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Trends in Susceptibility to Smoking by Cultural diversity on adolescents' smoking

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Abstract

Smoking behaviors seem to vary widely across ethnicity and peer groups. The reason may include dominant culture and its transfer to other social groups. However, to date, few of the research literature has focused on the role of cultural diversity on the smoking behavior-related traits.

We sought to identify individual and contextual factors of adolescent smoking initiation by friends and their consumption habits. This case study was conducted in 2021 and involved 319 school-going adolescents in Varamin County, Tehran, Iran, who completed a self-administered anonymous questionnaire on tobacco product use, designed based on the Likert scale. The data were analyzed using frequency percentage, t-test, analysis of variance (ANOVA), Kendall's and Pearson's correlation coefficients, and the chi-square test (less than 0.01).

In the present study, smoking among Arab, Fars, and Lur ethnicities, with mean scores of 4, 3.6, and 3.41, respectively, is higher than smoking among Turk, other ethnicities, and Kurd groups, with mean scores of 2.86, 2.36, and 2. In addition, the results of the chi-squared test showed that the rates of average and high smoking in the friendly gatherings were 47.6% and 27.9%, respectively, and, in terms of responses to influences on their consumption, average and high smokers had the highest frequency with 101 and 49, respectively.

Targeting susceptible adolescents with consideration of cultural diversity and friends' groups in tailored prevention efforts may prevent or delay adolescents' transition to tobacco use.

Keywords: Adolescents, Cultural Diversity, Students, Tobacco Smoking

Introduction

Smoking plays a remarkable role in preventing chronic diseases and death in developed and developing countries. Moreover, it is regarded as the second major cause of death around the world (3). Typically, smoking tobacco starts in adolescence (4) and usually results in dependence on such products in the later stages of life (5-7). Consequently, preventing the prevalence of smoking among adolescents plays a significant role in stopping the tobacco epidemic (8, 9). Due to the strong influence of social norms on individual behavior (10, 11), de-normalizing smoking among youth through constituting non-smoking behavior as the norm in schools is one of the main goals pursued by tobacco control (12). The prevalence of smoking soars remarkably during adolescence years (13). Though not every single one of the experimental users increases their uptake over time (14, 15), the probability of habituation is increased by early initiation, and this leads to a multitude of unfavorable outcomes (16). Thus, an important national health goal is to prevent the initiation and progression of smoking (17). Understanding the factors relevant to adolescent smoking is a critical factor in the development of effective prevention procedures. Some of the most significant factors linked with adolescent smoking include ethnical differences and peer group influences (18). Social and cultural factors influence a wide spectrum of behaviors, from smoking (19) to diet (20, 21), and to substance use (18). Due to their developmental stages and the significance of school and peer groups in adolescent life, adolescents are particularly susceptible to social influences (13). In addition, adolescent smoking and other forms of substance use may have other unique social aspects as other adolescents provide them with access and opportunity and reinforce them (22, 23). As a result, the fact that adolescent substance use and peer use are intertwined issues should not sound surprising. The effects of peer groups on adolescent substance use have indeed been extensively documented, but much more, particularly concerning the peer influence mechanisms, has to be learned (18).

In addition, factors like gender, dominant culture, and its transfer to other social groups can influence the emergence of normal or abnormal behaviors like smoking during adolescence years. Indeed, social activities in practice fields (23) to meet some social and even basic needs result in the emergence of abnormal behaviors like smoking as a way to become a member of peer groups and feel attachment to them (24). In other words, individuals, e.g. peers, institutions, and social constructs are involved in social participation through the subjective-cognitive and objective (functional) theory (25), and the rejection of some (good or bad) social norms and regulations by adolescents makes activists doubtful and unclear about social activism (26). Despite the critical importance of predicting the reasons for students' smoking, little is known about the role of peer group gatherings –labeled as "free time activities" - in the prevalence of smoking among adolescents according to their social and economic capital (27). Thus, monitoring and preventive measures need to be implemented before students arrive at universities. The country's education system can pave the way to achieve the national goal of reducing the rate of smoking in the country by 30% through developing flexible educational protocols and emphasizing the role of cultural components (28). Thus, the present study aimed to detect the factors that influenced smoking among the (male and female) students of high schools in Varamin County, Tehran, Iran, to determine the role of peer groups and cultural diversity on adolescents' smoking tendencies.

Methods

In this study, which is a descriptive analytical one, a stratified random sampling method was used. Therefore, after determining the sample size using Cochran's method, the students were distributed among different schools based on grade and gender. 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 a sample size of 208 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 in communication and health education, and its internal consistency was achieved by test-retest within 2 weeks (Cronbach's alpha = 0.78). The questionnaire was confirmed by the face validity method. It also was designed based on the Likert scale with 30 questions in 4 sections:

- Demographic variables (sex, grade, 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. The data were analyzed using the frequency percentage, mean, one-way analysis of variance (ANOVA), and two-sample independent t-test, as well as chi-squared, Friedman, and non-parametric tests (Sig: 0.000), which were less than 0.01 after the questionnaires were completed in SPSS.

