

Substance use prevention for adolescents: the Icelandic Model

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SUMMARY

Data from the European School Survey Project on Alcohol and other Drugs have shown that adolescent substance use is a growing problem in western and particularly Eastern European countries. This paper describes the development, implementation and results of the Icelandic Model of Adolescent Substance Use Prevention. The Icelandic Model is a theoretically grounded, evidence-based approach to community adolescent substance use prevention that has grown out of collaboration between policy makers, behavioural scientists, field-based practitioners and community residents in Iceland. The intervention focuses on reducing known risk factors for substance use, while strengthening a broad range of parental, school and community protective factors. Annual cross-sectional surveys demonstrate the impact of the intervention on substance use among the population of

14- to 16-year-old Icelandic adolescents. The annual data from two cohorts of over 7000 adolescents (>81% response rate) show that the proportions of those who reported being drunk during the last 30 days, smoking one cigarette or more per day and having tried hashish once all declined steadily from 1997 to 2007. The proportions of adolescents who reported spending time with their parents and that their parents knew with whom they were spending their time increased substantially. Other community protective factors also showed positive changes. Although these data suggest that this adolescent substance use prevention approach successfully strengthened a broad range of parental, school and community protective factors, the evidence of its impact on reducing substance use needs to be considered in light of the correlational data on which these observations are based.

Key words: adolescence; intervention; prevention; substance use

INTRODUCTION

During the 1990s and first years of the 21st century, substance use among 15- and 16-year-old adolescents increased in many European countries and in the USA (Bauman and Phongsavan, 1999; Hibell *et al.*, 2004). In Iceland, a country with a

rather homogeneous population of just over 300 000, substance use among adolescents rose gradually during the 1990s (Thorlindsson *et al.*, 1998; Hibell *et al.*, 2004). The proportion of 10th graders reporting that they smoked cigarettes on a daily basis increased from 15% to 23% from 1992 to 1998; those admitting that they had ever used

hashish in their lives rose from 7% to 17% during the same period (Thorlindsson *et al.*, 1998).

A comparative study of 30 European countries conducted by the European School Survey Project on Alcohol and other Drugs (ESPAD) showed that Icelandic adolescents, along with their Scandinavian peers, consumed alcohol differently than many other European teenagers (Hibell *et al.*, 1997). The 1995 ESPAD survey revealed that adolescents in Iceland and other Nordic countries were more likely to become drunk than other European teenagers (see Figure 1). In addition, alcohol-related accidents or injuries were more common in Iceland than in most other places in Europe, with 14% of Icelandic adolescents reporting having had such an incident (see Figure 2). These findings show that adolescent substance use was a problem in western and particularly Eastern European countries, and especially in Iceland.

Since these data were collected, Iceland has seen a steady decline in adolescent substance use. We believe that the decline is in large part due to the assiduous efforts by Icelandic authorities to both reduce risk factors and strengthen a broad range of parental, school and community protective factors. The purpose of this paper is to describe the development, implementation and results of the Icelandic Model of Adolescent Substance Use Prevention.

BACKGROUND AND REVIEW OF LITERATURE

In general, affiliations with peer group, family and the types of recreational activities available to young people are the strongest predictors of adolescent substance use and delinquency (Thorlindsson *et al.*, 1998, 2007; Kristjansson *et al.*, 2006). The following summarizes what is known about potential risk factors for adolescent substance use and informed the theoretical basis of the intervention approach implemented in Iceland. These risk factors were identified from a broad range of risk factors that have been reviewed in the available international literature; however, the selection of risk factors we have reviewed here is not meant to be exhaustive.

