000 adults with a type I error of 0.05 and an 85% power level.^[15] Ethical approval was obtained from the Institutional Review Board vide Letter No. 73 dated 11/06/2020 and informed written consent was taken from all participants.

Data was collected using a self-administered Arabic questionnaire. Illiterate participants were all interviewed. The questionnaire was divided into four parts. The first part comprised 14 questions on sociodemographic status as measured by Socioeconomic Status Scale (SESS). With a total score of 48, this scale covered questions on parental education, occupation, family domain, home sanitation, and economic domain. Low socioeconomic status was defined as receiving <40% of the overall score (ranging from 0 to 19.2), medium socioeconomic status was defined as obtaining 40% to 70% of the overall score (ranging from 19.2 to 33.6), and high socioeconomic status defined as obtaining more than 70% of the overall score (ranging from 33.6 to 48).^[16]

The second part comprised 21 items to measure the level of depression, anxiety, and stress using Depression,

Anxiety, and Stress Scale (DASS-21). A well-established self-administered tool that assesses depression, anxiety, and stress and has high reliability and validity was employed. This included three subscales of seven items each for depression, anxiety, and stress. Scores ranged from zero to three, so the total score was determined by summing the scores for the related items and multiplying by two, then graded as “mild,” “moderate,” “severe,” and “extremely severe” degrees [Table 1].^[17]

The Modified Reasons for Smoking Scale (MRSS) was used in the third part to assess the motivation to smoke. The MRSS is a 21-item self-administered practical easily understood questionnaire categorized into levels. Identification of reasons and motivations of smoking may help in smoking cessation counseling. It involved seven sub-scales, namely, Dependency, Smoking Pleasure Reduction/Relaxation Anxiety, Social Contact, Arousal, Habit/Automatism, and Hand-mouth Activity, each with three items. The overall score was calculated by adding the scores of the associated items, and then categorized as either “high” (≥ 11 points) or “low to moderate” (< 11 points) based on the results.^[18]

The fourth part involved six items to determine the level of nicotine addiction, using the Fagerstrom Test Nicotine Dependence (FTND). This six-part easy, short, and simple test assesses the intensity of physical dependence on tobacco use. In scoring the FTND, yes/no items were scored from zero to one and multiple-choice items were scored from zero to three. The items were summed to yield a total score of zero to ten. The higher the total Fagerström score, the more intensive the patient’s physical dependence on nicotine. The total score was graded as “low” at (1–2 score), “low to moderate” (3–4 score), or “high to moderate” (4–5 score). Dependence was classified as either “low” (5–7 score) or “high” (≥ 8 score).^[19]

The study procedures were carried out in accordance with the Helsinki Declaration’s ethical standards and were reviewed by a research ethics committee at the Faculty of Medicine, Fayoum University. The study participants were informed of the study’s goals and the confidentiality of their information prior to the distribution of the questionnaire. Participation in the study was voluntary and a written consent was signed by all participants.

A pilot study was conducted on 200 participants, which represented 10% of the study population. Four scales were used in the study. The questionnaire was developed in English, translated into Arabic, with the help of a professional bilingual specialist. Questionnaires were distributed and completed by participants to test the clarity of questions and assess validity and reliability.

Problematic questions were modified and revised by a specialist. Reliability of the questionnaire was tested by Cronbach’s alpha test. Cronbach’s alpha value was 0.798 for SESS, 0.875 for DASS, 0.859 for MRSS, and 0.831 for FTND. Regarding validity, a correlation test was used between different items with $P < 0.05$ and correlation coefficient ranging between 0.22 and 0.78.

Data analysis was conducted, using the Social Science Statistical Package (SPSS) program version 22 (IBM, Armonk, NY, USA). The test used for qualitative data was Chi-square test. Bivariate Pearson correlation was used to test the association among quantitative variables. Significance was set at < 0.05 .

Results

A total of 2000 adults with a mean age of (31.6 ± 12.8) years comprising 1067 (53.4%) males and 933 (46.6%) females took part in the study. In terms of socioeconomic status, 1225 participants (61.2%) lived in rural areas and 775 (38.8%) lived in urban areas. The socioeconomic status of 332 (16.5%) participants was low, for 1385 (69.3%) it was medium, and for 283 (14.2%) participants socioeconomic status was high.

