

From THE DEPARTMENT OF PUBLIC HEALTH SCIENCES
Karolinska Institutet, Stockholm, Sweden

**BUILDING THE BASIS FOR
PRIMARY PREVENTION:
FACTORS RELATED TO
CIGARETTE SMOKING AND
ALCOHOL USE AMONG
ADOLESCENTS**

Álfgeir Logi Kristjánsson



**Karolinska
Institutet**

Stockholm 2010

All previously published papers were reproduced with permission from the publisher.

Published by Karolinska Institutet. Printed by USAB.

Front page drawing by Hugi Freyr Álfgeirsson.

© Álfgeir Logi Kristjansson, 2010
ISBN 978-91-7409-860-0

ABSTRACT

Background

Cigarette smoking and alcohol use influence morbidity and premature death all over the world. Studies have shown that most life-time smokers and adult heavy drinkers began their use during their adolescent years and between 80-90% of them before the age of 18. Thus, early onset of smoking and alcohol use increases the risk of later dependence. Alcohol use and cigarette smoking among adolescents are also strongly correlated behaviors. Adolescents who initiate smoking are much more likely to begin using alcohol at an early age than those who do not, and vice versa. Furthermore, both cigarette smoking and alcohol use among adolescents are known to be gateways to the use of other substances, adding further to the negative consequences of smoking and alcohol use. Hence, early identification of key determinants for adolescent cigarette smoking and alcohol use may serve to decrease the likelihood of later substance use development and related health problems and delinquent behaviors.

Aims and objectives

The aim of this project is to investigate several important factors in the social environment of Icelandic adolescents that contribute to the likelihood of cigarette smoking and alcohol use initiation and progression. Senior public health scholars have highlighted the need for an increase in inter-disciplinary approaches for public health research and practice. Consequently, the coverage builds on a literature from both the social- and public health sciences.

Material and method

The data for studies I-III is based on the population-based cross-sectional survey, *Youth in Iceland* in 2006. The study was designed to monitor adolescent health risk behaviors and social circumstances among others. The study base includes all non-institutionalized children who were enrolled in the obligatory 9th and 10th grades, ages 14 to 15 years, in all secondary schools in Iceland during March 2006. A total of 7,430 students in 9th and 10th grade (49% males) completed the questionnaire in 2006, yielding a response rate of 81% of the total population of these cohorts. The study base in study IV is pooled data from five cross-sectional studies in the Youth in Iceland series, from the years; 1997, 2000, 2003, 2006, and 2009. The emphasis is on changes in trends of substance use and associated risk and protective factors. Data collection was carried out using the same protocol as in the 2006 study. The study base varied between 7,882 and 9,278 individuals, and respondents numbered between 6,346 and 7,758 (81 to 90% of the total population).

Results

The findings of study I suggest that multiple social factors are related to smoking behaviors among adolescents, including alcohol use. Of all factors considered, peer smoking was by far the strongest predictor of occasional- and daily smoking. Perceived friends' attitude to smoking was also found to be important and so was perceived parental reactions to smoking.

Study II shows that increase in probability of smoking and alcohol use among adolescents that have experienced parental divorce or separation does not need to be a fact. Such increase in likelihood is largely accounted for by family conflicts.

Study III further tests the relationship between parental- and peer social support, parental and peer use, and smoking and alcohol use. Results suggest that perceived

parental reactions and peer respect for use are important variables in addition to peer use. Other factors, such as parental use, were not found to be important. Study IV finds that smoking and alcohol use has decreased substantially in Iceland during the last 12 years and so has party lifestyle among youth. On the other hand, parental monitoring and participation in organized sports have increased during the same time period. Study IV also finds that the relative decrease in substance use was greater in communities that have been using a specified community-based prevention approach than in the comparison communities. Moreover, the relative increase in supportive mechanisms such as parental monitoring and sports participation was greater in intervention communities than in the comparison communities, and so was the subsequent decrease in prevalence of party lifestyles.