Adolescent society

There is a growing body of research that underscores the importance of the peer group and the organization of adolescent leisure activities in the formation of adolescent society and lifestyle. Having friends that smoke, drink alcohol and use hashish or other drugs increases the likelihood of similar behaviours among adolescents (Thorlindsson *et al.*, 1998; Kristjansson *et al.*, 2006, 2008). In contrast, very few of the adolescents who report having nearly no friends who use such substances have tried drugs themselves. These findings are consistent with an important

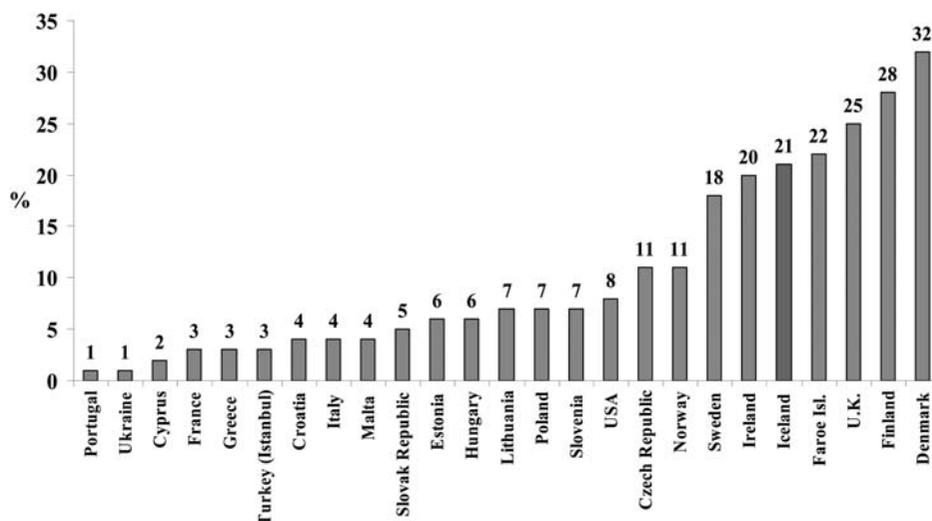


Fig. 1: Proportion of European 10th graders who have become drunk 10 times or more during the last 12 months, 1995. Source: Hibell *et al.* (1997).

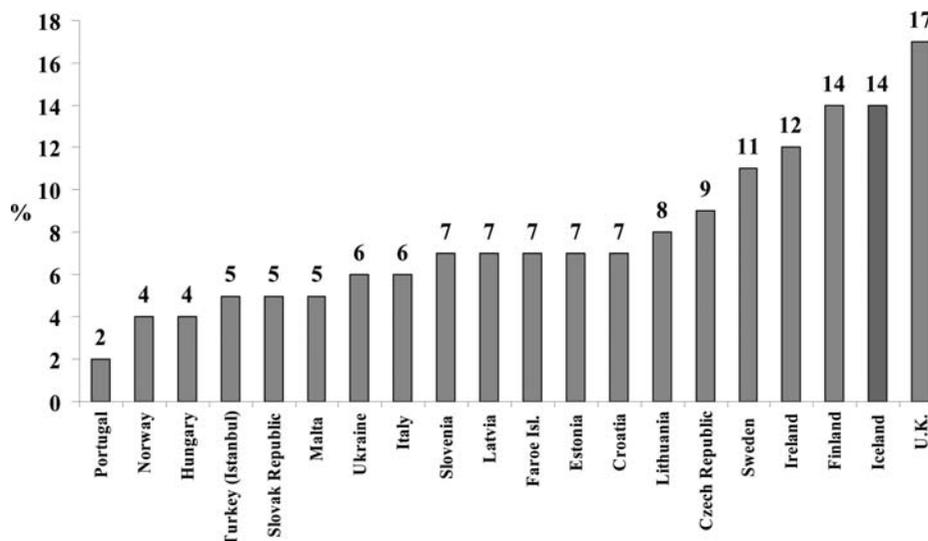


Fig. 2: Proportion of European 10th graders who reported to have had accidents or injuries related to alcohol use, 1995. Source: Hibell *et al.* (1997).

strand of research on delinquency that has been conducted in numerous countries (Sutherland and Cressey, 1978; Akers, 1985; Nash *et al.*, 2005; Palmqvist and Santavirta, 2006).

