Evidence-based and rigorously evaluated intervention programs (such as the IPSY program) can promote psychosocial development and prevent problematic use of alcohol and cigarettes among youth.

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Translation of etiology into evidence-based prevention: The life skills program IPSY

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IPSY (Information + Psychosocial Competence = Protection) is a universal life skills program aiming at the promotion of generic intra- and interpersonal life skills, substance-specific skills (for example, resistance skills), school bonding, knowledge, and the prevention of substance misuse with a focus on alcohol and tobacco in youth. This program is based on the WHO’s life skills approach as well as on theories and empirical findings concerning the development of substance misuse during early adolescence. IPSY is implemented by teachers over three years of schooling (grades 5–7, in Germany). Guided by models of translational research dealing with conditions of a successful translation of etiological findings into evidence-based prevention programs, the chapter highlights the results of a more than ten-year research program focusing on the development and evaluation of the IPSY program. Findings on long-term general effects, mediators, and moderators of program effectiveness and cross-cultural transferability of the program
to other European countries will be summarized and discussed in light of dissemination issues.

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**Introduction and theoretical frame**

Given the high costs of problematic substance use for individuals and society, public pressure, and limited financial resources, the transfer of effective evidence-based intervention programs into practice is urgently needed.¹ Many programs tried to focus on the prevention of substance abuse and misuse in adolescence in the past; however, most of them were not developed based on a strong theoretical basis or were not evaluated rigorously, as suggested, for instance, by models of translational research. According to Pentz, the successful translation of etiological findings in evidence-based prevention programs requires several steps, which include the development of a prevention model derived from recent etiological models and epidemiological results, pilot testing after program development, program replication, and dissemination (with feedback loops incorporated).² These steps represent a frame for the strategy that was followed by developing and evaluating the life skills program IPSY (Information + Psychosocial Competence = Protection), a universal prevention program aiming at the promotion of generic intra- and interpersonal life skills, substance-specific skills (for example, resistance skills), school bonding, knowledge, and the prevention of substance misuse with a focus on alcohol and tobacco in youth.³ In the following account, the program, its theoretical underpinnings, and the results of a more than ten-year research program focusing on the evaluation of the IPSY program will be presented according to the steps proposed by Pentz.⁴

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**Theoretical underpinnings: Results from epidemiology and etiological models**

The use of legal substances (alcohol and cigarettes) is usually initiated in and increased during adolescence.⁵ Until the end of this life
period, almost all youth try out alcohol (10 percent being regular users) and nearly three-quarters try cigarettes (13 percent regular users; numbers for Germany).\textsuperscript{6} Due to the normative character of legal substance use, prevention attempts such as the IPSY program realistically have to focus on delaying the onset and promoting responsible use rather than non-use.

For both the onset and the rate of growth of legal substance use across adolescence, research demonstrated high heterogeneity among youth.\textsuperscript{7} While most adolescents consume alcohol and cigarettes temporarily to overcome the gap between early physical maturation and late transition into social adult roles, problematic use trajectories (early onset, steep increase) relate to a constellation of risk factors in childhood and more negative outcomes in adulthood.\textsuperscript{8} Given longer-termed adaptation problems in problematic users as well as suboptimal accomplishment of developmental tasks in adolescents with more normative use patterns, effective intervention strategies for entire population groups, that is, universal programs, are needed. The IPSY program is one of them.

Besides the differential perspective, scientists believe that the use of alcohol and cigarettes (in part) facilitates the solution of developmental tasks during adolescence, such as gaining a high peer status, demonstrating autonomy, or getting in touch with potential romantic or sexual partners. In addition, in the case of adolescents being overburdened with the cumulation of developmental tasks or perceiving failure in accomplishing them, substance use might be an effective coping strategy in the eyes of youth to overcome stress, anxiety, or threat.\textsuperscript{9} Following these assumptions, the IPSY program aims at promoting adolescents’ intra- and interpersonal skills to enable them to deal with their everyday challenges and to cope with age-related developmental tasks.

Corroboration for the IPSY program is provided by leading theories on the development of adolescent substance use. Among these are the Social Learning Theory, which assumes that adolescents are exposed to model learning, imitation, and the influence of substance using role models, which they have to learn to resist; the Problem Behavior Theory that interprets propensity to substance
use as a result of attitudes, expectations, personality, and personal interpretation of substance use; or the Theory of Social Control that stresses the importance of social norms, conventional commitment, and bonding to normative social influences.\textsuperscript{10}

Empirical studies demonstrated strong associations in particular between several intrapersonal (general) risk factors (for example, personality), social risk (distal and proximal) factors (for example, bonding to conventional role models, belief that use is normative, or pressure to use), and adolescent substance use. Also, cultural dynamics, such as low bonding to school and conventions, and expectations of positive consequences of substance use play a role as risk factors.\textsuperscript{11} Furthermore, protective factors (for example, life satisfaction, competence, school orientation, effective communication pattern) and high levels of broad developmental assets lower the risk for adolescent substance use.\textsuperscript{12} Based on these findings, the IPSY program aims at both decreasing the impact of risk and increasing the influence of protective factors.

