

Impact of a Peer-led Educational Program on Knowledge and Attitudes about Prevention of Substance Abuse among Lebanese/Armenian Adolescents: A Pilot Study

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Abstract

Purpose of this study is to evaluate the extent to which participation in a peer-led educational program about substance abuse produces changes in knowledge and attitudes among Lebanese/Armenian adolescents. Methods: a quasi-experimental study. A convenient sample 134 high school students, from two Armenian high schools in Beirut were recruited. Design: Pretest-posttest; students completed a questionnaire before and one week after an educational program implemented by two peer-educators, who had participated in a "training-trainees" project about prevention of substance abuse. The educational program provided students with knowledge and skills to resist social influences to engage in substance abuse. A variety of teaching-learning tools were used. Analysis: SPSS version 16 was used. Overall knowledge and attitude scores were created, as well as knowledge sub-scores and attitude scales for pro-smoking, pro-drinking, pro-marijuana, and pro-hard drugs. Pretest-posttest results were compared using paired t-test to evaluate the impact of the program. Results: Knowledge about drugs improved significantly ($p=0.005$) between the pre-post-test. Overall mean positive attitude towards tobacco and drugs decreased significantly ($p=0.010$). Pro-attitude towards smoking, alcohol drinking and hard drugs decreased significantly in the post-test ($p=0.004$). Similarly, the drug refusal skills improved significantly ($p=0.028$). Conclusion/Implications for adolescent health: Continue peer-led preventive programs focusing on building confidence, interpersonal competence and drug refusal skills

Keywords: Peer-led educational program; Substance abuse prevention; Adolescent health

Introduction

Alcohol, tobacco and other drugs (ATOD) abuse and addiction are serious problems among Lebanese youth. During the Lebanese long civil war (1975-1990), heroin was the most commonly used drug among people of ages 15 to 64, with a male to female ratio of 8:1. Often, marijuana and cocaine were abused along with heroin. Additionally, the accessibility of cannabis has become quite easy as local production has increased in spite legislation to ban its growth [1]. Studies among students from the post-war period in Lebanon reveal relatively low rates of substance abuse [2] however with expected growing trends [3]. Some gender differences exist in the type of used substances whereby higher rates of use of illicit drugs is found among males and more use of licit psychotropic substance among females [2].

As young people explore new roles during adolescence, they often experiment with new activities that often involve high risks. While some experiment more frequently and more extensively than others, such behaviors present a high level of danger to themselves and those around them [4]. For many youth, substance abuse precedes academic problems such as lower grades, higher truancy and drop out decisions [4,5].

Primary prevention of ATOD problems includes the promotion of healthy lifestyles and resiliency factors and education about drugs [6]. Education can be conducted in schools, colleges and the media. Schools are one of the best settings to provide health education about

primary prevention of substance abuse [7]. In the Western world, substantial progress has been made in developing and testing preventive interventions for high risk behaviors in adolescents, particularly in the field of drug abuse [8]. Research suggests that drug abuse prevention programs that focus on drug resistance skills, along with general social and personal skills training are the most effective [9-11]. Griffin and colleagues studied the effect of a universal school based prevention programs for drug abuse. The program included teaching sessions on drug refusal skills, anti-drug norms, personal self-management skills and common social skills. After the program, students reported less smoking, less drinking and less drug abuse within one year [4]. A follow up study was conducted to assess the long term benefits of drug abuse and AIDS school prevention program. Results indicated a significant reduction in alcohol and marijuana intoxication during adolescence, and a reduction in HIV risk behaviors [11]. Drug Abuse Resistance Education (D.A.R.E.) is a very popular program in the USA, based on collaboration between parents, school and the community [12]. Similarly, in Britain most drug education programs use a combination of information and life skills training. Programs are organized under four main providers: police, teachers, peers and parents. Evaluative research suggests these methods are generally most effective [13].

Peer-led health education has been also found to be an effective method of primary prevention with the principal that the influence of peers may be stronger than that of adults [14]. It is based on the rationale that "friends seek advice from friends and are influenced by the expectations, attitudes and behaviors of the groups to which they belong" [15] (p. 188). Students deliver an educational program to

fellow students of similar or younger age using diverse methods of teaching. Mellanby et al. [15] conducted a critical review of [13] experimental studies comparisons of peer-led to adult-led health education programs in schools. Results indicated that, peer-led interventions were at least as, if not more, effective than adult-led interventions.

