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The Prevalence and Determinants of Waterpipe and Cigarette Smoking Among Medical Sciences Students Living in Dormitories in Southern Iran

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ABSTRACT

Background and Aims: Tobacco use among students is one of the most alarming problems throughout the world. This study was carried out to investigate the prevalence of cigarette and waterpipe smoking as well as their determinants among students in dormitories of Jahrom University of Medical Sciences.

Methods: This cross-sectional study was conducted on 293 students living in the dormitories of Jahrom University of Medical Sciences using random sampling method. A researcher-made questionnaire was used, which included demographic characteristics and patterns of cigarette and waterpipe smoking. Multivariable logistic regression was used to determine factors related to cigarette and waterpipe smoking.

Results: The mean age of the participants was 20.99 ± 1.74 years and 49.8% of them were male. The mean age at the initiation of cigarette and waterpipe smoking was 15.53 ± 4.33 and 16.60 ± 3.01 years, respectively. The prevalence of current cigarette smoking was 6.48% and that of waterpipe smoking was 8.53%. In addition, 10.24% and 17.06% of the participants reported ever use of cigarette and waterpipe smoking, respectively. Moreover, the prevalence of tobacco smoking was higher in male students than in females (8.22% vs. 4.76% for cigarette smokers and 11% vs. 6.12% for waterpipe smokers). The results showed that there was a significant relationship between having cigarette-smoker family members and having cigarette-smoker friends with cigarette smoking. Also, waterpipe smoking was associated with having cigarette-smoker family members and having waterpipe smoker friends ($p < 0.05$).

Conclusion: Tobacco use is relatively high among medical students. Since the family and social factors are related to cigarette and waterpipe smoking, the family and society should be informed about the dangers of cigarettes and waterpipe smoking. It is also emphasized that students with risk factors be identified.

1 | Introduction

Worldwide in 2019, there were 1.14 billion current smokers who consumed 7.41 trillion cigarette equivalents in 2019 [1]. According to the World Health Organization, it is estimated that tobacco is the cause of more than 7 million deaths and hundreds of billions of dollars in damages worldwide per year [2]. Smoking and exposure to tobacco smoke is one of the main risk factors for mortality worldwide [1]. Cigarettes have been the cause of more than 175 million deaths worldwide during

the years 1990–2020 [3], and the annual economic costs of tobacco use exceed $1 trillion [4]. Smoking-related deaths have been reported to decrease by 9% in developed countries, but to double in developing countries between 2002 and 2030 [5]. Additionally, tobacco use has been projected to kill more than eight million people annually by 2030, with 80% of premature deaths occurring in low- and middle-income countries [6]. Overall, smoking is a serious and growing public health problem worldwide, with a large number of tobacco-related deaths occurring in low- and middle-income countries [7]. Generally, smoking is started during adolescence. Evidence has indicated that 80% of smokers started smoking before the age of 18 years. However, this measure was found to be 60% in a study conducted in Iran [8]. The results of another study in Tehran showed that the minimum age for starting smoking was 6 years [9]. Cigarette smoking is also common among students in different countries. The prevalence of cigarette smoking among students has been reported as 46.7% in Egypt, 46% in Kuwait, and 42.3% in Saudi Arabia [10]. In Turkey, the prevalence of cigarette smoking among students is reported to be 24% [11].

In Iran, the prevalence of cigarette smoking among students is increasing. The results of a systematic review and meta-analysis showed that the prevalence of tobacco smoking among high school students is 7.9% [12]. Additionally, the prevalence of cigarette smoking was 36.4% and 5.23% amongst Iranian male and female students, respectively [13]. In a news report in Iran, it was shown that the prevalence of cigarette smoking among medical students is 6.6% [14]. In a study conducted in Iran, Yazd, the prevalence of smoking among students was reported as 19.2% [15]. Waterpipe smoking has also increased in the general population worldwide, especially among young people [16, 17]. Several studies performed in different regions, such as the United States [18], Poland [19], Hong Kong [20], Turkey [21], Saudi Arabia [10], and South Africa [22] have reported an alarmingly increasing trend of waterpipe smoking among students. Therefore, it is important to determine the factors affecting tobacco smoking. On the other hand, personal, familial, and social factors have been found to affect smoking [23]. This behavior was also associated with male gender and peers, parents, and siblings smoking [24]. Moreover, a previous study demonstrated that having smoking parents, home exit after conflicts, and monthly pocket money were the determinants of smoking [25]. The results of a review study showed that in teenagers, various variables at individual, family, psychological, social, and educational levels were considered effective on cigarette smoking behavior. Meanwhile, the relationship between cigarette smoking and the influence of family members and friends was more prominent [26].

