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DRUG-ABUSE PREVENTION IN THE SCHOOL: FOUR-YEAR FOLLOW-UP OF A PROGRAMME

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This work presents the results obtained on applying a drug-abuse prevention programme, an adaptation of Botvin's "Life skills training" programme. The initial sample comprised 1029 adolescents from five secondary schools in the city of Santiago de Compostela (NW Spain), distributed in three experimental conditions, two treatment, in which the programme was applied by teachers or by members of the research team, and a control condition. The article presents the results on the use of different drugs over four years of follow-up. The results obtained show how for the treatment condition lower levels of tobacco and alcohol consumption are found after a year of follow-up. In later evaluations these effects fade, but important differences emerge in the use of other drugs, such as cannabis, tranquillizers or amphetamines.

En este trabajo se presentan los resultados obtenidos al aplicar una adaptación del «programa de entrenamiento en habilidades de vida», elaborado por G. J. Botvin para prevenir el abuso de drogas. El estudio fue realizado en cinco institutos de la comunidad autónoma gallega. La muestra inicial estuvo compuesta por 1.029 adolescentes, repartidos en tres condiciones experimentales: una de control, en la que no se llevó a cabo ninguna intervención, y dos de tratamiento, en las que el programa fue aplicado por los profesores de los alumnos o por miembros del equipo de investigación ajenos a los centros. En el artículo se presentan los resultados obtenidos sobre el consumo de las distintas drogas analizadas a lo largo de los cuatro años de seguimiento. Los resultados muestran cómo en las condiciones de tratamiento se produce un menor consumo del tabaco y alcohol tras un año de seguimiento. En evaluaciones posteriores esos efectos decaen, pero surgen diferencias significativas en el consumo de otras drogas como el cannabis, los tranquilizantes o las anfetaminas.

There is currently a consensus among researchers that drug abuse can be conceived as a phenomenon that develops over a series of stages. The problem of drug abuse manifests itself initially in the consumption at an early age of socially accepted substances such as tobacco and alcohol. This early contact with these substances leads, in many cases, to more regular patterns of consumption, and in a considerable number of subjects to abusive and problematic patterns in late adolescence and early adulthood. In parallel, and in some cases, there is a progression of consumption from these substances to others. Thus, the use of substances such as cannabis, cocaine or heroin has frequently been found to be preceded by early consumption of tobacco and alcohol (Kandel, 1975; Clayton, 1992).

The use of drugs by adolescents in Spain gives cause for concern. The government agency for the National Plan on Drugs has commissioned, every two years since 1994, a survey on drug use in the school population (http.//www.mir.es/pnd/observa/index.htm). The year 2000 survey was carried out on a sample of 20,450 secondary-school students aged 14 to 18. It was found that 58% had consumed alcohol in the previous month, 30.5% had smoked cigarettes, 19.4% had consumed cannabis, 2.5% tranquillizers and ecstasy, 2.2% cocaine and 1.9% hallucinogens. A comparison of these data with those found in the surveys from previous years reveals worrying trends, such as the slight increase in the proportion of smokers (from 28.3% in 1998) or users of cannabis (17.2% in 1998), or the increase since 1994 in the number of adolescents that have tried cocaine (from 1.7% in 1994 to 4% in 1998 and 2000). Such data provide ample justification for the implementation of actions aimed at preventing drug use among adolescents.

In the last 30 years, considerable efforts have been made in the prevention of drug abuse and associated problems. Interventions have been aimed at the general population (universal prevention), at specific risk groups (selective prevention), or at people who already show

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the initial symptoms of the problem (indicated prevention). A wide variety of approaches have been employed, but it is undoubtedly preventive programmes of a universal nature carried out in the school context that have most commonly been applied. In Spain, the first interventions focusing on the prevention of drug abuse date from 1975 (Escámez, 1990), and the first published studies in the field from 1978 (Crespo, Soto & Miralles de Imperial, 1978; Vega, Mendoza & Sagrera, 1978). However, these early initiatives, except in certain cases, such as the *Tú decides* ("You decide") programme (Calafat, Amengual, Guimerans, Rodríguez & Ruiz, 1995), were not accompanied by efforts to evaluate their effectiveness, and this, in practical terms, meant that the development of this field of intervention was held back (Ferrer, Sánchez & Salvador, 1991; Comas, 1992; Salvador, 1994). In recent years the situation appears to be changing; this is evidenced not only by the appearance of a series of well-structured adolescent programs with a degree of institutional support, but also by attempts to evaluate their results (Luengo, Romero, Gómez-Fraguela, Garra & Lence, 1999). Nevertheless, lack of evaluation continues to be the major shortcoming in most interventions.

