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Interventional study plan to investigate the training effects on physical and psychological outcomes awareness of smoking in teenagers

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Abstract:

BACKGROUND: Studies have found that nearly 90% of the first use of tobacco takes place before high school graduation (teenagers) and training discussion due to prevention can be useful, therefore, here, we aimed to determine the effects of training on awareness of cigarette outcomes (physical and psychological) in male teenagers.

MATERIALS AND METHODS: We conducted an interventional study using Solomon's four-group plan, which used a two-stage cluster sampling in four groups (two experimental groups and two control groups). The three sessions of at least 2 h of education intervention including visual displaying using photo, film, and short scientific texts were held for the interventional group. After 1 month, all four groups took posttest, and research groups were followed up after 8 months of intervention. All data were analyzed using one-way analysis of variance and covariance in SPSS.

RESULTS: According to the results, the mean of posttest scores had increased rather than pretest scores, and generally, a significant difference was observed ($P \leq 0.001$). These results were significant in the aspect of both physical and psychological outcomes awareness. The difference between the mean of scores in follow-up period and posttest was not statistically significant, and it shows training retention after 8 months ($P < 0.666$).

CONCLUSIONS: It can be concluded that through the training, it is possible to increase the awareness of teenagers about physical and psychological outcomes of cigarette smoking that this can have an important role in smoking prevention.

Keywords:

Awareness, smoking, teenagers, training

Introduction

Tobacco is one of ten leading of addictive drugs.^[1] One billion consumers people in the world smoke six trillion cigarettes annually,^[2] cigarette almost kills six million worldwide, because it increases the risk of different types of cancers (lung, mouth, throat, esophagus, and bladder), cardiovascular diseases, emphysema, bronchitis and respiratory infections, and sexual dysfunction,^[3] 69% of health-care expenditures (1 billion dollars daily)

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in the USA is spent for curing disease related to tobacco.^[4] According to the report of the World Health Organization, daily, 80,000–100,000 young people start smoking who mainly lives in the developing countries.^[5] According to recent estimates, 30% of deaths caused by cardiovascular diseases linked to cigarette smoking.^[6] Some high-risk behaviors such as eating fatty foods and suffering sedentary lifestyle are more prevalent in smokers than nonsmokers.^[7]

A national study was reported that 18.8% of teenagers used from one type of addictive

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drugs at least once in their lives including alcohol, cigarette, and other illegal drugs, and the prevalence of cigarette smoking was reported in boys 29.8% and girls 7.5%.^[8] The results of one research on preuniversity students in Tehran showed that only 28% of boys and 30.8% of girls were aware of cigarette smoking outcomes.^[9]

A study that conducted to evaluation of physical outcomes of cigarette showed that the score of short-term memory in male smokers was significantly less than male nonsmokers.^[10] In addition, teenagers more at risk to smoking because they think that they can be well-behaved, stronger in sport, and independent personality.^[11] Other studies that assess awareness of cigarette smoking after intervention program showed that, in intervention group, attitude about the dangers of drug abuse significantly increased and the rate of cigarette smoking decreased in them after the intervention.^[12,13]

Others reported that the prevention programs to reduce drug abuse in teenagers include informing people about risk factors in social groups such as peers, family, and school, and training of assertiveness behavior skill such as drug refusal skills can be useful.^[14, 15]

In the current study, we conducted an intervention plan to evaluation of training effects on outcomes awareness of cigarette smoking in teenagers. In addition to this, we follow up the effect of training durability in the intervention group after 8 months. We hope that our results be useful to implement preventive and interventional programs in teenagers that which have a potential for intervention programs.

Materials and Methods

We conducted an interventional study plan; population study was high school students aged from 13 to 19 years old. In the first step, four high schools were identified through random clustering sampling, and then, one class was selected randomly from each school. The methodology was Solomon’s four-group plan with 8-month follow-up period. The participants were first randomly divided into four groups; two groups were considered for intervention and two groups for control. The pretest was held in one of the intervention and control groups then two groups of intervention received necessary training, and the four groups were tested at the end meanwhile; conducted interventions were either as general or awareness of physical and psychological outcomes of cigarette smoking separately. To assess the information retention, the follow-up period was done for both groups of intervention after 8 months of posttest [Table 1].