A dormitory, as a shared living space, can have a great impact on students' behavioral habits. The presence of inappropriate environments or peer pressure can help to continue smoking and waterpipe. Students in dormitories face more social risks due to factors such as separation from family and educational challenges [27]. Also, the lack of access to appropriate educational programs in the field of the dangers of smoking and the lack of attention to the mental and social health of students in these environments are among the effective factors in the prevalence of smoking. Students living in medical science dormitories are future health service providers, and their use of tobacco can cause many problems in smoking cessation services [28]. Therefore, the present study aims to determine the prevalence of tobacco smoking and its determinants among the students living in dormitories of Jahrom University of Medical Sciences.

2 | Methods

This cross-sectional study was performed on the male and female students living in Jahrom University of Medical Sciences dormitories in the second semester of 2017–2018. A total of 293 students were selected using simple random sampling based on the number of students living in dormitories. The sample size was determined based on the prevalence of cigarettes (0.18%) and waterpipe smoking (25.7%) [29]. Since waterpipe smoking was more prevalent, the sample size was determined based on waterpipe smoking. Also, a confidence level of 95% and an accuracy of 5% were considered.

A researcher-made questionnaire was used to collect the required data. The validity of the questionnaire was evaluated by five experts, and its reliability was confirmed by Cronbach's α coefficient of 0.78 [25]. In this study, the students of Jahrom University of Medical Sciences who lived in the university dormitories were included in the study. The exclusion criterion of the study was being a guest or a first-semester student. In order to collect data, first the necessary explanations were given to the students regarding the objectives of the study, and then the questionnaire was distributed to the students living in the dormitories of Jahrom University of Medical Sciences to complete.

The questionnaire included age (year), family size (number), grade point average of the previous semester, gender (female/male), field of study (medicine/nursing/operating room and anesthesia/laboratory sciences and emergency medicine), father and mother education (below diploma/diploma and above), parental divorce (yes/no), and economic status (good/medium/weak). Questions about cigarette and waterpipe smoking patterns included age at cigarette/waterpipe smoking onset (year), frequency of cigarette/waterpipe smoking during the past month, the person accompanying students for cigarette/waterpipe smoking for the first time (family members/friends/alone), frequency of cigarette/waterpipe smoking (daily/weekly/monthly/other), place of cigarette/waterpipe smoking (dormitory/public places/coffee shop/other), attempt to quit cigarette/waterpipe smoking during the past year (yes/no), parents' awareness of students' cigarette/waterpipe smoking (yes/no), parents' reaction to cigarette/waterpipe smoking (agreement/disagreement/indifference), willingness to quit cigarette/waterpipe smoking (yes/no), cigarette smoking by family members (yes/no), having cigarette/waterpipe smoker friends (yes/no). To assess the status of cigarette and waterpipe smoking, students were asked if they had used cigarettes or waterpipe in the last 30 days.

2.1 | Statistical Analysis

Quantitative variables were presented through mean and standard deviation (SD), while qualitative variables were expressed using frequency and percentage. T-test and chi-square test were

used to evaluate the relationship between the study variables and cigarette and waterpipe smoking. Variables with *p*-values less than 0.25 in univariate analysis were entered into multivariable logistic regression. Odds ratio (OR) and 95% confidence interval (CI) were used to determine the effect size in the model. Also, Multicollinearity was assessed using the tolerance and variance inflation factor (VIF). For all variables, the VIF was less than 3 and the Torrance was greater than 0.2. All data analyses were performed using Statistical Package for Social Science (IBM SPSS Statistics for Windows, Version 23.0) and Stata Statistical Software (Stata for windows, Version 14), and $p < 0.05$ was considered statistically significant.

2.2 | Ethical Consideration

The ethics committee of Jahrom University of Medical Sciences approved the study (IR.JUMS.REC.1395.105). A signed informed consent form explaining the study purposes was obtained from each student.