Studies carried out on prevention programmes reveal that, in general, they achieve positive results on variables such as amount of information or attitudes towards drugs. When the evaluation criterion employed is consumption, the positive results are limited to those programs focusing on the promotion of competencies and on the psychosocial variables related to consumption (Bangert-Drowns, 1988; Tobler & Stratton, 1997; Tobler, Roona, Oschshorn, Marshall, Streke & Stackpole, 2000; Wilson, Gottfredson & Najaka, 2001).

Among the programmes that have achieved the best results is the Life Skills Training programme developed at New York's Cornell University (Botvin & Tortu, 1988). This programme is based on a conception of drug use as a socially-learned behaviour with high functional value for adolescents, who, through it, satisfy certain personal and social needs related to the search for an identity, the achievement of self-esteem, coping with stressful events, and so on. The original programme pays considerable attention to the development of personal and social skills in adolescents, focusing, on the one hand, on the acquisition of general life skills, and on the other, more specifically on influences that push youngsters towards the use of drugs. Thus, not only are students taught a wide range of personal and social skills with the aim of improving their psychosocial competence, but they also learn to apply these skills to specific situations in which they may feel pressure to take drugs.

The positive data on this type of programme are not so clear on considering the maintenance of their effects over time. The evidence available up to now is contradictory. Some studies have found these effects to disappear (Klepp, Oygard, Tell and Veller, 1994; Ellickson & Bell, 1990; Flay, Koepke, Thomson, Santi, Best & Brown, 1989; Murray, Pirie, Luepker & Pallonen, 1989), but others suggest that the effects on smoking and alcohol consumption are maintained (Botvin, Baker, Dusenbury, Botvin and Díaz, 1995; Vartianen, Paavola, McAlister & Puska, 1998; Perry, Kelder, Murray & Klepp, 1992). In order to explain the reduction of the effects in some studies, Resnicow and Botvin (1995) allude to issues such as the use of programmes that are too short; the narrow contexts of their implementation; the inclusion of inappropriate curricular components; the reduction of statistical power associated with attrition of the sample; and inappropriate expectations about the effects of the programmes.

But the fact that the effects on smoking and drinking disappear with the passage of time, while relevant, does not necessarily mean that the effects on drug use will disappear. Bearing in mind the dynamic nature of consumption and the evidence that early use of tobacco and alcohol is one of the best predictors of future patterns of abuse of these and other substances, it is reasonable to think that a delay in the age at which tobacco and alcohol are first consumed, or a reduction in their frequency of use (despite the disappearance over time of these effects) will have a considerable effect on the prevention of other drugs whose consumption tends to develop later.

If this is the case, the conclusion about the disappearance of the preventive effects of programmes over time is hasty. This is all the more true if we consider that many studies have failed to take into account the dynamic nature of the drug phenomenon, and have used the same evaluation criteria throughout the follow-up. This practice constitutes an important methodological limita-

tion that must be overcome (Pentz, 1994; Sher & Wood, 1997).

In this work we have concentrated on evaluating the evolution of the effects of the Life Skills Training programme on drug consumption. To this end we applied the programme at secondary schools in Santiago de Compostela (Spain), carrying out a follow-up of its effects over four years.

METHOD

Sample

In order to carry out this study, the authors invited all the public secondary schools in the city of Santiago de Compostela to participate in the programme. Five schools agreed to participate, and the initial sample for the study was made up of students in the 14 to 16 age range from those five institutions, giving a total of 1,029 students distributed across 30 classes. 42.4% were males and 57.6% females, with a mean age of 14.32 years.

