

Evaluation of a Life Skills Program to Prevent Adolescent Alcohol Use in Two European Countries: One-Year Follow-Up

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Abstract

Background Life skills programs are effective tools to combat youth substance use. However there is a lack of studies concerning their effectiveness in Europe.

Objective This study investigated the 1 year follow up effects and the program implementation of a life skills school-based intervention (IPSY: Information + Psychosocial Competence = Protection) aimed at preventing alcohol use, in German and Italian adolescents.

Methods Participants were 1131 German (57 % intervention group, mean age 10.45 years, 54 % females), and 159 Italian adolescents (45 % intervention group, mean age 11.14 years, 50 % females). Using a quasi-experimental design, data were gathered before the intervention (t1), after (2–7 months later, t2), and 1 year after the post-test (t3), thus covering a time span of about 1.5 years. MANOVAs and ANOVAs with repeated measurements were performed.

Results IPSY was well accepted in both the German and Italian schools. German and Italian youth who participated in the program decreased their consumption of wine. German youth who participated in the IPSY-program decreased their expected alcohol consumption and increased their knowledge of assertive behaviors, school involvement, and resistance to peer pressure, compared to the control group. Italian youth in the intervention group also increased in assertive behaviors and the perception of being appreciated by others, relative to the control group. In both countries, beer consumption, communication skills and problem solving were not affected.

Access to data The first author of the study, Fabrizia Giannotta, takes responsibility for the integrity of the data and the accuracy of the data analysis.

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Conclusions Our study suggests that life skills-based programs may be a useful tool in the prevention of risk behaviors in adolescence in a broader European context.

Keywords Life skills · Alcohol use · Adolescence · Cross-cultural · Prevention

Introduction

School-based interventions might moderate the initiation and progression of substance use during adolescence. Recent reviews have noted that they help to reduce and prevent alcohol, cigarette and marijuana problems among youth (e.g. Brotherhood et al. 2013; Faggiano et al. 2014; Foxcroft and Tsertsvadze 2012; Tobler et al. 2000) even after 5 years (Skara and Sussman 2003). Moreover, school-based interventions have some features that make them the most suitable tools to promote universal prevention. Specifically, because they are implemented during normal school time, they are more likely to reach vast and various populations, including students with different risk status and socio-demographic backgrounds. Nevertheless, not all types of school-based programs are equally effective. Studies have shown that interventions aimed at reinforcing personal and interpersonal skills, using interactive techniques to deliver the content, that are based on a social-influence approach and that include a normative education element are more likely to be effective than interventions that do not have these components (see Cuijpers 2003; Faggiano et al. 2008b; Flay 2009; Tobler 2000; Tobler et al. 2000). One approach that seems to meet all these requisites is the Life Skills approach (World Health Organization 1997; Botvin 2000). Life Skills programs aim at reinforcing youth skills and competences that enable children and adolescents to cope more effectively with tasks of their daily lives (WHO 1997). There is evidence that the Life Skills approach is effective in reducing drug use among both Caucasian and minority youths (Botvin et al. 1995b), and that these effects persist 6 years later (Botvin et al. 1995a; Botvin et al. 2000). Nevertheless, these prevention programs are not widespread, and the majority of the studies regarding Life Skills interventions involve students in Canada and the United States.

A few school-based interventions have been implemented in Europe. Following Botvin's classification (2000), most interventions were based on a social influence approach (e.g. Unplugged program, Caria et al. 2011; Crone et al. 2011; de Vries et al. 2006; Faggiano et al. 2008a; Faggiano et al. 2010; Koumi and Tsiantis 2001; La Torre et al. 2010). They showed some promising effects in the reduction of smoking and alcohol use among youth. To our knowledge, only two interventions against youth substance use based on the Life Skills approach were tested in Europe and shown to be effective (e.g. Hanewinkel and Asshauer 2004; and IPSY: Spaeth et al. 2010; Weichold 2014; Weichold et al. 2012; Wenzel et al. 2009). While the life skills programs appear to be more effective than the social influence programs in the USA (Tobler et al. 2000), there is a need to apply Life Skills programs more widely in the European context to test whether they are suitable and effective.

The current study reports the process and outcome evaluation of a Life Skills program to prevent alcohol misuse, namely IPSY (*I*nformation + *P*sychosocial Competence = Protection; Weichold 2014), in two European countries. The theoretical frameworks for the Life Skills approach are two broad theories about adolescent development, namely Social Influence Theory (Bandura 1977) and Problem Behavior Theory (Jessor

et al. 1991). An enhancement of personal competencies and skills would provide a better way to deal with peer pressure and offer better options to face adolescent developmental tasks. Such an enriched skill set, in turn, tends to lower the likelihood of unconventional and unhealthy behaviors such as substance use. The Problem Behavior Theory has been used to some extent in countries all over the world (Ciairano et al. 2009; Jessor et al. 1991, 2003; Ndugwa et al. 2011; Vazsonyi et al. 2010), suggesting that in spite of different levels and types of risk behaviors protective factors can act similarly across different adolescent populations. This implies the transferability of prevention programs based on this theoretical framework to different countries with different cultural contexts.