In recent years, scholars have devoted more attention to the role of extracurricular activities in the formation of youth lifestyle and behaviour. Numerous studies have revealed that participation in supervised youth work and sports deters adolescent substance use (Thorlindsson and Vilhjalmsón, 1991; Thorlindsson *et al.*, 1998; Moore and Werch, 2005; Kristjansson *et al.*, 2006, 2008; Thorlindsson *et al.*, 2007). Some scholars have pointed out that supervised youth work is of special importance because it provides adolescents with an opportunity for participation in activities where they can find interesting things to work at while developing valuable skills and goals toward which to strive. Moreover, supervised youth work provides opportunities through which adolescents can be reached, influenced and supported in positive ways (Bourdieu, 1993). This often occurs by participating in mentorship programs, by placement in a community program, or through special informal relationships with an adult, a teacher, or a sports coach (Cullen, 1994).

Family

Parental support, responsible monitoring and the amount of time spent with children have

long been understood as social assets that decrease the likelihood of substance use among adolescents (Thorlindsson and Vilhjalmsón, 1991; Thorlindsson *et al.*, 1998; Kristjansson *et al.*, 2006; Thorlindsson *et al.*, 2007). Parental support and monitoring not only directly decrease the likelihood of substance use, they also affect friendship choices. Thus, adolescents who perceive that their parents provide substantial support are less likely to associate with friends who use drugs, and those who acquire friends who use drugs are less likely to start using drugs themselves (Warr, 1993; Thorlindsson and Bernburg, 2006). In addition to control and support, the amount (as opposed to the quality) of time spent with parents decreases the likelihood of adolescent substance use. Moreover, the more time adolescents spend with their family outside of school, the less likely they are to use drugs (Thorlindsson *et al.*, 1998; Kristjansson *et al.*, 2006; Kristjansson, 2007).

Social capital

In schools where parents know the friends of their adolescent children and develop and maintain relationships with the parents of their children's friends—a social-capital indicator known as 'intergenerational closure' (Coleman, 1988)—all students benefit from such parent-to-parent communication, whether their parents

are a part of the parental network or not (Thorlindsson *et al.*, 2007). Strengthening the ties between parents and children in the local community constitutes an important deterrent to adolescent substance use. Moreover, to the extent that it is through schools that parents are most likely to meet and exercise both direct and indirect control of their children, the school is an important mediating structure in building community social capital and enhancing the ties and friendship of peers, the parents of the peers and peers and their friends' parents. Thus, with greater levels of community social capital, the adolescent is less likely to begin using substances and engage in delinquency because the strength of the community bonds contribute to preventing the adolescent from engaging in risky behaviour (Hirchi, 1969).

THE ICELANDIC MODEL

In the context of increasing substance use among the youth in Iceland, a group of Icelandic social scientists at the Icelandic Centre for Social Research and Analysis (ICSRA), a non-profit research institute in the City of Reykjavik and now affiliated with Reykjavik University, along with policy makers and practitioners in the field, began collaborating in 1990s in an effort to better understand the societal factors influencing substance use among adolescents and potential approaches to prevention. We developed an evidence-based approach to adolescent substance use prevention that involved a broad range of relevant stake holders who worked together on this community-based, socially embedded and highly participatory effort.

Community-based approaches to substance use have yielded mixed results, despite much attention and funding over the past decade (Saxe *et al.*, 2006). In developing our approach, we relied on global research findings, as well as our own local observations about those individual and societal factors that contribute to the likelihood of adolescent substance use in Iceland. Based on the literature, and informed by our own work, a community-based, bottom-up approach was designed to deter adolescent substance use. The emphasis of our approach was on getting all relevant stake holders to the table to

build a network of support, monitoring and opportunities for positive youth development at the local community level. We aimed to demonstrate that it is possible to develop theory-driven intervention to promote and facilitate social capital on the neighbourhood level, in order to decrease the likelihood of adolescent substance use by strengthening the supportive role of parents and schools and the network of opportunities around them.