In Lebanon, two studies [1,2] have described the incidence, prevalence and the seriousness of the consequences of ATOD abuse and recommended awareness programs for prevention, but no studies evaluating educational programs have been published to date.

In summary, studies have shown that preventive programs directed in schools, colleges, media and peer education have shown to reduce ATOD abuse among young people. Given the seriousness of ATOD abuse in Lebanon and the lack of national health policies, the authors conducted this pilot study as a follow up on a collaborative project [16]. The purpose of this study was to evaluate the extent to which participation in a peer-led educational program about substance abuse produces changes in knowledge and attitudes among Lebanese/Armenian adolescents.

An educational program was designed following the Harm Reduction Model. The Harm Reduction Model is a health approach to substance abuse problems initially used in Great Britain, the Netherlands, Germany, Switzerland and Australia. Interest in its application has recently spread throughout Europe and Canada. This model is based on understanding that addiction is a health problem, any psychoactive drug can be abused, that, accurate information can help persons make responsible decisions about drug use and that, persons who have problems can be helped. This approach accepts the reality that psychoactive drug use is endemic, and it focuses on pragmatic interventions, especially education. Educational campaigns are used to inform the public about the health risks of substance abuse [5].

The following hypotheses were tested: Students who enroll in a peer-led educational program will experience a significant: 1) increase in their knowledge about substance abuse 2) decline in attitudes related to substance abuse 3) improvement in their drug refusal skills.

Methods

Design and sample

A quasi-experimental pre and post-test design was used to meet the purposes of this study. Setting: Two Armenian high schools in Beirut were conveniently selected. A convenient sample of 134 students from the 10, 11 and 12 grades was sought representing 10% of the student population in the Armenian high schools, according to the records of Armenian Prelate there are approximately 960 students in the 10, 11, and 12 grades. Consent letters were sent to the parents of all students. Students, whose parents agreed to their participation in the study, were approached and given the assent form. Students, who gave their assent and volunteered to participate in the study, were given the questionnaire.

The educational program

This pilot study is a follow up on a collaborative project which trained 30 young activists to conduct awareness campaigns about prevention of substance abuse and healthy alternatives for relieving stress. "Training the young activists" project was implemented in

collaboration with stakeholders in the Armenian community and Oum El Nour organization; a Lebanese not-for-profit, non-governmental organization whose mission is to serve individuals by helping them overcome their addiction [17]. A training workshop took place over three full days. Following training, the activists offered awareness sessions to a total audience of 5222. Eleven months after the implementation of the project, the health committee of ARCL invited community stakeholders and the activists to a meeting to solicit their impressions. A process evaluation methodology was chosen to explore the perspectives and experiences of the participants through a focus group interview. The stakeholders and the activists reflected positively on the awareness campaigns and mentioned that it was the most effective means of preventing adolescents to become "innocent victims of ignorance". The idea of an anti-drug community outreach center emanated during this meeting as, "Horizon; drug free zone" and employed two of the activists to have "sustainable awareness campaigns". However, resource constrains precluded seeking feedback from the young people who participated in the awareness sessions and as such; this follow up study was conducted [18].

Purpose of the educational program is to provide the adolescents with knowledge and skills needed to effectively resist social influences to engage in substance use, as well as to reduce potential motivations to use substances by increasing general personal and social competence. Specific objectives are: 1) List major substances that are abused; 2) Describe their effects on body, mind and behavior; 3) List a variety of ways on how to cope and deal with stress; 4) Describe personal attitudes toward major substances that are abused and 5) List a variety of drug refusal skills.

Different communication channels used for the educational program were: power point presentation, short DVD and three brochures; one for parents and another two for students. Content of the power point includes: major substances and their effects on the body, mind and behavior; consequences of addiction and how to constructively deal and cope with stress. Short DVD, an interactive discussion among students facilitated by a peer educator about substance abuse and prevention. The brochure for parents offers guidelines on how to relate to their children and strengthen their personalities and the brochures for students one, a summary of major drugs and their influences on body and mind and the second one discusses drug refusal skills, mainly to say "no" to drugs.

To seek input from experts, blue prints of the educational program was presented to the Health Committee of ARCL and to an Armenian professor, specialized in child and adolescent psychology, for content validity and cultural appropriateness. Program was pilot tested, for readability, comprehension and acceptance of messages. Educational program was offered by two trainees employed by "Horizon; Drug Free Zone" [16], over two class periods with one week interval, to best suit the academic program of the schools. Power point presentation followed with discussion was offered during the first session and at the end of the first presentation students were handed the three brochures. During the second period students watched the DVD followed with discussions.

