

# EFFECTIVENESS OF TWO PREVENTION PROGRAMS ON ALCOHOL USE AS A FUNCTION OF PROVIDER TYPE

## EFICACIA DE DOS PROGRAMAS DE PREVENCIÓN DEL CONSUMO DE ALCOHOL EN FUNCIÓN DEL TIPO DE APLICADOR

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### Abstract

Currently, it is still unclear how to translate effectively programs validated in research for use in real-world contexts. Among the efforts being made to identify strategies which optimize the application of these programs in everyday practice are tests of the differential effectiveness of the programs depending on the application agent. *Method:* this study analyses the effects of two programs on alcohol use and its variables as a function of provider type. Two hundred students from the first year of secondary education were distributed among five experimental conditions: four treatment conditions, in which the two programs were applied by teachers at the school or external psychologists, and a control condition. *Results:* the results suggest that, for both programs, teachers obtain better outcomes in alcohol use and concern about addiction. *Conclusions:* it is concluded that teachers are the ideal application agents in terms of efficiency, and we discuss the implications for research and preventive practice.

### Keywords:

Alcohol, school prevention, application agents, program evaluation, efficacy

### Resumen

En la actualidad no es claro cómo traducir efectivamente los programas validados en la investigación para su aplicación en contextos reales. Entre los esfuerzos que se han realizado está el de identificar estrategias que optimicen la aplicación de estos programas en la práctica cotidiana que tienen diferente efectividad dependiendo del agente que los aplique. *Metodología:* este estudio analiza los efectos de dos programas sobre el consumo de alcohol y sus variables en función del aplicador. Dosecientos estudiantes de primer año de secundaria se distribuyeron en cinco condiciones experimentales: cuatro en condición de tratamiento, en que se aplicaron dos programas aplicados por profesores de la escuela o psicólogos externos, y un grupo control. *Resultados:* los hallazgos sugieren que en los dos programas los profesores obtienen mejores resultados sobre el consumo de alcohol y la preocupación por la adicción. *Conclusiones:* se concluye que los profesores son los agentes aplicadores ideales en términos de eficiencia y discutimos las implicaciones que esto tiene para la práctica investigativa y práctica.

### Palabras clave:

Alcohol, prevención escolar, agentes aplicadores, evaluación de programas, eficacia

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## Introduction

On a worldwide scale, alcohol is the most widely used drug. About 2.000 million people, slightly less than half the adult population, consume alcohol (Organización Mundial de la Salud–OMS, 2007). Several epidemiological studies have shown that it is also the most widely consumed substance among young people (Hibell et al., 2009, Oficina de las Naciones Unidas contra la Droga y el Delito / Comisión Interamericana para el Control del Abuso de Drogas, 2008, Substance Abuse and Mental Health Services Administration -SAMSHA, 2010) with similar consumption rates today for men and women (Rodríguez et al., 2008).

Prolonged alcohol use is associated with significant social and economic consequences, since its potential to create dependence is similar to that of other illicit drugs (Caballero, Carrera, Muñoz, & Sánchez, 2007). However, its greatest impact on public health derives from its abuse or occasional high-risk use.

Therefore, over the past thirty years, universal prevention has become an essential element of policies to stem the rising prevalence of the abuse of alcohol and other drugs.

Within the different fields of intervention, school programs are among the most commonly found worldwide (United Nations Office on Drugs & Crime–UNODC, 2010). As a result of the efforts invested in this area, today there are many quality programs that achieve beneficial effects on alcohol consumption and the variables that mediate it. In this regard, Lemstra et al. (2010) point out that the most effective interventions for reducing alcohol use among teenagers aged 10 to 15 are comprehensive programs which include information combined with social skills training, endurance and self-management.

However, despite the proven effectiveness of many school programs based on empirical evidence, there is wide recognition of the need to translate research advances for use in practical scenarios (Hallfors, & Godette, 2002; Botvin, & Griffin, 2004; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005) where preventive interventions are actually carried out and have meaning. In this regard, effective programs developed in research are slow to be transferred to practical contexts (Hallfors, Pankratz, & Sporer, 2001), and when they are, many programs of proven effectiveness fail to produce robust positive results on being replicated (St. Pierre, Osgood, Siennick, Kauh and Burden, 2007).

