

Substance Abuse Prevention Among Greek Emerging Adults: Evaluation of a Psycho-Educational Counselling Intervention

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Abstract

The present study investigated the effect of a preventive substance abuse counselling intervention on Greek emerging adults (18-28 years old). Its main purpose was to examine changes in emerging adults' views, knowledge about substances and their group skills after their participation in the intervention; it also examined their perceptions about the group climate created as well as their evaluation of the intervention. The interactive intervention, lasting 30 hours, consisted of topics such as: emerging adulthood, addiction, causes and consequences of substance abuse, prevention and some training on personal and social skills related to substance abuse. Pre and post intervention measurements explored these changes in a sample of 75 University students (38 in the intervention and 37 in the control group). Students in the intervention group reported high levels in the scale of engagement and lower levels in the scales of conflict and avoidance. Their evaluation of the intervention programme overall was very positive. Additionally, results showed that emerging adults' views about substances changed positively after the intervention. In terms of how much they learned about substances, the results revealed a significantly important change after the intervention, whereas at the same time, members' group skills improved. It is concluded that such interventions have an impact on emerging adults' views and knowledge about substances, a fact which reinforces the need for research-based interventions.

Keywords: preventive substance abuse counselling intervention, emerging adults, views, knowledge, group skills, group climate, evaluation

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Introduction

Although the prevention field has traditionally received less attention than treatment, we are now in a period where prevention research and development are on the rise and have an empirical knowledge base (Bukstein, 1995; Gardner & Brounstein, 2001; Ghodse, 2002; Maisto, Galizio, & Connors, 2004). Substance use is a complex problem that develops in response to multiple influences such as: the individual, family, peers, school/ university, community and society (Gardner & Brounstein, 2001). Prevention of substance abuse is a means of addressing a range of health-related behaviours, and if used appropriately, could help to reduce health inequalities and promote social inclusion (Canning, Millward, Raj, & Warm, 2004).

The majority of studies regarding preventive substance abuse interventions, have involved high school students (Botvin & Griffin, 2006; Roberts et al., 2001). Although risk for drug use initiation is quite frequent at older ages too and especially during emerging adulthood, there is a dearth of studies concerning emerging adults (Sussman, 2013; Wolfe & Moore, 2008).

Emerging Adulthood and Substance Abuse

According to the founder of “emerging adulthood” (Arnett, 2000), this period of life is a transitional phase, between adolescence and adulthood, covering approximately ages 18-25, although it usually extends to longer. During this phase, multiple developmental tasks and transitions take place which often put a lot of pressure to their adaptation process. These include: establishment of more mature relationships, achievement of autonomy, changes in social roles, increase of choices and opportunities, etc. (Arnett, 2000; Arnett, 2005).

Thus, in the face of these challenges, emerging adults may feel fear or lack of hope. Moreover, this overall pressure could increase susceptibility to start using drugs or to engage in ‘binge’ or ‘regular’ drinking (Arnett, 2005; McGrath, Sumnall, McVeigh, & Bellis, 2006; Sussman, 2013). During this phase, young people are also free to make their own decisions independently and be involved in acts that may not be acceptable during adolescence, including use of illegal substances (Arnett, 2005; Wolfe & Moore, 2008). Studies have indicated that the use of illicit drugs (Johnston, O’Malley, Bachman, Schulenberg, & Miech, 2014), cigarette smoking (Choi, Harris, Okuyemi, & Ahluwalia, 2003) and binge drinking (Kokkevi, Loukadakis, Plagianakou, Politikou, & Stefanis, 2000; Schulenberg & Maggs, 2001; Schulenberg et al., 2005; White & Jackson, 2004) tend to increase during this period, reaching its lifetime peak during the early twenties (Schulenberg, O’Malley, Bachman, & Johnston, 2005). It has also been noted that university students display higher levels of substance use compared to individuals of the same age that do not attend university (O’Malley & Johnston, 2002).

The increasing need for substance prevention and education, especially in Greece, is inextricably linked with the level of substance use. Recent research has shown that smoking is one of the worst epidemics of Greek modern civilization (Kokkevi, Fotiou, & Kitsos, 2008; UMHRI, 2015; Vardavas & Kafatos, 2006). Regarding alcohol consumption, although Greece has low rates of alcohol abuse compared to other countries of the European Union, the systematic use of alcohol and excessive alcohol consumption is on the rise (Kokkevi et al., 2008; UMHRI, 2015). Regarding the use of illicit drugs, one in five students aged 18 has used drugs at least once while, at the same period, the level of regular use among adolescents, also increases (Kokkevi et al., 2008).

Preventive Substance Abuse Interventions

As Bukstein (1995) states in his chapter on Prevention: “while acknowledging the importance of treatment for substance abuse, the most effective intervention is preventing the initial development of substance use or abuse” (p. 185).

There are many different strategies and approaches in substance abuse preventive interventions, ranging from personal skill building to community awareness. Prevention programs that show positive outcomes, especially in the group of college students, are mostly based on the social skills model (McGrath et al., 2006; Wolfe & Moore, 2008).

The present intervention included some of the scientifically defensible principles of effective interventions, such as: building of social and personal skills, citation of causes and consequences of substance use, information dissemination, provision of positive alternatives, communication of a commitment to substance abuse prevention, increase of favourable attitudes towards substances, development of participants’ awareness of the need of prevention, and, in total, creation of an effective process (Gardner & Brounstein, 2001; Roberts et al., 2001).

Evaluation of Preventive Substance Abuse Interventions

Evaluating the process, as well as the outcome of an intervention, is one of the most important steps when actualizing preventive substance abuse interventions, in order to verify that the goals and objectives of the intervention are being achieved (Bukstein, 1995; Canadian Centre on Substance Abuse, 2010; Gardner & Brounstein, 2001; Roberts et al., 2001).

Even though the number of preventive substance abuse interventions is increasing, plenty of them remain unevaluated (Lantz et al., 2000), whereby there is a lack of evidence for effective drug prevention among young people after the age of 18 (McGrath et al., 2006).

Preventive substance abuse interventions use many strategies in order to increase protective factors and encourage healthy personal development. Most importantly, they aim to increase participants' knowledge through information dissemination, and develop their views about substance use via interactive activities (DrugScope, 2006; Gardner & Brounstein, 2001).

Views and knowledge about substance use — An individuals' susceptibility to various social influences, such as substance use, is developed by knowledge, beliefs and attitudes, as well as by individual characteristics. According to Bukstein (1995), the improvement of attitudes and knowledge about substances, is one of the initial efforts of prevention.