To investigate the applicability and effectiveness of IPSY in different European settings, we chose Italy, a Mediterranean country, and Germany in Central Europe. These two countries have different drinking cultures. The Mediterranean culture of drinking in Italy is characterized by moderate wine drinking (Hibell et al. 2012), whereas in Germany the mean age of onset of alcohol drinking is earlier, and experiences of drunkenness are more frequent. Fifty-nine per cent of German youth reported that they had drunk at least one glass of an alcoholic beverage at the age of 13 or younger, compared to 48 % of the Italian youth. Moreover, 11 % of German youth declared that they had already been drunk before age 13, compared to 5 % of Italian youth (Hibell et al. 2012). The policies are quite similar in both countries, with a ban on selling alcohol to youth younger than 18 years of age. However, the attitude towards alcohol has been more tolerant in Italy than in Germany until few years ago. Indeed, a ban on selling alcohol to youth was not introduced in Italy until 2013. Until then, it was forbidden to serve alcohol to youth under 16 years old, but it was not forbidden to sell to them. Moreover, the acceptable limit of blood alcohol content for driving is .5 g/l in Italy for everyone, while in Germany it is zero for the youngest drivers (18–21 years old) and up to .5 for drivers older than 21. These differing standards might influence the development of adolescents' alcohol consumption.

We evaluated the effects of the IPSY program on youth alcohol use in German and Italian youth in the short term (i.e., pre-post-test comparison, with a time span of about 6 months in Germany and 2 months in Italy and based on the implementation of the basic program; Weichold et al. 2006). Thereby, positive program effects were detected in both German and Italian youth alcohol use. The aim of the current study is to extend these findings to include a 1-year follow up assessment (with an additional booster session for the intervention group) to test for lasting intervention effects. As the German and the Italian sample are different for dimension and age, we will not compare the effects of IPSY in the two countries statistically to determine where the program is more effective. Instead, our aim is to understand whether IPSY affects both German and Italian pupils, and can therefore be used as prevention program. First, we will evaluate the implementation process of the IPSY program (basic manual, and booster session) through teachers' and students' reports of the German and Italian sample. Secondly, we will investigate the program's effects on adolescents at the long term (spanning 1.5 years) for both samples. Thereby, we will focus on alcohol use and on the protective factors targeted by the program (e.g. life skills, including the ability to resist peer pressure). In other words we will focus on the potential mediators of the program. Until now, only one of the school-based intervention programs aiming at competence enhancement and substance misuse prevention implemented in European countries presented results separately by country (de Vries et al. 2006). Thus, the current study will provide new insights in a cross-cultural application of prevention programs.

We hypothesized that the IPSY program has positive effects on intra- and interpersonal life skills, school bonding, and social resistance skills in adolescents from both countries because the IPSY program targets rather universal risk and protective factors for

adolescent problem behaviors. In addition, we hypothesized that the program positively affects the consumption of different types of beverages (e.g. beer for Germany and wine for Italy) according to culture-typical variations in prevalence rates.

Methods

Intervention and Procedure

The IPSY program is a school-based program aimed at the prevention of alcohol and tobacco use, at a universal level. It is manual-based and consists of 15 lessons (every day for 2 weeks) for the first year (originally the fifth grade), with two additional series of booster sessions (seven lessons each in the sixth and seventh grade; with only booster session 1 being implemented in both countries for the current comparison). IPSY is a universal comprehensive program that combines social skills and resistance skills training, the training of generic intra- and interpersonal life skills (e.g. self-awareness, stress and problem coping strategies, assertiveness, communication skills), following the Life Skills model (WHO 1997). Moreover, IPSY provides information (i.e., prevalence, short-term effects, advertising), and focuses on strengthening ties to classroom and school.

In particular, a focus on school solidarity is a unique feature of the IPSY program, which was not addressed explicitly in other Life Skills programs. The program uses interactive teaching methods in a great extent to enable each student to practice newly acquired skills among same-aged peers in a non-frightening and relaxed atmosphere (e.g. via various role plays on age-typical challenges within the peer context, with changing roles to assertively say no under peer pressure). This is also a unique feature of the IPSY program, while the majority of other Life Skills programs gives more information and has a lower share of interactive program elements (see Weichold 2014, including the teacher's manual). The program as developed for use with German students over a research period lasting more than 10 years was evaluated positively (see, for latest publication Weichold and Blumenthal 2016; for a summary see Weichold 2014; www.ipsy-uni-jena.de). Italy was selected as context to test the program because early substance use is also an issue among youth there (but with strong variations in drinking and smoking culture in Italy vs. Germany). In addition, assuming that Life Skills represent rather universal protective factors for adolescent development (WHO 1997) the program had a good chance to work notwithstanding cultural differences (Weichold et al. 2006).

Following the adaptation model of Resnicow et al. (2000), we made changes only on the “surface structure”, i.e. program language, culture-specific situations. This was because the “deep structure”, i.e. program theory, was hypothesized to be similar in the two countries. The materials of the program, including measurement tools, were forward–backward–forward linguistically validated into Italian. Moreover, an intensive exchange and supervision between those responsible for the project in Germany and in Italy ensured that the original content of the material was not excessively modified (for more information see Weichold et al. 2006). Only minor adaptations of the program manual based on the Italian drinking culture and attitudes were necessary (i.e., culture-specific situations where the offering of alcoholic drinks is likely).