It is important to note, moreover, that most of school programs, while based on empirical evidence, have been evaluated in controlled environments under optimum conditions, in order to improve the quality of the studies (efficacy trials).

Specifically, and according to Rohrbach, Dent, Skara, Sun, & Sussman (2007), in efficacy trials, outside agents and even teachers who are employed only for the implementation of the program have no other responsibilities that come into conflict with the development of the program (Green, & Glasgow,

2006). They are all carefully selected, trained and supervised by researchers in order to obtain high quality in the implementation (Hansen, Graham, Wolkenstein, & Rohrbach, 1991). They also tend to be more motivated and enthusiastic about the implementation of the program experimentation with interactive techniques (Rohrbach, Graham, & Hansen, 1993).

In contrast, in natural scenarios, it is mostly regular class teachers who are responsible for applying the intervention. These teachers often have additional responsibilities and work pressures (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Basen-Enquist et al., 1994; Rohrbach et al., 2007). Sometimes, but not always, they receive some kind of training in drug prevention, but often have little time available for training that has to be run outside school hours (Rohrbach, D'Onofrio, Backer, & Montgomery, 1996). For teachers, implementing the interactive techniques and content typical of evidence-based programs can involve considerable difficulty and effort. Moreover, too often, they tend to reinvent, add or subtract elements of the manual to suit their needs or preferences (Tricker, & Davis, 1988; Fagan, & Mihalic, 2003), running the risk of changing the theoretical foundations of the program and the essential nature of the intervention.

The aim of the present study is to analyse the comparative effectiveness of two school-based prevention programs on alcohol use, according to the providing agent, to prevent the alcohol consumption, to strengthen attitudes toward its consumption and to reduce interpersonal difficulties. We evaluate the effects of two programs of proven efficacy in the Spanish population: the program “Construyendo Salud” (CS, “Building Health”, Luengo Martín, Gómez Fraguera, Garra López y Romero Triñanes, 2002) and the program “Saluda” (SLD, Espada Sánchez y Méndez Carrillo, 2003), compared to a group that remains on the waiting list (CG). We also analyse the moderating effect of type of provider (regular class teachers versus external specialists) on the program’s effectiveness.

We expect to find after the application of the program “Construyendo Salud” and “Saluda” the same positive results both when they are applied by regular class teachers and by external specialists, regarding to alcohol consumption, drunkenness episodes, attitudes toward alcohol consumption and interpersonal difficulties.

## Method

### Participants

A total of five public secondary schools in the city of Elche (Alicante-Spain) participated in this study. The sample consisted of 200 adolescents (49% males and 51% females) enrolled in the first year of secondary school and with an average age of 12.42 (SD = 0.56).

## Design

A quasi-experimental model for a non-equivalent control group was used with pre-test, post-test and follow-up measures (the follow-up being after twelve months of implementation).

The schools were random assigned to five experimental conditions: four treatment conditions (experimental group) and waiting list condition (control group). Experimental groups were determined by two factors: *Type of Program* (“Construyendo Salud” Program, “Saluda” Program and Control Group) and *Type of Provider* (regular teacher or external psychologist). Samples are shown in Table 1.

**Table 1**

*Sample scores for the three assessment time points.*

	CS		SLD		CG	Total
	Teacher	Psychol.	Teacher	Psychol.		
Pre-test (T1)	40	40	40	40	40	200
Post-test (T2)	38	40	39	39	38	194
Follow-up (T3)	37	38	37	39	38	189

**Note:** CS: Construyendo Salud. SLD: Saluda Program. CG: Control Group

## Measures

To assess the effectiveness of the interventions applied, the following questionnaires were used:

- *Substance Abuse Questionnaire (COTAM)* (García-Rodríguez y López-Sánchez, 1994b): among other indicators included in this instrument are the percentages of subjects who reported having tried alcohol (incidence of use) and who have been drunk at least once (2 items).
- *Attitudes towards alcohol Scale (ESACAL)* (García-Rodríguez y López-Sánchez, 2001): made up of 13 items with Likert-type response format (1-5), assesses attitudes and pre-dispositions to alcohol use. It consists of three factors whose items show saturations greater than 0.40 and a total of 64.09% explained variance: Factor 1, *Attitudinal disposition toward alcohol*, Factor 2, *Unpleasantness index*, and Factor 3, *Predisposition to act against alcohol use*. A high score in each of the factors indicates a favourable attitude to staying healthy. The scale also shows significant test-retest correlation  $r = 0.638$ ,  $p \leq .01$  (García-Rodríguez y López-Sánchez, 2001), with an internal consistency coefficient (Cronbach’s alpha) of 0.80.