Research evidence shows that appropriate substance use preventive interventions can increase substance knowledge and understanding, by exploring a range of opinions and attitudes towards substance use, so that young people arrive at their own, informed views and decisions about drugs (Cohen, 1996; Springer & Uhl, 1998).

Used alone, information dissemination does not produce measurable and long-lasting changes in substance use knowledge and views. Intervention can be effective when combined with other strategies as well (Botvin et al., 1998; Gardner & Brounstein, 2001; Roberts et al., 2001).

Knowledge about substances is strongly linked to less favourable attitudes towards substance use (Bukstein, 1995). Attitudes are considered to be important, as they shape people's perceptions of the social and physical world and influence overt behaviours (Ajzen & Fishbein, 2005). They may encompass affective, behavioural and cognitive responses. The cognitive component concerns one's beliefs and perceptions; the affective component involves feelings and evaluations; and the behavioural component consists of ways of acting toward the attitude object (Bohner & Wänke, 2002; Zimbardo, Ebbesen, & Maslach, 1977).

Although the model of behaviour change has had a particularly strong influence on research, recent literature has shown that this view provides an incomplete picture of the events determining behaviour (Springer & Uhl, 1998). Thus, the present study tried to measure mostly cognitive and affective response changes. For the purposes of the study, we named these "views". Views, as used here, include: prejudices, stereotypes, feelings and beliefs. This is based on the idea of attitudes as temporary constructions ("views"), which individuals construct, when an evaluative judgment is needed (Bohner & Wänke, 2002).

In order to form a view, people need to retrieve relevant information. Thus, when trying to change views about substance use via prevention interventions, knowledge of substances needs to be based on information that is accurate and acknowledges both the benefits and risks of substance use (Bohner & Wänke, 2002; DAAT, n.d.).

Research confirms the effectiveness of prevention interventions implemented in Greek communities, providing adolescents with valid and reliable information regarding drugs (Pyxida, n.d.). Substance education approaches are based on the notion that, if a person knows the facts about substances, then the rational choice will be to avoid their use (McMurrin, 1994). This notion is also supported by several studies (e.g. Bitarello do Amaral, Lourenco, & Ronzani, 2006)

In general, substance use has been shown to be closely related to the perception of risks associated with use; substance use is generally lower among those who perceive great risk associated with use (SAMHSA, 2000). The focus of the present study is to measure emerging adults' views of substances, in order to evaluate the effectiveness of the intervention.

The majority of studies that have been conducted on adolescents' preventive substance abuse interventions, show positive impacts on adolescents' knowledge and attitudes towards substance use (McGrath et al., 2006; Roberts et al., 2001; Thombs, 2006).

Group skills — Group skills refer to cooperative behaviours, via interactive activities, i.e. positive actions that involve engaging in some form of cooperation. These behaviours, when referring to groups, include: reliance on others, acceptance of influence, communication, sharing information, personal involvement, development of interpersonal relationships and in general, acting in a spirit of cooperation (Costa & Anderson, 2011).

According to Roberts et al. (2001), one of the main principles of a preventive intervention, is the use of an interactive group process, i.e. to engage and involve participants in skill development activities and discussions. Prevention programs that show the greatest effect, use an interactive group process.

A risk factor of substance abuse, in the individual domain, is the antisocial behaviour. Thus, preventive interventions aim, not only to enhance skills such as assertiveness, or resistance to peer pressure, but to also increase participants' interactive group skills (Gardner & Brounstein, 2001). During the last decades, researchers have broadened the earlier focus on changing attitudes, beliefs and behaviours specific to substance use, to include the development of more generic skills to deal with a variety of interpersonal factors (Bukstein, 1995). Through participation in the intervention, emerging adults are helped to: identify the responses that they use the most in talking with others, improve their ability to express feelings and ideas clearly and establish new patterns of interactions to enrich interpersonal relationships.

Group climate — Group climate is the environmental force felt within a group, created from the interaction of individuals, their engagement, degree of avoidance of change and conflict (MacKenzie, 1983).

Leading group theorists have long hypothesized and found that process variables such as group climate and dynamics, contribute to change in behaviour, regardless of the type of group. Group climate is considered to be able to affect group members' ability to benefit from any psychoeducational or counselling group. Additionally, studies have indicated that the relationship between group members, as well as between group leader and members, have also shown to influence an intervention's outcome (Sodano et al., 2014). Furthermore, several studies have demonstrated that group environment or climate has an impact on the effectiveness of interventions (Wilson et al., 2008).

The Present Intervention

The present evaluation addressed to the intervention is called 'You are your trip'; a primary counselling psychoeducational intervention lasting 30 hours, which was designed and implemented by the researchers, based on the substance abuse prevention principles discussed above, as well as on the specific needs and knowledge of emerging adults. More specifically, the intervention consists of 10 meetings: half of them aim at enhancing emerging adults' personal and social skills. These include: assertiveness, setting limits, management of feelings, self-awareness, resistance to peer pressure, decision-making skills, understanding of the transition into adulthood and reinforcing participants' motivation towards healthy behaviours. The other half, contain: information about substances, the phenomenon of addiction, risks and benefits from substance use, the philosophy of prevention etc. Through experiential exercises, participants learn: how to clarify the causes which lead to substance abuse, to position themselves towards the sense of addiction, to clarify the role of primary prevention in the use of addictive substances, to communicate and to express themselves, as well as to learn useful information concerning substances. Overall, its main principle is to enhance the protective factors linked to substance abuse and related problem behaviour, in order to produce immediate and long-term positive results (Sussman, 2013).

The intervention focused on three major substances: cigarettes, alcohol and illicit drugs (such as cocaine, hashish, heroin etc.). This is a principle set by the National Institute on Drug Abuse (NIDA), according to which, preventive substance abuse interventions should target all forms of substance abuse (Bukoski, 2006). The term 'substance' here refers to drugs, alcohol and tobacco, while the term 'drug' will be used when referring to any psychotropic substance; that includes illegal drugs and illicit prescription drugs (Standing Conference on Drug Abuse [SCODA], 2000).

The sample of the study consisted of students referred to and voluntarily agreeing to participate in the intervention. Members of the intervention group were randomly assigned into three groups. We decided to form small groups, for better interactive communication in order to create a better group climate and effective group dynamics. Additionally, a small number of members is recommended for groups with one leader, as the present one, in order to gain synchronization with the group process (Yalom, 2005). Same intervention methods and procedure were followed for all three groups.

