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The Prevalence and Underlying Factors Related to Hookah Smoking Among Female Students

Hossein Ashtarian [1,*], Elaheh Ijadi [1], Afshin Almasi [2]

[1] Department of Health Education and Promotion, Faculty of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran
[2] Department of Statistics, Faculty of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran

[*] ***Corresponding Author:*** Department of Health Education and Promotion, Faculty of Health, Kermanshah University of Medical Sciences, Kermanshah, Iran. Email: hossien_ashtarian@yahoo.com

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Abstract

Background: Smoking, particularly hookah use, has become a growing public health concern among adolescents globally.

Objectives: The present study was conducted with the aim of determining the prevalence and underlying factors related to hookah smoking among female students in Kermanshah-Iran.

Methods: This descriptive-analytical cross-sectional study was conducted among 407 secondary school girls in Kermanshah in 2021. In this study, an electronic, confirmed, valid and reliable questionnaire was used. The participants were selected through a simple random sampling from the secondary schools. The data were entered into SPSS 22 software and analyzed.

Results: The results showed that 5.6% of students have used hookah during the last year and 10.5% in their lifetime. The starting age of hookah smoking among students was 13.4 years old. 19.2% of families and friends of students had used hookah. A relationship was found between hookah smoking in students with hookah smoking family and friends. The risk of hookah smoking in students whose family use hookah is 28.1 times those whose families do not use hookah (95% confidence interval = 5.8, 2.92). The first place of hookah smoking was at home (43.5% of cases).

Conclusions: The current study clarified the role of family and friends in the use of hookah in female students. Considering the increase in hookah smoking among adolescent girls and the important role of family and friends, the inclusion of this subject in future preventive interventions is suggested.

Keywords: Prevalence, Hookah Smoking, Students, Girls, Adolescents

1. Background

Smoking is an important cause of various diseases, disability and premature death (1). Hookah smoking is an old method of smoking and in recent years, it has gained global popularity among young people and has become popular among women and girls as well (2). The World Health Organization has consistently warned against the dangers of hookah smoking and emphasizes that despite the misconception that hookah smoking is a safer alternative to cigarette, it poses significant health risks (3).

Hookah smoking is common in adult men but has become increasingly popular among young adults and has spread to more countries. The prevalence of current hookah smoking (once a month) was 6.9% among adolescents aged 12 - 16 years in 73 countries (4). A study in Iran showed that about 45% of secondary students used hookah and 6% of them used hookah at least once a day during the past 30 days (5).

The increasing growth of hookah smoking in the last few years and the acceptance of hookah use among women is concerning. The results of another study in Iran showed that 51% of first-year health sciences students were current hookah smokers. The rate in male and female students was almost the same (52%, 48% respectively) (6). Hookah smoking is linked to many adverse health effects in women such as cervical cancer, ectopic pregnancy, changes in menstrual function, infertility, premature menopause, and maternal and fetal risks during pregnancy (7).

Hookah smoking has a strong social aspect which makes it attractive and addictive especially for its users (8). The results of a qualitative study showed that people use hookah as a pleasurable event among their friends regardless of the health consequences (9). Many hookah users believe that hookah smoking has far fewer side effects than cigarettes due to the passage of smoke through water (10).

While national statistics may provide a general overview, regional variations in prevalence and associated factors necessitate localized investigations. In Kermanshah, a province with distinct socio-cultural characteristics, the prevalence and determinants of hookah use among female students remain understudied. This study addresses this critical gap by specifically focusing on female students, aiming to provide a comprehensive understanding of the current prevalence, contributing factors, and potential consequences of hookah use within this specific population. This localized approach allows for the development of targeted interventions and prevention programs tailored to the unique needs and context of female students, ultimately contributing to more effective public health strategies. Furthermore, exploring the specific socio-cultural context may reveal unique factors influencing hookah use among young females, which may not be evident in broader national studies.

2. Objectives

This study was aimed to determine the prevalence and underlying factors (role of family and friends) related to hookah use among secondary school girls in Kermanshah.

3. Methods

3.1. Participants

This cross-sectional descriptive analytical study was conducted in February 2021 among 407 secondary school girls in Kermanshah. The sample size is determined based on the proportion of students using hookah in a similar study (11) taking into account P = 0.18, a confidence level of 95% and the length of the confidence interval equal to 7% (accuracy). The minimum sample size required, using PASS software equal to 300 samples, were obtained, and for more certainty, 407 people were included in the study using a simple random approach. For the purpose of sampling, first, a list of secondary girl schools from the 3rd educational district of Kermanshah, which included 25 schools, was prepared. The reason for choosing this area was, the size, diversity and extent compared to other districts.