The assignment criteria employed for including the cases in the different experimental conditions were classes. The treatment group applied by teachers was made up of six classes with a total of 235 pupils (39.6% males and 60.4% females, with a mean age of 14.42). The group applied by members of the research team (henceforth "the staff team") included nine classes with a total of 309 students (40.1% males and 59.9% females, with a mean age of 14.29). Finally, the control condition was made up of fifteen classes with 485 students (45.2% males and 54.8% females, with a mean age of 14.32).

Design

After the translation of the materials and their adaptation to the Spanish context, it was decided to include some other activities congruent with the philosophy and objectives of the original programme. Also included was a session focusing on leisure activities. With the resulting material, a pilot study was carried out with two classes. These pilot sessions were recorded on video and subsequently reviewed by the members of the research team. As a result of this review it was decided to substitute a series of activities that did not function appropriately (Gómez-Fraguela, 1998).

The final material comprises sixteen sessions of 45-50 minutes, some requiring participants to carry out complementary tasks at home. Conceptually, the programme is made up of six components that can be summarized as follows:

An informational component. Designed to present information related to the short- and long-term consequences of the use of substances, to current rates of prevalence and social acceptance of consumption, and to the process of tobacco, alcohol and cannabis dependency, focusing on the short-term effects of consumption of these substances and on exposing false beliefs about them. This component comprises four sessions, concentrating on smoking (first and second sessions), alcohol (third session) and cannabis (fourth session).

A self-esteem component, made up of two sessions examining the concept of self-image, its formation and its relevance to behaviour; moreover, a series of useful steps are systematized for reaching the desired goals, and pupils are asked to design and implement a personal self-improvement project, aimed at providing them with techniques for changing certain personal abilities or certain behaviours in order to achieve objectives they set.

A decision-making component, comprising three sessions aimed at promoting the development of critical thinking and providing skills for responsible decision-making. The first of these involves teaching and practice of a rational procedure for making decisions; the second deals with the role of the pressure of others in one's own choices; and in the third session, students are introduced to the tactics employed by advertisers for manipulating consumer behaviour: starting out from cigarette and alcoholic drinks adverts, the strategies they employ are identified and resistance to them is fomented.

A component focusing on anxiety, with a session working on situations that generate feelings of anxiety in adolescents and the way they respond to these situations; various relaxation techniques are also presented and practised.

A social skills training component. With five sessions, this is the most extensive component in the programme. It covers both social skills of a general nature and assertiveness techniques that can be used for effectively resisting peer pressure to use tobacco, alcohol and other drugs. This component specifically trains communication skills, skills for overcoming shyness and assertiveness skills of a general and specific nature.

A component focusing on leisure activities, in which there is a discussion of leisure alternatives for satisfying adolescents' need to seek new and different sensations, with emphasis on the importance of making responsible decisions about how to use free time. This component is developed in a session devoted to analyzing the way participants spend their leisure time, to providing criteria for evaluating these activities, and to suggesting alternatives.

Apart from the application of these sixteen sessions, in the second year, nine reminder sessions were applied, with the same content as the initial sessions, thus reinforcing the maintenance of the programme's effects (Botvin, Baker, Dusenbury, Tortu & Botvin, 1990).

The design used in this study employed three groups: two treatment groups, in which the prevention programme was applied (initial sessions and maintenance sessions, the following year), and one control group, in which there was no intervention. The two treatment conditions differed with respect to the people administering the programme: in one of them the programme was applied by members of the research team ("the staff team"); in the other, it was applied by teachers at the participants' school.

The evaluations were carried out by means of self-report questionnaires administered during school time and in participants' classrooms. Questionnaires were distributed by members of the research team, who ensured the students that their answers would remain confidential. In order to make these guarantees more credible, no teachers or other school staff were present in the classrooms when the questionnaires were applied. The questionnaires were anonymous, and students had personal codes so that researchers could monitor their consumption without their identity being revealed.

The follow-up study comprised five evaluations. The first took place during October 1995, before the application of the programme in the treatment conditions, and its purpose was to check whether there were any initial differences between the groups. The second was applied at the end of that academic year, in May 1996, three months after the end of the programme. The third, fourth and fifth evaluations took place in May of 1997, 1998 and 1999. Figure 1 shows the evaluation design.

