The effect of educational intervention regarding smoking prevention on knowledge and attitude of Afghan students

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Abstract

Introduction: Smoking is one of the preventable causes of diseases and early death around the world and educational intervention is considered as one of the major strategies for preventing and controlling smoking among the adolescents. Therefore, the present study aimed to investigate the effect of educational intervention regarding smoking prevention on knowledge and attitude of Afghan students in Tehran.

Methods: The present study was conducted on 160 male students of the 3nd grade of school who were randomly selected and divided into a control and an intervention group. The study data were collected using a questionnaire including demographic, knowledge, and attitude questions. At first, both groups took the pre

-test. Then, the intervention group underwent the educational intervention through giving lectures, question and answer, and role play for one month. After two months, both study groups took part in the post-test using the same questionnaire. Finally, the data were entered into the SPSS statistical software (v. 13.5). Besides, $P<0.05$ was considered as statistically significant.

Results: No significant difference before educational intervention. After the intervention, however, a significant increase was observed in the intervention group's mean scores of knowledge ($P<0.045$) and attitude ($P<0.001$).

Conclusion: Educational intervention on smoking prevention improves knowledge and attitude regarding the risks of smoking.

Key words: Knowledge, Attitude, Smoking, Health education

Introduction

Smoking is one of the major preventable causes of diseases as well as early deaths all around the world (1). Based on the report provided by World Health Organization (W.H.O.), there are more than 1 milliard smokers around the world. Moreover, almost 6 million people die because of smoking every year and this number is estimated to reach 8 million early deaths by 2030 (2). In general, smoking is significantly related to a number of chronic diseases, such as cardiovascular diseases, cancers, and chronic respiratory and gastrointestinal diseases (3). According to the report provided by CDC in 2000-2004, the economic costs related to the smokers' health in the U.S. was estimated to be 193 milliard dollars a year, including 96 milliard dollars for direct medical costs and more than 97 milliard dollars resulting from the individuals' productivity loss (4). W.H.O. has also estimated that 80% of the smokers live in low- and middle-income countries (2). On the other hand, CDC reported

the prevalence of smoking among the American high school students as 17.2% between 2000 and 2009 (5). Moreover, knowledge, attitude, a person's beliefs and personality, parents, family members, friends, places such as school, and social factors, play a major role in starting and continuation of smoking among the adolescents of different socio-economic groups (6). According to the report by W.H.O. (2011), educating the individuals regarding the dangers of smoking and being exposed to others' cigarette smoke can be highly effective in their decision for starting or reducing smoking. Moreover, one of the major goals of Public health is providing general knowledge about the dangers of smoking (2). Therefore, attempts for preventing smoking are most successful in case they are begun before the individuals make up their minds for smoking(7). Based on Bandura's cognitive-social theory (1986), smoking is a social learning behavior which occurs in a social framework. For instance, the adolescents learn smoking through observing and modeling their peers as well as the adults (8). Furthermore, having a positive attitude toward smoking may lead to the intention to smoke. In fact, when the adolescents observe their peers, teachers, friends, or others smoking, they may think that their friendly behavior is due to smoking and, as a result, develop a positive attitude toward smoking (W.H.O. 1998, Alert). In addition, the adolescents might not be aware of the dangers of smoking, which enhances their positive attitude and increases their intention to smoke (9).The World Health Organization (WHO) has stated that 80% of smokers begin smoking before the age of 18 (10). A study by Kao and Yen indicated that most Taiwanese teenager’s initiation of tobacco use was from the fifth to eighth grade; furthermore, they stated that peer pressure contributed to the continuance oftobacco use (11). Previous studies have furtherindicated many factors which affect teenagers’tobacco

use, such as gender, parents and otherfamily members who smoke rebellion againstauthority, school environment, tobaccoadvertising and promotion, personalcharacteristics, and knowledge about tobaccohazard (12-14).Researchers haveindicated that tobaccoprevention programs have positive influenceson students' tobacco use and addiction (11,15). Therefore, in order to decrease the use oftobacco among teenagers, tobacco educationprograms are suggested to cultivate students'positive perception and refusal skills.School-based programs can be an effectivemeans of preventing tobacco use among youth(16,17) Therefore, tobacco preventioneducation is suggested to be implemented at avery early age.In this study, a tobacco preventioneducation program as an intervention wasconducted to promote students' knowledge oftobacco hazard and anti-smoking attitudes.