The intervention follows most of the principles of the social cognitive approach, as it generally aims at changing and forming participants' cognitions regarding substance use. "The theory of social cognitive learning is applied in the field of substance use, claiming that people presume positive expectancies and attitudes towards substances through the process of observing or imitating positive statements or attitudes of their models" (Giovazolias & Themeli, 2014, p. 74).

Overall, the present intervention combines a knowledge-based approach with a life skill model. "Life skill" interventions, demonstrate that linking life skills development with information, targeting social influences, can produce a prevention of substance abuse (Gardner & Brounstein, 2001). The above combination was chosen because combined interventions, have been proved to be successful with regards to substance abuse prevention (Giovazolias & Themeli, 2014).

Hypotheses and Aims of the Study

The primary aim of the present study is to investigate how a long term, preventive substance abuse counselling intervention influences Greek emerging adults' views and knowledge about substances, as well as their group skills.

Our hypothesis was, that participating in the intervention 'You are your trip' would have a positive effect on the participants' views about substances. This was based on previous research indicating that similar interventions had a positive effect on adolescents' attitudes towards substances (Botvin et al., 2000) and that they also delayed or deterred the onset of drugs' use (Bukstein, 1995; Coggans, Cheyne, & McKellar, 2003; Ellickson & Bell, 1990; Rundall & Bruvold, 1988; SAMHSA, 2000; Springer & Uhl, 1998; Thombs, 2006).

More specifically, based on SAMHSA findings (2000, 2001) and in several other studies (Botvin et al., 2000; Coggans et al., 2003; Ellickson, Bell, & McGuigan, 1993), it was predicted that among the three substances, emerging adults' views will have a greater change regarding drugs than alcohol and cigarette use.

This study also aims to investigate the change on the level of participants' knowledge concerning substances. Since the intervention provides emerging adults with information about substances, it is expected that their knowledge will be improved overall, for all three substances (Botvin & Griffin, 2006; Gardner & Brounstein, 2001; Lantz et al., 2000; Pyxida, n.d.; Roberts et al., 2001).

Regarding participants group skills, a positive change is expected to be revealed in participants after the intervention.

Finally, this intervention, using interactive methods while promoting the group climate, aspires to prove a positive group climate among all the different intervention groups participated in the study, as well as an overall satisfaction regarding their participation.

Method

Sample

The sample consisted of $N = 75$ University students (70 women and 5 men) studying at a variety of higher education, Social Sciences institutions of Greece (such as Psychology, Pedagogy, Philosophy, etc.). The intervention group consisted of 38 students and the control group of 37. Their ages ranged between 18 and 28 years old ($M = 21.03$, $SD = 1.8$) (see Table 1).

Table 1

Distribution of the Sample in the Intervention and the Control Group According to Sex and Age

Variable	Intervention group				Control group				Total			
	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>	<i>N</i>	%	<i>M</i>	<i>SD</i>
Sex												
Men	3	7.9	—	—	2	5.4	—	—	5	6.7	—	—
Women	35	92.1	—	—	35	94.6	—	—	70	93.3	—	—
Total	38	100.0	—	—	37	100.0	—	—	75	100.0	—	—
Age	38	100.0	20.58	1.78	37	100.0	21.49	1.73	75	100.0	21.03	1.80

Subjects of the control group were selected based on similar to intervention group demographical characteristics (e.g. age, studying faculty). Members of the control group did not express interest in participating in the intervention but were willing to participate in the study, filling out the pre and post questionnaires.

The sample constituted exclusively of participants who were directly accessible to the researcher in conducting the survey, thus, the final sample was a voluntary sample (Stalikas, 2005). From the 85 applications, only 45 students proceeded to the interview and 43 were selected to participate. The final selection was made according to students' availability, as well as their motives. Participants were then divided into 3 different groups. From the total of 43 students, the final intervention sample consisted of 38 students, since 5 of them withdrew during the intervention period (see Figure 1).