The prevention model that emerged reflexively and continuously links national-level data collection with local-level reflection and action to increase social capital. The model builds upon traditional planning models (iterative cycles of evidence, reflection, action) but with characteristics inspired by Icelandic spirit and temperament. In the first step, a coalition of social scientists and policy makers use of *national data* to identify the scope of the problem and the broad outlines of the approach to be pursued. In Step 2, action shifts to the local level as team members 'hit the road', discussing the national data in communities and neighbourhoods throughout the country. By design, these local-level discussions are inclusive, mobilizing an ever-widening group of researchers, policy makers, practitioners and community members, including parents, school personnel, sports facilitators, recreational and extracurricular youth workers. Step 3 is *local action* in multiple sites, informed by the national data but animated by the uniquely different spirit, talents, and imaginations of neighbourhoods, towns and regions. Step 4 is *integrative reflection*; as local activities are reviewed by participants, process and outcome dimensions of the aggregate activity are explored, and then analyzed with the new round of national data.

Several characteristics of Icelandic culture distinguish the model from other planning approaches. Because of its size and scope, everything happens quickly in Iceland; indeed, one full cycle of the iterative model can be completed in just one year. The model is based on quick and confident action, fuelled by the Icelandic values of independence, cooperation and roles for everyone. Moreover, vertical and horizontal integration of information, ideas, activities and analysis is natural and relatively easy. The result is a model of intervention that has been grounded in efforts to address adolescent substance abuse but could be applied to a wide range of emergent health issues.

METHODS

Data collection

The data used for the annual Icelandic substance use evaluation is population-based. The data collection is carried out in the annual study series, *Youth in Iceland*. In March of each year, we conduct population-based surveys among 9th and 10th graders in all secondary schools in Iceland. All aspects of data collection are approved by an Icelandic central human subjects review committee, require informed consent and are supervised by the ICSRA. Teachers at individual school sites supervise the participation of the students in the study and administer the survey questionnaire according to a strict protocol from the ICSRA.

All students complete the questionnaires in their classrooms. Students are instructed not to write their names or social security numbers, or any other identifying information, anywhere on the questionnaires. They are instructed to complete the entire questionnaire, but to ask for help if they have any problems or any questions requiring clarification. Students are asked to place their completed questionnaire in an envelope provided and seal it before returning the questionnaire to the supervising teacher. Data are collected from cohorts of between 3000 and 4000 14- to 16-year-old adolescent respondents, with a typical response rate of between 81% and 91% of the Icelandic population in these age cohorts attending school.

Measures

The *Youth in Iceland* surveys are intended to assess the prevalence of adolescent substance use. The study questionnaires include the same set of questions about background factors and substance use annually. Moreover, every 3 years, the data collection is more comprehensive and the questionnaires include new items about social circumstances and potential risk factors associated with substance use. Thus, annual cross-sectional surveys have been used to document trends in the social environment that have been identified through research as potentially important in understanding and preventing adolescent substance use. The main categories, along with background factors and rates of substance use include the following: relationship with parents and family, friends and peer group

influences, emotional well-being and physical health status, participation in sports and organized youth work and school attachment.

Repeated measures were used in the Icelandic data collection process to assess substance use. Examples of these measures include 'How often have you become drunk during the last 30 days' and 'How often, if ever, have you used hashish in your lifetime.' Examples of questions that refer to relationships with significant others include: 'How easy or hard would it be to receive caring and warmth from your parents' and 'How many of our friends smoke cigarettes on a regular bases.' Finally, participation in extracurricular activities was assessed, for example, by the response to 'How often do you participate in sports outside compulsory lessons in school' and 'How often do you engage in organized school work.'

Analyses

As the data we analyzed were population-based, descriptive statistical analyses (proportions and measures of central tendency) were conducted to identify and describe trends in substance use, by year, over a 10-year period; hence, we do not report significance tests. In addition, we generated contingency tables to examine the relationship between selected risk and protective factors and self-reported adolescent substance use.

RESULTS

Figure 3 shows surveillance data for trends in substance use, including the proportion of Icelandic adolescents who reported having become drunk over the last 30 days, smoking one cigarette or more per day and having tried hashish once, between 1997 and 2007. It can be seen that substance use fell substantially, and to a large extent consecutively, throughout the 10-year period. The proportion of 10th graders who reported becoming drunk during the last 30 days decreased from 42% in 1998 to 20% in 2007, which represents over a 50% decrease. Also, the proportion of 10th graders who reported smoking cigarettes daily was 23% in 1998 but fell to 10% in 2007, a 58% decrease. Furthermore, the proportion of adolescents who had ever used hashish in their lives decreased from 17% in 1998 to an all-time low of 7% in 2007, representing a 60% decrease. (See Sigfúsdóttir *et al.*, 2008, for a recent report of