Measures

In order to evaluate the effects of the programme, in this article we concentrate on comparing frequency of consumption of different substances. For this purpose we selected some of the questions included in the Drug Consumption Questionnaire (*Cuestionario de Consumo de Drogas*, CCD), designed by Luengo, Otero, Mirón and Romero (1995). Specifically, we chose those that referred to monthly frequency of consumption of tobacco, beer and spirits, in which participants had to answer on a scale of five response alternatives (never, once or twice a month, several times a month, several times a week, and every day). For cannabis and other drugs, considering their low frequency of consumption in early adolescence, the questions used referred to frequency of consumption in participants' whole life, rather than just the previous month. For these questions a six-alternative scale was provided (never, once or twice, a few times a year, several times a month, several times a week, and every day).

In the two last evaluations, at age 16 and 17, we replaced the general question on other drugs by specific questions on frequency of consumption in one's whole life of substances such as tranquillizers, amphetamines, cocaine, ecstasy, LSD and heroin.

Figure 1
Evaluation design of the study

		95/96			96/97		97/98	98/99
		Nov.	**Nov.-Feb.**	**May**	**Nov.-Dic.**	**May**	**May**	**May**
Treatment conditions	staff team (N=309)	0_1	X_1	0_2	X_2	0_3	0_4	0_5
	Teachers (N=235)	0_1	X_1	0_2	X_2	0_3	0_4	0_5
Control condition (N=485)		0_1		0_2		0_3	0_4	0_5

Analysis

For the statistical analyses we used the SPSS 10.0 package, employing univariate analysis of variance (ANOVA) for comparing consumption differences between the experimental groups. In those cases in which the differences were significant, we carried out pairwise multiple comparisons using the Scheffé test. We also used the chi-squared test to check whether, during the follow-up, there had been differential attrition of participants between the different experimental conditions.

RESULTS

Initial comparisons

Since it was not possible to assign participants randomly to the experimental conditions, we carried out an initial evaluation before applying the programme, in order to check that there were no previous differences in level of drug consumption between the different treatment conditions. Table 1 shows the means and standard deviations of each group for monthly frequency of consumption of tobacco, beer and spirits, and for frequency in one's whole life of consumption of cannabis and other drugs in general. As it can be seen, consumption levels found in the three groups were similar, with no differences between them prior to application of the programme. It should be noted that tobacco was the substance that presented highest mean consumption in the three groups, and that use of substances other than tobacco, alcohol and cannabis was practically non-existent.

Attrition analysis

Over the course of the follow-up evaluation, the sample gradually reduced in number from its initial figure. There were various reasons for this attrition, the most important of which was students leaving school, but which also included students moving to another school or being absent on the day of the evaluation. Table 2 shows the number of students from the initial sample that participated in each of the follow-up evaluations.

As it can be seen, there is considerable attrition of participants over the entire course of the study, especially from the third year onwards. This may constitute an important threat to internal validity, especially if attrition occurs in a different way between one condition and another. In order to check the extent to which this may be threatening the validity of our study, we compared the losses occurring in the different experimental conditions. It can be seen in Table 2 that there were no significant differences in the percentage of lost cases across the different conditions.

However, this is not a sufficient guarantee for discarding the possibility of the results of the evaluation being affected by differential attrition within the different con-

Table 1
Comparison of previous consumption frequency between different experimental conditions

	Staff Team		Teachers		Control		F	P
	Mean	SD	Mean	SD	Mean	SD		
Tobacco (monthly)	0.72	1.31	0.69	1.24	0.74	1.37	0.1	N.S.
Beer (monthly)	0.37	0.82	0.39	0.76	0.37	0.77	0.08	N.S.
Spirits (monthly)	0.39	0.79	0.36	0.72	0.36	0.75	0.25	N.S.
Cannabis (general)	0.21	0.78	0.12	0.48	0.19	0.68	1.42	N.S.
Other drugs (general)	0.03	0.23	0.02	0.13	0.04	0.29	0.45	N.S.