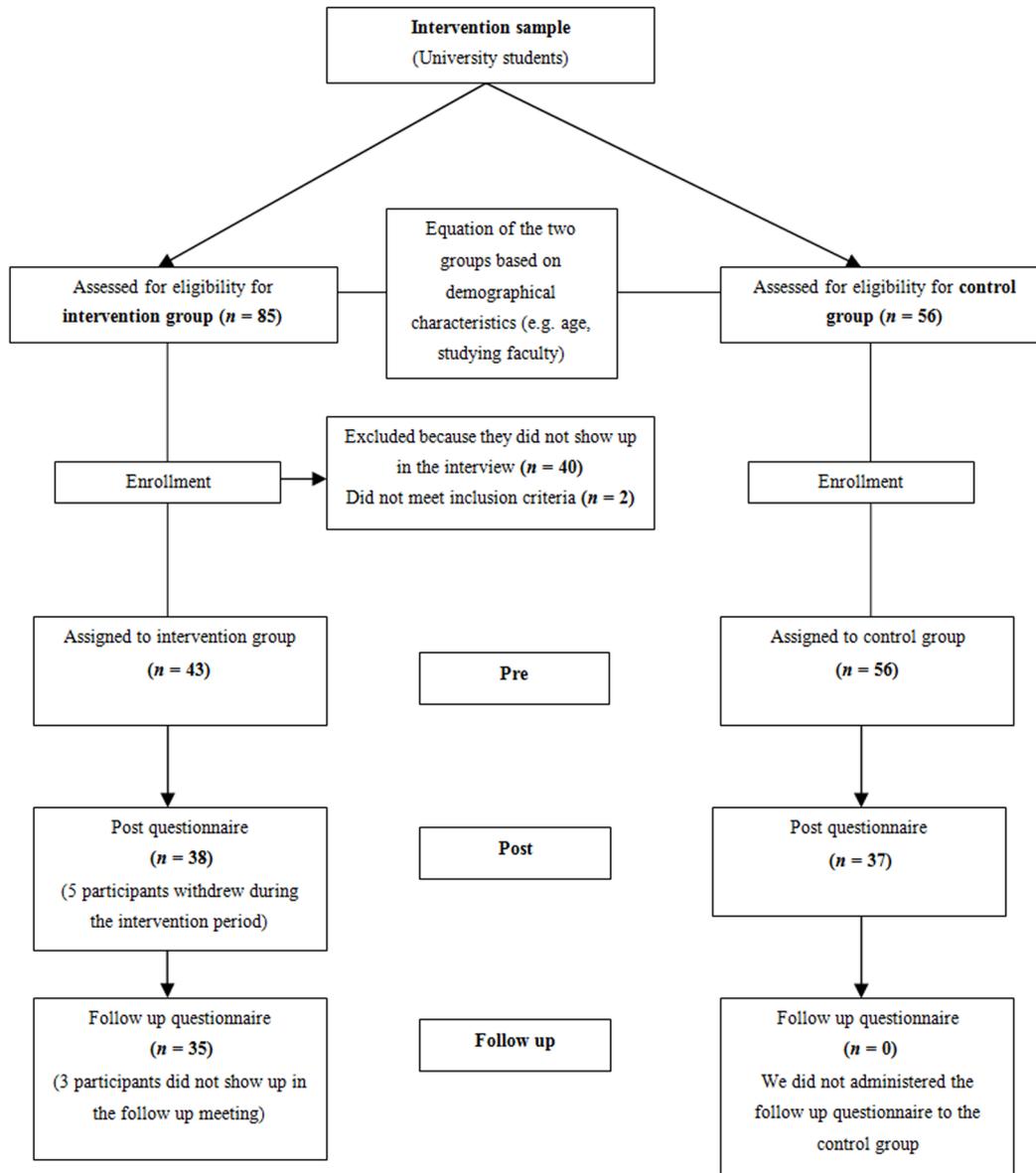


Figure 1. Flow of participants through each stage of the intervention evaluation.

What is also important to state, concerns the previous experience of the participants regarding prevention. Although almost all of them (98.7%) knew about the existence of Prevention Centers, only 6 of them reported having ever visited one (as part of their practicum, in order to be informed or to participate in seminars offered by them). These data (Table 2) give us information for the need of preventive substance abuse interventions, for the age of emerging adults.

Table 2

Participants' Knowledge of Existence and Visit to Prevention Centers, Participation to Interventions

Item	Intervention group		Control group		Total	
	N	%	N	%	N	%
Knowledge of existence of P.C.						
Yes	38	100.0	36	97.3	74	98.7
No	0	0.0	1	2.7	1	1.3
Total	38	100.0	37	100.0	75	100.0
Visit to a P.C.						
Yes	5	13.5	1	2.7	6	8.1
No	32	86.5	36	97.3	68	91.9
Total	37 ^a	100.0	37	100.0	74 ^a	100.0
Participation in preventive interventions						
Yes	7	18.4	1	2.7	8	10.7
No	31	81.6	36	97.3	67	89.3
Total	38	100.0	37	100.0	75	100.0

^aOne case was defined as missing value.

Measures

Apart from the demographic items, which included age, gender, studies etc., four main instruments were used to evaluate the intervention: 1. a pre and a post measurement of young people's views and knowledge about substances and addiction, 2. a self-assessment test for group skills, 3. a group climate questionnaire, and 4. an evaluation form, measuring, among others, the satisfaction of the participants regarding the intervention. More specifically:

Pre-post Measures

The pre and the post measures consisted of several different parts measuring: emerging adults' substance use, their views about substances and addiction, their perceptions regarding the causes and the risks associated to substance use, their knowledge about substances, as well as some personal and social skills. The translation from English to Greek, where needed, followed the back-translation technique. For the purposes of this paper, two of them are being presented:

a. Views about substances — This measure was created by the researcher by collecting items from 3 different existing questionnaires, which measure peoples' views about substances: the "*Questionnaire for Substance Use, Emotional and Social Skills*" (Barkin, Smith, & Durant, 2002), the "*Psychosocial factors and health*" (EPIPSY, 2005) and the "*Questionnaire about attitudes, substance use and behaviour in relation to harmful substances*" [EU-Dap (EUropean Drug Addiction Prevention Trial)]. The 30 chosen items referred to some statements that

people make about substances (e.g. “*People who drink alcohol enjoy life better*”); 10 of them were related to cigarettes, 10 to alcohol and 10 to drugs. Participants had to tick the answer that was closest to their opinion, on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Lower scores represented participants’ less favourable views about substances. The validity of the questionnaire was tested in the pilot study of the present research ($N = 54$), which preceded the present research; the Cronbach’s alpha was 0.81 (pre-test) and 0.85 (post-test).

b. Knowledge about substances — The 16-item scale, measuring the knowledge of participants regarding substances as well as the phenomenon of addiction, was adapted from the “*Questionnaire about attitudes, substance use and behaviour in relation to harmful substances*” [EU-Dap (EUropean Drug Addiction Prevention Trial)]. Some of the items were modified to fit the target group of emerging adults. Participants were required to find the right answer in each multiple choice-type statement (e.g. *All drugs create: a. physical addiction, b. psychological addiction, c. both*). The measurement had a Cronbach’s alpha of 0.78 (pre-test) and 0.74 (post-test) and its validity was tested in the pilot study ($N = 54$).

Group Skills

This tool was designed by the researcher in order to examine participants’ group skills in the intervention. It was based on a literature review on evaluations of preventive substance abuse interventions (DeLucia-Waack, 1997; Edwards, 1972) and its validity was tested during the pilot study. This tool contains 11 items and asks participants to assess themselves in a variety of group behaviours regarding “participation”, “group roles”, “communication”, “adaptability” etc., in a 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*very much*), e. g. “*I interact and collaborate sufficiently with the other group members*”. In the present study, the scale’s reliability was Cronbach’s $\alpha = 0.76$ (first measurement) and $\alpha = 0.81$ (second measurement). It should be noted, that the first administration of the test was at the 3rd session and the second administration at the last session (10th).

Group Climate

In order to measure participants perceptions about the group climate, we used the “Group Climate Questionnaire” (GCQ) (MacKenzie, 1983), which consists of 12 items. We converted the 7-point scale measure to a 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*extremely*). The GCQ consists of three factor-analytically derived subscales: Engagement, Avoidance, and Conflict. The “Engagement subscale” assesses participants’ perceptions of others’ levels of self-disclosure, confrontation, and interaction. The “Avoidance subscale” measures avoidance of responsibility for change processes, participants’ dependence on the coordinator and their in between distance. The “Conflict subscale” assesses interpersonal conflict and distrust within the group and refers to a feeling of friction and anger (MacKenzie, 1983). Support for the reliability (e.g. $\alpha = 0.85$; Kivlighan & Goldfine, 1991) and validity has been demonstrated in previous studies (Kanas & Ziegler, 1984; Kivlighan & Goldfine, 1991). For the present study, Cronbach’s alpha was 0.85, as well.

Evaluation Form

Finally, participants of the intervention group were asked to complete an evaluation form, created by the researchers, in order to assess the total intervention experience. Participants were asked to evaluate the intervention they attended, in terms of organization, techniques used, content, ways of cooperation, duration, what they liked best and what they liked least, etc. Closed ended questions required answers in a 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*very much*) (e.g. “How much did the intervention corresponded to your expectations?”)

whereas, open ended questions required short answers (e.g. “What did you mostly like in the intervention?”). The hypothesis made was that the higher the level of participants’ satisfaction, the greater the probability of the intervention’s effectiveness.

