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A high school-based education concerning drug abuse prevention

Atoosa Bonyani¹, Leila Safaeian^{1,2}, Mojtaba Chehrazhi¹, Alireza Etedali¹, Mahsa Zaghian¹, Farnaz Mashhadian²

Abstract:

OBJECTIVE: There is increasing evidence for declining the onset age of drug abuse worldwide. This study was conducted to investigate the effectiveness of four educational methods including lecture, presentation of poster and leaflet, presentation of video clip, and group/class discussion for life skills training and changing in knowledge and attitude of adolescents toward drug abuse.

MATERIALS AND METHODS: In a pretest–posttest design, a sample of 897 girl and boy high school students from the first grade (14–15 years old) were involved in this cross-sectional study conducted in Isfahan, Iran. After collection of pretest questionnaires, each educational method was implemented separately for one class in one session (3 h) in each high school, and evaluation was carried out immediately after intervention through posttest questionnaires by the same students.

RESULTS: According to paired *t*-test, the video clip- and lecture-based methods were significantly efficient in changing the attitudes toward drug abuse in boy and girl students, respectively. Analysis of covariance showed significant differences between girls and boys in pretest–posttest attitude scores using group discussion-based and video clip-based methods.

CONCLUSION: Life skills training program through lecture-based and video clip-based educational methods was considerably effective in changing the high school students' attitude toward drug abuse and addiction.

Keywords:

Adolescence, attitude, prevention, substance abuse

¹Department of Pharmacology and Toxicology, School of Pharmacy and Pharmaceutical Sciences,
²Department of Research and Development, Vice Chancellery for Food and Drug, Isfahan University of Medical Sciences, Isfahan, Iran

Address for correspondence:

Dr. Leila Safaeian, Department of Research and Development, Vice Chancellery for Food and Drug, Department of Pharmacology and Toxicology, School of Pharmacy and Pharmaceutical Sciences, Isfahan University of Medical Sciences, Isfahan, Iran.
E-mail: leila_safaeian@pharm.mui.ac.ir

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Introduction

Drug abuse as a biological psychosocial problem threatens the human society all over the world. Opioids, alcohol, cocaine, cannabinoids, and amphetamines are the drugs which are most often abused by the people.^[1] In recent years, there is an increasing rate of use for new substances such as ecstasy and some prescription drugs such as tramadol.^[2] About 246 million people consumed illegal substances in 2013; among them, more than one out of 10 drug users had dependence and social problems. Drug abuse has also contributed to 0.5%–1.3% mortality

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among 15–64-year-old population.^[3] Iran, due to vicinity with Afghanistan as the biggest drug-producing country, is at the greatest risk for drug abuse.^[4] Knowledge and attitude toward substance abuse, availability of illicit drugs, and culture and society are some effective factors that have an impact on this international problem.^[5] Recently, studies have noted that the onset age of drug abuse has decreased globally and teenagers are more likely vulnerable to using illegal drugs due to less information regarding serious complications of drug abuse.^[2] Poor school performance, despair, cigarette-smoking parents, tension release, looking for pleasure, and modeling are some important factors associated with higher rates of drug abuse among adolescents.^[6]

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Therefore, there is an extensive concern to drug abuse in the societies and makes it as a priority in public health issues for governments. Different countries have taken trials and interventions at various school, family, and public level of information to change knowledge and attitude of the society toward illegal drugs and accordingly to reduce the rate of drug abuse.^[7] Some effective interventions are included enhancing good decision-making ability and self-protection due to improving life skills and assertive training and also changing the knowledge and attitude by informing teenagers about abused drugs and their consequences.^[8]

Various training tools including curriculum development, lecturing, large- and small-group discussion, simulation and role play, practice in using the technique, and video and film presentation have been used in the programs for drug abuse prevention education.^[9] Lecture as a simple and inexpensive approach is commonly used in many training programs for increasing the students' knowledge; however, this method has some disadvantages such as inactiveness of the learners and fast forgetting of the information.^[10] Although some interactive methods such as problem-based learning and group discussion have been proposed as more beneficial approaches, the mean learning scores and retention rates in these methods have not always been more than the lecture-based method depending on the educational subject.^[11]