- *Assessment of Adolescent Interpersonal Difficulties Questionnaire (CEDIA)* (Inglés Saura, Méndez Carrillo e Hidalgo Montesinos, 2000). Rates difficulty in establishing social relations by means of 36 graded items (0-4), a higher score indicating a higher degree of difficulty. The questionnaire yields an internal consistency coefficient (Cronbach's alpha) of 0.90 (Inglés Saura, Méndez Carrillo e Hidalgo Montesinos, 2000).

## Prevention programs

Two drug prevention programs whose efficacy has been demonstrated independently with samples from Spanish schools. Although each program has its own specific methodology, they share the same goal and are included in Personal Skills Improvement programs.

The *Construyendo Salud* program (Luengo et. al., 2002) is the result of the extension and adaptation to the Spanish population of one of the best examples of a program based on improving personal skills, the *Life Skills Training* program (Botvin, & Tortu, 1988). The Spanish adaptation, consisting of 17 sessions, is organized into seven main components: information, self-esteem, decision making, emotional control, social skills, prosocial behaviour and leisure. These components are implemented through an interactive methodology including various cognitive-behavioural techniques (instruction, modelling, behavioural test, feedback, reinforcement and cognitive restructuring). The efficacy of the CS program has been examined in various large-scale studies. Initially, the results of the program were assessed after its application by teachers to a sample of adolescents aged 11-12 (2567 students in the experimental group and 2328 in the control group). The program proved effective in reducing alcohol use onset and modifying attitudes towards its use (Luengo Martín, Romero Tamames, Gómez-Fragüela, Guerra López y Lence Pereiro, 1999). Subsequently, the program's efficacy was analyzed according to whether it was applied by teachers or by members of the research team, using a sample of students aged 14-15 (teachers: 235 students, psychologists: 309 students, and control group: 485). Frequency of alcohol use was reduced in both treatment groups. However, the psychologists were more effective in reducing beer drinking, and the teachers in reducing the consumption of drugs (Gómez Fraguela, Luengo Martín y Romero Triñanes, 2002).

The *Saluda* program (Espada Sánchez y Méndez Carrillo, 2003) is aimed at preventing the abuse of alcohol and synthetic drugs at weekends. Over the ten identically-structured sessions, and using an interactive methodology, it attempts to form attitudes against drug use and teach cognitive-behavioural strategies for coping with difficult situations related to drug use. Four components are set up as central themes: healthy leisure activities, training in problem solving, social skills and the ability to resist pressure. It also includes information on drugs and the public position on the not to consume decision, and self-reinforcement. In assessments, this program has shown its efficacy for

reducing alcohol use (Pereira y García-Fernández, 2009) and increasing target levels in relation to alcohol use and unfavourable attitudes toward drinking (Espada, Orgilés, Méndez, García-Fernández e Inglés, 2008).

### **Procedure**

Before starting the program implementation, all provider agents received an intensive workshop (20 hours) covering the bases of school-based prevention and the application of the sessions depending on the program assigned to each agent.

After establishing the appropriate permission (informed consent), the assessment tests were applied. All measurements were carried out in-school and in a self-administered and anonymous fashion.

### **Data analysis**

The results were analysed using PASW Statistics-18 software. For quantitative variables, since the sample data showed heteroscedasticity and did not follow a normal distribution, we used Student's T statistic (intragroup and intergroup), adjusting the error rate comparisons (Dunn-Bonferroni procedure). To quantify the effect size we calculated the Pearson correlation coefficient ( $r$ ). Data on the incidence of alcohol and drunkenness were obtained using the Cochran Q test (intragroups) and Pearson's  $\chi^2$  independent proportions, with Bonferroni correction. We used a confidence level of 95% for all tests performed.