Materials and Methods

Participants and sampling

The present study was conducted on male students of the 3nd grade of school studying inautonomousschools of Tehran 3rd educational district in 2012. The study subjects included 160 students between 15 and 18 years old who were divided into a control (80 students) and a case group (80 students). The sample size of the study was determined through multi-stage cluster sampling. The study subjects were selected from 8 schools of Tehran 3rd educational district. Among these 8 high schools, 1 was selected as the control and 1 as the case group. Then, 3 classes in each school were selected and the volunteer students of each class were entered into the study.

Methods and instruments

In this study, a questionnaire was designed to assess knowledge and attitude. The validity of the questionnaire was determined by 10 specialists in health education and psychology. Besides, the

questionnaire's reliability was evaluated in two stages among 38 students of the 2nd grade of school using the test-retest method.In this study, knowledge was assessed through 10 True/False questions. The correlation coefficient of knowledge was 66.7%. In addition, the minimum and maximum scores of knowledge were 10 and 20, respectively and higher scores showed more information about smoking. Attitude was assessed through 13 questions and its correlation coefficient was 77.4. Attitude questions were ofLikert type including 5 options which ranged from completely agree to completely disagree. Moreover, the minimum and maximum scores of attitude were 13 and 65, respectively and higher scores revealed a positive attitude toward the disadvantages of smoking.At first, the two study groups completed the questionnaires. Then, the case group was engaged in the educational intervention, while the control group received no educational programs. Two months after the end of the intervention, the same questionnaires were completed by the two groups again and the data were analyzed.

Educational intervention

In order to perform the educational intervention, the data of the pre-test were analyzed; so that the educational priorities of each variable were determined and the educational program was directed toward those priorities. In fact, the educational priorities were assessed based on each variable's power of predicting the behavioral smoking and, according to the results, knowledge and attitude. Therefore, the educational programs were prioritized based on the obtained results. The educational intervention included 4 sessions each lasting for 1 hour which were based on the effect of educational programs on preventing smoking and was conducted through both direct and indirect methods. Direct education was conducted through lectures, question and answer, role play, and educational

clips. Video projectors and power points were also used as educational assistance instruments in this method. It should be noted that the school teachers and counselors were also present during the intervention. On the other hand, indirect education was done through putting educational posters up at schools and distributing DVDs including the issues discussed in the educational sessions as well as an educational booklet related to smoking among the students of the case group. Nevertheless, the control group students were not engaged in the educational interventions. Two months after the end of the intervention, the same questionnaires were completed by the students of both study groups.

Statistical analysis

In order to assess the effect of the educational programs on preventing smoking; i.e., knowledge about the disadvantages of smoking, anti-smoking attitude, the study data were analyzed using the SPSS statistical software(v. 11.5).Comparison of the individuals' demographic characteristics was done through Chi-square and Fisher exact tests. In addition, Mann-Whitney test was used in order to determine the relationship between the study variables and the components knowledge and attitude between the two study groups.