Discussion

These results challenge the current sphere of knowledge in several ways. First, study findings suggest that multiple social factors influence smoking behaviors among adolescents, including alcohol use. Prevention approaches and programs should account for such diversity while at the same time considering contextual factors such as socio-economic background that are known to be important determinants for the likelihood of adolescent smoking. Second, by avoiding family conflicts, including direct conflict between parents and their children, before and after separation, parents can prevent increase in likelihood of cigarette smoking and alcohol use initiation by their children. Third, by demonstrating to their children that adolescent cigarette smoking and/or alcohol use are not acceptable behaviors, parents can substantially decrease the likelihood of such use by their adolescent children. Likewise, through supportive mechanisms (e.g. healthy leisure time activities) and motivation around the peer group, prevention work should target peer respect for smoking and/or alcohol use as an important factor that may increase the likelihood of such use. Finally, prevention activities conducted in several municipalities in Iceland over the past 12 years have shown that by stressing health promotion in the local community setting and collaboration with local youth- and prevention workers, cigarette smoking and alcohol use has decreased more than in the non-participating communities. Likewise, the relative increase in protective factors was greater in collaborative communities. This was true even though Iceland has a small and homogeneous population and contamination and co-intervention effects are difficult to assess.

LIST OF PUBLICATIONS

- I. Kristjansson, ÁL., Sigfusdottir, ID., Allegrante, JP., Helgason, ÁR. (2008). Social correlates of cigarette smoking among Icelandic adolescents: A population-based cross sectional study. *BMC Public Health*, 8:86.
- II. Kristjansson, ÁL., Sigfusdottir, ID., Allegrante, JP., Helgason, ÁR. (2009). Parental divorce and adolescent cigarette smoking and alcohol use: assessing the importance of family conflict. *Acta Paediatrica*, 98, 537-542.
- III. Kristjansson, ÁL., Sigfusdottir, ID., James, JE., Allegrante, JP., Helgason, ÁR. (2010). Perceived parental reactions and peer respect as predictors of adolescent cigarette smoking and alcohol use. *Addictive Behaviors*, 35, 256-259.
- IV. Kristjansson, ÁL., James, JE., Allegrante, JP., Sigfusdottir, ID., Helgason, ÁR. (in submission). Adolescent substance use, parental monitoring and leisure-time activities: 12-year outcomes of primary prevention in Iceland.

CONTENTS

1	Introduction	7
1.1	Theoretical overview	7
1.1.1	General	7
1.1.2	Health Behavior Theories	8
1.1.3	Strain Theories	10
1.1.4	Learning Theories	12
1.1.5	Control Theory	13
1.1.6	Social Capital Theory.....	14
1.1.7	Developmental Theories	15
1.1.8	Theoretical perspectives in sum.....	16
1.2	Substance use prevention	17
1.2.1	Primary, secondary, and tertiary prevention	17
1.2.2	Licit and illicit substances and the “gateway” hypothesis..	18
1.2.3	Parents and family.....	19
1.2.4	Peer group.....	20
1.2.5	Leisure time	21
1.2.6	Neighborhoods and schools.....	22
1.2.7	Substance use prevention in Iceland.....	23
1.3	The four studies	24
2	Material and Methods	26
2.1	Sample	26
2.2	Procedures.....	27
2.3	Participants	27
2.4	Data handling and file preparation.....	28
2.5	Measures	28
2.5.1	Measures used in papers I-IV	28
2.6	Data analyses	29
3	Results	30
3.1	Flowcharts.....	30
3.2	Study I.....	30
3.3	Study II	31
3.4	Study III	32
3.5	Study IV	33
4	Discussion.....	35
4.1	Summary of findings	35
4.2	Theoretical context	35
4.2.1	Study I	35
4.2.2	Study II	36
4.2.3	Study III.....	37
4.2.4	Study IV	38
4.3	Strengths and limitations	39
4.4	Future studies.....	40
5	Acknowledgements	42
6	References	44
7	Appendix	52

LIST OF ABBREVIATIONS

CI	Confidence Interval
ESPAD	European School Survey Project on Alcohol and Other Drugs
ICSRA	Icelandic Centre for Social Research and Analysis
IER	Institute for Educational Research
KI	Karolinska Institutet
OLS	Ordinary Least Squares Regression Analysis
OR	Odds Ratio
PBT	Problem Behavior Theory
RU	Reykjavik University
SCA	Supervising Contact Agent
SCT	Social Cognitive Theory
SDM	Social Development Model
SLT	Social Learning Theory
SPSS	Statistical Program for the Social Sciences
TRA	Theory of Reasoned Action
TPB	Theory of Planned Behavior
US	United States of America
WHO	World Health Organization