In both in the German and Italian studies, a quasi-experimental design with intervention and control groups, covering a time span of 1.5 years with three measurement points (i.e., pre-test, post-test, and a 1-year follow up assessment were used). In both countries, schools were randomly selected (from a register of schools using random numbers) to participate in

the project, whereas a random allocation to intervention and control condition was not possible. In the German sample, the schools that accepted participation in an intervention composed the intervention group, while the other schools composed the control group. In the Italian sample, because there were fewer schools involved in the project due to the limited resources available, the selection was done within the schools. The classes that were willing to implement the program composed the intervention group while the others were assigned to the control group. In both samples, the control group did not undertake any additional activities outside the normal curriculum. More information on sample selection can be obtained, e.g., from Weichold et al. 2006. In both countries, after the pretest, teachers from the intervention group took part in a 1-day IPSY workshop using the basic manual, after which they received the manual to use in their classrooms. After the post-test, teachers again participated in a facilitator workshop using the manual for the booster session, which again they afterwards implemented with their students.

In both countries, parents were informed by mail and were asked to give consent for their children to participate both in filling out the questionnaire and in the program. All parents gave their consent, except for four families in the Italian sample. The questionnaires were administered by researchers during normal classroom time in the absence of teachers. Moreover, pupils were assured that their answers to the questionnaires would not be shown either their teachers or their parents. Teachers involved in the project also completed a short report after each IPSY lesson with comments and suggestions for improving the program. The project obtained the ethical consent by the University of Torino in Italy and by the Thuringian State Ministry of Culture and Education in Germany.

Participants

German Sample

The sample with adolescents who participated in all three data collection waves consists of $N = 1131$ German students from Thuringia region from grade fifth (t1 and t2) to grade six

Table 1 Descriptions of the German and Italian sample

	German sample			Italian sample		
	Total sample ($N = 1131$) N//%//M/ SD	Treatment group ($N = 646$) N//%//M/ SD	Control group ($N = 485$) N//%//M/ SD	Total sample ($N = 159$) N//%//M/ SD	Treatment group ($N = 71$) N//%//M/ SD	Control group ($N = 88$) N//%//M/ SD
Age ^a	10.45/1.60	10.41/1.58	10.54/1.68	11.14/1.40	11.11/1.36	11.16/1.43
Sex (female) ^b	53.5	52.4	56.4	50.0	49.0/35	51.0/45
Persons/household ^a	4.45/1.77	4.44/1.6	4.37/1.86	4.08/1.39	4.16/1.41	4.01/1.38
Employment status father (full time) ^b	695/61.5	494/69	328/62	148/95	68/97	80/93
Employment status mother (full time) ^b	430/38	282/38	224/40	90/58	67/47	50/43

No differences for all variables were found between treatment and control group in the German, and in the Italian sample

^a t test

^b χ^2 -test

(t3) (mean age at t1 = 10.45 years). Students attended two different school types (college-bound track 62 %, and vocational track 38 %). Of the sample, 54 % were female, and females comprised 57 % of the intervention group. On average, adolescents came from families with four persons living in one household; 61 % of fathers and 38 % of mothers were employed full-time. No differences in these variables were obtained between the intervention and control groups (see Table 1). Socio indicators of the German sample are similar to those of inhabitants of Thuringia region.

Italian Sample

The longitudinal sample who participated in all three waves of data collection was composed of 159 students (45 % intervention group) from Piedmont the region in Italy. The mean age of the longitudinal sample was 11.14 years at t1, and 50 % were female. Adolescents came from families with a mean of four persons living in one household; 95 % of fathers and 58 % of mothers were employed full-time. No differences in these variables emerged between the intervention and control groups (see Table 1).

Comparison of Both Samples

Both the German and the Italian samples were comparable regarding various socio-demographic features, except for students' age, as shown in Table 1. Italian students were 1 year older than German students because the program was implemented with sixth grade students in Italy (as compared to grade five in Germany). This is because in Italy sixth grade pupils enter middle school and consequently change school (while it is grade five for Germany).

Measures

Process Evaluation

Measures used for process evaluation of the basic program and for the booster session were gathered from facilitators and students via self-reports. Facilitators filled in a short self-developed questionnaire after each session for assessing the quality of implementation (e.g. "How much of the content of this session were you able to convey?"). Moreover, after teaching the full program the teachers completed a short questionnaire regarding their program acceptance (e.g. "Would you teach the same program again, even independently from a study?"), and reflections on the program (e.g. "Did you profit from the program regarding your methodological repertoire?"). Students' acceptance of the program was assessed based on measures gathered during the post-test (e.g. "Do you want to have the program IPSY again at your school?").