As regards smoking habit, 848 participants (42.4%) had smoked for a mean duration of (11.9 ± 9.3) years, and 99 participants (5%) had succeeded in quitting. Of the smokers, 765 participants (90.2%) smoked cigarettes, 50 (5.9%) smoked shisha, 15 (1.8%) smoked both

Table 1: Sub scale for depression, anxiety, and stress

Degrees	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	> 28	> 20	> 34

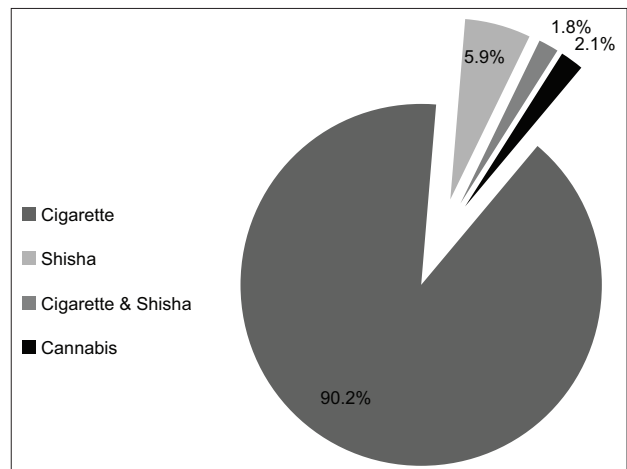


Figure 1: Types of smoking among study group

cigarettes and Shisha, and finally 18 (2.1%) participants smoked cannabis [Figure 1].

The findings showed that although 807 (40.4%) participants had anxiety and 485 (24.3%) had stress, only 389 (19.5%) participants showed severe to extremely severe levels of depression. For MRSS, tension reduction or relaxation was found in 440 participants (46.5%), pleasure of smoking found in 245 (25.9%) participants, hand-mouth activity in 243 (25.7%), high level of dependence in 237 (25%), social interaction found in 140 (14.8%), stimulation in 122 (12.9%), and habit/ automatism in 56 (5.9%) participants. According to a Fragment test for nicotine dependence, only 93 (9.8%) participants had a high level of nicotine dependence and 406 (42.9%) had a moderate level of nicotine dependency [Table 2].

There was a statistically significant higher percentage of severe and extremely severe degree of depression (14.6% and 13%), anxiety (17.7% and 39.3%), and stress (21.5% and 13.4%) respectively, with $P < 0.001$ among smokers, (7.8%, 5.4%, 10.3%, 16.9%, 13.1%, and 3.2%, respectively) among nonsmokers and (9.1%, 7.1%, 12.1%, 26.3%, 14.1%, and 4.1%, respectively) among former smokers [Table 3].

Concerning MRSS, there was a statistically significant higher percentage of a high degree of dependence, pleasure of smoking, tension reduction/relaxation, and hand-mouth activity ($P < 0.05$) among smokers than among former smokers (26.5%, 27.5%, 48.9%, and 27% versus 12.1%, 12.1%, 25.3%, and 14.1%). In addition, there was a statistically significant higher percentage of moderate to high degree of nicotine dependence in smokers (53.5%) than in former smokers (45.5%), with $P = 0.003$ [Table 4].

There was a statistically significant association between the level of nicotine dependency and levels of both depression and stress in smokers. Smokers with high nicotine dependence levels showed severe and extremely severe levels of both depression (12.5%, and 19.3%, respectively) and stress (26.1% and 22.7%, respectively), but there was no effect of the degree of nicotine dependence on anxiety levels [Table 5].

The results showed that there was a statistically significant positive correlation, with $P < 0.001$, between the DASS score (depression, anxiety, and stress) with both FTND and MRSS scale, which indicated an association of increase in nicotine dependence score and an increase in DASS score. In addition, age was in a negative correlation with depression and a positive correlation with both anxiety and stress. The duration of smoking positively correlated with both depression and stress [Table 6].

Table 2: Frequency distribution of depression, anxiety and stress scale, modified reasons for smoking scale, and fagerstrom test for nicotine dependence scales among study subjects (n=2000)

Variables	N (%)
DASS score (n=2000)	
Depression	
Normal	862 (43.1)
Mild	303 (15.2)
Moderate	446 (22.3)
Severe	215 (10.8)
Extremely severe	174 (8.7)
Anxiety	
Normal	550 (27.5)
Mild	167 (8.4)
Moderate	475 (23.8)
Severe	270 (13.5)
Extremely severe	537 (26.9)
Stress	
Normal	765 (38.3)
Mild	321 (16.1)
Moderate	490 (21.5)
Severe	333 (16.7)
Extremely severe	152 (7.6)
MRSS scale (n=947)	
Dependence	
Low to moderate	710 (75.0)
High	237 (25.0)
Pleasure of smoking	
Low to moderate	702 (74.1)
High	245 (25.9)
Tension reduction/relaxation	
Low to moderate	507 (53.5)
High	440 (46.5)
Social interaction	
Low to moderate	807 (85.2)
High	140 (14.8)
Stimulation	
Low to moderate	825 (87.1)
High	122 (12.9)
Habit/automatism	
Low to moderate	891 (94.1)
High	56 (5.9)
Hand-mouth activity	
Low to moderate	704 (74.3)
High	243 (25.7)
FTND (n=947)	
Low	217 (22.9)
Low to moderate	231 (2.4)
Moderate	406 (42.9)
High	93 (9.8)

