

Factors contributing to the initiation of waterpipe tobacco smoking among Iranian women

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Abstract

Background: Using waterpipe is the most common method of tobacco consumption among Iranian females and the rate has significantly increased over the past few decades.

Aims: The purpose of this study was to determine the factors that contribute to the initiation of waterpipe tobacco smoking among females in Gorgan, Islamic Republic of Iran.

Methods: This cross-sectional study was conducted between March and June 2016 in Gorgan. Two hundred and six females who smoked waterpipe tobacco were recruited as participants using convenience and snowball sampling methods. Data were collected using a questionnaire examining the factors that facilitate initiation of waterpipe smoking among females.

Results: Positive attitudes towards waterpipe smoking and its availability were the most frequently reported factors contributing to its initiation among females (87.9%). Curiosity (80.1%) and waterpipe smoking among family members (70.9%) were also significant. The least frequently reported factor was “attracting other’s attention and cooperation”.

Conclusion: A positive opinion, availability, curiosity and presence of waterpipe smoking among family members and relatives were the most significant factors that facilitated initiation of waterpipe smoking among females. To reduce its prevalence, it is recommended that intervention strategies be implemented to change attitudes and reduce access to waterpipe tobacco at family and social gatherings.

Keywords: tobacco, waterpipe, smoking initiation, substance use, Iran

Citation: Shahbazi Sigalaladeh S; Charkazi A; Amani M; Ostovan T; Manglizadeh E. Factors contributing to the initiation of waterpipe tobacco smoking among Iranian women. *East Mediterr Health J.* 2020;26(1):61–67. <https://doi.org/10.26719/2020.26.1.61>

Received: 23/07/18; accepted: 28/01/19

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Introduction

Waterpipe tobacco use by females has increased in recent years. Currently 250 million women smoke waterpipe tobacco (hookah) worldwide and it is estimated that this number will reach to 532 million in the near future (1). There are currently no accurate statistics regarding the prevalence of waterpipe smoking among females in the Islamic Republic of Iran. Even though waterpipe smoking is generally more common among males, in the south of the country it is more prevalent among females. For example, a study conducted in Hormozgan province reported that 28.4% of males and 45.2% of females smoked waterpipe tobacco (2). Furthermore, the rate of waterpipe smoking was 4.4 times greater in females (2), while a population-based study in Bandar Abbas revealed a statistically significant difference ($P < 0.0001$) in the prevalence of waterpipe smoking among males (4.6%) and females (13.6%) (3). The prevalence of water-pipe smoking among Iranian females has also increased dramatically (4,5). In a population-based study, 6.3% of females of reproductive age in the capital Tehran smoked waterpipe tobacco (4), while another study found that 11.3% of females over the age of 15 years in the capital were waterpipe smokers (5).

Waterpipe smokers are either unaware of the harmful

effects or do not consider them as detrimental as the effects of cigarette smoking. However, it has been shown that there is a significant correlation between waterpipe smoking and lung cancer, chronic lung disease, gingivitis and periodontal disease, and lower birth weight (6). Also, one session of waterpipe smoking produces more nicotine and carbon monoxide than smoking one cigarette, and generates 40 times more smoke (6). Females are more susceptible to the harmful effects of carcinogens in tobacco products, and the chances of developing chronic obstructive pulmonary disease (COPD) are greater in females than males (7,8). Due to the increasing prevalence of waterpipe smoking globally, the World Health Organization (WHO) has highlighted significant research on smoking patterns and the factors that facilitate the initiation of waterpipe smoking in different countries and among various cultures (9).

Gorgan is the capital city of Golestan province in the north of the Islamic Republic of Iran and attracts many visitors from inside and outside the province. Recent field observations have shown that the prevalence of smoking in this city, especially in its recreational areas, is on the rise. Thus, the purpose of this study was to determine the factors that contribute to the initiation of waterpipe smoking among females in the city.

Methods

Sample

This cross-sectional study was conducted between March and June 2016 on 206 participants. The aim of the study was explained to the participants, who were assured of its confidentiality and no information pertaining to participants' identities was collected. Inclusion criteria were being female, either being a waterpipe smoker or having a history of smoking waterpipe tobacco, and able to communicate through reading and writing. Convenience and snowball sampling methods were used for selecting the participants. Researchers, who were students of public health, visited traditional restaurants and cafes in Gorgan and approached women who were smoking waterpipe tobacco. After explaining the aim of the study and once the individuals agreed to participate, the researchers distributed the questionnaires. Due to the limited access to study samples, the participants were asked to encourage their waterpipe tobacco-smoking friends or relatives to participate in the study as well.