Data Collection Procedure

A pilot intervention study, on substance abuse for young students at the age of emerging adulthood, took place during the academic year 2011-2012. It was the first time that a preventive intervention program for this age group took place in Greece. 54 students participated in the study (30 in the intervention and 24 in the control group). The present study, which took place during the academic year 2012-2013, adopted the best practices used in the pilot study, in order to implement a better preventive substance abuse intervention for emerging adults. After having improved the design of the intervention, we notified all University students in Thessaloniki, via emails, posters and social networks. Interested students were asked to fill out an application form; they were then invited for a personal interview in order to investigate their expectations and motives for participation. Most of them stated their interest on the topic of addiction (27 answers), the help they would get in terms of their studies (20 answers), information that they wanted to gain about addictive substances (16 answers), etc.

The intervention lasted 30 hours, and consisted of 10 weekly sessions. It was conducted by the researcher and took place at the Drug Abuse Prevention Centre “Pyxida”, in Thessaloniki, with the collaboration of the Aristotle University of Thessaloniki.

During the first session, prior to delivering the intervention, participants were asked to fill in a consent form agreeing to participate in the research. Before filling in the pre-questionnaire, oral instructions were given to them, describing the aims of the study and the procedure they should follow in answering the questionnaire. Participants were asked to work privately and to complete the questionnaire honestly, as their contribution to the research project would be very valuable for the purposes of the study. However, they were also explicitly told that they could withdraw at any point. Moreover, it was clearly stated that their answers would remain anonymous and that they would be able to be informed about the results of the research. The anonymity was achieved via the demographic information of the participants, as well as a unique code identifier that they were asked to supply. At the third session, participants were asked to complete the “Group and Self-Assessment Tool”. Finally, during the last (10th) session of the intervention, the “Group Climate Questionnaire”, the “Evaluation form” and the “Group Skills questionnaire” were administered to participants for completion, in order to observe any changes in the levels of the characteristics measured, thus evaluating the impact of the intervention. Pre and post questionnaires were also administered to the 37 members of the control group, during an undergraduate psychology course, at the same period of time by the researcher.

After six months, participants were asked to re-fill the post questionnaire, during a follow up meeting, in order to strengthen the initial findings.

Data Analysis

The study used a quantitative methodology. More specifically, descriptive statistics, paired samples *t*-tests and a dependent ANOVA, were carried out to evaluate the intervention by comparing the score of the two groups (intervention and control). Regarding the open-ended questions of the evaluation form, content analysis was considered to be the most appropriate method of analysis. The Statistical Package for the Social Sciences (SPSS) Version 19.0 was utilized for the above analyses.

Results

The results of this study are divided in two major sections:

Part 1, deals with the hypotheses made regarding participants' changes in views and knowledge about substances as well as the group skills acquired, as a result of the intervention.

Part 2, includes the results from the evaluation of the intervention, i.e. participants' perceptions of the group climate and other elements of their satisfaction from the intervention.

Views and Knowledge About Substances, Group Skills

Views About Substance Use

In order to examine the first hypothesis, concerning participants' views about substance use, paired samples *t*-test were performed for the following pairs (see Table 3). Normal distribution of pre and post views scores was assumed, since views score distribution resembles that of the normal distribution. Moreover, comparisons were made between the scores of intervention group and the control group, to determine whether a possible change at the score of intervention group members, was due to the participation in the intervention. *t*-tests were performed to determine the difference of the two groups (intervention and control) before the intervention and revealed no significant differences in their views about cigarettes, $t(73) = 0.650$, $p = .518$, alcohol, $t(73) = 0.818$, $p = .416$, drugs, $t(73) = 0.005$, $p = .996$, and substances overall, $t(73) = 0.787$, $p = .434$.

Table 3

Comparison of Mean Scores on Views About Substance Use Before and After Intervention and Paired-Sample t-test Results

Substance	Intervention (N = 38)					Control (N = 37)				
	Pre		Post		t(37)	Pre		Post		t(36)
	M	SD	M	SD		M	SD	M	SD	
Cigarettes	1.97	0.39	1.84	0.40	2.455*	1.91	0.46	1.83	0.53	1.513
Alcohol	2.46	0.46	2.43	0.44	0.633	2.38	0.42	2.28	0.49	1.616
Drugs	1.95	0.46	1.80	0.41	2.276*	1.95	0.50	1.88	0.51	1.543
Overall	2.19	0.34	2.09	0.34	2.271*	2.12	0.37	2.05	0.42	1.950

* $p < .05$.

As can be seen in Table 3, significant differences were found for the intervention group between pre and post scores on views about cigarettes, drugs, and overall substances, whereas, there was no statistically significant difference observed for views about alcohol, although a slight score decrease was noticed. These findings indicate that emerging adults' views about substance use changed positively after the intervention as they reported lower scores in the post questionnaire. At the same time, the control groups' views did not change significantly between pre and post measurements.

Finally, in order to investigate the effect of the intervention on participants' views about substances, after six months, One-way Repeated-measures ANOVA was performed.

Intervention effects on views during the follow up measurement were significant regarding cigarettes, $F(2, 33) = 7.48, p = .002$, alcohol, $F(2, 33) = 6.58, p = .004$, and substances overall, $F(2, 33) = 6.71, p = .004$, whereas there were no significant changes on participants' views about drugs, $F(2, 33) = 2.86, p = .072$ (see Table 4).

Table 4

Comparison of Mean Squares and Sum of Squares on Views About Substance Use Before, After, and After Six Months From the Intervention and ANOVA Repeated Measures Results

Substance	SS	df	MS	F
Cigarettes	0.944	2	0.472	7.48**
Alcohol	0.688	2	0.344	6.58**
Drugs	0.491	2	0.245	2.86
Overall	0.577	2	0.289	6.71**

** $p < .01$.

Knowledge About Substances

In order to test the second hypothesis, we first conducted a paired samples t -test to determine the difference of the two groups (intervention and control) before the intervention; no significant differences between the two groups in their knowledge about substances was found ($t(73) = 0.708, p = .481$). t -tests were then performed for the following pairs (see Table 5). Normal distribution of pre and post scores on knowledge scores was assumed, since knowledge score distribution resembles that of the normal distribution.