Table 2
Students from the initial sample that participated in the different follow-ups

	Staff Team	Teachers	Control	chi-squared	P
Oct. 95	309	235	485		
May. 96	273 (88.3%)	215 (91.5%)	445 (91.8%)	2.82	N.S.
1996/97	224 (72.5%)	168 (71.5%)	332 (68.5%)	1.66	N.S.
1997/98	153 (49.5%)	99 (42.1%)	241 (49.7%)	4.08	N.S.
1998/99	125 (40.5%)	88 (37.4%)	176 (36.3%)	1.41	N.S.

ditions. Even though the percentages of lost cases were similar in the different conditions, it may occur that the cases lost from a particular condition presented higher consumption than those lost from the others. In such a case, the internal validity of the study would be seriously threatened (Biglan et al., 1987).

In order to rule out this possibility, we compared previous consumption in the lost cases in the different groups throughout the course of the study. The results of these comparisons are shown in Table 3, where it can be seen that there are no differences between consumption level of the participants lost in the three groups for any of the substances evaluated.

The analyses carried out on attrition allow us to conclude that, despite the relevance of this factor, it does not appear to represent a serious threat to the internal validity of our study.

Comparisons in the follow-up evaluations

Table 4 shows the results of the first evaluation carried out in May 1996, three months after the end of the programme. With respect to the previous evaluation there is a slight increase in frequency of consumption, with the exception of the case of smoking in the treatment group, where the mean fell from 0.72 to 0.57, and spirits consumption in the same group (a decrease from 0.39 to

Table 3
Comparison of previous consumption of lost cases

	Staff Team		Teachers		Control		F	P
	Mean	SD	Mean	SD	Mean	SD		
Tobacco (monthly)	0.85	1.43	0.81	1.3	0.85	1.45	0.06	N.S.
Beer (monthly)	0.44	0.87	0.45	0.82	0.42	0.83	0.12	N.S.
Spirits (monthly)	0.49	0.87	0.43	0.79	0.39	0.79	1.05	N.S.
Cannabis (general)	0.28	0.91	0.14	0.54	0.23	0.75	1.84	N.S.
Other drugs (general)	0.05	0.27	0.02	0.13	0.04	0.27	0.67	N.S.

Table 4
Mean consumption of the different substances in the first evaluation

	Staff Team		Teachers		Control		F	P
May 1996	Mean	SD	Mean	SD	Mean	SD		
Tobacco (monthly)	0.57	1.18	0.72	1.27	0.75	1.37	1.74	N.S.
Beer (monthly)	0.38	0.74	0.45	0.78	0.48	0.88	1.16	N.S.
Spirits (monthly)	0.37	0.67	0.46	0.81	0.42	0.8	0.85	N.S.
Cannabis (general)	0.2	0.71	0.27	0.77	0.22	0.76	0.58	N.S.
Other drugs (general)	0.05	0.31	0.04	0.37	0.05	0.29	0.02	N.S.

Table 5
Mean consumption of the different substances in the second evaluation

	Staff Team		Teachers		Control		F	P
May 1997	Mean	SD	Mean	SD	Mean	SD		
Tobacco (monthly)	0.81[A]	1.30	1.04	1.49	1.22	1.52	5.33	.005
Beer (monthly)	0.64[A]	0.86	0.67	0.81	0.85	0.97	4.08	.01
Spirits (monthly)	0.67	0.81	0.58[C]	0.78	0.79	0.94	3.52	.03
Cannabis (general)	0.21	0.78	0.29	0.78	0.28	0.91	0.53	N.S.
Other drugs (general)	0.04	0.27	0.01	0.15	0.1	0.6	2.87	N.S.

Scheffé Test: [A] differences researchers-control; [B] differences researchers-teachers; [C] differences teachers-control

0.37). Comparing mean consumption for this evaluation in the three groups, it can be seen that the group in which treatment was applied by the researchers showed the lowest consumption frequencies for all substances, while the control group showed the highest values in all cases, except that of spirits, for which highest consumption was found in the group receiving the treatment from teachers. Nevertheless, the differences found between the groups in this evaluation did not reach statistical significance.

