The Role of Ethnic Differences on Adolescents' Smoking Experience in Iran: A Cross-Sectional Study in Varamin

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Corresponding Author: Hourieh Dehghan-Shad hourishad@gmail.com **Background:** Participation in leisure activities with peers and family gatherings is beneficial, but some activities such as smoking, may increase harmful health behaviors. This is the first study which investigates how students in Varamin, Tehran, Iran, perceive smoking during their leisure time. **Methods:** This cross-sectional study was conducted in 2021 and involved 319 school-going adolescents in Varamin County, Tehran, Iran (aged 16-18 years) who completed a self-administered anonymous questionnaire on the use of tobacco products which was designed based on the Likert scale. After completing the questionnaires, the data were analyzed using, frequency (percentage), t-test (Independent Two-sample), analysis of variance (One-way ANOVA), Kendall's and Pearson's correlation coefficients, and the chi-square test (less than 0.01).

ABSTRACT

Results: Overall, five ethnicities in the target population were examined in this study. Smoking among Arab, Fars, and Lur ethnicities, with mean scores of 4, 3.6, and 3.41, respectively, were higher than smoking among Turks, other ethnicities, and Kurds, with mean scores of 2.86, 2.36, and 2. In addition, smoking in family gatherings, the very low and low levels have the highest frequencies of 72 and 61, respectively, while smoking in friend gatherings, average and high levels have the highest frequencies, i.e., 99 and 57, respectively, with (Sig: 0.000) is less than 0.01.

Conclusions: This reinforces the need to be alert for, and respond to, gender and ethnic disparities regarding the pattern of risk and protective factors. Thus, leisure activities and ethnicity may be key factors to tailor prevention programs to their unique characteristics and needs.

Keywords: Tobacco smoking, Free time, Ethnicity, hjuh Students

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Introduction

Smoking is a leading lifestyle risk factor in lifestyle, that which accounts foris the cause of several diseases leading to premature morbidity and mortality from several diseases worldwide (1). Iran is no exception to this issue. According to an analysis from published reports of 2004, 2007, 2008, and 2009, and the data of 2011 and 2016 regarding the STEP-wise approach (it is a simple, standardized method for collecting, analyzing and disseminating data on key NCD risk factors in countries) to chronic disease risk-factor surveillance, the prevalence of current tobacco smoking and current daily cigarette smoking in 2016 was 14.1 and 9.7%, respectively. Only 0.2% of participants smoked water-pipe. In both 2011 and 2016, the prevalence of tobacco smoking was higher among men who lived in western provinces, especially northwest, than those who lived in eastern and southern regions (2). Besides, most smoking behaviors begin in adolescence (3). Thus, it is vital to understand the reasons for adolescent smoking to design effective interventions to prevent it. It should also be noted that participation in leisure activities has long been known to assist teenagers in gaining personal control over their environment and creating a positive sense of identity through their actions (4). Participation in organized activities, such as team sports, is often associated with reduced involvement in antisocial behaviors and substance use (5-6), including tobacco smoking (7). In particular, participation in team sports has been associated with lower levels of cigarette smoking (8). Moreover, having a smoking friend or friends was considered the most critical factor influencing the habit in adolescents (9). It is assumed that parents have a greater influence on young children. This is while teenagers have a more significant impact on their peers (10). According to the theory of planned behavior, support of smoking by friends, parents, and other influential figures, such as multiethnic and multi-cultural individuals, is likely to enhance the likelihood of smoking via imitation of prominent role models (11). These differences suggest the potential informative value for policy development of gender-specific analyses, and the same may be true for analysis by ethnicity (12). Ethnic and racial differences regarding adolescent smoking prevalence have also been mentioned in many population-based studies in the US (13-14). For instance, whites and Hispanics smoke more than African Americans, American Indians, and Asian Americans. Little is known about smoking prevalence among multi-ethnic adolescents. This is because the number of multi-ethnic adolescents in the US is unknown. This situation is also reflected in related studies in Iran. Therefore, it is important to obtain a complete understanding of health issues affecting the growing multi-ethnic population (15). Conversely, other studies suggest that multi-ethnic adolescents may be more resilient to problem behaviors (16). so the smoking prevalence and smoking-related attitudes of multi-ethnic adolescents are unknown. Therefore, it is assumed that there is a meaningful relationship between ethnicity and spending leisure time (according to the socioeconomic base of students) with smoking. Thus, this study investigated the role of ethnicity and reference groups (family and peers) in leisure activities on smoking experience between high school students (aged 16-18 years) in Varamin, which is due to the presence of immigrants from different ethnic groups (Tajik, Ler, Turk, Shahson, Kurd, Arab, Baloch, Turkmen, etc.) and its geographical features as a corridor for drug and tobacco smuggling was conducted.