## **Results**

The homogeneity of the experimental and control groups was tested before implementation of the programs. The groups were comparable in age ( $F = 0,126$ ,  $p = 0.882$ ), gender ( $\chi^2 = 9.324$ ,  $p = 0.053$ ) and the variables considered in the evaluations (see Tables 2 and 3).

**Table 2**

*Descriptive statistics Pre-test. Quantitative variables*

Experimental condition	M	Attitudinal disposition toward alcohol (4-20)		Unpleasantness index. (4-20)		Predisp. to act against alc. use (3-15)		Interpersonal difficulties (0-144)		
		DT	M	DT	M	DT		M	DT	
CS	Teacher	25.8	5.3	15.95	3.17	11.63	3.04		47.15	16.8
	Psychologist	26.33	4.96	16.25	3.66	11.63	3.26		47.97	21.4
SLD	Teacher	26.23	4.32	15.03	4.38	11.35	2.78		48.9	19.1
	Psychologist	27.4	3.64	16.18	2.25	11.93	2.34		54.93	19.6
Control Group		27.58	2.47	16.13	3.81	11.75	2.18		51.28	18.0

**Note:** CS: Construyendo Salud. SLD: Saluda Program

**Table 3**

*Intragroup comparisons Pre-test. Quantitative variables*

T	G	Attitudinal disposition toward alcohol		Unpleasantness index		Predisp. to act against alc. use		Interpersonal difficulties	
		r	T	r	T	r	T	r	T
G. 1	G. 2	.439	.05	.455	.05	-.179	.02	.064	.01
	G. 3	1.093	.12	.522	.06	-1.657	.18	-.100	.01
	G. 4	.858	.10	.061	.01	-.187	.02	.555	.06
G. 2	G. 3	1.604	.18	1.343	.15	-1.909	.21	-.345	.04
	G. 4	.251	.03	.063	.01	-1.428	.16	-.178	.02
	G. 5	.000	.00	-.357	.04	.000	.00	.524	.06
G. 3	G. 5	.831	.09	.908	.10	-1.672	.19	-.434	.05
	G. 4	.309	.03	.418	.05	1.513	.17	.736	.08
	G. 5	.826	.09	.854	.10	-.290	.03	-.280	.03
G. 4	G. 5	1.090	.12	1.195	.14	-1.777	.20	-.961	.11

**Note:** G.1: CS-Teacher; G.2: CS-Psychologist; G.3: SLD-Teacher; G.4: SLD-Psychologist; G.5: Control Group \*p< .005

## Alcohol

As detailed in Table 4, on analysing the percentage of subjects who reported alcohol consumption, no significant differences were detected from a statistical point of view among the different experimental conditions. However, analysis of the rates over the course of the evaluation reveals some interesting trends. In the post-test, the CG shows an increase of 3.2%, followed by the group that received the CS program applied by psychologists, whose percentage increases by two. In the groups receiving the SLD program, in two categories the percentages remain stable, decreasing in the CS

condition teachers. However, after twelve months (follow-up), the incidence of alcohol use increased in all groups. The CG showed a greater increase (13.7%) compared to both programs implemented by teachers (SLD: 3.3% and CS: 4.5%) which showed the lowest increments.

**Table 4**

*Effect of alcohol consumption*

	Experimental condition	Pre-test %		Post-test %		Follow-up %		Cochr. Q
		Yes	No	Yes	No	Yes	No	
CS	Teacher	22.5	77.5	15.8	84.2	27.	73.	3.000
	Psychologist	20	80	22.5	77.5	28.9	71.1	2.167
SLD	Teacher	7.5	92.5	7.7	92.3	10.8	89.2	.250
	Psychologist	12.5	87.5	12.8	87.2	25.6	74.4	3.846
Control Group	10		90	13.2	86.8	23.7	76.3	4.667
$\chi^2$ (4)	5.404			3.731		4.320		

\* p< .05

Similarly, no statistically significant differences were detected in the drunkenness variable (see Table 5). However, in the short term it is only the CS program applied by psychologists that shows an increase (7.5 percentage points). In the long term, the percentage of subjects who reported having experienced at least one episode of drunkenness increases in all groups. Again, it is the CS program applied by psychologists which shows the largest increase (16.2%).