3 | Results

The mean age of the participants was 20.99 ± 1.74 years and 49.8% of them were male. The prevalence of cigarette smoking, waterpipe smoking, and simultaneous cigarette and waterpipe smoking were 6.48%, 8.53%, and 4.44%, respectively. Besides, 10.24% of the students had ever used cigarette smoking, and 6.48% were current smokers. The mean age at the initiation of smoking was 15.53 ± 4.68 years. Among the students, 36.84% were daily cigarette smokers, and 21.05% smoked cigarettes in the dormitory. Moreover, 78.95% of the smokers stated that they had started cigarette smoking with their friends. On the other hand, 73.68% of the parents were unaware of their children's smoking. Furthermore, 47.37% of the smokers made efforts to cease this behavior, and 57.89% believed in the ease of smoking cessation.

Among the participants, 17.06% reported waterpipe smoking and 8.53% were current waterpipe smokers. The mean age at the initiation of waterpipe smoking was 16.60 ± 3.01 years. Overall, 32% of the students were daily waterpipe smokers, and 28% waterpipe smokers in the dormitory. Moreover, 28% of the students stated that they had started waterpipe smoking with their family members. Furthermore, 64% declared that their family members knew they waterpipe smoked, 20% stated that their family members agreed with waterpipe smoking, 64% were unwilling to quit waterpipe smoking, and 36% intended to quit this behavior. Besides, 52% of the participants believed that it was easy to quit waterpipe smoking (Table 1). The results of univariate and multivariable logistic regression analyses for identifying the determinants of cigarette and waterpipe smoking have been presented in Tables 2 and 3. The results of the univariate analysis showed that cigarette and waterpipe smoking were significantly associated with age, grade point average of the previous semester, father's education level, cigarette smoking by family members, parental divorce, and cigarette/waterpipe smoking among friends. Besides, economic status was significantly associated with cigarette smoking ($p < 0.05$).

The multivariable analysis showed that cigarette and waterpipe smoking was significantly associated with cigarette smoking by family members. Cigarette smoking was linked with having cigarette-smoker friends. In addition, waterpipe smoking was significantly associated with having waterpipe smoker friends ($p < 0.05$).

4 | Discussion

This study aimed to assess the prevalence of cigarette smoking and waterpipe smoking as well as their determinants among the students living in dormitories of Jahrom University of Medical Sciences. The results indicated that the prevalence of cigarette smoking and waterpipe smoking were 6.48% and 8.53%, respectively. Additionally, 10.24% and 17.06% of the students had ever used cigarette smoking and waterpipe smoking, respectively. Moreover, the results demonstrated that cigarette and waterpipe smoking was significantly associated with having cigarette-smoker family members. A significant relationship was also observed between waterpipe smoking and having waterpipe smoker friends and between cigarette smoking and having cigarette smoker friends.

The prevalence of cigarette smoking was higher in the previous studies than in the present one. In the United States, the prevalence of cigarette smoking and waterpipe smoking was 40.5% and 9.5%, respectively [30]. In Spain and Portugal, 18.3% and 16.2% of nursing students were smokers, respectively [31]. Considering the countries located in the Eastern Mediterranean region, the prevalence of waterpipe smoking was 60.7% in Egypt, 67.7% in Jordan, and 63.1% in Palestine [32]. More prevalence has been reported in studies conducted in Iran. In a study, the prevalence of cigarette smoking among medical students in Tabriz was reported as 18.8% [33]. In addition, these measures were respectively obtained as 47.4% and 42.9% among students living in dormitories of Shahid Beheshti University of Medical Sciences [34]. These differences can be attributed to methodological differences in various studies and lack of a definition for tobacco smoking. Another reason for variation in the prevalence of tobacco smoking is that studies have been conducted at different times and the prevalence of tobacco smoking may change rapidly over time. This trend may also be affected by the development level of the cities under investigation. Evidence has indicated that tobacco smoking may be more frequent amongst students in larger cities.