Results

According to the results of the present study, the mean age of the case and control group subjects was 16.11+0.60 and 16.21+0.74 years.The two study groups were similar concerning the existence of smokers in the family and having relationship with smokers; however, the number of friends and classmates who smoked in the control group was more than that of the case group. The number of times the subjects had been offered cigarettes by their friends was also higher in the control group (Table 1). However, no significant

difference was found between the two groups regarding the modeling of smoking. In this regard, most of the participants of the control group had modeled their friends as well as peers, while the case group subjects had mostly modeled the others. Nevertheless, a significant difference was observed between the two study groups regarding modeling others for avoiding smoking. Of course, the participants of both groups had mostly modeled their fathers for avoiding smoking (Table 1). According to Table 2, no significant difference was found between the two groups' mean scores knowledge and attitude before the intervention. After the intervention, however, 0.78, 3.10 points increase was observed in the mean scores of knowledge, attitude in the groups.

Discussion

The results of the present study revealed the effectiveness of education in preventing smoking. According to the results, a significant increase was observed in the case group's mean score of knowledge after the educational intervention ($P<0.045$). After the educational intervention in the study by Wen-Chen Tsai et al. (2004), the case group's mean score of knowledge significantly increased; in a way that as the level of knowledge increased, 89.1% of the students had less tendency toward smoking and 92.3% had decided to quit smoking (18). In the same line, Soria-Esojo et al. conducted a study in 2005 and showed that the educational intervention had increased 84.3% of the students' level of knowledge and 66.8% of the students had no tendency toward smoking any more (19). These findings have also been confirmed by the results of other studies conducted on the issue (20 and 21). Therefore, providing information regarding the disadvantages of smoking is one of the smoking prevention measures.The results of the present

study revealed a significant increase in the case group's mean score of attitude (P<0.001). In the same line, Kung et al. conducted a study in 2005 and showed an increase in the case group's attitude toward the disadvantages of smoking after the educational intervention (19). In addition, the results of the study by Hsiang-Ru Lai et al. (2007) showed that not only knowledge improved the students' attitude, but it also led to the adolescents' refusal of smoking, which is consistent with the findings of the present study (22).This study also recommended the programs on preventing smoking based on teaching the skill of saying no and resistance against the peers to be conducted among the adolescents in order to prevent them from smoking (23).The findings revealed the effect of the parents' low level of education on the students' knowledge and attitude toward smoking; in a way that these students had little information about the disadvantages of smoking, which had led to developing a positive attitude as well as tendency toward smoking (24). Existence of smokers among one's family members is considered as another factor in increasing the students' tendency toward smoking; the more smokers in the family. In case the father, brother, and other family members smoke, the adolescents will also have more tendencies toward smoking, which is consistent with the results of the studies previously conducted on the issue (25). In the current study, 41% of the control subjects and 46.1% of the participants of the case group had a relationship with smokers. In addition, 36.1% of the subjects of the control group and 31.6% of the case group participants smoked. In general, having relationships with smoking friends and classmates is considered as one of the main causes of the adolescents'tendency to smoke. According to the findings of a study per-

formed on smoker and non-smoker adolescents in California, the tendency of the individuals with 3 or 4 friends who smoked was 20 times more than those without such friends (26). Furthermore, having relationships with friends who smoke affects the tendency toward smoking.In this study, 33.3% of the students of the control group as well as 13.2% of the case group subjects had been invited to smoke. Besides, 40% of the case group students and 42.3% of the participants of the control group had been insistently invited to smoke. The findings of the study by Wolfson et al. revealed that in the past 30 days, 68.80% of the adolescents had been invited to smoke by the smokers, which shows the peers' pressure for smoking (27). Therefore, educating the adolescents for increasing their level of knowledge as well as their skill to say no is necessary for preventing them from smoking.According to the findings of the present study, 19.2% of the control group participants and 11.8% of the subjects of the case group tended to model their friends and peers in smoking. In general, the adolescents tend to model their friends and peers more than their father, brother, and others and this is considered as one of the underlying factors of the tendency to smoke. The results of the study conducted by Otten et al. in 2007 revealed having smoking friends as the strongest predicator of smoking among 13-15 year-old adolescents (28); in a way that the friends' smoking increased the probability of smoking 5.6 times more, while the smoking habits of the father, brother, and sister was found to be less effective (29).Therefore, the families are recommended to monitor their adolescents' selection of friends. The participants of both study groups had mentioned their fathers as their model for avoiding smoking. In general, male students are highly