Some new technology-based approaches such as video, computer, Internet, e-mail, and mobile phone have also been used for substance abuse prevention and treatment. However, feasibility of application, age, higher education, and income are some factors which affect the effectiveness of learning programs based on communication technology.^[12]

The results of investigations have also shown that the efficiency of different interventional methods could be different according to the age, sex, developmental level, type of illegal substance, level of substance use, ethnicity, religion, and cultural, financial, and socioenvironmental context.^[13] The implementation of preventive programs for drug abuse in each city may be related to the characteristics of managers, schools, and curriculum and not all preventive programs implemented in schools have been effective.^[14] Moreover, most of the studies about interventional approaches in the field of drug abuse prevention in youth population have been done in high-income countries, and their effectiveness in other countries is unknown.^[13]

In Iran, although there are some limited studies in young people, there is not any complete learning package and a comprehensive school-based drug abuse

prevention program for high schools regarding the socioenvironmental context.^[2]

Since there are limited studies about the assessment of different educational methods for substance abuse prevention in adolescents in Isfahan city and due to the influence of various factors on efficiency of different educational approaches, this study was aimed to measure and compare the effectiveness of different training tools including lecture, poster and brochure, movie, and group working in life skill training, promoting positive behavior change, reducing abuse harm, and changing the knowledge and attitude toward drug abuse in 14–15-year-old students in Isfahan.

Materials and Methods

This cross-sectional study was conducted in 10 high schools of Isfahan city in May 2016. The study population for the intervention was male and female high school students (14–15 years old). These high schools were randomly selected from a numbered list of high schools located in different geographical sites of Isfahan using the clustering method. The schools of adolescents with mental and physical disabilities were not included in this study. In each high school, 5 classes in first grade were randomly selected from the list of the classes, and all the adolescents from selected classes were included in this interventional study. The program was finally performed in a sample of 897 girl and boy students. Respondents comprised 445 girls and 452 boys aged 14–15 years. Before implementing the intervention, coordination with the school authorities was made.

This educational study was evaluated using a pretest–posttest design. The pretest measure was done before training intervention and posttest data were collected after that. Four educational methods were used for life skills training and changing in the knowledge and attitude toward drug abuse including lecture, presentation of poster and leaflet, presentation of video clip, and group/class discussion. One class was considered as control group without any intervention. Each educational method was administered separately for one of four other classes in each school, and all the students participated in the intervention program. One training session (3 h in the morning) was held for each method using school facilities. Life skills training regarding the drug abuse prevention included self-confident skills, decision-making skills, cognitive skills and self-control skills, strategies for relieving stress and anxiety, social resistance skills, and other skills which help the youth lower their risk for substance use. For change in the knowledge and attitude toward drug abuse, the educational approaches were used to create awareness among the students about misunderstandings

and false information which may lead to drug abuse and to inform them about the risks and harms of using substances and their adverse consequences.

The educational materials for each method were prepared based on the international programs and national studies under supervision of some expert faculty members and also approved by the Committee of Rational Use of Drugs and also Poisoning Control Center, Vice Chancellery for Food and Drug, Isfahan University of Medical Sciences, Isfahan, Iran. The video clip contained the life stories of some user of drugs. This educational effort via drama was planned for changing attitudes toward substance abuse, encouraging the life skills training and activities regarding drug abuse prevention, and increasing awareness about the risk and protective factors associated with drug abuse. The play revealed sections directly related to the common substance abuse problems in our country. It depicted the risk factors that are associated with the development of drug abuse including copying parent's behavior and poor life skills. The play showed the negative consequences of drug abuse on activities of normal life, educations, job and relationships, and its other adverse effects including impairment of judgment, damages to many body organs, poor mental and physical health, and also criminal justice involvement. The posters and leaflets presented the similar contents through the text and images. In lecturing and group discussion, the above-mentioned goals were achieved by a presenter or interactive dialogs.