Students completed the questionnaire before and one week after the educational program. Pre-post-tests were administered by the peer educators in the presence of the primary investigator. Peer educators explained study purpose and answered questions. Both tests were administered in the schools. It took 20 minutes to complete the questions. Before starting the pretest one of the peer educators explained the techniques of how to fill the questionnaire.

Before implementation of the educational program, class list was obtained and a unique student code number was assigned to each name by the peer educators. Once all students' code numbers were assigned, two copies of the questionnaire for each student were set aside, one for the pretest and one for the posttest assessment. Each student's name and the corresponding code number were written on the Tear-Off Sheets of the pretest and posttest questionnaire. The students' code numbers were written on the cover page of the questionnaire so that the completed questionnaires can be matched. In addition, on one copy of the cover page "pretest" and on another copy "posttest" was indicated. Questionnaires were then separated into piles of pretest and piles of posttest for use during each phase of the assessment. The final list of students' names and code numbers were detached from the questionnaires and secured in a locked cabinet in the principal's office, until the pretest and posttest assessments were administered, and then they were torn off and discarded. Once students finished the surveys, the questionnaires were collected by the PI.

Instrument

The Life Skills Training Questionnaire (LSTQ), middle school version was used in this study. LSTQ designed in English by the National Health Promotion Associates, Inc. (NHPA) [19] and known to be a flexible instrument that can meet a variety of evaluation needs. It has been used in a variety of evaluation studies [2,20,21]. The Middle School Version was found to be appropriate for use with high school students in this study as judged by stakeholders, school principals, Oum El Nour representatives and health committee members of ARCL. This decision was based on the appropriateness of this version for readability, ease of understanding and comprehensive content and considering that language of instruction in selected schools is English. Permission for use of the questionnaire was secured from Dr. Griffin through Email communication.

LSTQ is divided into four sections. Section one: consists of demographic information; student's birthday, gender, living situation, and questions about grades and absenteeism. To adapt the questionnaire to our culture we deleted the question on race and added a question on membership to sport or other organizations. Section two: comprises of the LST knowledge test with 32 true/false items that assess knowledge of various content areas. Section three: contains 33 items, 16 items about drug attitudes, 10 items on drug refusal skills, and seven items on life skills assessment; on a scale of 1-5, students indicate to what extent they agree or disagree with each statement.

Analytic methods

Statistical analysis was carried out using the Statistical Package for Social Sciences (SPSS, version 16). Descriptive statistics; frequencies, means and standard deviations were used to analyze the demographic characteristics.

An overall knowledge score, and knowledge sub scores for: drug knowledge and life skills knowledge were created.

Overall drug attitude scores and attitude scales for pro-smoking, pro-drinking, pro-marijuana and pro-hard drugs were created. Two drug refusal skills scales: one to assess whether the student is likely to say "no" to drug offers, and the second whether the student is likely to use a variety of refusal skills, were created. Finally, life skills including:

assertiveness, anxiety reduction skills and self-control skills were assessed.

To create an overall knowledge summary score the number of items that were answered correctly were added and divided by 32. This number gave us the proportion of knowledge items answered correctly.

To create drug knowledge summary score, the number of items (out of items 1-7, 12-17) that were answered correctly were added and divided by 13. This number gave us the proportion of drug knowledge items answered correctly.

To create life skills knowledge summary score, the number of items (out of items 8-11, 18-32) that were answered correctly were added and divided by 19. This number gave us the proportion of life skills knowledge items answered correctly.

There are four drug attitude scales for pro-smoking, pro-drinking, pro-marijuana and pro-hard drug attitudes. To create a drug attitudes summary score, the average of the 16 items were taken, (a summary score was not calculated if the student had not responded to at least 12 of the 16 items and was considered missing). In addition, a drug attitudes score to each substance was created by taking the average of the items in each scale. If the student had not responded to at least 3 of the 4 scale items, a summary score was not calculated and was considered missing. To create a drug refusal skills summary score, the average of the 10 items: 17-26, was taken and this score was subtracted from 6 (to reverse the scores such that higher scores reflect better skills). If the students had not responded to at least 4 of the 5 scale items, the summary score was considered missing.