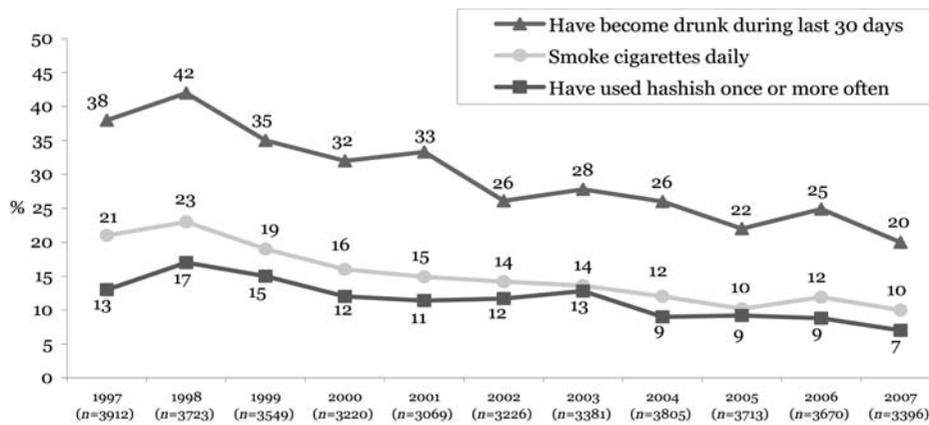


Fig. 3: Percentage of self-reported substance use among Icelandic adolescents, by year, between 1997 and 2007.

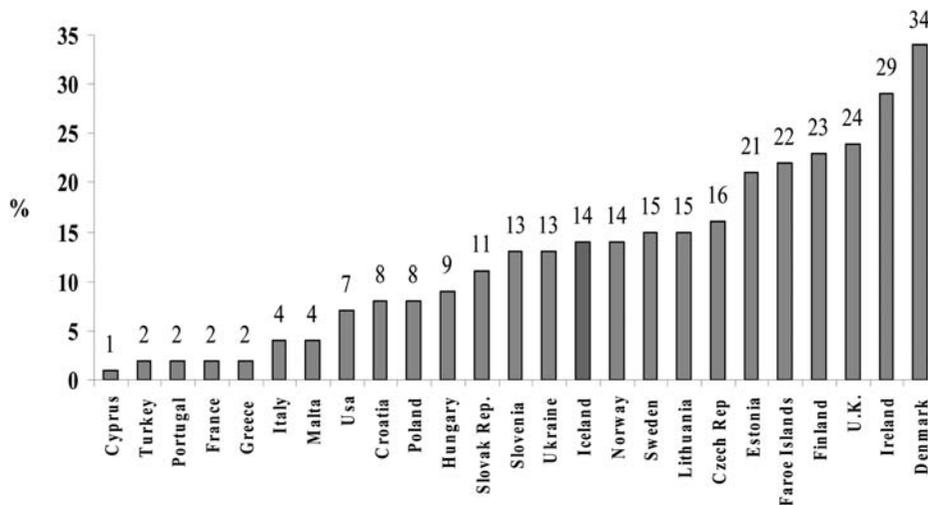


Fig. 4: Proportion of European 10th graders who report having become drunk 10 times or more during the last 12 months, 2003. Source: Hibell *et al.* (2004).

trends in prevalence in substance use among Icelandic adolescents, 1995–2006.)

Our surveillance data are consistent with the ESPAD data that have been collected on alcohol consumption and alcohol-related accidents or injuries. Figure 4 shows that the proportion of Icelandic adolescents who reported having become drunk 10 times or more often during the last 12 months fell from 21% in 1995 to 14% in 2003. Similarly, although in 1995, 14% of Icelandic 10th-grade adolescents reported having alcohol-related accidents or injuries, by 2003 only 4% reported such incidents (see Figure 5). Moreover, when the proportion of substance use for nine substance-use behaviours is compared among 34 other countries

participating in ESPAD for 2003, Icelandic students had lower than average rates of substance use than their counterparts (see Figure 6).

