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Original Article

Effectiveness of problem solving skills and impulse control on the knowledge and attitude of students towards smoking

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ABSTRACT

Introduction: One of the most important ways to prevent smoking is to make various groups of people, especially students aware of the risks and disadvantages of smoking. Therefore, the aim of this study was to determine the effectiveness of problem solving skills and impulse control on the knowledge and attitude of students towards smoking in male high schools in Bandar Abbas City. Materials and methodology: This was a quasi-experimental research with pre-test/post-test design. The study population consisted of first and second grade male high school students in Bandar Abbas. The sample size was determined 52 subjects, who were divided into two groups (each group = 26). The questionnaires were distributed before the intervention using cluster sampling and educational sessions were then held. Finally, the questionnaires were redistributed among the students. For data analysis, univariate and multivariate analysis of covariance tests were used and data were analyzed through SPSS, version 19, software. Findings: According to the findings, about 53.8% of the students had the courage to say no to undesirable demands and 69.2% had belief about the harmfulness of smoking. The prevalence of smoking among the family members of students and friends was (53.8%) and (51.9%), respectively. The mean score of knowledge about smoking was 8.07% before the intervention. After the intervention, the mean score was increased to 13.34% ($p < 0.01$). There was a significant difference in the attitude toward smoking in students before and after the intervention ($p < 0.01$). Conclusion: Training Problem solving skills and impulse control could improve students` awareness and create a negative attitude toward smoking.

Keywords: Awareness, attitude, problem solving skills, impulse control skill, Bandar Abbas city

Introduction

Smoking is one of the most serious health threats that kills millions people worldwide each year. According to World Health Organization projections, by the year 2020, eight million and four hundred thousand people would die annually from tobacco-related illnesses [1]. However, according to the UNODC Prevention Bureau, Iran has one of the highest opiate use prevalence rates in the world (8.2%) [2, 3]. Numerous studies showed that smoking had a negative impact on health components including mental, physical and social dimensions [4]. The evidence showed a relationship between depression and anxiety with smoking [5, 6]. Further, smoking causes a number of physical problems such as heart and lung disease [7] and is associated with psychiatric disorders like anxiety and depression. These changes can reduce the quality of life of smokers including psychological, social and physical domains [8]. Meanwhile, one of the most important ways used for smoking prevention is to make various groups of people, especially students aware of the risks and disadvantages of smoking. Students and teens are susceptible to environmental stressors. Therefore, learning more about the consequences and effects of smoking and having a critical and negative attitude towards smoking can play a role in preventing the tendency toward smoking in adolescents [9, 10]. In this regard, developing different types of coping training programs can be beneficial. Training problem solving skills is an example of such programs. Problem solving skill is a general coping strategy that maintains and facilitates coping skills and behavioral competencies [11]. Furthermore, impulse control skills are other strategies that help coping. In fact, impulse control training is a kind of

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cognitive-behavioral intervention aimed at identifying impulsive motivations, delaying them, and ultimately decreasing the intense and unwanted tendencies for related actions [12]. A review of literature showed that smoking in students was of particular importance and had many consequences. In this respect, equipping adolescents with coping skills, making logical decisions, adjusting and managing emotions, having skills, decision-making power and problem solving for high-risk situations, and learning about the students' attitudes toward smoking can be effective and central. Furthermore, the lack of the capacity to conduct targeted research on problem solving skills and impulse control among the male students in Bandar Abbas city highlighted the need for developing such training programs. Therefore, this study aimed at investigating the effectiveness of problem solving skills and impulse control on knowledge and attitude of students towards smoking in male high schools in Bandar Abbas City in 2019.

Materials and Methodology

This was a quasi-experimental research with pre-test/post-test design. The study population consisted of first and second grade male high school students in Bandar Abbas. The sample size was determined based on the Formula and was estimated considering 95% confidence level, 80% test power and error rate less than 5%:

Formula 1:

$$n = \frac{(z_{1-\alpha/2} + z_{1-\beta})^2 S_d^2}{d^2}$$

In the next step, a sample of students (n =52) was obtained for the implementation of a combined problem solving training and impulse control. All training sessions were designed and implemented based on six stages of the model developed by D'Zurilla and Goldfried. The students were divided into two groups (each group = 26). The questionnaires were distributed before the intervention. The training sessions were then held. All training sessions were designed and implemented based on six stages of the model developed by D zurilla and Gold Fried. The general layout was suggested at the first session; the problem was defined and formulated at the second session; alternative solutions were made at the third session, decisions were made at the fourth session; the solutions were implemented at the fifth session and the conclusions were presented at the final session. To train impulse control, referral and general situations were considered at the first session; thoughts and emotions were evaluated and identified at the second session; thoughts and emotions were explained and respective coping responses were identified at the third session. Delaying and coping with impulsive responses were trained at the fourth session; stabilization was performed at the fifth session and the therapist became aware of the motivations for impulsive behaviors at the sixth session. Finally, the results were summed up after the end of the training sessions. In order to compare the results before and after the intervention, the post-test was performed by distributing knowledge and attitude questionnaires among the studied subjects. The inclusion criteria included the willingness to participate in the study, being in the first and second grade male high school and studying in Bandar Abbas. Exclusion criteria included having any type of learning disorder, chronic physical illness and lack of timely participation in training sessions. The cluster sampling method was used to distribute the questionnaires. For this purpose, the educational districts were regarded as separate clusters and one district was selected from each cluster; then two schools were selected and one class was selected randomly. Two questionnaires for both knowledge and attitudes regarding smoking were utilized in the study. The questionnaire for knowledge about smoking consisted of 17 items. Seven items measured the two dimensions of knowledge about smoking complications (items 1 to 7); and 10 items measured the knowledge about the effective factors on smoking (tendency toward smoking) including items 8 to 17. The dimensions were tested through multiple-choice items; students got 1 for a correct response or 0 for an incorrect response. Scores for smoking complications ranged between 0 to 7, and 0 and 10 for the knowledge about the factors influencing smoking (tendency toward smoking). The sum of two scales or the total score of questions was considered as the knowledge level of students about smoking. The smoking attitude questionnaire contained 32 items measuring the general attitude toward smoking in students. Each item was scored on a five-point scale including strongly agree = 5; somewhat agree = 4; neither agree nor disagree = 3; somewhat disagree = 2; strongly disagree = 1. The scores ranged between 32 to 160; higher scores indicated positive and desirable attitudes (tendency to smoking) and low scores indicated negative attitude toward smoking. Additionally, items 1, 4, 6, 8, 11, 14, 21, 26, 28, 29, 30, 31, and 32 were reverse scored. Since the study used the researcher made questionnaires, the validity and reliability of the questionnaires were calculated. The procedure was as follows: Ten male students completed the questionnaires with a Cronbach's alpha 0.84. Moreover, the Cronbach's alpha coefficients for the knowledge about the complications of smoking and the factors influencing smoking were estimated 0.78% and 0.79%, respectively, indicating high reliability. Univariate and multivariate analysis of covariance tests were used and data were analyzed through SPSS, version 19, software.

Findings

The mean and standard deviation of the age of students in both problem-solving training and impulse control groups were 16.09 ± 0/60. The findings showed that 50% of the samples were selected from 10th grade high school students and 50% were selected from 11th grade. In addition, about 53.8% of the students had the courage to say no to undesirable demands and 69.2% believed that smoking was harmful. The prevalence of smoking among the family members of students and friends was (53.8%) and (51.9%), respectively. 71.2% of the students did sporting activities (Table 1).

Table 1: Students' demographic information

Variable		Frequency	Percent
Grade	Tenth	26	50%
	Eleventh	26	50%
Having the courage not to say the students decisively	yes	28	53.8%
	no	24	46.2%
Smoking in the family	yes	28	53.8%
	no	24	46.2%
Smoking in friends	yes	27	51.9%
	no	25	48.1%
Students' perspectives on the harmfulness of smoking	harmful	28	69.2%
	not harmful	24	30.8%
Sporting activities in students	yes	37	71.2%
	no	15	28.8%

According to the findings, the mean score of knowledge about smoking in the students was 8.07 %before the intervention and was increased to 13.33 after the intervention. Furthermore, there was a significant difference in knowledge level about the smoking complications (T= -12.38; P <0.01), knowledge level about the factors influencing smoking (t = -15.149; P <0.01) and the total knowledge score for smoking (t = 7.729; P <0.01) before and after the intervention (Table 2).

Table 2: Comparing the knowledge level and attitude of high school students before and after the intervention in selected cities of Bandar Abbas

Variable	Stage	Mean	Standard deviation	Degrees of freedom	T	Significance level
Knowledge dimension about the smoking complications	Before the intervention	3.38	1.61	51	-12.038	0.001
	After the intervention	5.65	1.20			
Knowledge dimension regarding the factors influencing smoking	Before the intervention	4.69	1.73	51	-15.149	0.001
	After the intervention	7.69	1.24			
The total knowledge score for smoking	Before the intervention	8.07	2.90	51	-16.693	0.001
	After the intervention	13.34	2.23			
Attitude towards smoking	Before the intervention	67.98	18.85	51	7.729	0.001
	After the intervention	62.73	17.35	51	7.729	0.001