Table 5

Comparison of Mean Scores on Knowledge About Substances Before and After Intervention and Paired-Sample t -test Results

Group	N	Pre		Post		t
		M	SD	M	SD	
Intervention	38	6.00	1.54	9.76	3.06	-7.76**
Control	37	5.73	1.76	5.62	1.44	0.388

** $p < .01$.

The results presented in Table 5, indicate statistically significant differences between pre and post scores on knowledge about substances. By examining the mean scores, we notice that participants gained a significant amount of knowledge about substances after the intervention; their pre mean score was 6.00, whilst their post mean score rose to 9.76. No change was observed between pre and post measurements of the control.

Finally, participants' score of knowledge about substances in their follow up measurement indicated a slight drop from the post measurement but, still, a significant change from the pre measurement, $F(2, 34) = 49.96, p < .001$ (see Table 6).

Table 6

Comparison of Mean Squares and Sum of Squares on Views About Substance Use Before, After, and After Six Months From the Intervention and ANOVA Repeated Measures Results

SS	df	MS	F
293.16	2	146.58	49.96***

*** $p < .001$.

Group Skills

To examine the effects of the intervention on participants' group skills, we conducted paired samples t -tests. The results indicated that the intervention was effective in enhancing participants' group skills. Table 7 shows means and standard deviations of participants' group skills between the first measurement (during the 3rd session) and the second one (at the end of the intervention). Statistically significant differences were found between the two measurements, showing that participants reported higher levels of group skills after the intervention.

Table 7

Comparison of Mean Scores on Participants' Group Skills Before and After Intervention and Paired-Sample t -test Results

N	Pre		Post		t
	M	SD	M	SD	
38	3.29	0.37	3.49	0.41	-3.76*

* $p < .05$.

More specifically, participants indicated significant differences in behaviours such as: their participation in the intervention, $t(38) = -3.37$, $p < .05$, their undertaking of roles and initiatives, $t(38) = -4.75$, $p < .05$, their expressing of thoughts and feelings, $t(38) = -3.16$, $p < .05$, as well as, their feeling of binding, $t(38) = -3.93$, $p < .05$. No significant differences were observed in their active listening, their respect for different opinions in the group, their following of leaders' and interventions' guidelines, their interaction and cooperation with each other and their provision of support and honest feedback to each other.

Evaluation of the Intervention

Group Climate

The analysis of the "Group Climate questionnaire" was conducted separately for each one of the three intervention groups due to different group dynamics. Thus, although the intervention was the same in all three groups, participants', as well as their interaction were different in each group.

Table 8 indicates the means and standard deviations of the three factors of group climate, for all three groups of the intervention. As can be seen, in the subscale of "engagement", participants of all three groups indicated high levels of cooperation and positive climate within group. As the subscales of "avoidance" and "conflict", the scores were lower, showing that participants did not avoid responsibility for change, nor did they feel distrusted or angry within the group.

Table 8

Group Climate (Engagement, Avoidance and Conflict) Within Groups

Factor	Group A (N = 10)		Group B (N = 16)		Group C (N = 12)	
	M	SD	M	SD	M	SD
Engagement	3.5	0.32	3.25	0.39	3.38	0.50
Avoidance	2.3	0.37	2.48	0.50	2.36	0.78
Conflict	1.17	0.24	1.31	0.39	1.19	0.28

More specifically, in the subscale of “engagement”, participants rated their attempt to outreach confrontation to be low ($M_{\text{Group A}} = 1.2$, $M_{\text{Group B}} = 1.44$, $M_{\text{Group C}} = 1.33$), whereas, all other items were scored higher. In the subscale of “avoidance”, although participants’ ratings were low, they stated a higher level of dependence from the group leader ($M_{\text{Group A}} = 3.3$, $M_{\text{Group B}} = 3.44$, $M_{\text{Group C}} = 3.08$). Finally, in all items of the “conflict” subscale, participants presented very low scores.

It is also noticed that members of Group A indicated higher scores in the subscale of “engagement” and lower in the subscales of “avoidance” and “conflict” than Groups B and C, whereas, in Group B we observe the exact opposite.

Evaluation Form Results

In order to examine participants’ evaluation of the intervention, descriptive statistics were computed for each of the questions of the evaluation form. Overall, it appeared that the intervention was very well received. Table 9 shows participants’ means and standard deviations of their ratings in terms of several aspects of the intervention. As noticed, they were “very” to “very much” satisfied with the extent to which the intervention responded to their initial expectations, the organization of the intervention, and the material provided. Regarding the ways of cooperation, they reported that they mostly liked to work all together and in small groups, whereas, they liked least to work individually. Their preferred techniques seemed to be role playing, group discussion and handicrafts. As for the content of the intervention, they stated that it was stimulating, interesting, age-relevant, motivating, useful and innovative. Moreover, participants stated that the intervention helped them “a lot” in their personal development, their interpersonal relationships as well as in the prevention of substance abuse.

Regarding the topics covered by the intervention, participants’ reported that the intervention helped them mostly: in understanding the meaning of prevention ($M = 4.26$, $SD = 0.60$), in perceiving the consequences of substance abuse ($M = 4.21$, $SD = 0.85$), in understanding addiction ($M = 4.16$, $SD = 0.68$) and in resisting peer pressure ($M = 4.16$, $SD = 0.96$). The smallest contribution of the intervention was the investigation of ways of helping people addicted to drugs ($M = 3.05$, $SD = 0.87$). In terms of participants satisfaction during the sessions of the intervention, they said that they were “very” to “very much” satisfied from all the sessions by rating higher the last (10th) session, that of closure ($M = 4.68$, $SD = 0.57$) and the 4th one, which was about “emotion management” ($M = 4.66$, $SD = 0.59$).

Table 9

Participants' Satisfaction on Aspects of the Intervention

Aspect of Intervention	<i>M</i>	<i>SD</i>
Initial expectations response	4.21	0.74
Organization	4.58	0.59
Material	4.26	0.72
Ways of cooperation		
working all together	4.21	0.78
working in small groups	4.16	0.82
working individually	2.74	1.18
Techniques		
role playing	4.39	0.97
group discussion	4.32	0.57
handicrafts	4.08	0.88
brainstorming	3.71	0.96
presentations	3.29	0.84
audiovisual	4.03	0.73
questionnaires	2.39	0.72
Content		
stimulating	5	0.75
interesting	4.55	0.64
suitable to their age group	4.42	0.98
motivating	4.37	0.82
useful	4.29	0.80
innovative	4.03	0.75
Help on		
personal development	3.89	0.73
interpersonal relationships	3.76	0.71
prevention of substance abuse	3.87	0.81

Results of Open-Ended Questions

Regarding the open ended questions, content analysis was conducted and revealed the following results: all participants claimed that they would recommend a friend to participate in this preventive substance abuse intervention. The reasons varied (12 different groups of reasons were found) including: mostly the intervention topic (addiction and prevention of substance abuse) (59.5%), personal development (40.5%) and development of interpersonal relationships (32.4%). Other reasons stated, had to do with the personal and social skills development, its character, its organization etc. In terms of what they liked most about the intervention, 16 groups were found. The most prevalent were: the interpersonal relationships created within group, the respect between the members of the group, as well as the interactive activities of the intervention. On the other hand, between the 12 different groups regarding what they least liked, the most prevalent were the theoretical presentations. Finally, all participants stated that they would like to participate in a second circle of the intervention.