At the second phase, 6 schools out of 25 schools in district 3 (which had all three levels of education) were randomly selected after determining the number of samples considered for each school, proportional to the number of students in grades 10 to 12. In order for students to be able to fill the questionnaire without stress and fear, the link related to the questionnaire was placed on the social channels of the schools and the necessary explanations were given to them.

3.2. Data Collection Tool

The questionnaire consisted of two sections, including the demographic division and a section related to the structures of one of the health education models. In this article, the results of the demographic section with 14 questions, are presented and discussed. The results of the second part of the questionnaire are presented elsewhere. Demographic variables included the students' age, field of study, parents' age, literacy, and occupation, number of siblings, and hookah smoking history among family members and friends. Validity and reliability of the questionnaire had been confirmed by another study (11).

3.3. Data Analysis

The data was entered into SPSS 22 software. In addition to calculating the appropriate central and dispersion indices for each variable, as well as presenting the relevant statistical tables, correlation coefficients, linear regression and two-mode logistic regression were used to compare the relationship between the variables.

4. Results

This section presents findings related to factors influencing hookah consumption among female students, highlighting key demographic, and subjective norm variables. The subsequent tables and detailed explanations will further elucidate these relationships and provide a comprehensive analysis of the data.

Table 1 shows that 44.7% (182 people) of the students were 17 years old. 45.5% (185 people) of students were studying in the field of humanities. The average age of

Table 1. Distribution of Age and Field of Study of Participants

Variables	No. (%)
Age	
15	25 (6.1)
16	112 (27.5)
17	182 (44.7)
16	88 (21.6)
Field of study	
Experimental sciences	171 (42)
Mathematics and physics	51 (12.5)
Humanities	185 (45.5)

the first use of hookah in the participants is 13.44 with a standard deviation of 2.65. The first location of hookah smoking for hookah users was home (43.5%). The first people with whom participants smoked hookah were their friends (39.1%). All 23 hookah users prefer fruity taste.

The average age of fathers and mothers were 47.66 with a standard deviation of 6.21 and the 42.27 with a standard deviation of 5.66, respectively. 43.5% (177 people) of students' fathers and 41.3% (168 people) of mothers had diploma. 59.5% of fathers were "self-employed" and 87.5% of mothers were "housewives". 46.7% (190 people) of students were from families with 2 children.

No significant relationship was observed between hookah use in the participants and demographic variables, except for family use (P = 0.006) and friends' suggestions (P = 0.002). The suggestion of friends was significant, however, their insistence (P = 0.064) was not.

As Table 2 shows 19.2% of students, their friends and their families used hookah.

The result of the Q test showed that there is a significant correlation between hookah smoking among students and their families (RR = 28.1, P < 0.001). The risk of use in students whose families smoke hookah is 28.1 times those whose families do not use hookah (95% confidence interval = 5.8, 2.92) (Table 3).

According to Table 4 and based on Fisher's test, there is a significant relationship between the use of hookah by students and its suggestion by friends, so that the chance of using hookah in people whose friends suggested it is 37.2 compared to those who did not have any suggestions (RR = 37.2, P > 0.001).

According to the findings of Table 5, 10.5% of the participants had used hookah during their lifetime and 5.6% had used hookah during the last year.

5. Discussion

This study investigated the prevalence and determined some demographic factors related to hookah smoking among female students. According to the results, more than 10% of female students had used hookah in their lifetime and 5.6% during the last year, while other studies have reported different prevalence of hookah smoking. For example, in a study in Saudi Arabia this rate was 34% among high school girls, which is more than the statistics obtained in this research (12). The prevalence of hookah use among girls in the current study are also lower compared to other studies in Iran with prevalence of 10.4% (13) and 20.4% (14). Furthermore, more than 19% of the participants have confirmed the existence of hookah smokers among their friends or families. Considering the results of other studies regarding students' familiarity with hookah through their friends (15), it is necessary to pay attention to this issue.

Family hookah smoking has a significant influence on student hookah smoking. This family acceptance normalizes the practice, making it less likely to be viewed negatively within families. Goffman introduces social stigma as an effective mechanism in controlling certain behaviors in society, and it is a special characteristic that is attributed to an individual or a group (16). A systematic review has shown that in Middle Eastern societies, cultural identity may provide a special motivation to smoke hookah among women, and compared to smoking, it is more acceptable among women (17).

Table 2. Extent of Hookah Use Among Participants' Family and Friends [a]

Variable	Family	Friends
Hookah use		
Yes	329 (80.8)	329 (80.8)
No	78 (19.2)	78 (19.2)
Total	407 (100)	407 (100)

[a] Values are expressed as No. (%).