Results

The student response rate was 100%. Out of 319 students, 208 who had experience smoking (even one or two puffs/dips of cigarettes, hookah, or other tobacco products) were evaluated, and the rest were excluded due to lack of experience. A total of 208 questionnaires were collected; based on Tables 1-2, 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 years; 26.9% (56) were 10th-grade students, 33.2% (69) were 11th-grade students, and 39.9% (83) were 12th-grade students.
- Regarding the level of experience, about 11.5% (24) of the respondents reported a very low level of experience, 24.5% (51) reported a low level of experience, 36.1% (75) reported an average level of experience, and 5.8% (12) reported a very high level of experience.
- Regarding the type of smoking product, 17.3% (36) smoked cigarettes, 66.4% (138) smoked hookah, and 14.9% (31) smoked both cigarettes and hookah.

The paired-sample t-test was implemented to investigate the relationship between the participant's gender and smoking. The obtained significance level (Sig. 0.000) was below 0.01 in both assumptions concerning the equality and inequality of the variances (Table 3).

Indeed, the results showed that the mean of males' smoking (3.28) was higher than that of females (2.61) (Table 4).

The Relationship between Ethnicity and Smoking Experience

It should be noted that one of the purposes of this study was to investigate 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, 9.6% (20) were Arabs, 10.6% (22) were Kurds, and 11.1% (23) were other ethnicities (Table5).

Table 6 presents the descriptive statistics, including mean, standard deviation, standard error, upper and lower bounds of the 95-percent confidence interval, and the maximum and minimum levels of the dependent variable. In fact, smoking among Arab, Fars, and Lur ethnicities with mean scores of 4, 3.6, and 3.41, respectively, is higher than smoking among Turk, other ethnicities, and Kurd groups with mean scores of 2.86, 2.36, and 2, respectively.

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 7).

Leven's Test was used to determine the equality of variance of the data, based on this test's significance level (Sig.: 0.000), it can be concluded that at an error level of less than 1% and a confidence level of 99% (Table 8).

Table 1: Baseline characteristics

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

Table2: Smoking experience

Smoking experience			Type of smoking product		
Variable	Frequency	Percentage	Variable	Frequency	Percentage
very low	24	11.5	Cigarettes	36	17.3
low	51	24.5	Hookah	138	66.4
average	75	36.1	Cigarettes and hookah	31	14.9
high	46	22.1	Total	208	100
very high	12	5.8			
Total	208	100			

Table 3: T-Test for Equality of Means

Levene's Test for Equality of Variances			**T-Test for Equality of Means**			
Variances	**F**	**Sig**	**T**	**df**	**Sig**	**Mean Difference**
Equal variances assumed	4.165	0.024	-3.333	206	0.000	-0.079
Equal variances not assumed			-0.337	195	0.000	-0.078

Table 4: Smoking variable by gender

	Gender	**N**	**Std. Deviation**	**Mean**
	Male	93	0.560	3.28
	Female	115	0.434	2.61

Table 5: Ethnicity characteristics

Ethnicity		
Item	**Frequency**	**Percentage**
Fars	43	20.7
Turk	46	22.1
Lur	54	26
Arab	20	9.6
Kurd	22	10.6
Other	23	11.1
Total	208	100

Based on the significance level that is lower than 0.5 (i.e., Sig: 0.032, Sig: 0.000, and Sig: 0.001), 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

Table 6: Smoking in various ethnic groups

Ethnicity	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Fars	43	3.60	0.883	0.197	3.19	4.01	2	5
Turk	46	2.86	0.640	0.138	2.58	3.15	2	4
Lur	54	3.41	0.931	0.179	3.04	3.78	2	5
Arab	20	4.00	0.471	0.149	3.66	4.34	3	5
Kurd	22	2.00	0.000	0.000	2.00	2.00	2	2
Other	23	2.36	0.924	0.279	1.74	2.98	2	5
Total	208	3.13	0.960	0.096	2.94	3.32	2	5

Table 7: one-way ANOVA

Variance	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	77.146	5	15.429	27.311	0.000
Within Groups	114.119	202	0.565		
Total	191.264	207			

Table 8: Levene's test

	Levene Statistic	df 1	df 2	Sig.
Based on Mean	15.209	5	202	0.000
Based on Median	5.053	5	202	0.000
Based on the Median and with adjusted df	5.053	5	151.317	0.000
Based on trimmed mean	14.503	5	202	0.000

4, 3.6, and 3.41, respectively, than among Turks, other ethnicities, and Kurd groups, with mean scores of 2.86, 2.36, and 2 (Table 9).

The relationship between smoking tendencies in peer groups

The relationship between the rate of smoking in peer groups and its relationship with acceptance in such groups was investigated using the chi-squared test (Table 10).

The experience of smoking in friendly gatherings had the highest frequency among the average and high smokers with 99 (47.6%) and 57 (27.9%) of the cases, respectively. Thus, the obtained frequencies showed that smoking significantly increased in friendly gatherings (Sig. 0.000).

The influence of peers on smoking tendencies was more remarkable in the average and high classes with 101 (48.6%) and 49 (23.6%) participants, respectively (Sig. 0.000).