Methods

In this research, a stratified random sampling method was used. After determining the sample size using Cochran's method, the students were distributed among different schools based on grade and gender. Consider the following formula:

$$n = \frac{\frac{t^2 pq}{d^2}}{1 + \frac{1}{N} \left(\frac{t^2 pq}{d^2} - 1\right)}$$

In this formula, n is the sample size, N, the community size, t, the normal distribution's variable size, d, the sample accuracy, p is the percentage of people having the studied characteristic and, in the present study, out of a total of 1868 students (aged

16-18 years) from four high schools (girls and boys), the sample size was calculated to be 319 individuals with a confidence level of 95 percent:

Students with no smoking experience were excluded from the sample, resulting in 208 people who had experienced smoking (even one or two puffs/dips). Then, a self-administrative anonymous questionnaire was used, and its validity and reliability were confirmed by the opinions of experts regarding communication and health education. Its internal consistency was achieved by test-retest within 2 weeks (Cronbach's alpha = 0.78). The questionnaire was designed with 30 questions in 4 sections:

• Demographic variables (sex, grade, parents' income, parents' employment status, parents' education, type of tobacco product consumed, name of ethnicity, smoking experience using the Likert scale

- The role of peer groups in smoking
- The role of family gatherings in smoking
- The role of ethnicity in smoking

Questionnaires were completed by a trained interviewer. Data were analyzed using, frequency (percentage), and mean, as well as independent t-test (Independent Two-sample), analysis of variance (One-way ANOVA), Chi-square, Friedman, and non-parametric tests with (Sig: 0.000) is less than 0.01, after the questionnaires were completed via SPSS.

Results

Basic characteristics of the study population

The student response rate was 100%. **208** students who had experienced smoking (even one or two puffs/dips of cigarettes, hookah, or other tobacco products) were evaluated; the rest were excluded due to lack of experience. **208** questionnaires were distributed and collected. Based on Table (1-3), the following points can be mentioned:

• Regarding gender and age, 44.7% (93) of boys and 55.3% (115) of girls completed the questionnaires. The respondents were aged between 16 and 18. 26.9% (56) were 10th-grade students, 33.2% (69) 11th-grade, and 39.9% (83) were 12th-grade students.

• In terms of the level of experience, about 24% of the participants reported that they had previously smoked a cigarette, and 7.5% described themselves as current smokers. In addition, 11.5% of the respondents reported a very low level of experience, 24.5%, a low level, 36.1%, an average level, and 5.8% reported a very high level of experience.

• For the type of smoking product, 17.3% smoked cigarettes, 66.4% smoked hookah, 14.9% smoked both cigarettes and hookah, and 1.4% only reported smoking other products.

• With respect to the education of students' parents along with their income, about 7.7% of students' fathers and 10.5% of students' mothers were illiterate. In addition, 50.5% of their fathers and 57.7% of mothers had a degree lower than a high school diploma. Moreover, 31.7% of fathers had a high school diploma, and 21.3% of mothers had a high school diploma. 10.1% of fathers had a university degree, but mothers had just 8.7% of such education.

• Regarding the employment status of parents and their income, 25.4% had less received 3 million tomans, 51%, 3 to 5 million tomans, and 23.6% received more than 5 million tomans.

It should be noted that the goal was investigating different ethnicities in the research process. As a result, another focus of the study was immigrants (such as Afghans and Tajiks). Among the participants, 20.7% (43) were Fars, 22.1% (46) were Turks, 26% (54) were Lurs, and 9.6% (20) were Arabs, 10.6% (22) were Kurds, and 11.1% (23) were other ethnicities.

	Gender			Grade	
Item	Ν	%	Variable	Frequency	Percentage
Boys	93	44.7	10 th grade	56	26.9
Girls	115	55.3	11 th grade	69	33.2
Total	208	100	11 th grade 12 th grade	83	39.9
			Total	208	100

Table 1. Baseline characteristics of the study population

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Parents' income				Parent's employment status				Parents' education			
Item Variable Frequency Perc		Percentage	centage Variable Freque		ency Percentage	Variable	Father		Mother		
Item	variable	requency	I el centage	variable	requency	I el centage	variable	Frequency	Percentage	Frequency	Percentage
Boys	employee	29	13.9	Less than 3 million tomans	53	25.4	Illiterate	16	7.7	22	10.5
Girls	worker	87	41.8	3 to 5 million tomans	106	51	Having a degree lower than high school diploma	105	50.5	1200	57.7
Total	Self- employed	92	44.3	Above 5 million tomans	49	23.6	High school diploma	66	31.7	48	23.1
	Total	208	100	Total	208	100	University degree	21	10.1	18	8.7
							Total	208	100	208	100

 Table 2. Parents' characteristics in the study population.