The instruction was made with senior pharmacy students, and in all high schools, the lecturer and group discussion manager were the same.

A short self-administered questionnaire comprising 32 closed-ended questions was used; and according to the final version of the questionnaire designed by Khodayari *et al.* for substance abuse attitude, the survey was conducted and validated in an initial pilot study among a random sample of 20 students. Its reliability was evaluated by Cronbach's alpha, and there was a suitable level of internal consistency of scales (Cronbach's alpha = 0.80). Khodayari *et al.* also reported the Cronbach's alpha coefficient to be 0.83.^[15]

The questionnaire addressed the following issues: (1) attitudes toward the drug abuse, (2) attitudes toward the drug abuse reasons, (3) attitudes to the people abuse substances and their personality, and (4) attitudes toward consequences of drug abuse. The scoring for each question followed the Likert format, from 1 for "absolutely disagree" to 5 for "absolutely agree." The mean score was calculated for the results, with higher

scores indicating more negative attitudes toward drug abuse, and vice versa.

After gathering the pretest questionnaires, different educational methods were implemented in selected classes and evaluation of the intervention was carried out immediately after education through filling out the posttest questionnaires by the same students.

The average score in the pretest and posttest in each group was expressed as means \pm standard deviation; statistical evaluation was done by paired *t*-test and analysis of covariance (ANCOVA) followed by Tukey *post hoc* test using the SPSS Software Version 18 (SPSS Ltd., Quarry Bay, Hong Kong). $P < 0.05$ was considered as the statistically significant levels.

Results

Tables 1 and 2 show the comparison between the attitude toward various issues of drug abuse before and after training with four educational methods in male and female high school students, respectively. According to paired *t*-test, the lecture-based education resulted in significant changes in attitudes toward consequences of drug abuse in boy students ($P < 0.001$) [Table 1]. However, there was not significant effect on the mean score of total attitudes using lecture-based education in these students [Table 3]. The video clip-based method also caused significant changes in attitudes toward consequences of drug abuse in girl students ($P < 0.001$) [Table 2], but significant difference on the mean score of total attitudes using video clip-based education was not observed in these students [Table 3]. Evaluation of the impact of four methods on mean score of total attitudes toward drug abuse showed that video clip- and lecture-based education were efficient in changing the attitudes toward drug abuse in boys and girls, respectively ($P < 0.001$ and $P < 0.01$) [Table 3]. According to ANCOVA, there were significant differences between girl and boy students in pretest–posttest attitude scores using group discussion-based and video clip-based methods ($P < 0.05$) [Table 4].

Discussion

Based on the findings of this study, the video clip- and lecture-based interventions for life skills training and preventing drug abuse were efficient in changing the attitudes toward drug abuse in boy and girl students. Comparison between girls and boys showed that among the four educational methods, the video clip-based method was more efficient in boy students and the group discussion-based method was more efficient in girl students on changing attitude toward drugs and addiction. Our results also showed that there was no

Table 1: Comparison of the pre- and post-test attitude scores toward drug abuse for different educational methods in male high school students

Group	n	Test type and P value	Attitudes of the society toward drug abuse	Attitudes toward drug abuse reasons	Attitudes toward consequences of drug abuse	Attitudes toward addicted people
Lecture	80	Pretest	3.95±0.022	3.29±0.016	3.55±0.015	3.93±0.016
		Posttest	4.01±0.19	3.33±0.012	4.04±0.019	4.02±0.014
		P	0.642	0.612	0.000	0.521
Poster	96	Pretest	3.41±0.016	2.33±0.014	3.01±0.015	3.30±0.017
		Posttest	3.48±0.021	2.42±0.013	3.11±0.027	3.38±0.012
		P	0.822	0.910	0.530	0.845
Video clip	92	Pretest	3.95±0.031	2.80±0.015	3.52±0.014	3.95±0.015
		Posttest	4.31±0.021	3.24±0.019	3.98±0.028	4.34±0.019
		P	0.000	0.000	0.002	0.000
Group discussion	100	Pretest	4.07±0.016	3.37±0.017	3.75±0.015	4.30±0.013
		Posttest	4.10±0.014	3.38±0.013	3.90±0.024	4.40±0.015
		P	0.832	0.621	0.065	0.689
Control	84	Pretest	3.92±0.013	2.89±0.014	3.12±0.011	3.75±0.012
		Posttest	3.94±0.017	2.90±0.011	3.11±0.014	3.78±0.010
		P	0.652	0.614	0.545	0.739