Outcome Evaluation

For outcome evaluation, all measures were obtained at pre-test (t1) 1 year, post-test (t2, from 2 to 7 months later) and follow up (t3, 1 year later, after implementation of the booster session) from German and Italian students via self-reports. We collected information also on cigarettes and cannabis use. Because of the low prevalence (at t1 and t2, ca. 1 and 1 %) of these behaviors at t1 and t2, we could not perform any analyses.

Alcohol Use

Regarding alcohol consumption, attitudes towards future consumption (1 item e.g. “How likely is it for you to drink on a regular basis during the next 12 months?”, 0 = not at all to 3 = very likely; for consumers and abstainers) as well as knowledge about alcohol (3 items, e.g. “Regular alcohol use does not cause health problems”, 0 = wrong, 1 = right; “right” answers are counted) were measured (Kersch et al. 1998). Moreover, students gave information on frequency of drinking during the last 30 days (0 = never to 5 = daily). Data were gathered separately for various kinds of alcoholic beverages (beer, wine, spirits, and mixed drinks).

Intrapersonal Life Skills

Intrapersonal life skills were measured using a self-concept scale by Deusinger (1986) ranging from 1 (agree) to 6 (disagree) composed of the following subscales: Self-concept of assertiveness towards groups (12 items, e.g. “I have difficulty stating my opinion in front of a group”; Cronbach’s Alphas in the German and in the Italian sample: .69 and .61, .81 and .75, .84 and .76), Self concept of appreciation from others (6 items, e.g. “Others often look at me critically”; Cronbach’s Alpha in the German and in the Italian sample: .57 and .61, .68 and .62, .73 and .61), Self concept of general self-esteem (10 items, e.g. “I am a nobody”; Cronbach’s Alphas in the German and in the Italian sample: .77 and .81, .68 and .82, .73 and .83), and Self concept of general problem solving (10 items, e.g. “I am optimistic about the future”; Cronbach’s Alphas in the German and in the Italian sample: .75 and .59, .88 and .58, .88 and .68). High mean scores therefore reflect a positive self-concept.

Interpersonal Skills

Interpersonal skills were assessed by a checklist including knowledge about assertive behaviors and effective communication. Knowledge about assertive behaviors was assessed by six items asking youth to categorize behavioral styles as aggressive (“not to be willing to make an agreement”), self-confident (“to look someone straight in the eye”) or insecure (“to give in quickly”). Answers were summed. Effective communication was assessed by 4 items measuring the knowledge of listening rules (e.g. “one should show a friend that one is listening”) and 4 items assessing their knowledge about speaking rules (e.g. “one should speak loudly and clearly”) which were taught to the students during the program sessions.

Resistance to Peer Pressure (Santor et al. 2000)

This scale was composed of 8 items, ranging from 1 (high agreement) to 5 (definitely not). It assesses the extent of susceptibility to peer pressure (e.g. “When my friends put pressure on me I give up easily”; Cronbach’s Alphas in the German and in the Italian sample: .67 and .60, .79 and .58, .72 and .66).

School Involvement/Bonding (Fend and Schur 1991)

This scale comprised 9 items regarding enjoyment of school and classes (e.g. “I like going to school”, “I enjoy class time”; Cronbach’s Alphas in the German and in the Italian sample: .76 and .81, .80 and .78, .81 and .80).

Table 2 Results of MANOVA in the German sample; means (M), standard deviations (SD), main (ME), and interaction effects (IE) for all dependent variables (skills, knowledge, and school involvement)

Dependent variables	Treatment Group			Control Group			ME time	ME group	IE time × group
	T1	T2	T3	T1	T2	T3			
	M/SD	M/SD	M/SD	M/SD	M/SD	M/SD			
<i>Intrapersonal like skills</i>									
Self-concept of assertiveness in groups	3.91/.83	4.08/.87	4.26/.88	4.04/.80	4.08/.85	4.30/.87	$p < .001$	n.s.	n.s.
Self-concept of appreciation from others	4.57/.87	4.66/.83	4.71/.86	4.55/.91	4.59/.85	4.62/.89	$p < .01$	n.s.	n.s.
Self-concept of general self-esteem	4.63/.91	4.71/.95	4.75/.94	4.60/.91	4.60/.93	4.62/1.02	$p < .05$	n.s.	n.s.
Self-concept of general problem solving	4.42/.81	4.52/.75	4.60/.76	4.41/.80	4.52/.74	4.56/.74	$p < .001$	n.s.	n.s.
<i>Interpersonal life skills</i>									
Knowledge on assertive behavior	2.10/1.27	2.66/1.31	2.98/1.38	2.03/1.26	2.24/1.31	2.69/1.34	$p < .001$	$p < .001$	$F(2,2028) = 6.98; p < .01, ES = .16$
Communication knowledge	3.46/.74	3.56/.70	3.64/.65	3.44/.76	3.53/.73	3.58/.78	$p < .001$	n.s.	n.s.
Listener rules	3.41/.72	3.50/.68	3.59/.69	3.44/.79	3.47/.76	3.52/.72	$p < .001$	n.s.	n.s.
Speaker rules	4.27/.66	4.27/.64	4.30/.61	4.33/.60	4.20/.66	4.25/.58	$p < .05$	n.s.	$F(2,2028) = 5.49; p < .01, ES = .27$
Resistance to peer pressure	3.55/.79	3.27/.82	3.23/.84	3.48/.78	3.07/.88	2.97/.89	$p < .001$	$p < .001$	$F(1,2028) = 6.17; p < .01, ES = .21$
School involvement									