Consistent with our theoretical orientation of reducing substance use through reducing risk factors and enhancing protective factors, there were several interesting changes in both the risk and protective factors for adolescent substance use we sought to influence through our community mobilization. In 1997, ~23% of 10th graders reported that they often or almost always spent time with their parents during working days; this ratio had increased to just over 31% in 2006. Similarly, the proportion of adolescents claiming that they had been outside after 10 p.m., four times or more often during the last week, was

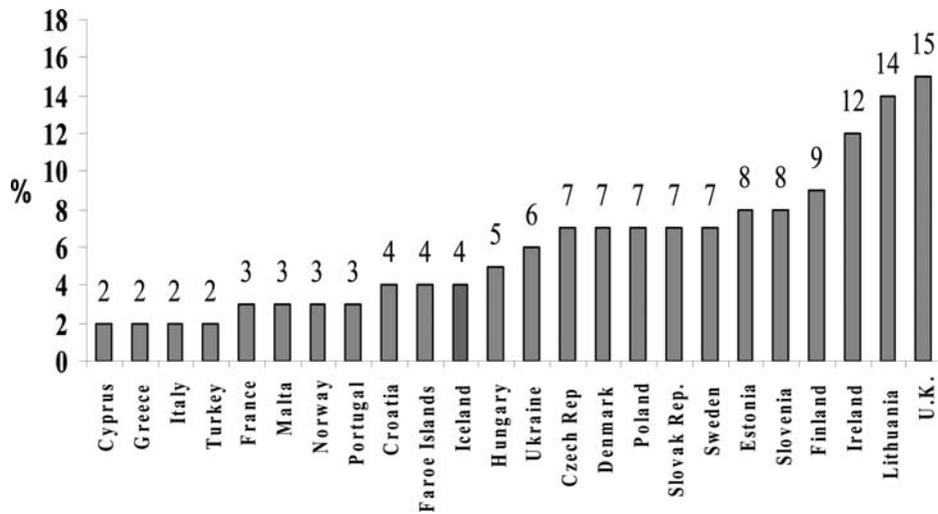


Fig. 5: Proportion of European 10th graders who reported to have had accidents or injuries related to alcohol use, 2003. Source: Hibell *et al.* (2004).

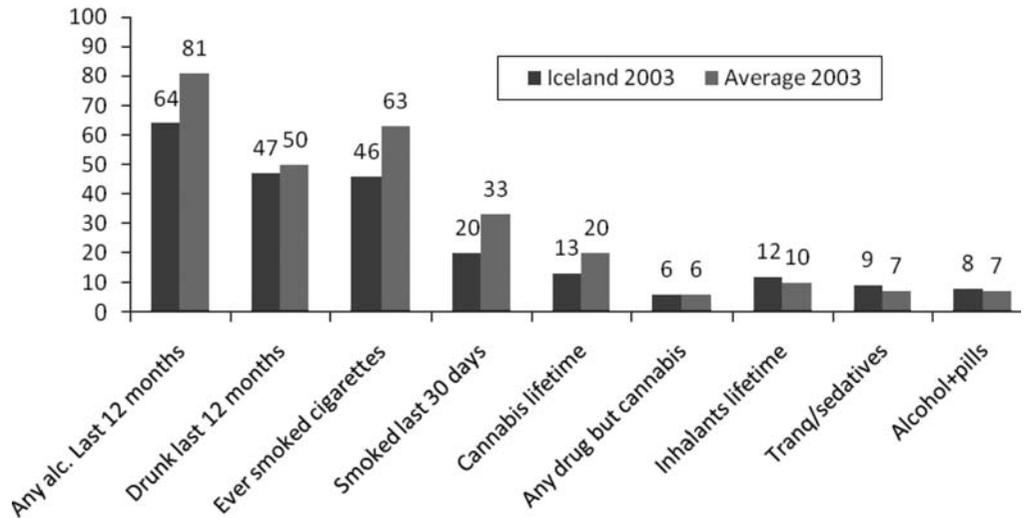


Fig. 6: Proportion of substance use for nine substance-use behaviours among Icelandic students compared to the average use of students in 34 other countries participating in the European School Survey Project on Alcohol and other Drugs (ESPAD). Source: Hibell *et al.* (2004).

