

SELF-EFFICACY OF YOUNG ADULTS ACROSS STAGES OF WATERPIPE CESSATION- A MODEL-BASED CROSS-SECTIONAL STUDY

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ABSTRACT

BACKGROUND

The aim of the study is to determine self-efficacy of young adults across stages of waterpipe cessation.

MATERIALS AND METHODS

This cross-sectional study was conducted with participation of 1012 students from Shahid Beheshti University in Iran. Data was collected within two months from May to July 2016 using a self-administered questionnaire that consisted of three parts including demographic variables, stages of change for waterpipe cessation (derived from Prochaska and DiClemente), and self-efficacy. Validity and reliability of questionnaire was assessed and approved by appropriate methods. Data was analysed by SPSS 19 using chi-square, t-test, ANOVA, and Univariate test.

RESULTS

The mean age of participants in this study was 21.37 ± 2.76 years. Out of 1012 students, 345 participants (34.1 %) had a history of waterpipe smoking at least once. In addition, current waterpipe smoking in students was 26.28%. Overall 267 students (77.4%) were categorised in passive stages (precontemplation, contemplation and preparation) and 78 students (22.6%) in active stages of waterpipe cessation (action and maintenance). The mean score of self-efficacy had a significant relationship with stages of change ($p < .001$), gender ($p = .007$), residence status ($p = .013$), and the type of smoking ($p = .041$).

CONCLUSION

Considering the high prevalence of waterpipe smoking in students, negative intention toward cessation, and low self-efficacy for waterpipe smoking cessation amongst students, we suggest informative interventions about hazards of waterpipe smoking to be done to increase self-efficacy and resistance to peer pressure.

KEYWORDS

Hookah, Self-efficacy, Smoking.

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BACKGROUND

Smoking is a worldwide public health problem and is estimated that in 2020 will cause more than 10 million deaths around the world.^{1,2} Waterpipe as one of the oldest ways for smoking now is a growing problem especially in the East Mediterranean countries including Arabic countries, Turkey and Iran.³ Since the late 1990s, waterpipe has been considered as a cheap and social method especially among urban youth and students.⁴

The prevalence of waterpipe consumption in some studies around the world has been reported from 12.3% to 32%.⁵⁻⁷ Several studies conducted in Iran show that the prevalence of waterpipe in Iranian students is alarming.⁸⁻¹¹ This is a general belief that waterpipe smoking is less harmful than cigarettes but the fact is that waterpipe smoking is not a healthy alternative for cigarette.¹² Waterpipe smoking is associated with chronic diseases such as cancer, respiratory and cardiovascular diseases.² In addition to chronic diseases, waterpipe exposed individuals to infectious diseases like tuberculosis and viral infections including hepatitis and herpes.²

Trans-theoretical model (TTM) proposed in an effort to explain how individuals change their behaviour. Stage of change (SOC) is the most important structure of TTM and consists of five steps. Precontemplation stage: in which people do not think about behaviour change in the foreseeable future; Contemplation stage: in which people

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intend to change their behaviour over the next six months; Preparation stage: in which individuals intend to take action in the next month; Action stage: in which people have created specific and clear changes in their lifestyle in the past 6 months; Maintenance stage: in which people have created specific and obvious changes in their behaviour over six months.^{13,14} Behaviour change studies based on the TTM have focused on the self-efficacy construct. Self-efficacy means people's confidence in their ability to perform an act with or without minimal help from others.¹⁵ Assessment of the self-efficacy within the stages of change can provide good predictive value related to smoking and worthwhile information to design more effective educational interventions for smoking cessation.^{16,17} Among ex-smokers, highest level of self-efficacy induced lower level of temptation for relapse to previous stages.¹⁸