The relationship between smoking tendencies and family gatherings

The relationship between the rate of smoking and family gatherings and its impact on smoking tendencies was investigated using the chi-squared test. The results are provided in (Table 11).

The obtained frequencies concerning the relationship between smoking experience and family gatherings showed that smoking tobacco in family gatherings decreased significantly due to family monitoring and the observation of dominant cultural norms.

Table 9: Tukey's test

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

Eighty-seven participants (41.8%) reported the impact of smoking tobacco by a family member on their tendency toward smoking at a very low level, 65 participants (31.3%) at a low

Table 10: Tendency to smoke in friendly gatherings

Smoking	Friend gatherings				smoking tendency			
	Observed N	Percent	Expected N	Residual	Observed N	Percent	Expected N	Residual
very low	14	1.9	41.6	-27.6	72	11.5	41.6	30.4
low	33	15.9	41.6	-8.6	61	8.6	41.6	19.4
average	99	47.6	41.6	57.4	42	48.6	41.6	0.4
high	57	27.9	41.6	15.4	17	23.6	41.6	-24.6
very high	4	1.9	41.6	-37.6	16	7.7	41.6	-25.6
Total	208	100			208	100		
	Chi-Square: 136.440 Df:4 Sig: 0.000				***Chi-Square: 122.721 Df:4 Sig: 0.000***			

Table 11: Tendency to smoke in friendly gatherings

Smoking	Family gatherings				smoking tendency			
	Observed N	Percent	Expected N	Residual	Observed N	Percent	Expected N	Residual
very low	72	34.6	41.6	30.4	87	41.8	41.6	45.4
low	61	29.3	41.6	19.4	65	31.3	41.6	23.4
average	42	20.2	41.6	0.4	23	11.1	41.6	-18.6
high	17	8.2	41.6	-24.6	19	9.1	41.6	-22.6
very high	16	7.7	41.6	-25.6	14	6.7	41.6	-27.6
Total	208	100			208	100		
	Chi-Square: 60.855a df:4 Sig: 0.000				***Chi-Square: 101.615 Df:4 Sig: 0.000***			

level, 23 participants (11.1%) at an average level, 19 participants (9.1%) at a high level, and 14 participants (6.7%) at a very high level. Thus, the effect of tobacco smoking by a family member on other members' smoking tendencies was investigated using the chi-squared test, and the obtained significance level (0.000) was below 0.01 (Table 11).

Conclusion

It is important to highlight behavioral differences in various social groups based on the dominant culture as it consists of values and norms that individuals are expected to act in accordance with on both micro and macro scales as well as the fields of experience, e.g., school, family, friends, etc., actors are involved in. Such norms have various definitions within families, friendship groups, and other environments hosting actions and are considered anomalies if individuals act contrariwise. Our study findings reinforce the need to be alert for and respond to gender and ethnic differences (cultural diversity) in the patterns of risk and protective factors as well. Although Previous research has shown that ethnic minority adolescents are more successful than white adolescents at purchasing cigarettes from stores that are prohibited from selling cigarettes to minors, it is not clear whether this results from racial discrimination, economic pressure to increase sales revenue, or multi-ethnic (1). Moreover, according to the findings of the study and within the framework of the

social control theory, it can be argued that there is a relationship between an individual's consumption behavior with their family and their sense of belonging to friendship groups, and their smoking tendency. In this theory, the monitoring role of the family as a monitoring social institution is somehow distinguished, and this shows that families can control members' smoking tendencies by monitoring their behavior. A major issue in sociological investigations is taking into account social conditions and environmental structure in the emergence of certain behaviors in society. Environmental conditions, attachment to friendship groups, the enhancement of their sense of belonging (29), the availability of tobacco products around one's living quarters, and peer gatherings play important roles in provoking individuals to smoke tobacco. Indeed, adolescents are more likely to indicate smoking tendencies to express their opposition to the dominant culture and conditions (30). That is because society is a system made up of a set of structural elements like culture and social structures that facilitate the adjustment of the social order and enable people to adapt to their environments by interacting and coordinating with "one another" (31). According to this attitude, individuals' behavioral patterns, including the methods they utilize to adapt or adjust to their environments, are functions of the conditions and opportunities provided by society (30). Therefore, school-based intervention programs aimed at the prevention of cigarette smoking are recommended. In particular, educational programs on how to resist and handle peer pressure are essential to prevent cigarette smoking in both primary and secondary schools in Iran.

While there are many papers on peer influences on adolescent smoking and other substance use, no papers have reported the impact of ethnic diversity on adolescent smoking in Iran. For example, few such papers have compared the relative effects of best friends, close friends, or general peer groups but there is no research on social influences among ethnic groups. In addition, identifying the students' smoking rate is one of the red lines in schools, thus, the major limitation was collecting data about students' smoking faced significant restrictions. Therefore, the country's educational system is recommended to provide relevant statistics to research centers on an annual basis so that the involved organizations and institutions can be exempted from spending significant time and money. Moreover, paying more attention to the potential of peers in developing advocacy programs from a long-term perspective is recommended.

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