1 INTRODUCTION

Cigarette smoking and alcohol use influence morbidity levels and premature death all over the world (Asbridge et al., 2005; Bauman & Phongsavan, 1999; Engels et al., 2004; Harakeh et al., 2004; Hoffman et al., 2006). Most users begin their substance use during adolescence, with the onset of experimentation taking place between 11 and 15 years of age. This behavior often leads to regular use within two to three years (Bauman & Phongsavan, 1999; Pierce & Gilpin, 1996; Webster et al., 2002). Studies have shown that most life-time smokers began smoking during their teenage years and between 80-90% of them before the age of 18 (Alexander et al., 2001; Asbridge et al., 2005; O'Byrne et al., 2002). Thus, early onset of smoking increases the risk of adult smoking dependence (Simons-Morton, 2004). Alcohol use and cigarette smoking among adolescents are also strongly correlated behaviors (Sigfusdottir et al. 2009; Thorlindsson et al. 1998). Adolescents who initiate smoking are much more likely to begin using alcohol at an early age than those who do not, and vice versa. Furthermore, both cigarette smoking and alcohol use among adolescents are known to be gateways to use of other substances (Lindsay & Rainey, 1997; O'Byrne et al., 2002), adding further to the negative influences of such usage. This means that early identification of key determinants for adolescent cigarette smoking and alcohol use may serve to decrease the likelihood of later substance use development and related types of problem- and delinquent behaviors.

The aim of this PhD-project is to investigate important factors in the social environment of Icelandic adolescents that contribute to the likelihood of cigarette smoking and alcohol use initiation and progression. Senior public health scholars (e.g. Green, 2006) have highlighted the need for an increase in inter-disciplinary views for public health research and practice. Consequently, the coverage builds on a literature from the social sciences; including sociology, social psychology, and criminology, and from the health sciences; including public health, health promotion, epidemiology, and social medicine. Previous international studies have identified several important factors regarding cigarette smoking and alcohol use among adolescents and how they relate to parents and family, peers, leisure time activities and ecological and environmental factors but many of them have not been studied extensively in Iceland before.

The thesis begins with a theoretical overview from several disciplines. A short literature review on adolescent substance use prevention follows, and then the four PhD studies are introduced. Main section 2 introduces the material and methods of the four studies, including sampling, procedures of data collection, participants and analyses. In section 3 the key results from each of the four studies are introduced, and in section 4 a discussion about the findings, theoretical context, strengths and limitations, and future studies is outlined. Acknowledgements and thanks to those who contributed, directly and indirectly, to the preparation of the material, a reference list, and an appendix (including a full-length questionnaire), concludes the main section of the thesis.

1.1 THEORETICAL OVERVIEW

1.1.1 General

Several theoretical frameworks have been developed to explain substance use, health risk behaviors, and delinquency among adolescents (Petraitis et al., 1995; Vold et al.,

2002). Most of them originate in the social sciences, in particular sociology, criminology, and social psychology, and have been developed with a holistic focus on delinquency and deviance rather than specifically on smoking and/or alcohol use. In line with this notion is the general sentiment that adolescent risk behaviors are interrelated, that engaging in one type of risk behavior has implications to increased risk of another kind of risk and delinquency development. Some theoretical frameworks, such as problem behaviour theory (Jessor et al., 1991) and the social development model (Hawkins & Weis, 1985) take these interrelations into account. These models, along with others, will be discussed below. Several years ago, in a thorough review of research, Hawkins et al., (1992) concluded that decades of research on adolescent substance use include:

...laws and norms favorable toward drug use: availability of drugs: extreme economic deprivation: neighborhood disorganization: certain psychological characteristics: early and persistent behavior problems including aggressive behavior in males. Other conduct problems, and hyperactivity in childhood and adolescence: a family history of alcoholism and parental use of illegal drugs: poor family management practices: family conflict: low bonding to family; academic failure; lack of commitment to school: early peer rejection: social influences to use drugs: alienation and rebelliousness: attitudes favorable to drug use: and early initiation of drug use. (p. 96).