Discussion

According to the findings, about 53.8% of the students had the courage to say no to undesirable demands and 46.2% did not have such a courage. The results of other studies indicated that assertiveness was a key factor in the tendency towards drug use [13]. In other words, assertiveness was one of the contributing variables among the adolescents and students exposed to addiction, smoking and other tobacco products. Our findings showed that 53.8% of the student's family members were smokers and 51.9% were smoker friends. This finding was consistent with the results of the study by Madani et al., (2016) on 2029 high school students in Bandar Abbas. They found that internal factors such as attractiveness and making more friends and external factors such as smoking mother and father, smoking of closet friend and home smokers have been identified as factors influencing the inclination and performance of students towards smoking. Other studies have suggested that smoking in adolescents was associated with the presence of a smoker in the family, especially father [14, 15] and smoking of closet friend not only played a significant role in starting to smoke, but also influenced the transmission of smoking [16]. Moreover, smokers with more smoking friends may share the characteristics linked to smoking [17, 18]. The implication is that the family's emotional atmosphere and child-rearing practices as well as peers were more likely to have an important role in the tendency of students toward smoking and drug use. The current study revealed that 69.2% of the investigated students had a high level of knowledge regarding the disadvantages of smoking. This finding was inconsistent with the results of the study by Javadzadeh et al. (2014) in Isfahan, indicating that 41.6% of students had a good level of awareness of smoking [19]. The results of a study among male high school students in Tehran also suggested that 28.5% of students had a good level of knowledge about the harms caused by smoking [20]. They suggested that a low level of awareness about smoking contributed to the urges and desires toward smoking [21]. This is probably due to the lack of using training programs. Hence, developing educational interventions for adolescents seems necessary. Further analysis showed that there was a significant difference between the knowledge score and the smoking complications before and after the intervention (p <0.01). This finding was consistent with the results of other studies, suggesting that training improved the awareness of smoking [22, 23]. The implication of the finding was that problem solving training and impulse control could help to improve awareness about smoking [24]. When faced with several problems, people with problem solving skills resort to maladaptive and irrational solutions, which makes the problem more complicated. The use of cigarettes, narcotics, and alcoholic beverages is among the less sophisticated practices used as a strategy when encountered with life issues. In fact, they use the emotion-focused coping strategy rather than problem solving coping strategy [25, 26]. In this research, a significant difference was found regarding the attitude of students towards the smoking before and after the intervention (p <0.01), indicating that problem solving training intervention and impulse control could significantly change the attitude of students towards smoking.

The results corroborated the results of the study by Morovvati et al. (2013), revealing that the students with a negative attitude toward smoking reported lower intention to smoke [27]. Likewise, the results of the study by Bahrami et al. (2013) indicated the discrepant attitudes about the drug addicts in two experimental and control groups, which was consistent with the current study`s results [24]. However, the population was different in both studies. This research`s results also were consistent with the findings of the study by Karimie et al. (2014) [28]. In this regard, identifying the underlying factors of the tendency, attitude and lifestyle modification was the most important step for initiating interventions [29]. Attitude is one of the most important factors associated with smoking, especially among teens and students. Therefore, it can be concluded that identifying a positive attitude in students and changing it into negative one toward drug use could be considered as an important step in reducing substance use and resuming to normal life [30]. Barati et al. (2015) emphasized that attitude component was one of the best predictors for cigarette smoking among the male smokers in Hamedan city [31]. In explaining the impact of problem solving on reducing the positive attitude toward smoking, it can be claimed that this skill enabled individuals to face multiple problems effectively so that they could tackle the obstacles slowly and with care in order to achieve their goals and maintain and stabilize their healthy lifestyle [11]. Regarding the implication for the effect of impulse control training on attitude towards smoking, it can be stated that due to their relationships with peers as well as turbulent and changeable identities, adolescents may have a positive attitude toward cigarette smoking. They can be quickly affected by peers due to the lack of receiving special training in this regard. This kind of attitude caused several problems including emotional distress and, consequently, students experience states such as anger, anxiety and impaired impulse control and behavior [12]. This emphasized the important point that impaired or poor impulse control skills or so-called "impulse control" in high school students could facilitate their tendency toward smoking, other tobacco and narcotic drugs leading to the creation of positive attitudes due to the temporal experience of pleasure resulted by smoking or other substances. The current study had several limitations. It was not available to sample all the schools except for two schools due to the lack of research funding in Bandar Abbas city. In addition, controlling the personal, social, motivational, and cultural differences influencing the research process was not possible. Moreover, acquiring the information regarding the research subjects through the relatives and the surrounding media during the research was not possible.

Conclusion

Failure to train preventive programs can increase the positive attitude toward smoking due to the lack of awareness of its consequences and its complications and ultimately the tendency towards the use of drugs in male students. Further, problem solving skills and impulse control can promote students` awareness, leading to a negative attitude toward smoking. Therefore, the current study`s results would contribute to educational and therapeutic programs for students and related institutions such as education, ministry of health and executive departments of the province.

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