MATERIALS AND METHODS

We conducted this cross-sectional study with participation of 1012 students aged 18 years and over from Shahid Beheshti University of Iran. Participants were selected using convenience sampling method. After explaining the purpose of research and ensuring students from the confidentiality of information, informed consent form was obtained from participants, and then they completed questionnaires in about 15 minutes. The data was collected within two months from April to June 2016. Data gathering tool was the three-part questionnaire. The first part included questions about participant's demographic variables (i.e. age, gender, education, marital status, and occupation) as well as waterpipe smoking status and duration of waterpipe smoking. The second part consisted of five questions about stages of change for smoking cessation which has been designed by Prochaska and DiClemente,¹⁸ and we changed some items for waterpipe smoking cessation. Participants were asked to choose one phrase which described their situation and categorised them into one of the five stages of change- Precontemplation, Contemplation, Preparation, Action and Maintenance. The third part of questionnaire included ten questions related to self-efficacy for waterpipe cessation. Five-part Likert scale was applied for designing self-efficacy questions ranged from one (strongly not confident) to five (strongly confident). The content validity of Questionnaire was measured by content validity Ratio (CVR), and content validity index (CVI) via expert's panel. After required reforms, validity of the questionnaire was confirmed with acceptable CVI and CVR. The reliability of SOC questions was evaluated by 2-week interval test-retest method in which correlation coefficient between test and retest was 0.87. In addition, the internal consistency of self-efficacy questions using Cronbach's Alpha was 0.88. Data were analysed by SPSS version 19 using Chi-square, T-test, ANOVA, and Univariate test at 95% significant level.

RESULTS

The mean age of participants in this study was 21.37 ± 2.76 years. 550 of the participants (54.3%) were male and 462 (45.7%) were female. Out of 1012 students, 345 participants

(34.1%) had a history of waterpipe smoking at least once (42.9% in men, and 23.59% in women). The prevalence of current waterpipe smoking in students was 26.28%. Of the 345 students who had a history of smoking waterpipe, 224 people (22.14%) only smoked waterpipe and 121 people (11.96) consumed both waterpipe and cigarette. Also 91 of students (9%) just had a history of cigarette smoking (Table 1).

The onset age of waterpipe smoking was 16.9 ± 2.4 . Average number of waterpipe smoking per week was 2.65 ± 2.07 and maximum number of waterpipe smoking was reported 17 times in week.

According to stages of waterpipe cessation, 267 students (77.4%) were categorised in passive stages (precontemplation, contemplation and preparation) and 78 students (22.6%) in active stages (action and maintenance). Chi-square test showed that the students who lived in the dormitory were more in passive stages of cessation compared with those who lived with the family ($p < .001$). Distribution of people at different stages of change according to the type of smoking and gender had no significant difference (Table 2).

The mean score of perceived self-efficacy for waterpipe cessation in students was 26.11 ± 6.97 which had an increasing trend from precontemplation to maintenance. According to ANOVA test, perceived self-efficacy in precontemplation and contemplation stages were significantly lower than preparation and action stages and the highest levels of self-efficacy belonged to the maintenance stage ($p < .001$), (Figure 1).

Self-efficacy in those who smoked both cigarette and waterpipe was higher than the people who smoked only waterpipe ($p < .007$). Also self-efficacy in dormitory residents significantly was lower than non-resident students in the dormitory ($p < .001$) as well as was higher in men ($p < .001$), (Figure 2).

The mean score of self-efficacy had a significant relationship with stages of change ($p < .001$), gender ($p = .007$), residence status ($p = 0.013$), and the type of smoking ($p = 0.041$), (Table 3).

Variable	Categories	Frequency (%)
Gender	Male	550 (54.3)
	Female	462 (45.7)
Residence status	Parental house	382 (35.7)
	Dormitory	630 (62.5)
Type of smoking	Only waterpipe	224 (22.1)
	Only cigarette	91 (9)
	Waterpipe & cigarette	121 (12)
	No smoking	576 (56.9)
Education	Bachelor	870 (86)
	M.Sc	118 (11.6)
	PhD	24 (2.4)