Values for pretest and posttest are mean±SD. P value for pretest versus posttest of each item was calculated based on paired t-test. SD=Standard deviation

Table 2: Comparison of the pre- and post-test attitude scores toward drug abuse for different educational methods in female high school students

Group	n	Test type and P value	Attitudes of the society toward drug abuse	Attitudes toward drug abuse reasons	Attitudes toward consequences of drug abuse	Attitudes toward addicted people
Lecture	82	Pretest	3.81±0.016	2.74±0.014	3.40±0.022	4.02±0.023
		Posttest	3.99±0.021	3.23±0.019	3.74±0.012	4.20±0.028
		P	0.273	0.000	0.008	0.874
Poster	98	Pretest	3.40±0.017	2.61±0.022	2.82±0.018	3.42±0.015
		Posttest	3.50±0.016	2.66±0.017	2.90±0.012	3.53±0.014
		P	0.192	0.899	0.097	0.383
Video clip	92	Pretest	4.20±0.015	2.99±0.014	3.97±0.023	4.26±0.025
		Posttest	4.42±0.017	3.14±0.018	4.17±0.027	4.37±0.029
		P	0.575	0.852	0.000	0.634
Group discussion	92	Pretest	3.73±0.018	2.69±0.015	3.45±0.013	4.20±0.024
		Posttest	3.76±0.024	2.91±0.017	3.65±0.014	4.40±0.025
		P	0.655	0.083	0.207	0.647
Control	81	Pretest	3.90±0.016	2.65±0.012	3.37±0.013	4.13±0.015
		Posttest	3.98±0.012	2.71±0.015	3.40±0.017	4.27±0.018
		P	0.550	0.589	0.630	0.669

Values for pretest and posttest are mean±SD. P value for pretest versus posttest of each item was calculated based on paired t-test. SD=Standard deviation

significant difference at the baseline attitude between girl and boy students and they had a relatively negative attitude toward substances abuse.

In the context of the primary prevention from addiction disorder as a serious public health problem, policymakers have developed various school-, family-, and community-based approaches in different countries.^[16,17] Life skills training is one of the most efficient interventional efforts for school- and family-based prevention.^[8]

A decision for choosing the most suitable educational method depends on the aims of the preventive program or educational process, target group, and also resources available.^[13] In Iran, several educational methods have been studied by the researchers for drug abuse

prevention. In the study of Bahreini-Borujeni *et al.*, life skills training classes and education through video were more effective than training through poster and catalog and sending SMS through mobile phone in changing students' attitude toward drug abuse.^[18] Similar results have been reported by Taromiyan and Mehryar and Rabiei *et al.*^[19,20] This finding contradicts the findings of Aghababae *et al.* because they considered the effect of sending SMS and education through catalogs and brochures on meaningful changing in attitudes of students in their study.^[21] However, it seems that using multimedia materials and new educational technologies would be more effective than the text materials.^[8] Small-group activities and discussion, storytelling, and role-playing scenarios are some evidence-based educational methods in life skills training programs.^[8,22]

Table 3: The impact of the four educational methods on total attitude scores toward drug abuse in each gender and between male and female high school students