Finally, meta-analytic results on effective ingredients of prior prevention strategies contributed to the development of IPSY.\textsuperscript{13} They stress the importance of school-based (and school-focused) approaches, training of resistance skills, transfer of attitudes, promotion of positive peer relationships, and interactive training (with high intensity). Such characteristics seem to be best reflected in life skills programs, which aim to (1) promote intra- and interpersonal skills, (2) change knowledge, attitudes, and values, within (3) a context of positive reinforcement in order to positively influence substance use behavior in youth (model of life skills education).\textsuperscript{14} The characteristics of these programs were adopted for the IPSY program.

\textit{Prevention model and program development}

The prevention model mirrors the assumption that adolescent substance use develops in a context of general risk factors (cultural factors, personality, and characteristics of close support systems).
These general risk factors influence intrapersonal and interpersonal skills, substance-specific knowledge and competence, and bonding to norm-transmitting institutions, such as school (distal risk and protective factors for substance use), which lead to adolescent substance use via psychological factors. Within this model IPSY targets risk factors at the distal level.

More specifically, the program curriculum was developed to promote intrapersonal competences (self-efficacy, empathy) in interactive sessions that train, for instance, how to deal with strong feelings and stress, and how to make appropriate decisions. In addition, interpersonal competences (for example, effective communication, self-assured behavior, resistance to peer pressure) are facilitated via the training of resistance skills in hypothetical age-typical situations where adolescents are confronted with alcohol and cigarette offerings, and substance-related knowledge is transmitted (consequences, prevalence, plus analysis of advertisement strategies). Finally, the program content focuses on the promotion of positive attitudes toward schools, classmates, and teachers through reflection on learning strategies or discussion about school optimization.

The program comprises three parts for grades five to seven (ages 11–13) with a total training amount of about 33 hours (“high intensity program”). The focus in grade five (basic program) is the facilitation of general intra- and interpersonal competences.\textsuperscript{15} The booster sessions in grades six and seven include rehearsal and active training. Thereby the situations in which students interactively learn gradually become more specific for substance use parallel to the growing likelihood of adolescents being confronted with alcohol and cigarettes in everyday life. With such a design the IPSY program reflects the optimal curriculum for long-term effective prevention programs as suggested by the WHO.\textsuperscript{16}

The IPSY program is implemented by teachers in a co-educative classroom setting in schools, as are the majority of existing prevention programs based on the life skills approach. Students participate in the IPSY program on a voluntary basis and facilitators are trained to explicitly present the resource-oriented meaning they
need to identify strengths in each student and apply positive reinforcement strategies. Teachers take part in a one-day facilitator training where they get to know the detailed manual describing every step of each of the sessions.

**Results of the pilot test**

After development, the IPSY program was first tested in a smaller pilot study (pre–post design with follow-up after two years, \(n = 105\), beginning of grade five to end of grade seven) in order to investigate the new program’s practicability, acceptance, and effectiveness. All the fifth-grade classes of a large school were randomly selected into one of three conditions: (1) intervention with teachers as facilitators, (2) intervention implemented by older peers, and (3) participation in a newspaper project as a control condition. The process and first outcome evaluation over three years demonstrated that IPSY facilitated by teachers (but not older peers) was accepted and practicable, able to prevent early and high alcohol use, and also to promote resistant skills against cigarette offerings. Therefore, further program implementation was teacher-based. Based on the feedback of teachers working with the training manual, we revised the manual slightly (in particular regarding time lines).

**Large-scale program test and replication**

Based on the promising results of the pilot study, we evaluated the effects of IPSY within a large-scale evaluation study (quasi-experimental longitudinal design with more than forty schools from the Federal State of Thuringia in Germany assigned to intervention and control groups at school level, including \(N(T1)\) approx. 1,700). Students of the intervention condition received IPSY facilitated by teachers over three years. The control group participated in the normal school curriculum. At pre-test both groups were equivalent with regard to socio-demographic variables.
and substance use. Students participated in six measurement waves (pre- and post-test in grade five, with four follow-ups at the end of grade six, seven, eight, and nine; ten-year follow-up data collection is currently underway).

Process evaluation revealed that the program was implemented with a rather high fidelity (approximately 85 percent of the content conveyed) and well accepted by students throughout the three years (approximately 80 percent of students wished to participate again). The outcome evaluation replicated the former finding of IPSY being able to prevent early and high use of alcohol and cigarettes (positive effects on prevalence, frequency of use, and amount). In addition, students who took part in the intervention compared to those in the control group increased their general life skills and substance-specific competencies and knowledge. Bonding to school was positively influenced as well. The program effects were particularly pronounced during the three years of implementation but the majority of effects persisted beyond that. The general effect sizes were at the upper range of what can be expected of a life skills program (for example, up to 0.27 for resistance toward peer pressure and school bonding, up to 0.41 for alcohol-related outcomes, and 0.19 for cigarette-related outcomes).