Further evidence of the effectiveness of the intervention, was the participation of emerging adults' in other, relevant to prevention, activities. In particular, they stated that during the intervention: 12 members participated in other preventive meetings at the University (organized by the students who have participated in the pilot study), 10

members attended conferences about prevention and addiction, 9 members were motivated to read relevant articles and books, etc. They also claimed that their participation in the intervention would help them ($M = 3.86$) to think and act in a more preventive way.

Finally, they evaluated the whole intervention as “*extremely satisfactory*” ($M = 4.46$, $SD = 0.61$).

Discussion

The purpose of the present study was to explore whether participation in a preventive substance abuse intervention could influence emerging adults’ knowledge and views about addictive substances, as well as their group skills. In addition, it investigated participants’ perceptions of the group climate created, as well as, their overall evaluation of the intervention.

In brief, the main findings revealed that there were significant differences between pre and post measurements of knowledge and views about substances and participants’ group skills. At the same time, participants presented high levels of positive group climate and an overall positive evaluation of the intervention.

Emerging Adults’ Views and Knowledge About Substance Abuse

As mentioned earlier, in order for students to construct an attitude, they need to retrieve relevant information (Bohner & Wänke, 2002). The present intervention provided participants with substance relevant information and it was found that students who participated in the intervention, indicated an improvement in their substance knowledge levels, whereas no change was observed in the control groups’ knowledge.

As indicated by the results, emerging adults’ views about substance abuse presented a significant change and improvement, after the intervention, whereas at the same time, no significant differences were found in the control groups’ views. More specifically, participants of the intervention group, changed their views about cigarettes and drugs, whereas, they did not reveal a significant change in their views about alcohol. It is interesting though that, although participants’ views about alcohol did not reveal a significant difference between pre and post measurement, they did have a significant change between post and follow up measurement. This is an indication that participants finally did change their views about alcohol use. As Schulenberg and Maggs (2001) indicate, it is often the case that no measurable changes are visible immediately after the conclusion of a preventive intervention. Thus, follow up measurements seem crucial, as they can indicate important long-term impacts of an intervention. Upon follow up, some effect continues, although generally decaying over time (Bukstein, 1995).

The overall change in students’ views about substance use is a promising finding, as it supports the notion that any positive change in their views can lead to the delay or, even more, to the avoidance of substance use (EPIPSY, 2005; Jung, 2001).

On the other hand, reviews on substance education have shown that, in general, it is easier to improve knowledge than to affect attitudes (Bohner & Wänke, 2002; DAAT, n.d.). The above finding comes in disagreement with Mc-Murran’s (1994) belief, according to which, in a substance education program, although participants’ knowledge about substances may increase, there are no changes in their views.

Morgan et al. (1999), in an attempt to link perceived attitudes towards substance use to actual behaviour, found that perceived risk operates quite differently in relation to the three different substances examined. Unfavourable views seem to play a minor role in cigarette smoking, an important part in heavy drinking and a much more important role in all aspects of drug use. Thus, in the present study, we assume that emerging adults' changes in their views about substance use, could respectively lead to the above behaviours.

Our findings on emerging adults' changes in their views and knowledge about substances, support the findings of previous researches on adolescents. As literature review suggests, adolescents who participate in substance abuse prevention programs, present a significant change in their knowledge towards all substances (Botvin et al., 2000; Ellickson & Bell, 1990; MacKinnon et al., 1991; McMurrin, 1994). Similar conclusions are derived from a Canadian school-based prevention program evaluation, where students reported increased substance knowledge, as well as from interventions implemented in Greek communities (Pyxida, n.d.). These findings forecast the avoidance of substance use from adolescents, as, according to McMurrin (1994), if students are informed about alcohol, cigarettes and drugs, then their rational choice will be to avoid their use. Additionally, as Coggans (2006) suggests, knowledge does appear to have a potential role in mediating substance use.

As many researchers indicate, the increase of knowledge score about substances is a prediction of both, a change in attitude and a subsequent change in behaviour towards substance use, as well (Bukstein, 1995).

Group Skills

An interesting picture emerged regarding participants' group skills, which were overall improved after the intervention. These findings support the notion that individual's participation in a preventive intervention often increases the possibility of socialization. More specifically, interventions regarding substances prevention motivate participants to connect with people opposed to drug use (Giovazolias & Themeli, 2014).

At the same time, there was no change noticed on some items, such as: active listening, respect for different opinions in the group, following of leaders' and interventions' guidelines, interaction and cooperation with each other and provision of support and honest feedback to each other. What is noticed though, is that in those items, participants indicated high scores ("very" to "very much") from the first measurement. The same phenomenon was observed in the two items of "Exclusion from group procedures" and "Impede group process", where participants had indicated low scores ("not at all") even before the implementation of the intervention. Thus, we could assume the existence of a "ceiling effect", where no changes are observed between participants' pre and post measurements because the initial measure is already at a desirable level (Lammers & Badia, 2005).

Group Climate

According to Sodano et al. (2014), group climate is an accurate predictor of positive group outcome and the effectiveness of the intervention. In the present study, group climate scores were high in the subscale of "engagement" and low in the subscales of "avoidance" and "conflict". As in most interventions, including the present one as well, a great emphasis is placed on creating a pleasant climate among members of the group, as well as between the participants and the leader of the group (Furr, 2000). More particularly, the item of "Engagement", seems to be sensitive to change over sessions as other studies have shown (Kivlighan, London, & Miles, 2012), as well as ours. Additionally, as Wilson et al. (2008) state, participants with positive feelings about the intervention group climate are expected to experience higher levels of social well-being. Concerning the leader, participants rated their dependence from the group leader high, possibly due to the structure of the intervention. In an attempt to

implement the same intervention in all three groups, the leader and researcher of the intervention attempted, as much as possible, to keep the same specific structure with the same instructions and order. Nonetheless, a difference between the three different groups of the intervention was noticed regarding the group climate level, placing members of Group A in the top position.