Still to this day, this paragraph comprehensively captivates the scope of current research in adolescent substance use. Along those are cigarette smoking and alcohol use which are the most common predecessors to other kinds of substance use.

It has been argued that nothing is as practical as a good theory (Flay & Petraitis, 1991). Good theories of smoking and alcohol use (or indeed other substance use or delinquency) may systematically order what seems disorganized and form a guide to the analysis of solid data. Therefore, theories may lay foundation to prevention programs (see Flay & Petraitis, 1991). To this day, however, theoretical approaches to substance use have not been very practical for applied work. Today, social- and behavioral scientists, may be aware of many (or even most) of the constructs that contribute to a greater likelihood of adolescent smoking and alcohol use, but do not know how all of them come together in one piece. What follows is a short description of many of the most influential theoretical approaches that have been used to explain adolescent substance use; cigarette smoking and alcohol use, and often other risk behaviors and youth delinquency. Thereafter, a particular emphasis will be laid on two multi-sectoral approaches; problem behavior theory and the social development model.

1.1.2 Health Behavior Theories

1.1.2.1 Health belief model

This perspective was brought to light in the 1950s and developed by a “group of social psychologists in the US public health service to explain widespread failure of people to participate in programs to prevent and detect disease” (Janz et al., 2002, p.46). It was later advanced to explain people’s reactions to illness diagnosis. The theory is the predecessor of the theory of reasoned action, which has been used to determine adolescent smoking and alcohol use. In the health belief approach, “behavior is a function of the subjective *value* of an outcome and of the subjective probability, or

expectation, that a particular action will achieve that outcome” (Janz et al., 2002, p.46). In more general terms;

...people will take action to prevent, to screen for, or to control ill-health conditions if they regard themselves as susceptible to the condition, if they believe it would have potentially serious consequences, if they believe that a course of action available to them would be beneficial in reducing either the susceptibility to or the severity of the condition, and if they believe that the anticipated barriers to (or costs of) taking the action are outweighed by its benefits (Janz et al., 2002, p. 47-48).

Studies that can be linked to this perspective therefore focus on such things as how adolescents perceive that smoking and alcohol use will affect their health and well-being, including social status in the peer group (Simons-Morton, 2004).

1.1.2.2 Theory of reasoned action

The Theory of Reasoned Action (TRA) (Ajzen & Fishbein, 1980) “includes measures of attitude and social normative perceptions that determine behavioral intentions. Behavioral intention in turn affects behavior” (Montano & Kasprzyk, 2002, p.67). The TRA, first introduced in 1967, is “concerned with the relations between beliefs (behavioral and/or normative), attitudes, intentions, and behavior... [It was].. developed through an effort to understand the relationship between attitudes and behavior” (Montano & Kasprzyk, 2002, p.67). The TRA puts forth the notion that the most important determinant of people’s behavior is behavioral intention. The most important influences for behavioral intentions are the attitudes toward performing the behavior and the subjective norm associated with that behavior.

Attitude is determined by the individual’s beliefs about outcomes or attributes of performing the behavior weighted by evaluations of those outcomes or attributes. [Thus], a person who holds strong beliefs that positively valued outcomes will result from performing the behavior will have a positive attitude toward the behavior (Montano & Kasprzyk, 2002, p.70).

In this paragraph one can easily identify the potential implications to youth research on smoking and alcohol use.

The TRA assumes a sequence that links behavioral beliefs and normative beliefs to behavioral intention and behavior, through attitudes and subjective norms. TRA therefore claims that behavioral intentions are influenced by adolescents’ ideas about their own usage. Presumably, young people should have a positive attitude towards substance use if they expect any defined benefits from it that is valued more than the costs of the behavior. “TRA [also] claims that decisions are affected by an adolescent’s beliefs regarding the social norms surrounding [the use]” (Petraitis et al., 1995, p.69). For example, adolescents that believe that smoking and/or alcohol use is viewed positively in the peer group, both for their own personal status as well as in the eyes of their friends, are more likely to initiate such behaviors (Kristjansson et al., 2008; Kristjansson et al., 2010).