Group	Gender	Mean±SD		Student (n)	P
		Pretest	Posttest		
Lecture	Male	3.68±0.085	3.80±0.048	1.485	0.16
	Female	3.49±0.077	3.79±0.017	1.838	0.006
Poster	Male	3.04±0.071	3.10±0.061	1.583	0.127
	Female	3.01±0.078	3.12±0.070	2.181	0.059
Video clip	Male	3.55±0.058	3.97±0.090	6.089	0.000
	Female	3.99±0.091	4.07±0.088	0.823	0.419
Group discussion	Male	3.88±0.072	3.93±0.063	0.655	0.519
	Female	3.46±0.095	3.64±0.097	0.690	0.497
Control	Male	3.42±0.012	3.43±0.015	0.595	0.643
	Female	3.51±0.018	3.59±0.016	0.620	0.610

Values for pretest and posttest are mean±SD. P value for pretest versus posttest of each item was calculated based on paired t-test. SD=Standard deviation

Table 4: Analysis of covariance in attitude scores toward drug abuse for different educational methods between male and female high school students

Educational method	Source of variance	SS	df	MS	F	P
Lecture	Pretest	0.217	1	0.217	1.294	0.263
	Gender group	0.023	1	0.023	0.139	0.711
	Within groups	6.376	158	0.168		
Poster	Pretest	2.637	1	2.637	50.355	0.052
	Gender group	0.009	1	0.009	0.165	0.687
	Within groups	2.409	190	0.052		
Video clip	Pretest	2.640	1	2.640	20.016	0.000
	Gender group	0.821	1	0.821	6.224	0.017*
	Within groups	5.672	180			
Group discussion	Pretest	0.897	1	0.897	6.418	0.015
	Gender group	0.577	1	0.577	4.128	0.048*
	Within groups	6.291	188	0.140		
Control	Pretest	0.212	1	0.212	1.385	0.260
	Gender group	0.015	1	0.015	0.125	0.835
	Within groups	3.472	161	0.123		

SS=Sum of square, MS=Mean square, df=degrees of freedom, *=significant difference between girl and boy students

However, the international protocols have suggested that each program should assess which interactive techniques and how often each technique could be used in substance use prevention programs.

Although focusing on lecturing the students about the hazards and adverse consequence of drug abuse may be an unsuccessful approach, an attractive and cordially lecture-based program for life skills training, especially in younger adolescents, would be an effective approach. In addition to teacher talent for faithful delivering of lessons, educational materials should be prepared based on the developmental and etiologic factors and social stimuli which are contributed in drug abuse in adolescent. Governmental intervention strategies and comprehensive efforts regarding school, family, and community should

be developed for rising community awareness and achieving the effective drug abuse prevention.^[23]

In the present study and also in many investigations only changes in attitudes and knowledge toward substances abuse were reported.^[24] In general, life-skill training can meaningfully change some elements in drug abuse in short time, but sustainable changes in behavior and performance are needed more times and continuation of the educational programs and assessing the effectiveness of the outcome in the future.

The major limitations of this study were as follows: To attribute the differences observed merely to the difference in the implemented methods, a control group of students who did not receive the educational intervention should be considered. However, in most of the schools, there were not more than four classes in the same grade.

Sustained interventions should be implemented for gaining life skills and insight in students, but this aim requires comprehensive national planning and spending of energy and expense.

For measuring the educational impacts, it is suggested that reevaluations would be carried out at greater intervals. However, due to constraints in coordination with high schools and end of the school year, we had to hold the posttest immediately after training.

Conclusion

The life skills training and preventing drug abuse program through lecture-based and video clip-based educational methods were considerably effective in changing the high-school students' attitude toward drug abuse and addiction. Among the four educational methods, the video clip-based method was more efficient in boy students and the group discussion-based method was more efficient in girl students on changing attitude toward drugs and addiction. The policymakers should determine the educational needs of different target groups and develop a consistent preventive drug abuse program through school curricula and innovative educational materials which adapted to the socioeconomic and cultural conditions in the country.

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Conflicts of interest

There are no conflicts of interest.

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