To investigate the question whether different sub-groups would equally profit from IPSY within an unselected, normal population sample, we examined gender, school-type, and individual use trajectory (normative versus problematic) as potential moderators of program effectiveness. First, boys and girls both profited from IPSY with regard to school bonding, general life skills, and substance use. However, we found an additional program effect on communication competencies (knowledge about self-confident and effective communication in groups) in girls but not boys. In this way, IPSY may also be an effective measure to work against the age-related trend among females toward decreasing self-assurance and confidence within social interactions during early- and mid-adolescence.20

Second, we found that IPSY can be effectively implemented in different school types. We found positive effects on school
bonding, general life skills, and substance use in students from both the upper, college-bound and the lower, non-college-bound track. In addition, students of the higher track showed greater gains in knowledge, whereas those of the lower track improved more in their resistance skills toward peer pressure. This difference makes sense given the fact that in the lower school branch students are more likely to be confronted with substance-using role models (peers and parents) and are more likely to belong to families with low SES, both of which factors represent additional risk factors for substance use.\textsuperscript{21}

Third, regarding the question of whether IPSY may also be an effective prevention tool for adolescents with a problematic use trajectory (20 percent) as compared to the larger group of adolescents with more normative usage (80 percent), we found that program participation did not have a meaningful and enduring effect on substance use in the problematic group. Thus, additional selective intervention strategies starting earlier in life and targeting specific risk factors have to be applied to this minority.\textsuperscript{22}

We also investigated potential mediators of program effects on substance use outcomes. Such analyses are needed in order to understand why an intervention works and to identify program components that are particularly effective for the prevention of early and high substance use in youth. In addition, results of mediation analysis can inform etiological models on the development of substance use in adolescence. We were able to show specifically that the resistance toward peer pressure, as well as school bonding, works as active mediators of general program effects on alcohol and cigarette use.

Regarding the replication of evaluation findings the IPSY has been implemented (with very minor adaptations) and evaluated using a similar research design in the Italian and Austrian contexts and demonstrated general program effects comparable to the German findings.\textsuperscript{23}

These results suggest that IPSY (1) targets rather universal risk and protective factors such as low conventionality, influence of deviant peers, or low bonding to normative developmental contexts
and (2) can be effectively implemented in different cultural contexts independent of the program developer.

Taken together, IPSY can be deemed an effective tool for substance misuse prevention and positive development promotion in a co-educative school context. The program’s positive effects on substance use are mediated through the promotion of resistance skills toward peer pressure and through school bonding. The main findings have been replicated in different cultural contexts by independent research teams.

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**Dissemination and impact on policy and practice: Achievements and challenges**

After developing and evaluating the life skills program IPSY within a ten-year research program, we have tackled the issue of broad dissemination. In addition to several published scientific papers about IPSY, the program’s manual (including information on the theoretical basis and evaluation findings) is now available to the public.\(^{24}\) Although the positive evaluation findings regarding IPSY have not initiated any political changes so far (for example, in terms of the program becoming part of the regular school curriculum in Germany), the results are reflected in politics and practice. The Ministry of Education, Science and Culture in Thuringia, Germany, and other political entities throughout Germany, for instance, currently suggest the IPSY program as an effective tool for substance misuse prevention and competence enhancement (see, for instance, the “Prevention Green List” at CTC—Communities that Care). In addition, striving for a top-down transfer of research findings into practice, we provide politicians with information about the program and findings.\(^{25}\) Simultaneously, we applied bottom-up strategies of knowledge transfer into practice (that is, over several years, we have trained and instructed administrators of more than 200 educational institutions). Both the top-down and the bottom-up transfer strategies have their problems (that is, political processes are difficult to influence and often immune to
research findings, and changed processes in schools can rely on single person who may leave institutions). However, the translation of evidence-based prevention programs against youth substance use into practice and policy is urgently needed in order to avoid a waste of limited financial and personal resources and to promote positive and healthy developmental pathways from adolescence to adult life. Therefore, efforts in applying top-down and bottom-up strategies for further program dissemination will be maintained.

**Conclusion**

Taken together, the development, evaluation, and dissemination of the universal life skills program IPSY seems to be a good model for the translation of etiological findings into evidence-based programs. Most of the required steps as suggested by Pentz were successfully accomplished in the course of the IPSY research program. Against this backdrop, it is hoped that changes in educational practices based on newly gained scientific knowledge (for instance, regarding the effects of prevention and promotion programs such as IPSY) will emerge, and programs proven effective will become widely implemented.

**Notes**


15. Hansen et al. (2010).


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