The groups whose percentage increases least are those receiving the two programs implemented by teachers (SLD: 2.7% and CS: 6.2%).

**Table 5**

*Drunkenness episodes*

	Experimental Condition	Pre-test %		Post-test %		Follow-up %		Cochr. Q
		Yes	No	Yes	No	Yes	No	
CS	Teacher	10	90	10.5	89.5	16.2	83.8	1.000
	Psychologist	7.5	92.5	15	85	23.7	76.3	5.600
SLD	Teacher	0	100	0	100	2.7	97.3	2.000
	Psychologist	5	95	5.1	94.9	15.4	84.6	3.556
Control Group		2.5	97.5	5.3	94.7	10.5	89.5	4.667
$\chi^2$ (4)		5.263		7.745		7.577		

\* p< .05



## Mediating Variables

Averages recorded in the mediating variables examined at the three assessment points (intra-group comparisons) are shown in Table 6.

**Table 6**

*Evolution over time of attitudes toward alcohol and interpersonal difficulties.*

*Intragroup comparisons.*

Variable M		Pre-test (t1)		Post-test (t2)		Follow (t3)		T1-T2		T1-T3	
		SD	M	SD	M	SD	T	r	T	r	
Attitudinal disposition toward alcohol. (6-30)	G.1	25.8	5.3	27.03	3.77	26.83	3.96	1.583	.25	-1.453	.24
	G.2	26.33	4.96	27.6	2.85	26.55	3.67	-1.615	.25	-.447	.07
	G.3	26.23	4.32	28.07	3.3	28.32	2.63	-2.697*	.40	-2.846*	.43
	G.4	27.4	3.64	27.31	3.61	26.21	4.49	.070	.01	1.378	.22
	G.5	27.58	2.47	26.31	1.83	26.26	1.76	2.704*	.41	2.665*	.40
Unpleasantness index. (4-20)	G.1	15.95	3.17	16.13	2.92	16.08	3.78	-.583	.10	-.447	.07
	G.2	16.25	3.66	17.83	1.96	16.03	3.67	-2.625*	.39	-.173	.03
	G.3	15.03	4.38	16.72	3.85	16.08	3.35	-2.571*	.38	-1.543	.25
	G.4	16.18	2.25	16.94	3.28	15.26	3.02	-1.518	.24	1.970	.30
	G.5	16.13	3.81	14.21	3.89	14.21	3.05	3.303*	.44	2.842*	.42
Predisp. to act against alc. use. (3-15)	G.1	11.63	3.04	11.92	1.84	12.22	1.93	-.790	.13	-1.400	.23
	G.2	11.63	3.26	11.75	2.55	11.4	2.89	-.262	.04	.278	.05
	G.3	11.35	2.78	12.36	2.28	11.67	2.26	-2.166	.33	-.302	.05
	G.4	11.93	2.34	11.21	2.45	11.48	2.59	1.670	.26	.916	.15
	G.5	11.75	2.18	10.79	2.51	10.79	2.44	1.879	.30	2.196	.34
Interperson. Difficulties (0-144)	G.1	47.15	16.8	44.11	16.5	40.81	16.8	1.156	.19	2.1	.33
	G.2	47.97	21.4	45.13	21.4	43.53	21.9	1.034	.16	1.167	.19
	G.3	48.9	19.1	43.51	15.7	30.67	15.7	1.625	.25	5.732*	.69
	G.4	54.93	19.6	49.07	18	44.31	20.4	1.816	.28	3.798*	.52
	G.5	51.28	18.0	53.89	17.5	60.34	21.8	-1.346	.22	-3.016*	.44

**Note:** G.1: CS-Teacher; G.2: CS-Psychologist; G.3: SLD-Teacher; G.4: SLD-Psychologist; G.5: Control Group \*p< .025

As regards attitudes towards alcohol (see Table 4), some conditions show an attitude change more favourable to staying healthy, in both the short and long term.

In *Attitudinal disposition toward alcohol*, both in the short (T2) and long term (T3), there was an attitudinal change in favour of maintaining health in SLD teacher conditions (T2:  $r = 0.40$ , T3:  $r = 0.43$ ) and a change more favourable to drinking in the CG (T2:  $r = .41$ , T3:  $r = .40$ ).