Ethical clearance

The study protocol was reviewed and approved by the Regional Committee of Ethics at Golestan University of Medical Sciences (Ethical code: IR.GOUMS.REC.1395.85).

Measurements

The data were collected using a questionnaire developed by Baheiraei et al. for examining the factors that contribute to initiation of waterpipe smoking among females (10). The questionnaire had been designed by a mixed method study and its reliability and validity have been approved (10). In their qualitative study on female waterpipe-smokers in Tehran, Baheiraei et al. showed that a positive opinion of waterpipe tobacco, family and social facilitators, and sensory attraction of waterpipe tobacco were the main factors contributing to initiation of waterpipe tobacco use among females (11,12).

In the present study, the reliability of the questionnaire was calculated using Cronbach's alpha ($\alpha = 0.884$). The questionnaire had 3 sections: 1) demographic questions, 2) questions regarding the pattern of waterpipe smoking, and 3) questions regarding the factors that contribute to initiation of waterpipe tobacco use. The third section had 6 subscales and 20 questions in total using a 7-point Likert scale. The subscales included: attracting other's attention and cooperation (7 questions); the need for recreation and relaxation (3 questions); waterpipe smoking among family and relatives (2 questions); availability of waterpipe tobacco (2 questions); curiosity (2 questions); and having a positive opinion of waterpipe tobacco use (4 questions). Participants responded by choosing one of the 7 options (completely agree, somewhat agree, agree, neutral, disagree, somewhat disagree, and completely disagree) and their score ranged from 7 to 1. An average score was calculated for each subscale. The mean and standard deviation values along with frequency and percentages were calculated using SPSS, version 16.

Results

Table 1 shows participants' demographic profile. Participants were 15–46 years old, mean 26.0 (SD 5.7) years. The majority of the participants (94.7%) were living in the city. Approximately 46% were employed, 30.1% were housewives, and 23.8% were unemployed. Almost half of the females (49%) were married. In terms of ethnicity, 84.4% of participants were Fars, 8.3% Turkmen and 7.3% Turk. Approximately 65% had a university degree. Participants were aged 10–39 years old (mean 20 [SD 4.5]) when initiating waterpipe smoking. The vast majority of participants (87.9%) had smoked waterpipe tobacco during the previous months.

The results showed that 45.1% of the participants had smoked waterpipe tobacco at least 50 times during their lifetime; 4.4% smoked on a daily basis, and 11.7% had smoked 16–20 times in the previous month (Table 2). For most females, the smoking pattern was occasional, i.e., at least once a month (33.8%) or at least once a week (31.4%). Sixty-four participants (30.9%) had been smoking waterpipe tobacco for more than 4 years.

The most frequently reported cause of waterpipe smoking among females was "the availability of hookah"

Table 1 Demographic profile of female study participants in Gorgan, Islamic Republic of Iran, n = 206

Characteristic	No.	%
Marital status		
Single	101	49
Married	89	43
Engaged	7	3.5
Widow	7	3.5
Divorced	2	1
Living with		
Spouse & children	79	38.5
Parents	68	33.2
Friends	30	14.2
Mother	13	6.4
Alone	11	5.3
Children	4	1.9
Father	1	0.5
Education		
Primary school	5	2.4
Secondary school	6	2.9
Dropped out of high school	43	20.9
High school	19	9.2
Associate degree	36	17.5
Bachelor's degree	88	42.7
Master's degree	9	4.4
Ethnicity		
Fars	174	84.4
Turkmen	17	8.3
Turk	15	7.3

Table 2 Pattern of waterpipe tobacco use among females in Gorgan, Islamic Republic of Iran, n = 206