Multivariate effects for the sub-set of nine variables: ME time: $F(18,997) = 39.25, p < .001$; ME group: $F(9,1006) = 5.08, p < .001$; IA time × group: $F(18,997) = 2.08, p < .01$

Data Analyses

First, descriptive analyses in each of the samples are reported, based on teachers' and students' reports for process evaluation, to assess program fidelity and acceptance in the German and Italian samples. Second, given the low power of the Italian sample, we decided not to adopt a conservative approach and did not perform an intent-to-treat analysis. However, following Thyer (2012), we conducted attrition analyses to investigate whether the dropouts in the three waves were likely to influence the effects of the intervention. To do so, intervention and missing status were entered as independent variables, while life skills, alcohol use, and socio-demographic variables were entered as dependent variables in univariate ANOVA analyses. A significant interaction effect indicates that intervention and control groups differ in the loss of subjects with respect to the dependent variable. Third, in order to investigate the differences between intervention and control group in change of skills, knowledge, and school involvement over time, we ran MANOVAs with repeated measurements. Regarding alcohol, 30-day frequencies of use, expectations towards future regular alcohol use and knowledge about alcohol were analyzed by means of ANOVAs with repeated measurement. In Tables 2, 3, 4 and 5, the results for the German and Italian samples are summarized. Means of the indicators at all three measurement points are depicted for the intervention and control group. Accordingly, main and interaction effects and their significance are reported. Effect sizes are given for

Table 3 Results of ANOVA with repeated measurement in the German sample; means (M), standard deviations (SD), main (ME), and interaction effects (IE) for significant dependent variables (alcohol) in the entire sample

Dependent variables	Treatment group			Control group			ME time (T1–T3)	ME group (T1–T3)	IE time × group
	T1 M/ SD	T2 M/SD	T3 M/ SD	T1 M/SD	T2 M/SD	T3 M/SD			
<i>Alcohol related variables (entire sample)</i>									
Expected alcohol use during the next 12 months	.33/ .55	.35/ .60	.43/ .69	.33/ .56	.41/ .62	.56/ .74	$p < .001$	$p < .05$	$F(2,994) = 3.13$; $p < .05$, ES = .18
Knowledge on alcohol	1.52/ .99	1.66/ 1.01	1.80/ 1.0	1.54/ 1.01	1.61/ 1.02	1.77/ 1.04	$p < .001$	n.s.	n.s.
30-day frequency beer	.31/ .67	.35/ .77	.42/ .91	.30/ .67	.35/ .80	.53/ 1.04	$p < .001$	n.s.	n.s.
30-day frequency wine	.33/ .64	.36/ .71	.46/ .88	.30/ .63	.40/ .73	.57/ .91	$p < .001$	n.s.	$F(2,1056) = 3.18$; $p < .05$, ES = .17
30-day frequency mixed drinks	.15/ .49	.20/ .65	.29/ .83	.16/ .55	.23/ .65	.38/ .88	$p < .001$	n.s.	n.s.
30-day frequency spirits	.09/ .37	.13/ .50	.22/ .75	.08/ .36	.17/ .63	.25/ .74	$p < .001$	n.s.	n.s.

Table 4 Results of MANOVA with repeated measurement in the Italian sample; means (M), standard deviations (SD), main (ME), and interaction effects (IE) for all dependent variables (skills, knowledge, school involvement)

Dependent variables	Treatment group			Control group			ME time (T1–T3)	ME group (T1–T3)	IE time × group
	T1	T2	T3	T1	T2	T3			
	M/SD	M/SD	M/SD	M/SD	M/SD	M/SD			
<i>Intrapersonal like skills</i>									
Self-concept of assertiveness in groups	4.02/88	4.27/99	4.50/93	4.14/83	4.13/83	4.39/80	$p < .001$	$p < .05$	$F(2,280) = 2.55$; $p < .10$, $ES = .27$
Self-concept of appreciation from others	4.51/95	4.76/92	4.67/99	4.77/77	4.76/73	4.71/76	n.s.	n.s.	$F(2,280) = 2.37$; $p < .10$, $ES = .26$
Self-concept of general self-esteem	4.52/111	4.54/114	4.54/114	4.68/87	4.61/88	4.69/91	n.s.	n.s.	n.s.
Self-concept of general problem solving	4.26/77	4.40/76	4.56/82	4.36/67	4.36/69	4.46/70	$p < .01$	n.s.	n.s.
<i>Interpersonal life skills</i>									
Knowledge on assertive behavior	3.26/107	3.40/116	3.77/116	2.98/113	3.04/130	3.52/108	$p < .001$	n.s.	n.s.
Communication knowledge									
Listener rules	2.48/101	2.49/92	2.54/99	2.52/87	2.39/80	2.48/98	n.s.	n.s.	n.s.
Speaker rules	2.37/102	2.77/93	2.37/102	2.16/116	2.49/85	2.16/116	$p < .001$	$p < .05$	n.s.
<i>Knowledge and school related variables</i>									
Resistance to peer pressure	4.11/90	4.04/90	3.92/97	4.28/78	4.19/73	3.81/77	n.s.	$p < .10$	n.s.
School involvement	3.39/105	3.33/95	3.21/94	3.16/95	2.95/95	2.82/91	$p < .001$	$p < .05$	n.s.