DASS=Depression, Anxiety, and Stress Scale, MRSS=Modified Reasons for Smoking Scale, FTND=Fagerstrom test for nicotine dependence

With regard to the type of smoking, there was a statistically significant higher percentage of moderate to severe nicotine dependence among hashish smokers,

Table 3: Frequency distribution of depression, anxiety, and stress among study participants by smoking status (n=2000)

DASS score	Nonsmoker (n=1053) N (%)	Smoker (n=848) N (%)	Quit smoking (n=99) N (%)	P-value
Depression				
Normal	552 (52.4)	263 (31.0)	47 (47.5)	<0.001
Mild	162 (15.4)	128 (15.1)	13 (13.1)	
Moderate	200 (19.0)	223 (26.3)	23 (23.2)	
Severe	82 (7.8)	124 (14.6)	9 (9.1)	
Extremely severe	57 (5.4)	110 (13.0)	7 (7.1)	
Anxiety				
Normal	389 (36.9)	132 (15.6)	29 (29.3)	<0.001
Mild	112 (10.6)	51 (6.0)	4 (4.0)	
Moderate	266 (25.3)	181 (21.4)	28 (28.3)	
Severe	108 (10.3)	150 (17.7)	12 (12.1)	
Extremely severe	178 (16.9)	333 (39.3)	26 (26.3)	
Stress				
Normal	515 (48.9)	216 (25.5)	34 (34.4)	<0.001
Mild	152 (14.4)	145 (17.1)	24 (24.2)	
Moderate	215 (20.4)	191 (22.5)	23 (23.2)	
Severe	137 (13.1)	182 (21.5)	14 (14.1)	
Extremely severe	34 (3.2)	114 (13.4)	4 (4.1)	

DASS=Depression, Anxiety, and Stress Scale

Table 4: Comparison of modified reasons for smoking scale and fagerstrom test for nicotine dependence scales among smoking groups

MRSS scale	Smoker (n=848) N (%)	Quit smoking (n=99) N (%)	P-value
Dependence			
Low to moderate	623 (73.5)	87 (87.9)	0.001*
High	225 (26.5)	12 (12.1)	
Pleasure of smoking			
Low to moderate	615 (72.5)	87 (87.9)	0.001*
High	233 (27.5)	12 (12.1)	
Tension reduction/relaxation			
Low to moderate	433 (51.1)	74 (74.7)	<0.001*
High	415 (48.9)	25 (25.3)	
Social interaction			
Low to moderate	716 (84.4)	91 (91.9)	0.06
High	132 (15.6)	8 (8.1)	
Stimulation			
Low to moderate	735 (86.7)	90 (90.9)	0.3
High	113 (13.3)	9 (9.1)	
Habit/automatism			
Low to moderate	797 (94.0)	94 (94.9)	0.8
High	51 (6.0)	5 (5.1)	
Hand-mouth activity			
Low to moderate	619 (73.0)	85 (85.9)	0.005*
High	229 (27.0)	14 (14.1)	
FTND			
Low	181 (21.3)	36 (36.4)	0.003*
Low to moderate	214 (25.2)	17 (17.2)	
Moderate	365 (43.0)	41 (41.4)	
High	88 (10.5)	5 (5.1)	

*Statistical significance $P < 0.05$. MRSS=Modified Reasons for Smoking Scale, FTND=Fagerstrom test for nicotine dependence

with $P = 0.02$ ($P = 0.02$). However, there was no significant difference in DASS score among different types of smokers.