1.1.2.3 Theory of planned behaviour

The Theory of Planned Behavior (TPB) is an extension of the TRA rather than an independent theory (Ajzen & Fishbein, 1980; Petraitis et al., 1995; Montano & Kasprzyk, 2002). The TPB includes an additional construct about perceived behavioral control which is called self-efficacy (Ajzen, 1985). Because the TRA assumes that the most important factor in determining a behavior is behavioral intention, the success of the theory in explaining behavior is dependent upon the degree to which the behavior is under “volitional control” (that is, situations in which individuals can exercise a large degree of control over their behaviors). Under conditions of high volitional control, motivation as measured by intention and its attitudinal and normative determinants is expected to be the main influence of health behaviors. Ajzen (1985) proposed the TPB to predict behaviors over which people have incomplete volitional control. With the words of Montano & Kasprzyk, 2002:

[Ajzen added] *perceived behavioral control* to the TRA in an effort to account for factors outside of the individual’s control that may affect his or her intention and behavior. This extension was based in part on the idea that behavioral performance is determined jointly by motivation (intention) and ability (behavioral control) (, p.74).

According to the TPB, perceived control is influenced by so called “control beliefs” which reflect the presence or absence of factors contributing the likelihood of behavioral performance, which are then weighted by the “perceived power” or impact of each factor to include the behavior, called self-efficacy. One form of self-efficacy, which is called use self-efficacy reflects adolescents’ beliefs to obtain and successfully use substances (Petraitis et al. 1995). The second form, which has been called refusal self-efficacy reflects adolescents’ beliefs in their strengths to resist the pressure to begin substance use (Petraitis et al. 1995).

1.1.3 Strain Theories

Strain theories originated in criminology during the 1930s (e.g. Merton, 1938) but have roots within the foundations of sociology in the 19th century (Vold et al., 2002). These theories continued to evolve into the 1990s when Agnew (1992) put forth his “General strain theory”. To the most extent, these theories are associated with social structures and inequalities in opportunities and development among adolescents in society. They tend to focus on delinquency in general and not on smoking and/or alcohol use in particular, but continue to be of high influence in criminology and sociology (Vold et al., 2002).

1.1.3.1 Social structure and anomie

The first major strain theorist was Robert Merton with an article titled “Social structure and anomie” (1938). Merton’s theory pertains that in society there are certain goals “worth striving for”. The problem is that not everyone has the opportunity and recourses to search out and fight for these goals. Among some groups of people, there is a state of “anomie” or normlessness, a concept originally developed by the French sociologist Émile Durkheim, that prevents them from being able to take part in life’s competition for certain objectives, because they do not have the same means to fight for them as others. Those in the lower social strata are believed to live in a society where defined means to achieve certain objectives do not go hand in hand with their

opportunities, but do so for people in the higher stratum of society. Adolescents from the lower social stratum will become delinquents because of this inequality, because they cannot compete in the daily struggles with those above them in the social strata. The result is that they search out for other kind of opportunities, closer to their possibilities, and hence become thieves, drug users, etc.

1.1.3.2 Peer group delinquency

Many theorists have followed Merton. The first two most frequently mentioned are Alfred Cohen (1955) and his book “Delinquent boys” and Cloward and Ohlin (1960) with “Delinquency and opportunity”. Cohen (1955) argued that most juvenile delinquency takes place in groups but not among individuals. Therefore, he was among the first to lay a particular emphasis on the importance of the peer group. He also argued, different from Merton earlier, that crime among youth usually was not carried out with particular objectives in mind but functioned as a status symbol among the peers. Cohen therefore underlined the notion of the “peer effects” that are to this day an important area of research in youth studies. Cohen argued that the “peer culture” was of particular importance, that social status in the peer group was often lower among poorer youth than others, hence the competition in the group between individuals. His argument was that research should predominantly focus on explaining what happens in the peer group. Cloward and Ohlin (1960) were in some ways in agreement with both Merton and Cohen but thought that some defined profit played a more specific role, as Merton had argued, but within groups, as Cohen had argued. To this day the probable peer group influences are still very much under scrutiny in youth research. A lot has been gained but much remains to be unveiled about the nature and significance of the peer group in adolescent substance use research.