Pattern	Participants	
	No.	%
Frequency of waterpipe tobacco use during whole life		
Once	11	5.3
2–5 times	18	8.7
6–25 times	47	22.8
26–50 times	37	18
50+ times	93	45.1
Frequency of waterpipe tobacco use in the previous month		
0 day	27	13.1
1 day	66	32.1
3 days	50	24.3
6 days	22	10.7
10 days	19	9.2
20 days	13	6.3
30 days	9	4.4
Frequency of waterpipe tobacco use in the last month		
0 time	26	12.5
1–2 times	70	34
3–5 times	52	25.2
6–9 times	18	8.8
10–15 times	16	7.8
16–20 times	24	11.7
Current waterpipe tobacco use pattern		
At least once a year but not every month	40	19.3
At least once a month but not every week	70	33.8
At least once a week but not every day	65	31.4
At least once a day and most days a week	32	15.4
Duration of waterpipe tobacco use		
< 6 months	21	10.1
6 months to 1 year	26	12.6
1–< 2 years	34	16.5
2–< 3 years	32	15.4
3–< 4 years	30	14.5
≥ 4 years	64	30.9

and the least frequently reported cause was “attracting others’ attention and cooperation” (Table 3).

A positive opinion of waterpipe tobacco use (specifically the factor “I thought hookah smoking was fun”), and availability of waterpipe tobacco (specifically the factor “In our friendly gatherings, we smoked hookah”) were the most frequently reported causes (87.9%). Curiosity was the next most frequently reported factor – “I wanted to experience hookah smoking” and “I was curious to find out how it feels to smoke hookah” were mentioned by 80.1% and 72.9% of participants, respectively.

When asked about their attitude towards waterpipe

smoking, a frequent response (76.2%) was “I thought hookah smoking is not addictive and I could quit whenever I wanted to”. The factor “I thought people do not view hookah smoking of women as bad as their cigarette smoking” related to the subscale “attracting others’ attention and cooperation” was also a frequent response (70.5%). In the “smoking hookah in family and among relatives” subscale, both factors had a high frequency, above 70%, which highlights the impact of family views and habits on individual waterpipe-smoking behaviour.

The least frequently reported factor contributing to waterpipe smoking among females was related to the “attracting others’ attention and cooperation” subscale. Only 15% of the participants reported that fear of upsetting their friends and relatives by turning down their offer of waterpipe smoking had contributed to their decision to smoke waterpipe tobacco.

Discussion

The results of this study show that having a positive opinion of waterpipe tobacco use and its availability were important factors contributing to the initiation of waterpipe smoking among females. In the Islamic Republic of Iran, waterpipe tobacco is routinely available in recreation centres, which are often frequented by young people, and therefore access to waterpipe tobacco is widespread. The temporary pleasure that comes from its use, the mistaken belief that waterpipe tobacco use is not addictive and can be easily quit at any time, lack of evidence on the detrimental effects of second-hand smoke, and the perceived lower risk of smoking waterpipe tobacco in comparison with cigarette smoking were the most important factors shaping a positive opinion of waterpipe smoking among participants. While cigarette smoking is not considered an acceptable behaviour for a female in this cultural setting, waterpipe tobacco use does not attract such negative social views and is an important factor behind waterpipe tobacco use. However, previous research has shown that the amount of nicotine in waterpipe tobacco is at least equal to that in cigarettes, and can still lead to addiction (5). Moreover, waterpipe tobacco use may lead to cigarette smoking and other forms of tobacco consumption (13).

The mistaken belief that waterpipe tobacco use is less harmful than cigarette smoking is supported by similar findings in other studies. In a qualitative study on females aged 18–30 years in Canada, the perceived lower risk of waterpipe tobacco use in comparison with cigarette smoking was an important factor contributing to initiation behaviour (14), while in a Turkish study, 91% of waterpipe smokers did not believe they were addicted (15), and in a 2017 Iranian study, the majority of the participants (71.1%) did not consider themselves addicted to waterpipe tobacco (16). In fact, most people believe waterpipe tobacco use is less addictive than cigarettes and smoking cessation is easy (17).

A study on the smoking behaviour of students in Florida, USA, found that having a positive opinion of waterpipe tobacco use increases the probability of

Table 3 Factors contributing to waterpipe tobacco use among females in Gorgan, Islamic Republic of Iran, n = 206