Multivariate effects for the sub-set of nine variables: ME time: $F(17,132) = 6.94$, $p < .001$; ME group: $F(9,132) = 2.63$, $p < .01$, IA time × group: $F(17,124) = .74$, n.s.

each significant effect in both samples according to Derzon et al. (2005). Considering the difference in size between the two samples, for the Italian analyses we also reported marginally significant effects that were above the averaged effect size for school-based interventions (.15, as Tobler et al. 2000 revealed). For computation of effect sizes, difference scores between t1 and t3 were used. To control whether the nested nature of the data (due to school/classroom-wise randomization procedure) was likely to affect our results, we computed design effects. In both samples, design effects were below two, suggesting that random effects would not influence fixed effects (Muthen and Satorra 1995). Thus, we did not perform multilevel analyses.

Results

Process Evaluation of Booster Sessions

German Sample

For the German sample, process evaluation revealed that the teachers were able to convey most of the content of the manual (80 % in grade five, and 84 % of the material in the manual in grade six). Moreover 82 % of the teachers improved in their methodological repertoire, in both grades five and six. Nine out of 10 teachers declared they would implement the booster session independently from the evaluation study. The sessions in both grade five and grade six were very well accepted by students (i.e., about 86 % in

Table 5 Results of ANOVA with repeated measurement in the Italian sample; means (M), standard deviations (SD), main (ME), and interaction effects (IE) for all dependent variables (alcohol)

Dependent variables	Treatment group			Control group			ME time (T1–T3)	ME group (T1–T3)	IE time × group
	T1	T2	T3	T1	T2	T3			
	M/SD	M/SD	M/SD	M/SD	M/SD	M/SD			
<i>Alcohol related variables (entire sample)</i>									
Expected alcohol use during the next 12 months	.57/.78	.46/.78	.48/.73	.55/.79	.57/.88	.74/.97	n.s.	n.s.	n.s.
Knowledge on alcohol	1.17/.82	1.38/.79	1.42/.85	1.19/.85	1.05/.84	1.41/.91	$p < .05$	n.s.	$F(2,152) = 2.94$, $p < .10$, ES = .04
30-day frequency beer	.37/.88	.37/.81	.91/1.31	.26/.66	.30/.65	1.11/1.31	$p < .001$	n.s.	n.s.
30-day frequency wine	.34/.83	.19/.52	.80/1.10	.32/.70	.37/.88	1.14/1.17	$p < .001$	n.s.	$F(2,151) = 2.37$, $p < .10$, ES = .47
30-day frequency mixed drinks	.06/.29	.06/.29	.26/.68	.01/.11	.02/.22	.14/.58	$p < .01$	n.s.	n.s.
30-day frequency spirits	.01/.12	.04/.21	.22/.66	.00/.00	.04/.19	.12/.48	$p < .001$	n.s.	n.s.

grade five and 76 % in grade six of the students wanted to have the IPSY sessions again in their schools). In sum, the IPSY program was very well implemented and was accompanied by a high acceptance in the German school context.

Italian Sample

Similarly to the German sample above, in Italy process evaluation revealed that the Italian teachers were able to convey most of basic manual (85 % in grade six and 92 % in grade seven), and a large majority of the students (92 % in grade six and 91 % in grade seven) wanted to have IPSY again in their school. Eight out of 10 teachers declared they would implement parts of each lesson independently from the project. To sum, in the Italian context the IPSY program was well implemented and highly accepted, in grades six and seven.

Attrition Analyses

German Sample

The total attrition rate from t1 to t3 was 27 %, equally distributed between control and intervention groups. UNIANOVA analyses revealed that there were no differences in socio-demographic variables, life skills and alcohol consumption between individuals who dropped out of the control group and those that dropped out of the intervention group (ANOVA tables are available upon request). The attrition rate was in line with other trials of the same dimensions (e.g. Botvin et al. 1990).

Italian Sample

The total attrition rate from t1 to t3 was 19 %. The control group lost 10 % (N = 10) of the original students, and the intervention group lost 11 % (N = 12). Moreover, we excluded from the analyses anyone who did not receive the booster sessions. Thus, the intervention group lost an additional 15 % (N = 16) of the initial intervention sample. UNIANOVA analyses revealed that there was no difference in socio-demographic variables, in life skills and in alcohol consumption between individuals who dropped out of the control group and those who dropped out of the intervention group (ANOVA tables are available upon request).