Table 3. Ethnicity characteristics in the study population

	Ethnicity		1	Smoking experien	ce	Type of smoking product			
Item	Frequency	Percentage	Variable	Frequency	Percentage	Variable	Frequency	Percentage	
Fars	43	20.7	very low	24	11.5	Cigarette	36	17.3	
Turk	46	22.1	low	51	24.5	Hookah	138	66.4	
Lur	54	26	average	75	36.1	Cigarette and hookah	31	14.9	
Arab	20	9.6	high	46	22.1	Total	208	100	
Kurd	22	10.6	very high	12	5.8				
Others	23	11.1	Total	208	100				
Total	208	100							

The relationship between ethnicity and smoking experience

Based on the significance level of lower than 0.5 (i.e., Sig: 0.032, Sig: 0.000, and Sig: 0.001), Table 4 indicates that there is a significant difference in terms of smoking among Fars, Lur, and Arab ethnicities, as well as Turk and Kurd and other ethnicities, such as Afghan, Tajik, and so on. In fact, smoking is more prevalent among Arabs,

Fars, and Lur ethnicities, with mean scores of 4, 3.6, and 3.41, respectively, than among Turks, other ethnicities, and Kurds, with mean scores of 2.86, 2.36, and 2. Based on the reported variance (F: 27.311) and significance level (Sig.: 0.000), it can be concluded that at an error level of less than 1% and a confidence level of 99%, there are significant differences among various ethnic groups in terms of smoking.

Table 4. The results of Tukey's test to measure the mean difference regarding smoking experience in various ethnic groups

Ethnicity (I)	Ethnicity (J)	Mean difference	Std.	Sig.	95% Confidence interval			
Etimetty (1)	Etimicity (J)	(I-J)	error	Sig.	Lower bound	Upper bound		
	Turk	.736*	.128	.032	.04	1.43		
	Lur	.193	.121	.959	47	.86		
Fars	Arab	400	.164	.766	-1.27	.47		
	Kurd	1.600^{*}	.164	.000	.73	2.47		
	Other	1.236^{*}	.159	.001	.39	2.08		
	Fars	736*	.128	.032	-1.43	04		
	Lur	544	.127	.152	-1.19	.10		
Turk	Arab	-1.136*	.169	.003	-2.00	28		
Turk	Kurd	.864*	.169	.048	.00	1.72		
	Others	.500	.163	.505	33	1.33		
	Fars	193	.121	.959	86	.47		
	Turk	.544	.127	.152	10	1.19		
Lur	Arab	593	.164	.314	-1.43	.24		
Lui	Kurd	1.407^{*}	.164	.000	.57	2.24		
	Other	1.044^*	.158	.004	.24	1.85		
	Fars	.400	.164	.766	47	1.27		
	Turk	1.136*	.169	.003	.28	2.00		
Arab	Lur	.593	.164	.314	24	1.43		
1	Kurd	2.000^{*}	.198	.000	.99	3.01		
	Other	1.636^{*}	.193	.000	.65	2.62		
	Fars	-1.600*	.164	.000	-2.47	73		
	Turk	864*	.169	.048	-1.72	.00		
Kurd	Lur	-1.407^{*}	.164	.000	-2.24	57		
Ituru	Arab	-2.000^{*}	.198	.000	-3.01	99		
	Other	364	.193	.891	-1.35	.62		
	Fars	-1.236*	.159	.001	-2.08	39		
	Turk	500	.163	.505	-1.33	.33		
Other	Lur	-1.044^{*}	.158	.004	-1.85	24		
	Arab	-1.636*	.193	.000	-2.62	65		
	Other	.364	.193	.891	62	1.35		

*. The mean difference is significant at the 0.05 level.

The relationship between reference groups on smoking

The results of smoking at friend gatherings are shown in Table 5. As can be observed, the significance level of tested component (Sig: 0.000) was less than 0.01. There was a significant difference in frequency between the measured variables, which can be claimed to be with a confidence level of 99 percent. Moreover, when it comes to the component of smoking at friends' gatherings, the average and high levels of 99 and 57 had the highest frequencies. The obtained frequencies demonstrated that in the selected population, smoking significantly increased during friends' gatherings. The results of this test about the relationship between smoking and being accepted in friends' groups were presented. It is evident that the tested component, the significance level (Sig: 0.000), was lower than 0.01. It can be claimed that with a confidence level of 99%, there is a significant difference between the frequencies of the measured variables. In addition, the obtained results show that, regarding the selected component, the cases with average and low levels had the highest frequencies of 103 and 48, respectively. The results of the relationship between smoking and family gatherings are presented in this table as well. As can be seen for the selected component, the significance level (Sig: 0.000) was lower than 0.01. Based on the obtained frequencies, smoking in family gatherings decreased significantly due to family control and compliance with traditional norms.