~36% in 1997, but fell to ~30% in 2006. Moreover, ~49% of 10th graders in 1997 reported that their parents monitored with whom they were spending their time in the evenings compared with almost 67% in 2006. Thus, both time spent with parents and parental monitoring increased substantially during the 10-year period of our surveillance.

We also observed that ~33% of 10th graders reported in 1997 that they almost never go to parties compared to over 43% in 2006. Similarly,

~29% of youths in this age group claimed that they almost never spent time downtown during the evenings in 1997, in contrast to 51% in 2006. Those reporting participation in organized sports (with a sports club or a team) four times per week or more often rose from ~24% in 1997 to ~30% in 2006; however, a recent report by Eidsdóttir *et al.* (2008) notes that over half of Icelandic adolescents are not achieving recommended levels of participation and that there are differences in participation between males and females.

DISCUSSION

Substance use among Icelandic adolescents declined dramatically from 1997 to 2007. This decline paralleled the broad-scale implementation of the Icelandic Model of Adolescent Substance Use Prevention during this 10-year period, suggesting that the program may have been instrumental in effectively reducing substance use by influencing the social circumstances of youth in Iceland. There are several plausible reasons why the Icelandic Model may have been effective in conferring protection against substance use.

First, our approach emphasized the importance of the family in adolescent substance use prevention. This included supporting parents in preventing unattended parties in the local community, enforcing curfews and connecting themselves with school authorities, sports-club officials, and other youth workers in an organized network of mutual support. Each local school served the function of linking these groups together. Thus, we stressed the importance of building *around* the individual by improving his or her social circumstances in order to positively influence conduct. On the individual level, we emphasized the role of parental support, monitoring and time spent with parents, and participation in organized youth activities, such as sports or recreational and extracurricular programs (Thorlindsson, 1989; Thorlindsson and Vilhjalmsson, 1991). On the collective level, we emphasized the importance of improving the local community by linking parents together through the school.

Second, in addition to traditional activities such as attending meetings and participating in the school's parents association, new activities were developed to engage parents. For example, one popular activity was the *parental prow*l in the neighbourhoods. Parental prow is a social gathering where parents in a local community walk around their neighbourhood together during Friday and Saturday evenings. This facilitates parents in strengthening their local ties and getting to know one another, while at the same time monitoring youth in their neighbourhoods. It also contributes positively to the adolescent network and, in effect, improves neighbourhood social capital, thus enabling adolescents to become aware of the supportive structure around them and the adults to share in their mutual commitment to their families and their community. A recent

Icelandic study has shown that parental prowling is beneficial to all youth in the local community and not merely the children of the participating parents (Thorlindsson *et al.*, 2007). Moreover, parental prowling also contributes positively to parental engagement with the local school and increases the likelihood of parents attending school meetings.

Third, an important strength of our approach is community visibility and fostering 'community buy-in.' Representatives from ICSRA give presentations and interpret each year's survey results in local schools and community centres. This fostered an alliance between the ICSRA, local schools, parental groups, local authorities and recreational and extracurricular workers, with the mutual goal of decreasing the likelihood of adolescent substance use in the community. Thus, our approach was not a 'project' in the usual sense, but rather a consistent and comprehensive ongoing partnership that sought to reduce adolescent substance use by getting guardianship, community attachment and informal social control on the public agenda. This approach is similar to other community prevention approaches that have utilized coalitions and partnerships as vehicles for community action in reducing adolescent substance use (e.g. see Aguirre-Molina and Gorman, 1996; Arthur *et al.*, 2003; Greenberg *et al.*, 2005).

Finally, the small scale of Iceland and relative homogeneity of its population may have proven beneficial in the nation-wide implementation and dissemination of our approach to adolescent substance use prevention. Moreover, Iceland's culture is such that the academic and intellectual community is not isolated from the rest of the population; on the contrary, scientific research has often drawn immediate attention from the public and from policy makers or interested stake-holder groups. Mobilizing the community, indeed the entire nation and its infrastructure, was thus facilitated by this tradition of integrating research, policy and practice.