In the current research, the mean age at the initiation of cigarette smoking and waterpipe smoking was 15.53 ± 4.68 and 16.60 ± 3.01 years, respectively. In another study, the mean age at the onset of smoking was 16.34 ± 2.72 years [35]. In this study, 28% of the students stated that they had initiated waterpipe smoking with their family members, while none of them had started cigarette smoking with their family members. Besides, the parents were stricter against cigarette smoking compared to waterpipe smoking use. Based on the results, 84.21% of the parents stood against waterpipe smoking, and 52% were against cigarette smoking. It seems that parents oppose cigarette smoking more than waterpipe smoking. Because cigarette smoking is considered an abnormal behavior in today's society, while waterpipe smoking is becoming normal in society. As shown in the present study, about a quarter of the students stated that they smoked waterpipe

TABLE 1 | Comparison of the variables defining cigarette and waterpipe smoking patterns among the students residing in dormitories.

	Cigarette smoker *N* (%)	Waterpipe smoker *N* (%)
Age at cigarette/waterpipe smoking onset (mean ± SD)	15.53 ± 4.33	16.60 ± 3.01
Number of cigarettes smoking/frequency of waterpipe smoking during the past month (mean ± SD)	3.33 ± 2.44	4.74 ± 8.09
Currently cigarette/waterpipe smoking	19 (6.48)	25 (8.53)
The person accompanying students for cigarette/waterpipe smoking for the first time		
Family members	0 (0)	7 (28.00)
Friends	12 (78.95)	16 (64.00)
Alone	6 (21.05)	2 (8.00)
Frequency of cigarette/waterpipe smoking		
Daily	7 (36.84)	8 (32.00)
Weekly	8 (42.11)	9 (36.00)
Monthly	1 (5.26)	4 (16.00)
Other	3 (15.79)	4 (16.00)
Place of cigarette/waterpipe smoking		
Dormitory	4 (21.05)	7 (28.00)
Public places	4 (21.05)	6 (24.00)
Coffee shop	8 (42.11)	11 (44.00)
Other	3 (15.79)	1 (4.00)
Attempts to quit cigarette/waterpipe smoking during the past year		
Yes	9 (47.37)	9 (36.00)
No	10 (52.63)	16 (64.00)
Parents' awareness of students' cigarette/waterpipe smoking		
Yes	5 (26.32)	16 (64.00)
No	14 (73.68)	9 (36.00)
Parents' reaction to cigarette/waterpipe smoking		
Agreement	3 (15.79)	5 (20.00)
Disagreement	16 (84.21)	13 (52.00)
Indifference	0 (0)	7 (28.00)
Is cigarette/waterpipe smoking cessation easy?		
Yes	11 (57.89)	13 (52.00)
No	8 (42.11)	12 (48.00)

Abbreviation: SD, standard deviation.

TABLE 2 | The relationships between independent variables and cigarette and waterpipe smoking.

	Cigarette smoking			Waterpipe smoking		
	Yes	**No**	***p*-Value**	**Yes**	**No**	***p*-Value**
Age, years (mean + SD)	22.26 ± 2.18	20.90 ± 1.67	0.001	21.96 ± 2.01	20.90 ± 1.69	0.003
Family size (mean + SD)	4.84 ± 2.11	5.26 ± 1.76	0.32	5.08 ± 2.22	5.25 ± 1.74	0.65
Grade point average of the previous semester	14.07 ± 3.68	15.60 ± 1.52	< 0.001	14.59 ± 3.30	15.92 ± 3.30	0.007
Sex						
Male	12 (8.22)	134 (91.78)	0.23	16 (10.96)	130 (89.04)	0.14
Female	7 (4.76)	140 (95.24)		9 (6.12)	138 (93.88)	
Field of study						
Medicine	42 (95.45)	2 (4.55)	0.94	39 (88.64)	5 (11.36)	0.24
Nursing	77 (92.77)	6 (7.23)		78 (93.98)	5 (6.02)	
Operating room and anesthesia	81 (93.10)	6 (6.90)		76 (87.36)	11 (12.64)	
Other*	74 (93.67)	5 (6.33)		75 (94.94)	4 (5.06)	
Father's education level						
Below diploma	12 (12.37)	85 (87.63)	0.004	13 (13.40)	84 (86.60)	0.03
Diploma and above	7 (3.57)	189 (96.43)		12 (6.12)	184 (93.88)	
Mother's education level						
Below diploma	12 (8.76)	125 (91.24)	0.14	15 (10.95)	122 (89.05)	0.16
Diploma and above	7 (4.49)	149 (95.51)		10 (6.41)	146 (93.59)	
Cigarette smoking by family members						
Yes	12 (23.08)	40 (76.92)	< 0.001	14 (26.92)	38 (73.08)	< 0.001
No	7 (2.90)	234 (97.10)		11 (4.56)	230 (95.44)	
Having cigarette smoker friends						
Yes	15 (30)	35 (70)	< 0.001	17 (34)	33 (66)	< 0.001
No	4 (1.65)	239 (98.35)		8 (3.29)	235 (96.71)	
Having waterpipe smoker friends						
Yes	16 (22.54)	55 (77.46)	< 0.001	21 (29.58)	50 (70.42)	< 0.001
No	3 (1.35)	219 (98.65)		4 (1.80)	218 (98.20)	
Parental divorce						
Yes	6 (37.50)	10 (62.50)	< 0.001	6 (37.50)	10 (62.50)	0.001
No	13 (4.69)	264 (95.31)		13 (4.69)	264 (95.31)	
Economic status						
Good	6 (4)	144 (96)	0.01	11 (7.3)	139 (92.7)	0.45
Medium	9 (7.3)	115 (92.7)		11 (8.9)	113 (91.1)	
Weak	4 (21.1)	15 (78.9)		3 (15.8)	16 (84.2)	