General strain theory

In the seventies and eighties the significance of strain theories diminished and they were often criticized heavily for their lack of openness to alternative explanations. Another concern was their failure to explain why not all youth in the lower social stratum become delinquents and substance users? In a famous book by Kornhauser (1978), she put forth a detailed critique on the major rule of strain theorists that stress, or frustration, causes delinquency and substance use. Her argument was that delinquency is associated with both “low expectations and low aspirations” as she called it. Therefore, such youths would not be strained since there is no gap between what they want and what they expect to get. These and other criticisms were widely accepted in criminology, resulting in a general decline of interest in strain theories. In the 90s these theories were awakened again with Agnew’s general strain theory (1992) which is somewhat different from previous theories but has its base in the same principles. Agnew has put forth a “general strain theory” that focuses on negative relationships between individuals. His main argument is that negative relationships generate negative emotions in a person, and these very same negative emotions will lead to delinquency or crime. This is a general theory of crime, but Agnew uses it specifically to explain why adolescents engage in delinquency and substance use. What has emerged since is the general notion that strain can have two major attributes:

First, it can refer to characteristics of a society: a situation in which the social structure fails to provide legitimate means to achieve what the culture values. Second, it can refer to feelings and emotions that an individual experiences: feelings of stress or frustration or anxiety or depression or anger. The line of argument connecting these two meanings is that people in situations of

“social structural strain” ...may feel “strained”..., and feelings then are the actual cause of the higher crime rates associated with those people (Vold et al., 2002, p.147).

1.1.4 Learning Theories

Social learning theories have been of great importance in many areas of adolescent research for a long time (Vold et al., 2002; Petraitis et al., 1995; Akers et al., 1979). Their label stems from the “social learning process”, that behavior, such as substance use, is learned, officially and unofficially, on purpose and without purpose, consciously and unconsciously. These theories put focus to the point that behavior may be based not only on defined rewards and punishments, but also through expectations that are learned by watching what happens to other people.

1.1.4.1 The theory of differential association

Edwin Sutherland first put forth his theory of social learning through “differential associations” in 1934 (Vold et al., 2002) but Donald Cressey later advanced its content and co-authored a book with Sutherland that to this day is the most cited text describing the theory (Sutherland & Cressey, 1978). The theory has two main elements; (1) The *content* of what is learned includes specific techniques for committing crime and/or delinquency (cognitive elements or ideas), and (2) the process by which the learning takes place involves associations with other people in intimate and personal groups (Vold et al., 2002). Both of these elements originate in the theory of Symbolic Interactionism (Blumer, 1969). Sutherland’s description of the content of what is being learned was constructed in line with the argument that people act toward things on the basis of the meaning that the things have for them. It is the meaning of the social conditions they experience which matters the most for those engaging in delinquency and substance use but not the situations themselves. In this perspective, smoking and alcohol use among adolescents have a more airy meaning in the group where such acts are more common and more likely (hence the social learning) but other groups of people perceive such acts more seriously. The associations with significant others that perceive behaviors such as smoking and alcohol use in a positive manner vary in “frequency, duration, priority, and intensity” (Vold et al., 2002, p.161). The major strength of the theory lies in its defining concept, the “differential association” about “patterns of interactions with others who are the source of definitions that are either favorable or unfavorable to violating social norms or laws” (Vold et al., 2002, p.161). This notion is what defines the likelihood of delinquent acts such as smoking and alcohol use among adolescents.

Social learning theory

Both Ronald Akers (1977), a sociologist, and Albert Bandura (1977), social psychologist, build on Sutherland’s assertion about the social learning process. Akers et al., (1979) argued that the processes underlying social learning explain the link between social structural conditions and individual behaviors. He therefore stated that what is being learned and observed is conditioned upon the social structural position of individuals. This theory has roots both in differential association theory and in early strain theories. Social learning theory (SLT) assumes that specific cognitions for substances, for example cigarettes or alcohol, are the strongest predictors of substance use initiation.

SLT does not assume that the roots [for the onset of use] originate in an adolescent’s own substance-specific cognitions. Rather, SLT begins at a more distal point and assumes that [smoking and alcohol use initiation] originates in the substance-specific attitudes and behaviors of

people who serve as [important] role models in the lives of adolescents (Petraitis et al., 1995, p.70).

SLT indicates that the main role models are likely to have three related effects, one after another; beginning with the observation and imitation of substance-specific behaviors, leading to social reinforcement for use and ending in adolescents' expectations of positive social and physiological consequences from future use (Petraitis et al., 1995; Akers, 1977; Akers et al. 1979).