Outcome Evaluation

German Sample

The multivariate analysis of variance on the set of variables covering skills, knowledge, and school involvement (N = 1016) revealed a significant multivariate main effect of time, $F(18,997) = 39.25, p < .001$, and group, $F(9,1006) = 5.08, p < .001$. Moreover, a significant multivariate interaction effect of group by time was obtained, $F(18,997) = 2.08, p < .01$ indicating differences in mean levels over time between the intervention and control groups. Subsequent univariate tests resulted in significant interaction effects for three of the nine variables, namely knowledge on assertive behaviors, resistance to peer pressure, and school involvement. As mean levels in Table 2 show, for knowledge on assertive behaviors we found a steeper increase over time in the intervention group as compared to controls, $F(2,2028) = 6.98, p < .01$. For resistance to peer pressure we found that students in the

intervention condition remained stable between t1 and t2 and showed a slight decrease in susceptibility to peer pressure between t2 and t3 as compared to controls who decreased in their resistance between t1 and t2 and then remained at a higher level of susceptibility between t2 and t3, $F(2,2028) = 5.49, p < .01$. Concerning school involvement we found less of a decrease of school involvement over all three measurement points in the intervention group as compared to controls, $F(2,2028) = 6.17, p < .01$. Effect sizes ranged from .16 to .27. No significant interaction effects were found on the four variables covering self-concept, and knowledge on general communication behaviors (speaker and listener rules).

The univariate analyses of variance on alcohol-related variables (see Table 3) resulted in a significant interaction effect concerning expected regular alcohol use during the next 12 months. More specifically, expectations of future regular alcohol consumption remained relatively stable in the intervention group whereas for the controls the regular consumption of alcohol became much more likely over time, $F(2,994) = 3.13, p < .05$. The effect size was .18. Furthermore, there was an interaction effect between time and group for 30-day frequency of wine with a steeper increase over time in the control group compared to the IPSY students, $F(2,1056) = 3.18, p < .05$ (ES = .17).

Italian Sample

The multivariate analysis of variance on the set of variables covering skills, knowledge, and school involvement ($N = 142$) showed a significant multivariate main effect of time ($F(17,132) = 6.94, p < .001$), group ($F(9,132) = 2.63, p < .01$). No interaction effect of group by time was found. Subsequent univariate analyses showed a marginally significant interaction effect of group by time on the assertiveness towards groups ($F(2, 280) = 2.55, p < .10$), and on the perception of appreciation from the others ($F(2, 280) = 2.37, p < .10$). Students from the intervention group increased their assertiveness towards the group and the perception of a positive evaluation from others over time, compared to students in the control group (see Table 4).

Regarding alcohol use (see Table 5), we found a tendency of interaction effects of group by time on 30-day frequency of wine ($F(2, 151) = 2.37, p < .10$). The analyses showed that the tendency to increase the frequency of wine consumption over time was much higher in the control group than in the intervention group. No interaction effects were found on a 30-day frequency of beer, mixed drinks and spirits. We also found a marginally significant interaction effect of group by time on knowledge regarding alcohol ($F(2, 152) = 2.94, p < .10, ES = .04$). Students from the control group decreased in their knowledge about alcohol at post-test, whereas students from the intervention group improved it. However, this tendency disappeared 1 year later, when both groups showed a similar knowledge about alcohol [IE, time \times intervention, between T2 and T1: $F(1,153) = 4.7, p < .05$; between T3 and T2: $F(1,153) = 1.1, n.s.$]. Effect sizes ranged from .26 to .47. Finally, no significant interaction effects were found for expectations towards regular consumption of alcohol during the next 12 months.

Discussion

The goal of the present study was to report the process and outcome evaluation of a life skills intervention in two culturally different settings, namely Italy and Germany 1 year following its introduction. Our study revealed that the IPSY program was in general well

accepted by students and teachers from the two different European nations. Moreover, IPSY was able to affect attitudes, personal competences, and alcohol use in both countries, although somewhat differently. This suggests that life skills-based programs may be a useful tool in the prevention of risk behaviors in adolescence in a broader European context.

Process evaluation revealed that IPSY was well accepted by students and teachers in both countries and the content was easily delivered for the basic program and the booster session. This result reinforces the view that the life skill approach is suitable for the school curricula of two European countries, with different school systems. Middle school in Italy is equal for everyone, while at this level students are assigned to a college-bound or vocational school track in Germany. It is important to highlight that Italy does not have any tradition of implementing manualized programs in schools. Interventions in Italian schools often consist of advice and exercises provided by professionals (for a report about the situation of prevention in Italy see Coffano 2010, and see Unplugged Program for an exception, Faggiano et al. 2008a, b). Although Italian teachers are not used to following a structured and well organized manual, with a strict schedule, this study showed that both German and Italian teachers were able to follow the structured manual of the IPSY program without problems. In line with this, process evaluation of the program confirmed that IPSY implementation is comparable and similar in two countries from two different cultural areas of Europe and with different school systems.