Table 3. Relationship Between Hookah Use Within the Family and Individual Hookah Use [a]

Variable	Hookah Use		
	Yes	No	Total
Hookah use in family			
Yes	20 (25.6)	58 (74.4)	78 (100)
No	3 (0.9)	326 (99.1)	329 (100)
Total	23 (5.7)	384 (94.3)	407 (100)

[a] Values are expressed as No. (%).

According to the results, the first place to use hookah for the hookah users was home (43.5%) and the first people with whom they used it were their friends (39.1%). Available hookah equipment makes children familiar with it since childhood and as a result, it is easier for them to accept its suggestion by their friends at an older age (10). A study showed that the most common places of last hookah smoking were home (37.9%) and then coffee shops (17.7%) (4).

Girls whose mothers smoke hookah or whose relatives use hookah in family parties usually start smoking hookah at home in a family gathering. These girls may start smoking hookah from a young age. One study found that 56% of participants had started smoking hookah with family members, even for the first time in childhood. Sometimes mothers asked their daughters to prepare the hookah, and while preparing the hookah for the mother, the daughter used at least one or two puffs. In this situation, girls were gradually influenced by the traditional values of hookah in the family (18). Evidence shows that girls can easily smoke hookah in family gatherings without fearing the reaction of their parents (19). However, it seems that in Iranian families, hookah smoking outside or with people other than family members, is not approved of. In this way, they attempt to prepare hookah equipment for their home and encourage their children to smoke hookah only at home and not elsewhere. Furthermore, the set of social and economic changes in societies has caused a change in the lifestyle of families such as hookah smoking among families (20).

Edwin Sutherland's differential link theory deals with the role of family, peers, friends, place of residence, etc. in the formation and strengthening of criminal attitudes (21). The peer group pressure also points to the fact that the suggestion and insistence of hookah smoking by the peer group is effective in the tendency to use hookah (22). On the other hand, Bandura in the theory of social learning believes that teenagers and young adults model their close friends and parents regarding delinquent behaviors (23). The results also show how the peer group and family have caused the tendency of female students to use hookah. These results are in line with the results of other studies (24-26).

In a study on pre-university students, the age of the first experience of using hookah in 47.9% of hookah users was under 15 years (27). In the other study (25), the most common age for the first experience of using hookah was 12 - 13 years old, which both are consistent with the present study. A significant relationship was found between the use of hookah in students and its suggestion by friends, and this is in line with the results of other studies (27).

In this research, it was also found that all hookah users, prefer fruit hookah. A study found that 91.1% of

Table 4. Examining the Relationship Between Use of Hookah in Participants and Their Friends

Variable	Hookah Use		
	Yes	No	Total
Hookah use by friends			
Yes	22 (9.26)	57 (73.1)	78 (100)
No	2 (0.6)	327 (99.4)	329 (100)
Total	23 (5.7)	384 (94.3)	407 (100)

[a] Values are expressed as No. (%).

Table 5. Frequency Distribution of Hookah Use Among Participants

Use	No. (%)
Never	341 (83.8)
During life	43 (10.5)
During last year	23 (5.6)
Total	407 (100)

hookah smokers prefer fruit tobacco (25). The other study (28) in Syria showed the popularity of flavored tobacco among users. It seems that perhaps one of the main reasons for using aromatic tobaccos is the pleasure-seeking motivation of hookah users (20).

5.1. Limitations

This study has limitation that should be considered in the interpretation and generalization of the findings. A questionnaire was used to collect the data and the data analysis was based on what the student declared. Therefore, the level of honesty of the participants regarding the sensitivity of the issue in completing the questionnaire items is not known. An attempt was made to reduce the fear of revealing the truth by providing explanations and keeping names confidential.

5.2. Conclusions

The current study clarified the role of family and friends in the use of hookah in female students. Considering the increase in hookah smoking among adolescent girls and the important role of family and friends, it is suggested that this subject should be included in future preventive interventions.

Footnotes

Authors' Contribution: All authors participated in the design and implementation of this study.

Conflict of Interests Statement: The authors declare that they have no competing interests.

Data Availability: The data presented in this study are openly available in one of the repositories or will be available on request from the corresponding author by this journal representative at any time during submission or after publication. Otherwise, all consequences of possible withdrawal or future retraction will be with the corresponding author.

Ethical Approval: The topic of this study was presented and approved by the Ethics Committee of Kermanshah University of Medical Sciences (IR.KUMS.REC.1399.503).

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