Table 5 shows the data for the evaluation carried out in May of the following year (15 months after completion of the initial sessions). It can be seen that in all three conditions there is a considerable increase in frequency of consumption, but that this increase differs across the groups. Thus, consumption frequencies for the treatment conditions are lower than those found in the control condition for monthly consumption of tobacco ($F = 5.33$, $p = 0.005$), beer ($F = 4.08$, $p = 0.01$) and spirits ($F = 3.52$, $p = 0.05$). More specifically, the differences found in the cases of smoking and beer are between the researchers' group and the control group, and in the case of spirits, between the teachers' group and the controls. As regards general consumption of cannabis and other drugs, frequencies continue to be very low in all three groups, and the differences found do not reach significant levels,

Table 6
Mean consumption of the different substances in the third evaluation

	Staff Team		Teachers		Control		F	P
May 1998	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Tobacco (monthly)	1.03	1.47	1.28	1.58	1.19	1.56	0.94	N.S.
Beer (monthly)	0.54	.086	0.63	0.86	0.52	0.83	0.61	N.S.
Spirits (monthly)	0.76	0.91	0.81	0.85	0.74	0.81	0.23	N.S.
Cannabis (general)	0.4[B]	0.88	0.747	1.22	0.44	0.84	4.77	.006
Tranquillizers (general)	0.06	0.35	0.16	0.66	0.07	0.42	1.62	N.S.
Amphetamines (general)	0	0	0.01	0.1	0.02	0.2	0.57	N.S.
Cocaine (general)	0.02	0.14	0.02	0.14	0.03	0.2	0.36	N.S.
Ecstasy (general)	0.02	0.19	0	0	0.01	0.19	0.71	N.S.
LSD (general)	0.04	0.25	0.02	0.14	0.02	0.21	0.41	N.S.
Heroin (general)	0	0	0	0	0.01	0.13	0.52	N.S.

Scheffé Test: [A] differences researchers-control; [B] differences researchers-teachers; [C] differences teachers-control

Table 7
Mean consumption of the different substances in the fourth evaluation

	Staff Team		Teachers		Control		F	P
May 1999	**Mean**	**SD**	**Mean**	**SD**	**Mean**	**SD**		
Tobacco (monthly)	1.28	1.66	1.33	1.6	1.56	1.75	1.18	N.S.
Beer (monthly)	0.5	0.84	0.54	0.92	0.65	0.9	1.15	N.S.
Spirits (monthly)	0.69	0.87	0.74	0.9	0.76	0.85	0.22	N.S.
Cannabis (general)	0.49	1.05	0.9	1.25	1.41	1.22	16.85	.000
Tranquillizers (general)	0.01	0.1	0.11	0.42	0.23	0.55	6.77	0.01
Amphetamines (general)	0.01	0.09	0	0	0.09	0.4	3.97	.02
Cocaine (general)	0.06	0.36	0.04	0.20	0.17	0.46	2.74	N.S.
Ecstasy (general)	0.04	0.27	0.03	0.16	0.04	0.27	0.04	N.S.
LSD (general)	0.06	0.31	0.05	0.23	0.15	0.45	1.83	N.S.
Heroin (general)	0.01	0.09	0	0	0.02	0.14	0.65	N.S.

Scheffé Test: [A] differences researchers-control; [B] differences researchers-teachers; [C] differences teachers-control

though in the case of "other drugs" they approach significance (F = 2.87, p = 0.06), frequency being lower in the two treatment groups than in the control group.

In the evaluation carried out in May 1998 (Table 6), 27 months after application of the initial treatment sessions, the differences found the previous year in relation to tobacco, beer and spirits disappear, with a similar mean consumption frequency found between the three groups. As regards general consumption of other drugs, in contrast to the previous evaluations, in which participants were asked about their consumption of "cannabis and other drugs", in this evaluation we assessed frequency of use of the different substances separately. The results suggest no significant differences between groups, except in the case of cannabis, for which a significantly lower consumption frequency was found in the researchers' treatment group than in the teachers' treatment group.

Finally, Table 7 shows the results for the fourth evaluation, carried out in May 1999 (39 months after the initial sessions, and when students had moved up to a subsequent phase of the educational system). In this evaluation we found a similar monthly consumption frequency of tobacco, beer and spirits for all three groups, but the situation with respect to consumption of other drugs had changed considerably. There were significant differences for general consumption of cannabis (F = 16.85, p = 0.001), tranquillizers (F = 6.77, p = 0.001) and amphetamines (F = 3.97, p = 0.05), consumption in the two treatment conditions being lower than that for the control group. The same trend was found for consumption of cocaine, though in this case the significance level reached only 0.06.