In the *Unpleasantness index* there was an increase in CS psychologist ( $r = 0.39$ ) and SLD teacher conditions ( $r = 0.38$ ), in the short term. On the other hand, in the CG condition the unpleasantness index decreases, both in the short and long term. With regard to *Predisposition to act against alcohol use*, no significant changes are detected at either of the two post-intervention assessment time points. Nevertheless, there is a moderate reduction in the CG in the long-term ( $r = 0.34$ ).

On analysing the longitudinal evolution of interpersonal difficulties we found some effects of interest. In the post-test, *Unpleasantness index* the fact that no significant differences were found between the three assessment time points, all the experimental groups showed a decrease in mean scores, except for the control group, in which it increased. In the follow-up the decrease in means is more pronounced, notably in the case of the groups which received the SLD program in either mode (teacher:  $r = 0.69$ , and psychologist:  $r = 0.52$ ). On the other hand, the mean in the CG increased ( $r = 0.44$ ).

Regarding inter-group comparisons, Table 7 provides contrast test statistics and the magnitude of differences for comparisons of the experimental groups versus the control group.

**Table 7**

*Intergroup comparisons. Experimental versus control groups.*

	G.1-G.5		G.2-G.5		G.3-G.5		G.4-G.5	
	T	r	T	r	T	r	T	r
Post-Test (T.2)								
Attitudinal. dispo. toward alcohol.	1.036	0.12	2.351	0.26	2.881*	.35	1.525	0.2
Unpleas. index	2.43	0.27	5.132*	.57	2.839*	.31	3.340*	.36
Pred. to act against alc. use.	2.245	0.25	1.677	0.19	2.878*	.32	0.736	0.08
Interpersonal Difficulties	-2.511	0.28	-1.976	0.22	-2.741*	.30	-1.189	0.14
Follow-Up (T.3)								
Attitudinal. dispo. toward alcohol.	0.814	0.09	0.438	0.05	3.999*	.42	-0.074	0.01
Unpleas. index	1.961	0.22	1.976	0.22	2.103	0.24	1.055	0.12
Pred. to act against alc. use.	3.111*	.34	1.243	0.14	1.919	0.22	1.489	0.17
Interpersonal Difficulties	-4.335*	.45	-3.357*	.36	-6.784*	.64	-3.336*	.36

**Note:** G.1: C.S. Teacher; G.2: C.S. Psychologist; G.3: SLD. Teacher; G.4: SLD. Psychologist; G.5. Control G. \* $p < .0125$

On comparing the averages obtained in attitudes toward alcohol use, in the short term significant differences are observed in the three factors making up the scale. In *Attitudinal disposition toward alcohol* there are differences in favour of the SLD teacher condition compared to the CG ( $r$

= 0.35). In the *unpleasantness index*, differences emerge on comparing, on the one hand, the groups receiving the CS program implemented by psychologists ( $r = 0.57$ ) and the SLD program applied by both teachers, and on the other, the CG (teachers  $r = 0.31$  and psychologists  $r = 0.34$ ), in favour of the experimental groups.

Regarding *Predisposition to act against alcohol use*, only the SLD teacher condition differs in a relevant way from the CG, the magnitude of this difference is moderate and the direction is unfavourable to the control group ( $r = 0.31$ ).

In the long term, most of the above-mentioned differences were reduced. In the *Attitudinal disposition toward alcohol* there are only differences between the CG and SLD teacher condition, unfavourable to the CG ( $r = 0.42$ ). In the *unpleasantness index* no differences are found when comparing the experimental and control groups, though the CG registered a lower average.

In *Predisposition to act against alcohol use* it is only the CS teacher condition that stands out in a relevant way from the CG ( $r = 0.34$ ), obtaining a higher mean average.

In reference to *interpersonal difficulties*, significant differences are observed when comparing the experimental and control groups, in both the short and the long term. In the short term, it is the SLD teacher condition that obtains a lower average than CG ( $r = 0.30$ ). In the long term, all the experimental groups recorded an average lower than the CG, the magnitude of these differences being large for the SLD teacher condition ( $r = 0.64$ ) and moderate for the rest.