Social cognitive theory

Bandura's (1977; 1986) social cognitive theory (SCT) also argues that adolescents will gain their beliefs about smoking, alcohol use, and other drug use, from their major role models. Close friends and parents who use substances are key players in that regard. Specifically, SCT claims that associations with friends and parents who use substances will influence the onset of use through two *substance-specific beliefs*.

First, observing role models who experiment with substances will directly shape adolescents' outcome expectations which are their beliefs about the most immediate and most likely social, personal, and physiological consequences [of use]... Thus, observing parents using alcohol to relax or observing peers smoking marijuana to smooth social interactions will shape adolescents' beliefs about the consequences of, and their attitudes toward, their own [probable use]. SCT goes beyond SLT by [also] including the concept of self-efficacy (Petraitis et al., 1995, p.71).

Bandura (1977) argued that role models can shape both so called *use self-efficacy* and *refusal self-efficacy*. For instance, observing peers buying, blending, and drinking alcohol can provide adolescents with the necessary knowledge and skills to do the same. Conversely, observing a close friend resisting the pressures to use alcohol can boost an adolescent's refusal skills and self-efficacy by displaying the necessary skills to avoid such use. Therefore, the causes of initial use may be found among (a) using parents, close friends, and other role models and (b) favorable statements or attitudes toward use by such role models. Especially close friends and admired peers who endorse substance use (Petraitis et al. 1995).

1.1.5 Control Theory

1.1.5.1 Hirchi's theory of social control

Different from most other theories of deviance, social control theory assumes that most people are capable of crime and delinquent acts such as substance use. It is the causes of conformity or "non-delinquency" that researchers are interested in when applying social control theory. The central question it proposes is therefore; why do not all adolescents become smokers or drinkers, drug users or delinquents? This theory asserts that individuals are said to engage in substance use or other forms of delinquent behaviors because of the weakness of forces restraining them from doing so, not because of the strength of forces driving them to do so (Hirchi, 1969). Hirchi's theory of social control remains one of the most influential frameworks in research on adolescents. In the book "Causes of Delinquency" (Hirchi, 1969) he argued that individuals who are tightly bonded to social institutions such as the family, the school, and peers would be less likely to commit delinquent acts than those with weaker ties to such influential foundations. The most influential phenomenon in the theory is the "social bond" and the most important element of the social bond is "attachment" describing affection for and sensitivity to others. Attachment is said to be the basic element necessary for the internalization of normative values and social norms" (Vold

et al., 2002, p.184). A second element is commitment, the normalized investment one has in conventional society and the risk one takes in engaging in substance use and/or other delinquent behavior. The third element is involvement in conventional activities (Vold et al., 2002). This variable is based on the assertion that being busy restricts opportunities for delinquent activities. And the final element of the social bond is belief. Attachment and commitment are the components most widely tested in research but the other two, involvement in conventional activities and belief, have been less studied.

1.1.6 Social Capital Theory

The concept of social capital, as applied to adolescent research, can be traced back to the sociologists Bourdieu (1983) and Coleman (1988). It refers to social supportive network mechanisms that both work at the individual and community levels. For example, adolescents who are tightly knit into the local network of their neighborhoods are less likely than others to initiate smoking and alcohol drinking, but these networks tend to be weaker in some neighborhoods than others. This notion indicates that there are important influences at both levels of analysis. To this day, however, there exists a great confusion and a debate about the general meaning of the concept (Portes, 1998; Hawe, & Shiell, 2000; Poortinga, 2006; Szreter & Woolcock, 2004; Kawachi et al., 2004) and whether it simply is “old wine in new bottles” as stated by Navarro (2004).

Thorlindsson et al., (2007) argued that in order to be able to utilize the concept in adolescent research it is important to revisit the original framework developed by Coleman (1988) which was essentially about adolescents and their development where social capital was perceived to constitute both a protective and supportive network against substance use and positive support for academic achievement. The problem however is that the concept is still ambiguous to many; as stated by Muntaner (2004);

to render the concept of social capital potentially useful in social epidemiology it needs to be defined not as a metaphor for social cohesion, community, social integration but according to its meaning in economic sociology (features of social organization, such as trust, norms, and networks), that can improve the efficiency of society by facilitating coordinated action (p.676).