DISCUSSION

Some interesting data emerge from this study. Already, in the evaluation carried out three months after the intervention, we found a trend towards lower consumption in the groups in which the programme was applied, though the differences are not large enough to reach significance. It is not until the following year that these trends become consolidated and the differences in monthly consumption of tobacco, beer and spirits reach levels of statistical significance. These differences fade with the passage of time, so that they are not significant in the evaluations carried out in the third and fourth years. However, in parallel to the reduction of the effects on the frequency of smoking and drinking there are effects on the consumption of other drugs. Specifically, in the final evaluation of the series we observed significant differences in the frequency of consumption of cannabis, tranquillizers and amphetamines, with lower levels in the treatment conditions than in the control condition.

These data lead us to conclude that the application of the programme had preventive effects on the drug use of the participating pupils. Moreover, it seems that the previous effects are maintained over time. The programme is initially capable of affecting the levels of smoking and drinking; over time, these effects fall off, but progressively there appear others on the use of substances such as cannabis, tranquillizers and amphetamines.

These results are in the same direction as those found in the original work by Botvin's team. In a study carried out after six years of follow-up in New York schools, they found that previous differences between the treatment and control groups in relation to frequency of alcohol use disappeared, but when other, more problematic consumption criteria – such as frequency of drinking binges – were taken into account, differences between the groups persisted (Botvin, Baker, Dusenbury, Botvin & Díaz, 1995). In another work carried out with a subsample from the same study, and focusing its analysis on the effects of the programme on consumption of other drugs after six years, they found lower frequencies of consumption of substances such as cannabis, solvents, heroin, other narcotics, and hallucinogens (Botvin, Griffin, Díaz, Séller, Williams & Epstein, 2000).

Our data are also in line with the reflections of Pentz (1994) on the difficulty of evaluating drug-prevention programmes carried out with adolescents. This author pointed out the difficulty of finding significant effects during the initial stages of the evaluation, especially when consumption levels are very low. In the same work, Pentz also stressed the importance of considering the phenomenon of a progression in consumption when evaluating prevention programmes. She cites the phenomenon of transition throughout adolescence via different stages of consumption as one of the barriers to be overcome in the evaluation of prevention programmes. According to Pentz, the use of the same criterion throughout all the different evaluations may lead researchers to

conclude that the initial effects disappear over time, when what may actually be happening is that the criterion employed has ceased to be effective for detecting the preventive effects.

In the evaluation of preventive programmes it is necessary to take into account the nature of drug use. This phenomenon develops through different stages, so that one can make a distinction, within the consumption of a substance, at least between the problems of early use, abuse, and dependence. Also, considering the different substances, different stages have been identified. In this regard, the four stages proposed by Kandel (1975) (use of wine or beer, use of cigarettes and strong spirits, use of cannabis, and use of other illegal drugs) have been widely acknowledged. On designing a study to evaluate the effects of a prevention programme in the long term it is useful to employ different criteria throughout the course of the follow-up. Frequency of smoking or alcohol use may be a good criterion for children or young adolescents, but such data may later cease to be sensitive to the effects of interventions. With the passage of time it would be necessary to incorporate other criteria, more sensitive to more problematic consumption patterns, and to progressively include measures related to the use of other drugs whose first consumption occurs later.

An important limitation of the present study is the progressive attrition of participants. The retention levels achieved in the initial evaluations (at three months and one year) are similar to those found in other works, but in the subsequent evaluations they are lower (Hansen, Tobler & Graham, 1990). Despite the fact that from the analysis carried out it is concluded that it does not seriously affect the internal validity of the study, this attrition nevertheless represents an important limitation for the generalization of the results. If we compare the initial consumption data for the total sample (Table 1) with those for the participants lost over the course of the study (Table 3), it can be clearly seen that the latter present higher consumption frequencies. In future studies it would be advisable to establish specific procedures for reducing such attrition (Ribisl, Walton, Mowbray, Luke, Davidson & Bootsmiller, 1996), or analyzing specifically the effect of the programme on those participants that present high levels of consumption before the start of the intervention.

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