Finally, there was an association between the degree of nicotine dependence and the reasons of smoking. There was a statistically significant positive correlation between

Table 5: Comparison of depression, anxiety, and stress by nicotine dependence categories among smoking groups

DASS score	Nicotine dependence categories				P-value
	Low (n=181) N (%)	Low to moderate (n=214) N (%)	Moderate (n=365) N (%)	High (n=88) N (%)	
Depression					
Normal	56 (30.9)	81 (37.9)	104 (28.5)	22 (25.0)	0.03*
Mild	40 (22.1)	29 (13.6)	48 (13.2)	11 (12.5)	
Moderate	45 (24.9)	52 (24.3)	99 (27.1)	27 (30.7)	
Severe	23 (12.7)	25 (11.7)	65 (17.8)	11 (12.5)	
Extremely severe	17 (9.4)	27 (12.6)	49 (13.4)	17 (19.3)	
Anxiety					
Normal	41 (22.7)	31 (14.5)	53 (14.5)	8 (9.1)	0.06
Mild	10 (5.5)	16 (7.5)	19 (5.2)	6 (6.8)	
Moderate	41 (22.7)	50 (23.4)	79 (21.6)	11 (12.5)	
Severe	30 (16.6)	32 (15.0)	67 (18.4)	21 (23.9)	
Extremely severe	59 (32.6)	85 (39.7)	147 (40.3)	42 (47.7)	
Stress					
Normal	61 (33.7)	60 (28.0)	80 (21.9)	15 (17.0)	0.02*
Mild	30 (16.6)	40 (18.7)	64 (17.5)	11 (12.5)	
Moderate	37 (20.4)	52 (24.3)	83 (22.7)	19 (21.6)	
Severe	32 (17.7)	37 (17.3)	90 (24.7)	23 (26.1)	
Extremely severe	21 (11.6)	25 (11.7)	48 (13.2)	20 (22.7)	

*Statistical significance $P < 0.05$. FTND=Fagerstrom test for nicotine dependence, DASS=Depression, Anxiety, and Stress Scale

Table 6: Correlation between depression, anxiety, and stress and study variables among smokers

Variables	Depression r (P-value)	Anxiety r (P-value)	Stress r (P-value)
Age (years)	-0.13 (0.001)*	0.08 (0.02)*	0.07 (0.02)*
Smoking duration	-0.09 (0.01)*	0.06 (0.07)	0.10 (0.002)*
FTND	0.12 (0.001)*	0.15 (0.001)*	0.18 (0.001)*
MRSS scale			
Dependence	0.22 (0.001)*	0.17 (0.001)*	0.26 (0.001)*
Pleasure of smoking	0.16 (0.001)*	0.22 (0.001)*	0.25 (0.001)*
Tension reduction/relaxation	0.17 (0.001)*	0.19 (0.001)*	0.34 (0.001)*
Social interaction	0.13 (0.001)*	0.18 (0.001)*	0.23 (0.001)*
Stimulation	0.15 (0.001)*	0.20 (0.001)*	0.22 (0.001)*
Habit/automatism	0.27 (0.001)*	0.30 (0.001)*	0.21 (0.001)*
Hand-mouth activity	0.21 (0.001)*	0.19 (0.001)*	0.18 (0.001)*

*Statistical significance $P < 0.05$. FTND=Fagerstrom test for nicotine dependence, MRSS=Modified Reasons for Smoking Scale

FTND scale and MRSS subscales as a dependency ($r = 0.40$, $P < 0.001$), pleasure of smoking ($r = 0.23$, $P = 0.02$), social interaction ($r = 0.36$, $P < 0.001$), stimulation ($r = 0.3$, $P < 0.001$), and habit/automatism ($r = 0.64$, $P < 0.001$). However, there was no statistically significant correlation with tension reduction, or hand-mouth activity subscale with $P > 0.05$.

Discussion

Assuming that existing tobacco control measures are maintained in all countries, the global incidence of tobacco use is expected to drop to around one-fifth (20.9%) of the global population by 2025.^[20]

The current study found that depression, anxiety, and stress were prevalent in 41.7%, 64.2%, and 45.8% of

the study participants, respectively. Unlike the current findings, an Iranian study found a lower prevalence of depression (29%), anxiety (32.2%), and stress (34.8%).^[21] However, the present findings were in line with the findings of an Egyptian study; which showed that 65%, 73%, and 59.9% of the participants suffered from depression, anxiety, and stress, respectively.^[22] As for nicotine dependence, the current study showed a prevalence of high level nicotine dependency in 9.8% of participants, moderate level in 42.9%, low to moderate level in 2.4% and finally low nicotine dependency in 22.9%. In contrast to our findings, a study in El Mansoura reported high nicotine dependence in 58.2% of the study group, but moderate and low nicotine-dependent participants were 17.5% and 24.3% respectively.^[23]