The type of intervention included photo and film from the outcomes of cigarette smoking with a short written description that was performed through group discussion and face-to-face training in four sessions during 8 h. The content of training was about physical and psychological outcomes of cigarette smoking. Assessment tool included researcher-made questionnaire and knowledge measurement that were used in the stages of pretest, posttest, and follow-up depending on the type of group to collect data.

Data were analyzed using IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corporation, USA. Descriptive methods were used for estimates of frequency in groups. One-way and two-way ANOVA was used for comparison of frequencies; in the final step, to pair, correlation test was used to follow up analysis. In all analyses, *P* value was considered lower than 0.05.

Results

In overall, 107 teenagers were involved in the study, which of them 54 teenagers randomly were selected in intervention group. The main ± standard deviation of the age of participants was 15 ± 1.15. The comparison of pretest results showed that there was no significant difference between the mean of scores generally (*P* = 0.813), in pretest of physical outcomes of cigarette smoking awareness (*P* = 0.830) and psychological outcomes of cigarette smoking awareness (*P* = 0.400) [Table 2].

The comparison of posttest results has been shown in Table 3. Based on the results, a significant difference was

Table 1: Research intervention model diagram

Groups	Pretest	Intervention (1 month after)	Posttest (1 month after intervention)	Follow-up (8 months after the posttest)
Intervention				
First group		*	*	*
Second group	*	*	*	*
Control				
Third group	*		*	
Fourth group			*	

Table 2: Comparison of the results in pretest scores in the intervention and control groups

Groups	n	Mean	t	df	Significant
Total pretest					
Intervention	22	31.90	0.238	49	0.813
Control	29	31.62			
Physical harms pretest					
Intervention	22	14.31	-0.215	49	0.830
Control	29	14.44			
Mental harms pretest					
Intervention	22	17.77	0.849	49	0.400
Control	29	17.10			

observed between the mean scores in posttests so that the mean score in both intervention groups was higher than control group ($P \leq 0.001$). The comparison of posttest results in physical and psychological outcomes of cigarette smoking showed that there is a significant difference between intervention and control groups, as the greatest score in physical outcomes awareness in the first group as $P \leq 0.001$, 18.71 and the greatest score related to mental outcomes in the first intervention group as $P \leq 0.001$, 20.12.

The results of pair correlation between the scores of posttest and follow-up have been shown in Table 4. According to the results, there was no significant difference observed in mean scores in the intervention groups after 8 months ($P < 0.666$). Therefore, it can be

Table 3: Comparison of the results in posttest scores in the intervention and control groups

Groups	n	Mean	df	F	Significant
Total posttest					
Intervention					
First group	32	38.90	3	11.17	<0.001
Second group	22	35.04			
Control					
Third group	29	32.24			
Fourth group	24	33.00			
Physical harms posttest					
Intervention					
First group	32	18.71	3	28.78	<0.001
Second group	22	17.50			
Control					
Third group	29	13.58			
Fourth group	24	14.83			
Psychological harms posttest					
Intervention					
First group	32	20.12	3	15.53	<0.001
Second group	22	16.00			
Control					
Third group	29	18.27			
Fourth group	24	18.08			

Table 4: The comparison of posttest and follow-up scores results in the intervention groups

Intervention group	n	Mean±SD		t	df	Significant
		Posttest	Follow-up			
Total						
First	29	38.06±1.88	37.17±2.92	1.64	28	0.112
Second	22	35.04±5.61	35.40±4.53	-0.438	21	0.666
Physical harms						
First	30	18.80±1.66	16.93±1.59	5.31	29	0.078
Second	22	17.50±2.79	16.63±1.43	1.83	21	0.081
Psychological harms						
First	29	20.10±0.30	20.24±1.82	-0.39	29	0.669
Second	22	16.00±2.46	16.68±3.69	-2.51	21	0.368

SD=Standard deviation

claimed that obtained information in the intervention groups have been retained after 8 months. Furthermore, according to the results, the rate of awareness retention about psychological outcomes of cigarette smoking was more than physical outcomes.

The mean of pretest, posttest, and follow-up scores in the intervention and control groups was shown in Figure 1. Based on the results, the score of posttest in the intervention group was significantly more than pretest scores. In addition, follow-up scores 8 months after the intervention did not show significant difference with the scores of posttest in the intervention group and it shows training retention after 8 months.