Cause of waterpipe tobacco smoking initiation	No.	%	Mean	Standard deviation
Having a positive opinion of waterpipe smoking	–		5.20	10.45
I thought waterpipe smoking was less harmful than cigarettes	124	60.3	4.65	2.22
I thought waterpipe smoking was not addictive and I can quit whenever I want	157	76.2	5.33	1.98
I saw no problems or illnesses in people who have been waterpipe smoking that would make me think negatively about waterpipe smoking	141	68.4	4.92	1.86
I thought smoking waterpipe smoking was fun	181	87.9	5.90	1.41
Curiosity	–		5.58	1.42
I wanted to experience waterpipe smoking	165	80.1		
I was curious to find out how it feels to smoke waterpipe tobacco	150	72.9	5.47	1.59
I needed recreation and relaxation	–		4.07	1.86
I needed recreation and amusement	106	51.4	4.39	2.18
I wanted to spend my leisure time waterpipe smoking	93	45.2	3.94	2.16
I wanted to reduce my stress and anxiety by waterpipe smoking	94	45.6	3.89	2.22
Attracting others' attention and cooperation	–		3.39	1.46
To be like others, I chose waterpipe smoking over cigarettes	81	39.4	3.82	2.32
I notice when someone is waterpipe smoking, he/she gets accepted better by others (friends and relatives)	78	37.8	3.57	2.25
I notice that waterpipe smoking has become a fashion	95	46.1	3.94	2.09
I thought people did not view women waterpipe smoking as badly as cigarette smoking	145	70.5	5.18	1.90
If I did not smoke waterpipe tobacco, my friends would have thought negatively of me	32	15.5	2.46	1.84
I was afraid that if I turned down the offer of waterpipe smoking (friends and relatives), they would be upset with me	31	15.0	2.41	1.79
I thought I could attract others' (friends and relatives) attention by waterpipe smoking	32	15.6	2.36	1.86
Waterpipe smoking behaviour of family members and relatives	–		5.10	1.92
Some of my female relatives enjoy waterpipe smoking	162	78.7	5.27	1.98
Some of my family members enjoy waterpipe smoking	146	70.9	4.94	2.24
Availability of waterpipe tobacco use	–		5.90	1.32
Access to waterpipe smoking is easily available in recreational centres	166	80.5	5.69	1.65
We enjoy waterpipe smoking in social gatherings	181	87.9	6.11	1.45

smoking by a factor of 4.32, and a negative opinion decreases the probability by a factor of 0.64. However, having a positive opinion also increases the chance of smoking in the future by a factor of 9.31 (18).

Waterpipe smoking in social gatherings and the ease of access to waterpipe tobacco in recreational centres were among the most important factors contributing to its initiation. Compared to active social pressure, indirect pressure has a significantly greater impact on the rate of waterpipe smoking initiation among students (19), namely, socialization with waterpipe smoker friends (19,20). Curiosity was also found to be one of the most important factors facilitating the initiation of waterpipe tobacco use among females (21).

The presence of family members and relatives who smoked waterpipe tobacco is also a contributing factor to the encouragement of non-smoking family members to

try waterpipe smoking. In a study among female Saudi Arabian students, the main factor that led to starting waterpipe tobacco use was the smoking behaviour of sisters or friends (22). In another study, daughters of fathers who smoked waterpipe tobacco had a greater tendency to try it and a more positive opinion of the practice (23). The findings also showed that there is greater social acceptance of females to smoke waterpipe tobacco than cigarettes (21). Previous research in the Region has shown that, for religious reasons, waterpipe tobacco smoking is more acceptable among Arab women than cigarette smoking, and this has led to a greater uptake of the habit (24). The need for recreation and relaxation was another factor that contributed to waterpipe tobacco smoking among the sample participants. For example, in a study in the city of Ardabil, medical students were found to enjoy waterpipe smoking to relax socially with friends (20,25).

This study has a number of limitations which may affect the generalizability of its findings to all Iranian females, namely the convenience and snowball sampling design and sample size. However, this design was chosen because tobacco use among Iranian females is a still a culturally sensitive issue. Moreover, At the time of the study, waterpipe tobacco use in restaurants and cafes was banned by the government, hindering the ease of access to potential participants. Future studies should examine factors contributing to waterpipe tobacco use behaviour among females using a larger sample size.

Acknowledgements

We would like to thank the study participants. We would also like to thank the Deputy for Research and Technology of Golestan University of Medical Sciences for valuable help and support.

Funding: This study was funded by Golestan University of Medical Sciences, Islamic Republic of Iran.

Competing interests: None declared.

Conclusion

The findings suggest that multiple important factors facilitate the initiation of waterpipe tobacco use among females. These include access to waterpipe tobacco use, a positive opinion of waterpipe tobacco use (e.g. perceived lower risk of addiction and adverse health side effects when compared with cigarettes), curiosity, the need for recreation and relaxation, the stress-releasing effect of waterpipe tobacco use, low social stigma, peer pressure, and waterpipe tobacco use among family members and friends.