## Discussion

In this paper we have presented the evaluation of the efficacy of two school programs for preventing alcohol use and influencing attitudes toward alcohol and interpersonal difficulties, according to the type of provider. To do this, the two programs were implemented simultaneously using two types of agent: regular class teachers and external psychologists. To assess the efficacy of the interventions, comparisons were made intragroup and between the experimental and control groups.

On analysing the results obtained in alcohol use, no statistically significant differences were detected for the interventions applied with respect to the group that remained on the waiting list. However, analysis of the percentages recorded reveals some noteworthy effects. In terms of alcohol use, teachers obtain better results when using both programs, the CG being the group that shows the greatest increase over the evaluation period. Similarly, with regard to the percentage of subjects who reported having experienced an episode of drunkenness, it is teachers who obtain the best results on

using both programs. These results are line with previous findings of better effects when teachers use the programs on alcohol use in general (McNeal, Hansen, Harrington, & Giles, 2004) and consumption of liquor in the short (Alonso Sanz y Del Barrio Gándara, 1998) and long term (Gomez Fragueta, Luengo Martín y Romero Triñanes, 2002). However, authors such as Calafat, Amengual, Farrés y Monserrat (1984) have found fewer drunken episodes when external specialists implement the programs.

As regards attitudes toward alcohol, the experimental groups show positive effects that vary depending on the factors making up the attitude scale used. In general, and considering the change experienced in the CG toward a more pro-consumption attitude, the findings of this study confirm a dampening effect on attitudinal change that occurs in adolescence. This dampening effect is particularly important when one considers that attitudes change toward a greater acceptance of various drugs before adolescents begin to use them (Jessor and Jessor, 1977). In this regard it should be noted that although no biunivocal correspondence between attitude and behaviour was found, the relationship between attitudes to drugs and their consumption is widely evidenced (Lignell, & Davidhizar, 1991; Botvin, & Botvin, 1992; García-Señorán, 1994).

On the other hand, on analysing interpersonal difficulties it can be seen that in both the post-test and the follow-up, the averages recorded in the CG showed a greater increase than those recorded in the experimental groups, in practically the majority of the aspects making up the questionnaire applied. Therefore, the results of this study confirm that applied interventions have positive effects in reducing difficulties of social interaction. However, the reduction of interpersonal difficulty occurs mainly in the long term, the SLD program implemented by teachers being that which achieved the greatest effect.

Regarding the most efficient providing agent, in general it is teachers that obtain the strongest positive effects. In this regard, the magnitude of the differences in some variables that tend to favour application by external psychologists is not large enough to justify the costs of their involvement. Therefore, our results suggest that teachers are the most optimal preventive agents in terms of cost/benefit, as long as they are provided with the training necessary to apply the material appropriately. Quite apart from their greater availability, teachers have more teaching experience and better skills for the development and organization of the class than any other potential provider (Botvin, 1995). Similarly, the continuous contact with students and their ability to integrate concepts in other subject areas make teachers the most suitable preventive agents.

## Conclusions

The results of this study confirm that applied interventions have positive effects in reducing difficulties of social interaction. However, the reduction of interpersonal difficulty occurs mainly in the long term, the SLD program implemented by teachers being that which achieved the greatest effect.

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## Limitations

A major limitation of this study is the small sample size in each experimental condition, which could affect the power of the comparisons made about alcohol use. In future research it would be advisable to use larger and more heterogeneous samples with a view to improving the generalizability of the results and corroborating the effects obtained. Another limitation concerns the lack of evaluation of program implementation. This shortcoming prevents us from distinguishing whether the content of the manual has been applied by teachers in the amount and with the quality and methodology suggested. Likewise, we have no information on any reinvention or adaptation that may have occurred in relation to the protocols. However, the slight superiority obtained by the teachers compared to the psychologists might suggest that the protocols were indeed properly applied.

In this regard, authors such as Ennett et al. (2003) have found that teachers who apply content-based programs and empirically validated methodologies are significantly more likely to use both the content and implementation methodologies correctly, as opposed to teachers who apply other programs.

However, looking to future research, we recommend the inclusion of observational methodologies that systematically assess the direct application of materials, based on criteria of adherence, faithfulness and integrity. This will permit the identification of factors that prevent and/or enhance high-quality implementation in a range of contexts.

### Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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