Discussion

As previously reported, smokers have more damaging behaviors than nonsmokers such as eating fatty foods and suffering sedentary lifestyle.^[16] The results of Kelishadi *et al.* study about physical side effects of cigarette smoking on students showed that students with cigarette abusing suffer more from lipid disorders than nonsmokers and the rate of their total cholesterol and low-density lipoprotein is significantly more. Furthermore, they found educational interventions as a preventer factor of cigarette smoking.^[17] However, the current study not only aimed to identify the physical and psychological outcomes of cigarette smoking but also has included an education intervention through an authentic research practice. In addition to evaluating the rate of physical and psychological outcomes of cigarette smoking awareness, the current study aims to investigate the effect of training intervention in long-term period.

Our result was showed a positive effect of training intervention on the rate of students' awareness of cigarette smoking that is consistent with former studies.

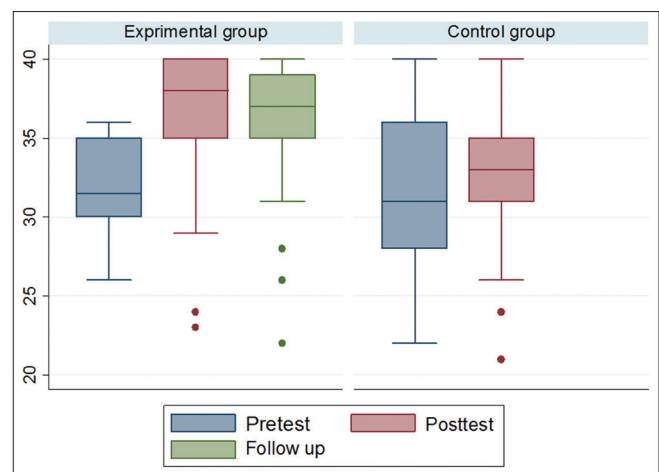


Figure 1: The mean of pretest, posttest, and follow-up in the intervention and control groups

Similar researches on students have been shown that education intervention led to improving the attitude toward drug abuse dangers.^[18] In another study, in 2007, the mean of cigarette predictive behaviors' scores after education was increased significantly in the intervention group.^[19] A research by Obeidat versus Botvin has shown that there is a direct relationship between tending to smoking and also they reported that awareness, attitudes, and perception of legality and social acceptance of drug were damaged caused by pleasant consequences of drug using.^[14,20]

One of the important strengths of this study was studying the physical and psychological outcomes of cigarette smoking separately, and the results confirmed that the mean of awareness scores in pretest and posttest was significantly different. The results of similar study in Tehran showed that only 28% of boys and 30.8% of girls are aware of cigarette smoking outcomes.^[21] Xu *et al.* concluded that only 19.8% of students had good awareness and 46.6% of them had good attitude toward cigarette.^[22] In addition, the negative attitude in nonsmoker was also significantly more than smokers (48.1% and 10.6%, respectively).^[22] Education plan through group discussion was evaluated and results showed an increasing in awareness, attitude, and performance of students toward cigarette as well as blood factors of hemoglobin, hematocrit, and red blood cell count in the intervention group.^[23]

The results of the current study showed that, after training intervention, the rate of psychological outcomes awareness was significantly increased. What's more, suicide is more likely to happen among smokers. The risk of suicidal tendencies among the smokers with <25 cigarettes per day is double compared to general population. In the cases of cigarette giving up, depression decreases between 3 weeks and 3 months and noticeable decline can be seen.^[24] The effects of educational plan to giving up cigarette smoking have been shown that 51.1% of smokers had succeeded to give up cigarette only based on education and behavioral therapy without using alternative drugs such as nicotine.^[9]

The second aim of the current study was evaluating training durability in the intervention group after 8 months. Interestingly, the results did not show a significant difference in the mean of scores in the intervention groups after 8 months. Therefore, obtained information in the intervention groups were retained after 8 months. The rate of retention was also more in psychological outcomes than physical ones. One reason for more retention of psychological outcomes may relate to overt contrast in society beliefs that consider cigarette as a relaxing tool.^[18]

Conclusions

The current study showed the positive effect of training intervention on increasing teenager's awareness of cigarette outcomes, and therefore, awareness can be used as an important predictive factor for teenager's tendency to cigarette smoking. The results of follow-up also showed that training interventions have long-term effects which may help the teenagers to pass adolescence transitional phase healthily.

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Conflicts of interest

There are no conflicts of interest.

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