Abbreviation: SD, standard deviation.
*Laboratory Sciences and Emergency Medicine.

for the first time with their family members. On the other hand, the prevalence of waterpipe smoking in the dormitory was higher compared to smoking (28% vs. 21%). Therefore, it is necessary to educate families, adolescents, and students about the dangers of smoking. Health policymakers must also design appropriate interventions to reduce waterpipe smoking in families and communities.

In the present study, waterpipe smoking was more prevalent in comparison to smoking among the students (8.53% vs. 6.48%). The higher prevalence of waterpipe smoking may result from cultural differences, higher accessibility, and people's assumption that waterpipe smoking is less harmful than cigarettes. However, some of the adverse effects of waterpipe smoking, such as malignancies, lung dysfunction, and low birth weight are similar to those of cigarette smoking. In addition, waterpipe smoking may pose health risks such as infectious diseases caused by pipe sharing and further addition of alcohol or psychoactive substances to tobacco [36]. Also, the greater prevalence of waterpipe smoking may be due to the fact that people

TABLE 3 | The predictors of cigarette and waterpipe smoking among the students residing in dormitories.

	Cigarette smoking		Waterpipe smoking	
	OR (95% CI)	*p*-Value	OR (95% CI)	*p*-Value
Grade point average of the previous semester	0. 77 (0.54–1.12)	0.18	0.87 (0.66–1.14)	0.32
Sex				
Female	Ref.	Ref.	Ref.	Ref.
Male	1.44 (0.26–8.10)	0.68	0.88 (0.22–3.41)	0.85
Father's education level				
Below diploma	Ref.	Ref.	Ref.	Ref.
Diploma and above	0.41 (0.10–1.67)	0.22	0.68 (0.22–2.16)	0.51
Mother's education level				
Below diploma	Ref.	Ref.	Ref.	Ref.
Diploma and above	0.40 (0.08–1.93)	0.26	0.42 (0.12–1.49)	0.18
Parental divorce				
Yes	Ref.	Ref.	Ref.	Ref.
No	0.21 (0.03–1.37)	0.10	0.33 (0.06–1.77)	0.20
Having cigarette smoker family members				
No	Ref.	Ref.	Ref.	Ref.
Yes	5.52 (1.36–22.36)	0.01	4.01 (1.36–12.13)	0.01
Having cigarette smoker friends				
No	Ref.	Ref.	Ref.	Ref.
Yes	6.14 (1.03–36.62)	0.04	0.39 (0.10–1.52)	0.18
Having waterpipe smoker friends				
No	Ref.	Ref.	Ref.	Ref.
Yes	3.73 (0.61–22.99)	0.15	9.92 (2.33–42.16)	0.002
Economic status				
Good	Ref.	Ref.	—	—
Moderate	2.10 (0.45–9.66)	0.34	—	—
Weak	5.37 (0.82–35.11)	0.07	—	—
Field of study				
Medicine	—	—	Ref.	Ref.
Nursing	—	—	0.29 (0.06–1.70)	0.13
Operating room and anesthesia	—	—	0.80 (0.18–3.49)	0.77
Other*	—	—	0.22 (0.03–1.27)	0.09

Abbreviations: CI, confidence interval; OR, odds ratio.
*Laboratory Sciences and Emergency Medicine.

think that waterpipe smoking is less dangerous than cigarettes, and on the other hand, waterpipe smoking is easily available. Hence, it is necessary to increase public awareness about the harms of waterpipe smoking.