Assessment of life skills including assertiveness, anxiety reduction skills and self-control skills were assessed on a scale of 1-5. A high score on this scale indicated that the respondent was likely to be assertive, used relaxation skills when anxious and had good self-control skills.

Pre-post-test results were compared using paired t-test to evaluate the impact of educational program on knowledge and attitudes of the student.

Study was approved by the Institutional Review Board of the American University of Beirut on June 8th, 2011.

Results

Table 1 one show the socio-demographic and school characteristics of the sample. Age of the students ranged from 15 to 20 years, with around 30% being 16 years old and 28.1% being 17 years old, there were slightly more females (56.7%) and the majority (84.1%) lived with their parents. As for the schooling characteristics, 43% of the sample was recruited from the 10th grade, 32% from the 11th and 25% from the 12th grade. Only 2.3% reported being absent for more than 16 days, 9.5% were absent for 7-15 days, while 41.4 were absent for 1-2 days%). School grades were mostly average (C 70-79), 10.5% had failing grades (D or <60)

Socio-demographics		N (%)
Age		
15		30(23.4)
16		38(29.7)

	17	36(28.1)
	18 -20	24(18.8)
Gender		
	Male	55(43.3)
	Female	72(56.7)
Living with		
	Both parents	106(84.1)
	One parent	10(7.9)
	Grandparents	2(1.6)
	Others	8(6.3)
Grades		
	Mostly A – B (90-100)	30(24.2)
	Mostly C (70-79)	53(42.7)
	Mostly D (60-69)	28(22.6)
	Less than D (<60)	13(10.5)
Absenteeism		
	None	46(35.9)
	1-2 days	53(41.4)
	3-6 days	14(10.9)
	7-15 days	12(9.4)
	16 or more days	3(2.3)
Class		
	10th grade	55(43.0)
	11th grade	41(32.0)
	12th grade	32(25.0)
Membership in community associations		
	None	31(31.0)
	Scouts	24(24.0)
	Youth Clubs	16(16.0)
	Others*	29 (29.0)

Table 1: Socio-demographic and school characteristics of participants.

To answer the research hypothesis 1: Will experience a significant increase in their knowledge about substance abuse after the program. Table 2 shows the results of the paired comparison in mean differences of knowledge and attitude between the pre-and-post-test. Overall knowledge score and life skill knowledge score did not show any significant difference whereas knowledge about drugs significantly improved between the pre-and-post-test (p-value=0.005).

To answer the research hypothesis 2: Will experience a significant decline in attitudes related to substance abuse? Overall mean positive attitude towards tobacco and drugs decreased significantly from 1.90 to 1.74 (p-value=0.010). The pro-attitude towards smoking, alcohol drinking and hard drugs decreased significantly in the post-test (p-value=0.004, 0.036 and 0.039). No significant difference was observed in the attitude towards marijuana.

Outcomes	Pre-test scores Mean (SD)	Post-test scores Mean (SD)	p-values
Overall knowledge	0.62 (0.10)	0.65 (0.13)	0.112
Drug knowledge	0.51 (0.11)	0.55 (0.14)	0.005
Life skill knowledge	0.70 (0.13)	0.71 (0.17)	0.745
Overall attitude	1.90 (0.63)	1.74 (0.72)	0.010
Pro-smoking attitude	1.93 (0.71)	1.71 (0.70)	0.004
Pro-alcohol drinking attitude	2.12 (0.71)	1.93 (0.82)	0.036
Pro-marijuana attitude	1.84 (0.70)	1.72 (0.82)	0.630
Pro-hard drug attitude	1.73 (0.71)	1.60 (0.79)	0.039

Table 2: Mean and SD of knowledge and attitude scores: pre-test (n=125) and post-test (n=97).

Research hypothesis 3: Will experience a significant improvement in their drug refusal skills after the program. The pre-and-post-test results are shown in Table 3. The drug refusal skills of students significantly improved between the pre-post-test (p-value=0.028). This improvement is mainly due to the item on drug refusal skills I, which refers to “say” no when asked to smoke, drink or use other drugs (p-value=0.002) and not to drug refusal skills II item, which refers to use a variety of techniques in refusing cigarettes, drugs or alcohol. There is no statistically significant improvement in all components of life skills.