Table 1. Demographic Characteristics of Participants

Variables	Categories	Stages of change					test
		*PC	C	P	A	M	
Gender							
	Male	122 (51.7%)	32 (13.6%)	24 (10.2%)	14 (5.9%)	44 (18.6%)	P=.589
	Female	58 (53.2%)	18 (16.5%)	13 (11.9%)	7 (6.4%)	13 (11.9%)	
Type of smoking							
	Only waterpipe	127 (56.7%)	25 (11.2%)	23 (10.3%)	15 (6.7%)	34 (15.2%)	P=.072
	Waterpipe & cigarette	53 (43.8%)	25 (20.7%)	14 (11.6%)	6 (5%)	19 (23%)	
Trying to quit							
	Yes	8 (6.5%)	24 (19.5%)	25 (20.3%)	16 (13.1%)	50 (40.6%)	P<.001
	No	172 (77.5%)	26 (11.7%)	12 (5.4%)	5 (2.25%)	7 (3.15%)	
Residence status							
	Parental house	41 (34.2%)	19 (15.8%)	11 (9.2%)	14 (11.7%)	35 (29.2%)	P<.001
	Dormitory	139 (61.8%)	31 (13.8%)	26 (11.6%)	7 (3.1%)	22 (9.8%)	
Total		180 (52.2%)	50 (14.5%)	37 (10.7%)	21 (6.1%)	57 (16.5%)	

* PC indicates precontemplation, C; contemplation, PR; preparation, A; action and M; maintenance

Table 2. Distribution of Participants Across Stages of Change based on Study Variables

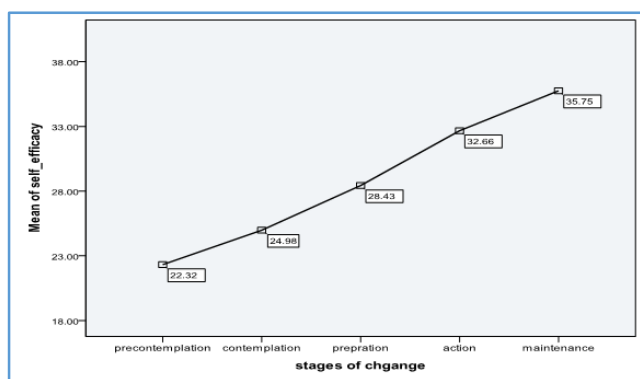


Figure 1. Mean Score of Self-efficacy for Waterpipe Cessation Across Stages of Behaviour Change

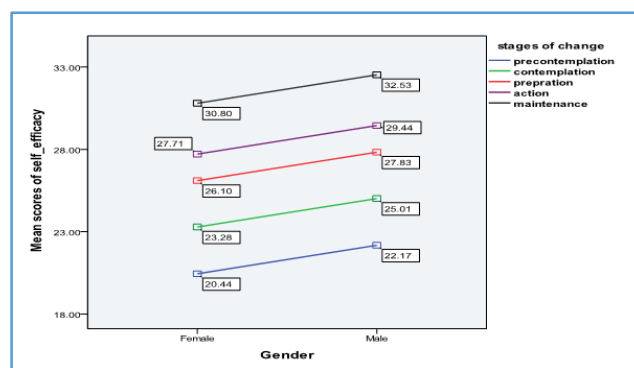


Figure 2. Mean Score of Self-efficacy for Waterpipe Cessation During by Gender

Variables	Categories	Self-efficacy		F	p-value
		Mean	SD		
Gender	Female	26.45	0.87	7.47	P=.007
	Male	28.16	0.8		
Type of smoking	Only waterpipe	26.6	0.83	6.24	(p=.013)
	Waterpipe & cigarette	28.1	0.84		
Residence status	Dormitory	25.75	0.86	4.21	(p=.041)
	Parental house	27.86	0.8		
Stages of change	Precontemplation	22.1 ^a	0.83	40.58	(p<.001) **M>A, PR>C, PC
	Contemplation	24.1 ^a	0.96		
	Preparation	27.7 ^b	1.1		
	Action	29.3 ^b	1.3		
	Maintenance	33.3 ^c	1.1		

^a Superscript letters indicate significant differences between the mean score of self-efficacy in various stages of change at p<0.05

** Differences between mean scores is listed from large to small, respectively. PC indicates precontemplation, C: Contemplation, PR: Preparation, A: Action, M: maintenance.