Facteurs contribuant à la mise en place d'un tabagisme par pipe à eau chez les femmes iraniennes

Résumé

Contexte : La pipe à eau est la méthode de consommation de tabac la plus répandue parmi les femmes iraniennes et le taux de consommation a considérablement augmenté au cours des dernières décennies.

Objectifs : L'objectif de la présente étude était de déterminer les facteurs qui contribuent à la mise en place d'un tabagisme par pipe à eau parmi les habitantes de Gorgan (République islamique d'Iran).

Méthodes : La présente étude transversale a été menée entre les mois de mars et de juin 2016 à Gorgan. Nous avons recruté 206 fumeuses de pipe à eau comme participantes. Ces dernières ont été sélectionnées à l'aide des méthodes d'échantillonnage de commodité et boule de neige. Les données ont été collectées au moyen d'un questionnaire portant sur les facteurs qui facilitent l'initiation d'un tabagisme de ce type chez les femmes.

Résultats : Les attitudes positives vis-à-vis de la pipe à eau et de sa disponibilité constituaient les facteurs les plus fréquemment rapportés qui contribuaient à la mise en place d'un tabagisme par pipe à eau chez les femmes (87,9 %). La curiosité (80,1 %) et l'utilisation de la pipe à eau au sein de la famille (70,9 %) étaient également des facteurs importants. Le facteur le moins fréquemment rapporté correspondait à l'énoncé : « attirer l'attention et susciter l'aide de l'autre ».

Conclusions : L'attitude positive, la disponibilité, la curiosité et l'existence d'un tabagisme par pipe à eau au sein des membres de la famille et des proches constituaient les facteurs les plus importants qui facilitent la mise en place de ce type de tabagisme chez les femmes. Afin de réduire la prévalence de ce tabagisme chez les femmes, nous recommandons la mise en oeuvre de stratégies d'intervention visant à modifier les attitudes et à réduire l'accès au tabac pour pipe à eau lors des réunions en famille et des rencontres sociales.

العوامل التي تسهم في بدء تدخين النرجيلة بين النساء الإيرانيات

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الخلاصة

الخلفية: يُعتبر تدخين النرجيلة أكثر طرق تعاطي التبغ انتشاراً بين النساء الإيرانيات، وقد ارتفع معدل تدخينها ارتفاعاً كبيراً على مدار العقود القليلة الماضية.

الأهداف: تمثل الغرض من هذه الدراسة في تحديد العوامل التي تسهم في بدء تدخين النرجيلة بين النساء في جرجان.

طرق البحث: أُجريت هذه الدراسة الشاملة لعدة قطاعات في الفترة بين مارس/ آذار ويونيو/ حزيران ٢٠١٦ في جرجان. وقد استُعتب بعدد ٢٠٦ نساء من مدخنات النرجيلة للمشاركة في هذه الدراسة. وأُختير هؤلاء النساء بأسلوب أخذ العينات الملائمة وأسلوب كرة الثلج لأخذ العينات. وقد جُمعت البيانات عن طريق استبيان لتحديد العوامل التي تُيسر بدء تدخين النرجيلة بين النساء.

النتائج: كانت النظرة الإيجابية تجاه النرجيلة وتوافرها أكثر ما ذكر من العوامل التي تُسهم في بدء تدخينها بين النساء (٩, ٨٧٪). ومن ضمن العوامل المهمة أيضاً كان الفضول (١, ٨٠٪)، وتدخين النرجيلة بين أفراد الأسرة (٩, ٧٠٪). أما "جذب انتباه الآخرين والتعاون" فكان من أقل العوامل المذكورة.

الاستنتاج: جاءت النظرة الإيجابية تجاه تدخين النرجيلة، وتوافرها، والفضول إزائها، وتدخينها بين أفراد الأسرة والأقارب ضمن أهم العوامل المذكورة التي تُيسر بدء تدخين النرجيلة بين النساء. ولتقليل معدل انتشار تدخين النرجيلة بين النساء، نوصي ببعض استراتيجيات التدخل التي تُغير النظرة إلى النرجيلة وتقلل إمكانية الوصول إليها في تجمعات الأسرة والأصدقاء.

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