There are, however, several reasons why caution needs to be exercised in attributing the observed decline in adolescent substance use solely to the influence of the Icelandic Model. First, it is possible that the observed reduction in substance use was part of a secular trend similar to that in other countries. For example, there has been considerable interest in the role of parental risk factors such as parental monitoring, not only in Iceland but throughout other Nordic countries,

which may account for the low rates of alcohol-related accidents in Norway.

Second, the observed decline in substance use may have been due, in part, to ecologic factors other than the intervention that we did not or could not measure. These could include changes in overall educational policies at the local level, changes in youth unemployment and changes in parental divorce rates, all of which may have contributed to a secular trend in the reduction of substance use.

Third, we do not have data on dose effect. Such data might reveal that the communities in which greater reductions in risk factors were achieved also demonstrated greater reductions in substance use. We are presently designing studies to examine whether communities that achieved greater reductions in risk factors and increases in protective factors showed greater reductions in substance use.

PRACTICAL IMPLICATIONS AND LESSONS LEARNED

Several practical implications and lessons learned are worth noting. First, our experience suggests that prevention efforts need to simultaneously activate the peer group, the school, the family and those who organize youth activities to reduce substance use. Icelandic adolescents who used drugs were less strongly attached to their parents and spent less time with them. Adolescents who used drugs were also generally more likely to have had peers that used drugs and more likely to participate in unstructured activities without adult supervision. Relationships with peers and parents and participation in organized youth work are key to substance use prevention. Thus, in a broader context, our findings point to the enduring importance of social relationships, parental social support and social control in particular and the importance of meaning in the everyday social world of adolescents.

Second, our data point to the importance of timing the implementation of prevention efforts at the critical developmental moment. Our experience suggests that substance use prevention efforts need to be started early, at around the age of 12 or 13, when intervention has the best possible chance of interrupting experimentation and stemming use. Thus, reaching young people early in their school years, as well as the parents of younger adolescents, is critical to success.

Finally, it is important to bear in mind that the Icelandic approach is a long-term strategy. Indeed, a key lesson from our experience is that it is possible to work effectively with both known and emergent community-level risk and protective factors for a particular behaviour without attempting to prove a direct causal relationship. A well-constructed theoretical framework that links community-level mobilization to individual behaviour, coupled with an institutionalized capacity for consistent and sensitive population-based data collection, can yield a rich, dynamic and nuanced picture of inter-related trends at the individual, family, community and societal levels. Integrated community frameworks such as the Developmental Assets Model (Benson *et al.*, 2004; Mannes *et al.*, 2005) and the Spectrum of Prevention (Cohen and Swift, 1999) can provide guidance for such intergenerational, intersectoral and essentially dynamic interventions.

CONCLUSION

Preventing adolescent substance use remains a challenge for both European and North-American societies. The Icelandic Model of Adolescent Substance Use Prevention focuses on both risk reduction and the enhancement of protective factors at various levels of prevention. Although this study utilized correlational data and was not designed to establish a causal effect, we observed a significant reduction in the proportion of substance use among Icelandic adolescents over a decade during which the Icelandic Model was implemented. We believe our data demonstrate that it is possible to define and implement well-organized steps in promoting adolescent emotional well-being by capitalizing on opportunities at several community levels to reduce substance use nationally. The Icelandic Model is a promising example of such an approach.

ACKNOWLEDGMENTS

We gratefully acknowledge the support of the Office of the President of the Republic of Iceland. We also thank the anonymous reviewer whose comments and suggestions enabled us to strengthen a revision of this manuscript. A version of this paper was presented at the annual meeting of the 14th European Cities

Against Drugs (ECAD) Mayors' Conference, Istanbul, Turkey, 10 May 2007.

FUNDING

Actavis; Icelandic Alcohol and Drug Prevention Committee; Icelandic Red Cross; City of Reykjavik; and Sports and Recreational Committee of Reykjavik to I.D.S; Iceland-US Education Commission, Fulbright Program, to J.P.A.

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