Table 3. Factors Contributing to the Self-efficacy Related to Waterpipe Cessation

DISCUSSION

The results of this study showed that the prevalence of waterpipe at the time of the study among the subjects was 26.3%. In addition, 34.1% of participants had experienced waterpipe smoking at least once. Similar studies showed the prevalence of waterpipe smoking among Iranian students was 29 and 40.3 percent.^{9,10} In a study with the participation of 105,000 students from 152 universities in America, about the 30.5% were smoking waterpipe.¹⁹ Also in a study from Syria, the prevalence of waterpipe smoking among the

students was 25.5%.²⁰ Prevalence of waterpipe smoking in our study sample was approximately similar to other studies conducted in Iran.^{8,11,21,22}

In the present study, 22.14% of the students reported waterpipe as the only method of smoking, while 11.96% smoked both waterpipe and cigarettes. In a similar study, 45% of the study sample had a history of smoking; among them 30% merely smoked waterpipe and 15% both waterpipe and cigarettes.²³

In the present study, the average age of onset of waterpipe smoking in students was 16.9 ± 4.2 . In some studies in Iran, the age of first use has been reported between 13 to 20 years.^{24,25} Therefore, design and implementation of preventive programs with a focus on early prevention in high school and even in lower ages can be effective in preventing the tendency of people to waterpipe. The use of waterpipe in most parts of the world especially among youth has expanded and it is suggested that gender is associated with the likelihood of waterpipe consumption. It is suggested that men smoked waterpipe more than women.²⁶ In relation between gender and waterpipe smoking, our finding is consistent with some studies of Iran which suggest that smoking in men is higher than women.^{11,21,27,28} A contrasting study reported that the prevalence of consumption was equal between the two genders.²⁹

In this study, the students who lived in the dormitory that belonged to passive stages of waterpipe cessation were more compared to students who lived with the family. Some studies showed that peer pressure compared to the family has a greater effect on the start of smoking,^{30,31} but Cobus believes that parents have a more important role.³² The results of this study suggest that peers probably have a powerful effect than parents. Some studies have shown that having friend/friends who consume waterpipe, plays an important role in smoking in both genders because smoking waterpipe is a social behaviour and often occurs when people are together.^{11,33-35}

A limited number of studies have examined the psychological characteristics of consumers who wish to quit their waterpipe smoking.³⁶ Researchers believed that low self-efficacy is a powerful stimulus to smoking waterpipe and high self-efficacy is a personal factor required to cessation.^{36,37} In this study, majority of people were in passive stages of waterpipe cessation (precontemplation, contemplation and preparation), and the mean score of self-efficacy for waterpipe cessation have a multiplicative trend from precontemplation to maintenance. In addition, the highest level of self-efficacy was seen in the maintenance stage which is consistent with the study of Warnecke and colleagues.³⁸ Self-efficacy has increased from one stage to the next which is illustrative of predictive capability of SOC.³⁹ Hammal et al suggested that almost majority of waterpipe smokers are reluctant to quit smoking.⁴⁰ Also results of another study showed that only 32% of Pakistani youth smokers wanted to quit smoking and 28% had attempted to quit.⁴¹ A person who has a higher self-efficacy is more likely to quit smoking. On the other hand, adults with lower self-efficacy are at greater risk to start smoking waterpipe.⁴² Considering that self-efficacy is an effective variable in promoting health behaviour,⁴³ it is necessary to do appropriate tailoring and target preventive interventions. In the present study, the mean score of self-efficacy in men was higher than the women at all stages of change. In most societies, although the prevalence of smoking in men is higher than women, but smoking cessation is more difficult for women compared to men.⁴⁴

In this study, the self-efficacy for waterpipe cessation in those who consumed both cigarettes and waterpipe was higher compared with students who just smoked waterpipe. In this case, Ward and colleagues argue that people who consume only waterpipe feel less necessity to quit it, because

they perceive waterpipe is less harmful than cigarette.⁴⁵ Other studies also confirm that the youth often believed that waterpipe smoking is less harmful.^{29,36,40,41}

CONCLUSION

We concluded that prevalence of waterpipe smoking in our sample study was high and majority of waterpipe smokers were in passive stages of change for cessation. Self-efficacy has increased from one stage to the next which is illustrative of predictive capability of SOC. In addition, self-efficacy was higher in men and those who lived with family. Self-efficacy in those who smoked both waterpipe and cigarette was higher compared to students who smoked exclusively waterpipe. Therefore, we should design and implement interventions to convince waterpipe smokers about the hazards of waterpipe and it is not less hazardous than cigarettes and waterpipe is not a healthy alternative for the cigarettes.

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