affected by their parents, particularly their fathers; therefore, whether the father smokes or not is highly effective in the adolescents' behavior. The findings of the studies conducted by Geckova et al. in 2005 (30) and Bricker et al. in 2009 (31)revealed the father's smoking as a risk factor for the adolescents' tendency toward smoking. Consequently, the parents' persuasion of the adolescents for avoiding smoking is one of the effective factors in reducing the adolescents' tendency to smoke.After controlling for the confounding factors in this study, the results indicated that, among the three indicators i.e., knowledge of tobacco hazards, attitudes against smoking, and ability to refuse smoking, only the knowledge of tobacco hazards and attitudes against smoking improved significantly. There were several limitations of this study. First, it was a quasi-experimental design. The personal characteristics in the experimental and control group were highly homogeneous but the purposive sampling may cause selection bias and limit the external validity.Second, the investigation time was short and only the short-term effects could be observed.Based on the results of this study, the following suggestions were provided: 1) The tobacco prevention education should be implemented in junior high schools to reinforce students' knowledge of tobacco hazards in order to decrease their tobacco use. 2) The invitation of celebrity spokesman andactivity of "gifts for answering right" aresuggested in the future implementation oftobacco prevention education program. 3) Counseling and communication needs to bereinforced for the students who are smokingor whose family members are smoking. 4) The positive influences of peers should beutilized and reinforced in

adolescent smokingin the future implementation of a tobaccopre-vention program.

Table 1.Comparison of tobacco use in experimental and control groups

Table 2.Comparison of changes in the components of Knowledge and Attitude in control and a case group, before and after intervention.

Variables	Control (N=76) Experimental (N=78) N(%)N(%)			P
Father Smoking	Yes	22(28.2)	21(27.6)	1.00
	No	56(71.8)	55(72.4)	
Brother Smoking	Yes	1(1.3)	1(1.3)	1.00
	No	77(98.7)	75(98.7)	
Others Smoking	Yes	37(47.4)	38(50.0)	0.87
	No	41(52)	38(50.)	
Communication with Smoker	Yes	32(41.0)	35(46.1)	0.62
	No	46(59.0)	41(53.9)	
Smoking Friends	Yes	22(28.2)	14(18.4)	0.18
	No	56(71.8)	62(81.6)	
Smoking Classmates	Yes	14(17.9)	10(13.2)	0.50
	No	64(82.1)	66(86.8)	
Tobacco Offer	Yes	26(33.3)	10(13.2)	0.004
	No	52(66.7)	66(86.8)	
Pattern as father for Smoking	Yes	4(5.1)	6(7.9)	0.53
	No	74(94.9)	70(92.1)	
Pattern as Peers & Friendsfor Smoking	Yes	15(19.2)	9(11.8)	0.80
	No	63(80.8)	67(88.2)	
Pattern for Don't Smoking as Father	Yes	39(50.0)	44(57.9)	0.33
	No	39(50.0)	32(42.1)	

Note: Responses from the experimental and control groups are related to the tobacco prevention education program.

	Control Group			Experience Group			
Variables	Pree-test + Mean(SD)	post-test + Mean(SD)	Deference+ Mean(SD)	Pree-test + Mean(SD)	post-test + Mean(SD)	Deference+ Mean(SD)	P-Value
Knowledge	18.70(1.74)	18.52(1.94)	-0.18(2.26)	18.98(1.51)	19.59(0.75	0.61(1.29	0.045
Attitude	55.34(6.95)	55.19(6.65)	-0.15(4.53)	55.98(6.88)	58.93(6.08	2.95(4.06	0.001

Note:∗Mean score; S.D. Standard deviation.

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