Table 5. The effect of reference groups on smoking in the statistical population.

	Frie	nds gatheri	ngs	s Being accepted in friends groups				Family gatherings		
Smoking	Observed N	Expected N	Residual	Observed N	Expected N	Residual	Observed N	Expected N	Residual	
Very low	14	41.6	-27.6	6	41.6	-35.6	72	41.6	30.4	
Low	33	41.6	-8.6	17	41.6	-24.6	61	41.6	19.4	
Average	99	41.6	57.4	103	41.6	61.4	42	41.6	0.4	
High	57	41.6	15.4	48	41.6	6.4	17	41.6	-24.6	
Very high	4	41.6	-37.6	34	41.6	-7.6	16	41.6	-25.6	
Total	208			208			208			
	*Chi-square: 136.440 *Sig: 0.000			*Chi-square: 138.010 *Sig: 0.000			*Chi-square: 60.855 ^a *Sig: 0.000			

Discussion

The status of smoking in different groups and the fact of being accepted in friends' gatherings were investigated with emphasis on subcultural and social learning theories and their variables regarding the statistical population. Based on these theories, the following factors are all associated with the deviant behaviors of teenagers, including the tendency to smoke: personal and demographic characteristics, the level of interactions with friends, the sense of attachment to the rules governing family, and the unequal distribution of amenities and life opportunities among the members of society. Indeed, members' devotion to the group of peers, as well as their dedication to the principles and standards that govern such groups, would push the person to re-socialize by adopting new rules and procedures or deviant behaviors. This effectively creates a sub-culture which acts as a reference group after the spread of its behavioral patterns among various classes of society, especially teenagers. To put it another way, some children do not wish to mirror their parents' tobacco-related behaviors and may be more prone to blame their peers for their tobacco attitudes. Therefore, this study's findings reinforce Kaufman and Fieden's statement that "young people should be studied within the broad social and environmental contexts in which they live" (p. S11) (17). Thus, a better understanding of different aspects of adolescents' leisure activities, parental monitoring, and intercultural communication should help inform and strengthen the study of their health behaviors and tobacco smoking prevention efforts. Findings of this study reinforce the need to be alert for and respond to gender (18) and ethnic differences in the patterns of risk and protective factors as well (19). Greene and Bannerjee (2009) concluded that unsupervised time with adolescent peers was associated indirectly with smoking behavior through relationship with smoker peers (20). Parental

monitoring was also strongly affective against adolescent daily tobacco smoking, which was consistent with other recent evidence studies (21, 22). Indeed, previous research has shown that ethnic minority teenagers are more successful than white adolescents in purchasing cigarettes from the stores which are prohibited from selling cigarettes to this age group (23). While it is not clear whether this results from racial discrimination or economic pressure to increase sales revenue, it may indicate that multi-ethnic adolescents will be able to purchase cigarettes from stores with little difficulty. In addition to macro-level prevention efforts, an effective intervention targeting adolescents susceptible to smoking is needed. Prevention efforts targeting at-risk populations produce better and more cost-effective outcomes compared to universal methods (24). Several studies also demonstrated that smoking adolescents actively seek out groups of friends with similar smoking behaviors, and are more likely to be aware of others who smoke (25, 26). Therefore, smoking with friends increases the risk of adolescents' tobacco smoking, and personal variables such as gender, ethnicity, and others amplify this effect. Some interventions are designed to motivate adolescents by taking into account intercultural communication and have more relationship with friends who engage in social activities. This may eventually reduce teenagers' smoking. These results also suggest a need for a research on racial/ethnic- and genderspecific protective and risk factors for smoking susceptibility and the transition from susceptibility to cigarette smoking among adolescents (27, 28). This is in line with previous studies indicating that smoking susceptibility among adolescents has been fairly consistent with smoking prevalence (29, 30).

Conclusion

The experience of smoking among ethnics can be can be due to reasons such as cultural conditions, requirements, and the use of tobacco products as a cultural capital, according to Pierre Bourdieu's theory of leisure activities (31, 32). Moreover, smoking in friend gatherings has intensified because of smoking with friends and classmates. Although the selected population in this study was nationally representative, the larger sample size in some ethnic groups increases the power to detect differences in smoking experience. Therefore, more related- research is needed to incorporate this issue into smoking prevention programs for adolescents.

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Conflicts of interest

The authors declare that there is no conflict-ofinterest Author Contribution

Author Contribution

All authors contributed to data collection and modeling

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