Outcomes	Pre-test scores Mean (SD)	Post-test scores Mean (SD)	p-values
Drug refusal summary	4.01 (0.69)	4.19 (0.61)	0.028
Drug refusal I	4.11 (1.02)	4.46 (0.73)	0.002
Drug refusal II	3.80 (0.67)	3.93 (0.76)	0.630
Life skills			
Assertiveness	3.33 (0.72)	3.45 (0.78)	0.092
Anxiety reduction	2.47 (0.90)	2.66 (0.84)	0.224
Self-control	4.22 (0.82)	4.11 (0.80)	0.808

Table 3: Mean and SD of drug refusal scores and life skills assessments: pre-test (n=125) and post-test (n=97).

Discussion

The purpose of this study was to evaluate the extent to which participation in a peer-led educational program about substance abuse

produces changes in knowledge and attitudes among Lebanese/Armenian adolescents.

Although peer-led education is a more novel program in Lebanese schools, results indicate that peer-led educational program on knowledge and attitude about prevention of substance abuse among adolescents may be effective, resulting in positive changes in health behavior. The results partially supported the first hypothesis in terms of mean differences of knowledge. Overall knowledge score and life skill knowledge score did not show any significant difference, whereas the knowledge about drugs significantly improved between the pre- to- post-test. This could be due to several factors: there was too much emphasis on knowledge about drugs or students grasped mostly the knowledge component about drugs. In addition, life skills: decision making, interpersonal communication, emotional wellbeing, may need a much longer period, a semester long classes, of training [20-24].

Findings of the study supported the hypothesis in terms of mean positive attitudes. Attitudes towards tobacco and drugs decreased from 1.9 to 1.74. Likely, the pro-attitude towards smoking, alcohol drinking and hard drugs decreased significantly in the post-test except attitude towards marijuana which decreased but did not reach significant level.

The third hypothesis, related to drug refusal skills of the students improved significantly, which relates to "likely to say no when asked to smoke, drink or use other drugs". This finding could be due to the content of one of the brochures that discussed "twenty excuses to say "no" to drugs" as well as to some of the content of the DVD where students encourage peers to refuse drugs. Contrarily, drug refusal skills II, "is likely to use a variety of techniques in refusing cigarettes, drugs or alcohol" did not improve significantly. Similarly, there was no significant improvement in all components of life skills: assertiveness, anxiety reduction, and self-control. This could be due to either inadequate content in the educational program, inadequate time for learning or the nature of the assessment. In terms of assessment, the questions were asked indirectly which may have made it difficult for some students to comprehend.

The lesson learned from this experience is that, use of peer-led educational program showed positive results, and that it is promising, vital and possible to deliver cost efficient substance abuse prevention campaigns in schools.

Limitations

One limitation of the study was the small number of the sample but this was acceptable as it was a pilot study. A second limitation was the use of self-reported data. The accuracy of self-reported data may be questionable due to social desirability bias. A third limitation was the nature of the sample, a convenient sample which may affect the external validity of the study.

Conclusion and Implications for adolescent health

This study examined the extent to which participation in a peer-led educational program on knowledge and attitudes about prevention of substance abuse among Lebanese/Armenian adolescents was successful in increasing knowledge and rendering a positive attitude about prevention of substance abuse. Similar findings have been reported in earlier studies [13,14]. This study is a first step in using peer-led interactive prevention programs and an important potential resource for reducing ATOD use in youth. In addition to peers being more acceptable by students, utilizing peers help in using human

resources prudently. In the same vein, United Nations Population Fund (UNFPA) [25] has recently pioneered a comprehensive youth-to-youth initiative in Lebanon known as Y-Peer, addressing youth sexual and reproductive health issues including HIV/AIDS.

There is much to be done in the substance abuse prevention program arena. It is highly recommended to continue peer-led interactive substance abuse prevention programs. Focusing on:

1. Information dissemination to increase knowledge of drugs and consequences of use to promote antidrug attitudes.
2. Dissemination of clear, messages about the dangers of drugs.
3. Teaching refusal skills, under realistic conditions to build confidence; strengthening of personal competence and interpersonal functioning; self-esteem building, responsibility, decision making, coping skills and public commitment activities to reduce boredom and sense of alienation.
4. Training resistance and behavioral skills using peer leaders.
5. And finally, prevention programs should address an entire client system including, adolescents, their families, work, community and the mass media.
6. In addition, follow up with this group of students on a longitudinal study to assess their drug use behavior and intentions. Finally, implement the program with other students.

The challenge is however, the collaboration between school health team members: the nurse, psychologist, social worker and others in training peer-educators.

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