The program positively affected students' behaviors and skills by the implementation of the main program and the booster session in both countries. German participants of the IPSY program increased in their knowledge about assertiveness, resistance to peer pressure, and school bonding, while Italian students increased in their assertiveness skills (as compared to controls). These variables are known to represent prominent protective factors against problem behaviors in adolescence, such as substance use (e.g. Catalano et al. 1996; Fletcher et al. 2008; Santor et al. 2000; Scheier et al. 2001). In addition, in the Italian sample, students who participated in the program gained an increased sense of being appreciated by the others. Given the importance of proximity and interdependence in Italian society (Kohli et al. 2005), we may argue that the perception of being positively evaluated by others may have a stronger value for Italian youth than for young Germans and might play a crucial role in the prevention of substance use in particular in Italy. This hypothesis, however, needs to be tested in the future. Thus, IPSY was able to influence some of the protective factors that seem to be culturally equivalent (e.g. assertiveness, resistance to peer pressure) and showed some specificity according to the cultural context (perception of appreciation by others).

The most important result of this study was that youth that received IPSY showed a less steep increase of alcohol use 1 year after the implementation in both countries, compared to control groups. Quite surprisingly and in contrast with the results of the pre-post comparison (Weichold et al. 2006), in the follow-up (after implementing the booster session) the beverage that was most affected by the program in both countries was wine. More specifically, both Italian and German adolescents in the intervention increased their consumption of wine to a lesser extent than adolescents in the control groups, which is probably due to the higher rates at t3 of wine consumption in both samples compared to other beverages, which renders it easier to detect changes overtime. Finally, the program reduced the expectation to drink on a regular basis in the following 12 months among German adolescents. Expected alcohol use has been found to be a predictor of alcohol use in the following year (Ellickson and Hays 1992). To summarize, IPSY affected actual alcohol consumption over a time span of about 1 year after implementing the main and

booster session of the program in both countries, and also reduced expectations for regular alcohol use in Germany.

The effect sizes of the results obtained in this study are quite good. Considering that the average effects size for school-based interventions is about .15 (Tobler et al. 2000), it is noteworthy that our effects ranged from .04 to .47, indicating that IPSY program might have a considerable impact in youth alcohol use. Effect sizes are higher in Italy than Germany. This is probably due to the fact that the smaller sample allows for better supervision and less inconvenience, leading to better control in the implementation. In addition, the classroom-based selection of the control group used in the Italian sample (as compared to school-wise selection in the German one) may add to differences in effect sizes. This issue, however, needs to be clarified within future cross-national studies using more comparable design strategies.

In spite of these positive results, some unexpected outcomes should also be acknowledged. In particular, the lack of effects in both samples on life skills such as communication and problem solving was unexpected. Communication and problem solving are recognized as important skills for child development (WHO 1997). The activities used in the program were not able to target the appropriate elements to reinforce these skills. According to the Problem Behavior Theory (Jessor et al. 1991), communication and problem solving are classified as “distal” factors, compared to alcohol-related outcomes (e.g. expectations to drink), which are “proximal” factors. Distal factors are considered to be less close to the targeted behaviors, i.e. substance use, than proximal factors and for this reason are more difficult to target and modify in a short time (Jessor et al. 1991). Thus, more studies are needed to understand how a relatively short prevention program might effectively target distal factors, independently from the type of country.

We are aware that this study has some weaknesses. The first one is that the samples were analyzed separately, which does not allow us to make a statistical comparison. However, the large difference in size between the two samples suggests the strategy of separate analysis. Unfortunately it was not possible for financial reasons to run a trial in Italy of the same dimension as the German trial. This affects the generalizability of the results. Because of the small sample size in Italy, we also took into account marginally significant results ($p < .10$). The effects in the Italian sample were bigger in size than those we found in the German sample; thus, studies that involve more students, especially in Italy, and two comparable samples from the two countries, are needed. Moreover, it can be argued that the Italian sample is not representative of the Italian population, yet the sample presents socio indicators comparable to those of the Italian population (ISTAT). Nevertheless, a bigger sample or a probability sample is needed to reliably generalize these results to Italian youth. Another limitation is the long time span for the completion of the post-test in the German sample (6 months) that may have influenced the results. However, as this length of time applies to both the treatment and the control group, we think that a differential influence is very unlikely. Moreover, because some measures achieved low reliability values in some waves, results involving those measures should be taken with caution. Finally, given the small Italian sample, we could not impute the missing data reliably. Although the attrition rate is quite low, this lack of imputation may affect the results.

This study has also some strengths. First of all, to our knowledge it is one of the very few that presents results of a life skills program evaluation in two European countries. This has important theoretical and practical implications. From a theoretical point of view, the fact that the program works comparably well, in terms of feasibility and effectiveness, in both countries might confirm that the theoretical risk and protective factors affecting

adolescent substance use are similar across countries. This is important in understanding the etiology of problem behaviors in adolescence under a cross-cultural perspective. However, it should be noted that the program modified certain skills and behaviors specifically in only one country (e.g. appreciation from the others in Italy and resistance to peer pressure in Germany). This specificity calls for further studies to understand why some factors are more likely to be influenced in one country than another. From a practical point of view, the transferability of such a program across countries with different cultural backgrounds demonstrates that the program is flexible enough to be adjusted to different contexts, at least in Europe. To conclude, more research needs to be conducted in the future to extend expertise in the area of substance use prevention and to establish effective measures to mitigate youth substance use broadly across Europe.

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Compliance with Ethical Standards

Conflict of interest The authors declare that they have no conflict of interest.

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