In the current study, 42.4% of the participants smoked, with a mean smoking duration of (11.9 ± 9.3) years and 5% of them had been successful in quitting. Of the smokers, 90.2% used to smoke cigarettes, 5.9% used to smoke Shisha, and 1.8% used to smoke both cigarettes and Shisha, and 2.1% used to smoke cannabis. This result is in accord with Al-Naggar *et al.*,^[22] who found that 57% of the study population smoked, which is significantly higher than was found in a study in Malaysia, where only 17.64% of the study population smoked.^[24] In El Mansoura, most participants were current smokers (68.7%), while 18.7% of them were ex-smokers.^[23]

The current study looked at the link between smoking on one hand and anxiety, stress, and depressive symptoms on the other. This finding corroborates the findings of a study from Singapore that showed a link between tobacco use and depression and anxiety. The study also found that smoking-related co-morbidities worsened anxiety, stress, and depression, creating a vicious cycle. It also had an impact on the success of smoking cessation.^[25] In agreement with the current study, a Tunisian study revealed that smokers had a two-fold higher rate of severe depressive disorder than non-smokers.^[12]

As for the association between nicotine dependence and psychometric disorders, the current study found a statistically significant association between nicotine dependence and DASS score for psychiatric symptoms in smokers, particularly cannabis smokers. This finding agrees with several studies that discovered a strong association between nicotine dependence and psychiatric morbidity such as stress, anxiety and depression.^[25,26] Smokers with depression had greater difficulty in quitting.^[25] Similarly, the current study found a strong association of high nicotine dependence levels and severe/extremely severe depression and stress; however, no association was found between smoking and anxiety levels, which agreed with a study conducted by Wootton.^[27] Unlike the current study and the Wootton' study, a study of Indonesian adolescents found an association between nicotine dependency and anxiety.^[28]

As regards former smokers, the current research found no statistically significant association between nicotine dependence and psychiatric diseases. In addition to the general health benefits of quitting smoking, psychiatric symptoms such as anxiety and depression also improved.^[29,30] In other words, there is a link between smoking cessation and a reduction in stress, anxiety, and depression.^[31]

From another perspective, the current study reported statistically significant higher degrees of nicotine dependency, pleasure of smoking, tension reduction/

relaxation, and hand-mouth activity among smokers than former smokers.

On the reasons for smoking, several studies have attributed smoking to pleasure, pressure, and stress. For instance, an Indian study found that tension, fun, and peer pressure were the key reasons for starting to smoke.^[30] In another Indian study, the main reasons for continuing smoking were the reduction of mental stress, the enjoyment of smoking and addiction.^[32] In an Egyptian study, the most common motives for smoking were habit (40.8%), sense of loneliness (31.1%), overcoming anxiety (28.6%), life stresses (28.2%), pressure from family and friends (12.7%), overcoming negative feelings (6.8%), and oppositional behavior (4.9%).^[23] Similarly, stress, pleasure, peer and social pressure were the most common reasons for starting to smoke as revealed in an Iranian study.^[33] Four basic motivational features of smokers' actions were in a Belgium paper: Smoking to increase a pleasant/positive effect, smoking to minimize a negative effect, smoking as a habit or with no attempt to mitigate/increase any effect, or smoking due to addiction.^[34]

The score of psychiatric morbidity (depression, anxiety, and stress) in the current study had a statistically significant positive correlation with age, smoking duration, nicotine dependence level, and the MRSS subscales. These findings agreed with a Kazakhstan study that found no significant differences in the prevalence of depressive symptoms based on age. While the age group 36-45 years had the highest percentage of people without symptoms, the age group of over 60s had the highest percentage of people with severe symptoms.^[35]

Finally, there were some limitations in the conduct of the study. The first limitation was the logistic difficulty in obtaining zoning information to apply the sample technique. Secondly, using four scales to assess the study outcomes was time-consuming and required a lot of work in preparation, translation, and data collection and entry. In addition, illiterate participants needed much clarification and help to complete the questionnaire.

Conclusion

Our findings showed that smoking is linked to psychological symptoms and show moderate to high level of nicotine dependence. The motives for smoking involved a higher level of dependency, smoking pleasure, stress reduction/relaxation, and hand-mouth movement. Furthermore; there was a correlation between nicotine dependence, on one hand, and depression and stress, on the other. Smokers' mental health was negatively affected by their smoking motivation and

nicotine addiction. To start a smoking cessation program, the current study recommends the identification of causes and motives that keep people smoking and act as barriers to the quitting therapy. It also recommends identification of psychiatric symptoms associated with smoking to be handled professionally in the program to go through the withdrawal phase safely and successfully. Therefore, both psychological and nicotinic factors should be dealt with.

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Conflicts of interest

There are no conflicts of interest.

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