Effectiveness of the Intervention

The evaluation of the intervention by the participants showed their overall satisfaction and revealed that the intervention managed to follow the most effective principles of a preventive substance abuse intervention, as indicated by several prevention experts: i.e. sufficient program duration and intensity, in order to make certain that there is sufficient contact time with participants, set of clear and realistic goals adequate to participants expectations and needs, engagement of participants in the group process, etc. (Canadian Centre on Substance Abuse, 2010; Roberts et al., 2001). As many surveys have shown, interventions that involve young people participating in the learning process, are important for successful substance education, as these provide opportunities to reflect on and discuss attitudes and values to substance use and develop a range of life skills. At the same time, interactive approaches, as the present one, give participants the opportunity to practice newly acquired skills and help them engage in prevention (Bukstein, 1995; Gardner & Brounstein, 2001; McGrath et al., 2006; Parkin & McKeganey, 2000; Roberts et al., 2001). The present intervention activities appeared to bring out participants' satisfaction, in terms of the ways of cooperation between them, the techniques used in the intervention, the content of the intervention, etc.

In addition, participants' evaluation of the intervention reinforces the results of the pre and post measurements on their views, which changed positively, as they stated that the intervention helped them, mostly, to understand the consequences of substance abuse. Conversely, participants rated the contribution of the intervention in investigating ways of helping people addicted to drugs to be low. This data indicates the primary aim of a substance abuse preventive intervention, which is to sensitize people on drug issues and, secondary, to help them confront already addictive behaviours (Bush, 2000). In the specific intervention, since participants were older than in usual substance abuse preventive interventions conducted in schools, a session concerning rehabilitation was added, in order to inform them about the stages of rehabilitation and the ways that they could help friends or family facing addictive issues.

One of the contributions of this intervention study was the overall sensitization of participants, on issues regarding prevention of substance abuse. It is important and a quite promising finding, to note that participants stated that they were involved in several activities concerning prevention, during and after their participation in the intervention, such as: relevant conferences and meetings, relevant reading etc.

As Furr (2000) suggests, satisfaction itself is not always enough to create change but it is an important factor in helping create one. The effectiveness of the present intervention is also based on the high levels noticed on the group climate created, in combination with the positive evaluation of the intervention.

Limitations of the Study and Future Implications

Some limitations regarding the present study need to be acknowledged in order to be able to argue about the reliability of our results. A main limitation of the present study is that the results cannot be generalized to all emerging adults and to different cultures, since the participation was voluntary and addressed only to Greek students. For those programs that are voluntary, there is a concern about the potential for an already sensitized towards

substance use, population. The poor involvement or targeting of high risk individuals, is a fact in the present intervention. While pre measurements have shown that participants of the intervention were, from the beginning, sensitized in issues regarding substance abuse, it would be useful to implement such interventions to young people presenting lower scores in their views and knowledge about substances at pre measurements i.e. a secondary or selective prevention program (Sussman, 2013). Besides, as Roberts et al. (2001) indicate, one of the main principles, when actualizing a preventive substance abuse intervention, is to be aware of the perceptions on substance use of the specific group addressed. According to Kiriakopoulou and Georgopoulos (2007), every preventive substance abuse intervention must be designed for the purposes of a specific community; the demands of the population and each individual must be seen within its team, as well as in relation to its social environment. In addition, such interventions consider race, ethnicity, age and gender in their designs (Donahew, Lorch, & Palmgreen, 1991; Gardner & Brounstein, 2001). Additionally, the small number of participants suggests that the findings are not likely to be representative of students nationwide.

Another limitation of the study has to do with the fact that the researcher of the study conducted the intervention in all of the three groups. In order to minimize this limitation, participants were asked to evaluate the group leaders' skills, in order to provide an overall description of the characteristics of an "effective group leader" in such intervention. In that notion, group leaders, who have skills such as active listening, encouragement for participation, understanding, acceptance, providing accurate information etc., could effectively conduct the intervention.

Although there are significant, successful efforts in the area of prevention, when considered in relation to the extent of individuals' substance use and abuse, these successful efforts appear rather limited. It is true that prevention can delay, or even prevent, the onset of substance use, yet we are not in the position to confidently state whether this effect is temporary or not. The benefits of primary prevention are often difficult to prove or require many years before they can become evidence based (Jung, 2001). Generally, the most successful preventive substance abuse interventions are those of sufficient intensity and duration and have follow up sessions (Bukstein, 1995). Although the present intervention was relatively long, and contained one follow up session, there is a need for a continuous involvement of participants in the prevention field, through a longitudinal intervention.

According to future implications, it is strongly recommended that the present study be replicated with more participants. Additionally, as Wolfe and Moore (2008) suggest, there is a clear need for targeted prevention. The present research findings can motivate university services or other health and social sectors to understand the need of prevention among emerging adults and to carry out interventions and research based on the effective strategies discussed. It seems that the college setting may present an important opportunity to educate young people on substance abuse prevention, while at the same time, college health centers can be an important source of assistance, not only by providing information but also by motivating students to take advantage of prevention programs (Choi et al., 2003). Yet, designing a qualitative study in order to measure changes on students' perceptions regarding substance abuse, would be really helpful, as it would provide us with a rich material of findings. Furthermore, future studies, could investigate the predicted variables of the effectiveness of the intervention, overall.

Further studies might also investigate long term effects of prevention programs for emerging adults, since we are not certain whether short or medium term effects have a lasting impact on the ultimate problem dimension (Springer & Uhl, 1998). Furthermore, according to Bukoski (2006), evaluations of preventive interventions should be repeated in order to reinforce initial findings. Hence, in our case, it would be really helpful to create a focus group with some of the participants, some years later and discuss the effects of the intervention in their views and knowledge re-

garding substances. This would also add useful information, as it would be a qualitative way of gathering data. Additionally, it would offer interesting information based on the perceptions of emerging adults regarding substance use. Discussion can be more interactive, if participants are willing to become emotionally, attentively, reflectively, and actively involved and could offer more realistic results, when compared to the numerical data used in quantitative research (Fryer, 1991).

Conclusion

To conclude, the present study is considered to offer valuable information to a growing body of evidence, which could ultimately help in the development of evidence-based preventive interventions for emerging adults. Although there is some regarding the effectiveness of many interventions, much more systematic research is necessary, especially in the group of emerging adults. It is important to implement interventions during college years, in order to change perceived norms about substance abuse, as “the transition from high school to young adulthood appears to be an ideal developmental turning point during which to target interventions” (p. 182) (White & Jackson, 2004).

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Competing Interests

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