In the current study, 8.22% of males and 4.76% of females were cigarette smokers. Additionally, 11% of male students and 6.12% of female ones were waterpipe smokers. Accordingly, the prevalence of cigarette smoking and waterpipe smoking was higher in male students than in females, which was consistent with the results of other studies [37, 38]. However, some studies indicated that gender differences were less significant in waterpipe smoking compared to cigarette smoking, which might be partly related to the social acceptance of waterpipe smoking amongst females [39]. Other studies demonstrated that waterpipe smoking was linked with male gender [7, 40], whereas some studies revealed less significant differences between the two genders [41, 42].

The current study findings showed that cigarette and waterpipe smoking by family members, cigarette smoking by cigarette smoker friends, and waterpipe smoking by waterpipe smoker friends were the determinants of tobacco smoking. Generally, college life prompts a lot of stressors such as academic problems, depression, and higher independence and responsibility in life [43–45]. Thus, entrance to collage is considered a

transitional period in life [46]. On the other hand, cigarette smoking is influenced by various factors including individual, familial, and social factors [23]. In one study, male gender and smoking among peers, parents, and siblings were associated with tobacco smoking [24]. Consequently, the prevalence of tobacco smoking during the college years can be due to the stressors related to the college life, familial factors, and influence of peers, inability to adapt with the college and dormitory conditions, and lack of coping with stressors.

4.1 | Strengths and Limitations

This was the first study that assessed the prevalence and determinants of cigarette smoking and waterpipe smoking among the students living in dormitories of Jahrom University of Medical Sciences. One of the limitations of the present study was its cross-sectional design. Therefore, further case-control or cohort studies are required to confirm the findings. Another study limitation was that it was not conducted on all the students studying in various fields of study at Jahrom University of Medical Sciences.

5 | Conclusion and Recommendations

The results of the present study showed a lower prevalence of cigarette smoking and waterpipe smoking compared to the studies conducted in other cities in Iran and other countries. The findings also revealed that the waterpipe smoking among family members played an important role in waterpipe smoking and cigarette smoking amongst students. Therefore, the society should be informed about the harms and health risks of waterpipe smoking. Since primary prevention is the highest priority, students with the related risk factors including those with smoker family members and friends are recommended to be identified upon entering the university. In case of a high risk of tobacco smoking, educational interventions and planning should be established, as well. Moreover, training classes on the health risks of smoking are suggested to be held for the students studying in high-risk fields as well as for their parents. Other measures that can be taken include the provision of recreational facilities, strengthening the religious and moral aspects of students, establishing an accurate and regular monitoring system rather than strict supervision measures, and training smoking cessation skills. Finally, since changes may occur in smoking patterns, similar studies are recommended to be performed at different time intervals.

Author Contributions

Mohadeseh Ghanbari-Jahromi: conceptualization, investigation, writing–original draft, writing–review and editing, visualization, validation, methodology, project administration, resources, supervision, data curation. **Farzaneh Mobasheri:** conceptualization, investigation, writing–original draft, methodology, writing–review and editing, supervision, formal analysis, software, resources. **Hossein-Ali Nikbakht:** supervision, project administration, methodology, validation, writing–review and editing, writing–original draft, investigation, conceptualization. **Fatemeh Rezaei:** conceptualization, investigation, writing–original draft, writing–review and editing, methodology, validation, software, formal analysis, project administration, supervision, resources, visualization.

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Ethics Statement

The study has been approved by ethics committee of Jahrom University of Medical Sciences under the code of (IR.JUMS.REC.1395.105). All methods were according to the Helsinki Declaration's ethical standards.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request. Data of this research is available and could be sent upon contact with the corresponding author.

Transparency Statement

The lead author Fatemeh Rezaei affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

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