Kawachi et al. (2004) have defined social capital in the literature and state it to be accounted for in three different meanings, as bonding, bridging and linking social capital. The bonding and bridging types have been around for some time and “widely accepted in the field” but linking social capital is a more novel type. They state:

Bonding social capital refers to trusting and co-operative relations between members of a network who are similar in terms of social identity, while bridging social capital refers to connections between those who are unlike each other, [but] are more or less equal in terms of their status and power (p.682).

One of the main problems with social capital is that the bonding and bridging varieties could be consistent with either or both *social support* and *inequality* and their relationships to population health and health behaviors (Kawachi et al., 2004). The linking aspect is more recent but Szreter and Woolcock describe it as “norms of respect and networks of trusting relationships between people who are interacting across explicit, formal, or institutionalized power or authority gradients in society” (2004, p.655). The use of the term has also been differentiated between individual- and collective levels as stated above and Kawachi et al (2004) argue that multilevel methods are of central importance in utilizing the theory as applied to health related behaviors such as smoking and alcohol use. The problem with identifying the utility of the term is, according to Portes (1998), that it has been used to account for so many

different things, such as social support, networks, cohesion, integration, and so on. Kawachi et al (2004) argue that another part of the problem is the “unit of analysis” issue and claim that even among the founders, such as John Coleman (1988) it was unclear whether social capital applies to individuals or collective factors. Their argument is that the term should be used as a contextual variable on a collective level. To this day, there exists a great variety in applications across studies in the choice of indicators to measure social capital. Most studies use combinations of measures of some sort to account for trust, perceived reciprocity, community attachment, and social participation, at individual and/or aggregated to the community level. Nevertheless, the concept is still profoundly popular among researchers in many fields within public health, sociology, social epidemiology, and social psychology.

1.1.7 Developmental Theories

1.1.7.1 Problem behavior theory

This theory not only highlights the causes of substance use such as smoking and alcohol use but also the reasons for many other behaviors that are deemed problematic for adolescent development (early sexual activity and political protests are mentioned) (Jessor et al., 1991; Jessor & Jessor, 1977). “Because many of these behaviors are accepted among adults but forbidden among adolescents, [problem behavior theory (PBT) deems them appealing] to many adolescents as a rite of passage that constitutes a symbolic assertion of maturity” (Petraitis et al., 1995, p.76). PBT puts forth the notion that adolescents who are likely to engage in one type of risk behavior (e.g., theft, substance use) are also more likely than others to engage in other similar or related behaviors (e.g. violence). The theory begins with the assumption that the general likelihood of problem behavior development results from the interaction of an individual and his/her environment:

The environment is divided into proximal and distal structures. At the core of the distal structure lies attachments to family and peers. [PBT asserts] that adolescents are at risk for [substance use] if they are unattached to their parents, are close to their peers and are more influenced by their peers than their parents. At the core of the proximal structure lies social modeling and the substance-specific behaviors of friends and family members (Petraitis et al., 1995, p.76).

One should easily identify the relations between PBT and both learning- and control theories.

PBT furthermore argues that adolescents are at an increased risk for the onset of smoking and alcohol use if their peers are smokers or alcohol users, or they believe their friends and parents would approve of such use. However, PBT is not merely a behavioral theory, it is also a social theory. This paragraph from Petraitis et al., 1995 puts this notion forward:

PBT.. divides characteristics of the person into distal, intermediate and proximal categories... The most distal characteristics are grouped in the personal belief structure, a structure that contends that adolescents will be at risk for [substance use] if they (a) are socially critical and culturally alienated,... (b) have low self-esteem and feel they have little to risk through deviant behaviors,... (c) they have an external locus of control, believing that their conventional behaviors are not socially rewarded and their deviant behaviors are not socially punished. More intermediate causes of [substance use] are grouped in the motivational instigation structure and concern the direction of adolescents’ dominant goals, expectations, and personal values. Through this structure, PBT contends that adolescents will be at risk for [substance use initiation] if they (d) highly value their involvement with peers, seek independence from parents, and devalue academic achievement, or (e) have low expectations for academic achievement (p.77).

In addition to these major factors PBT outlines one other that is at the front of the “personal control structure”. This has to do with attitudes toward deviant behaviors (Jessor and Jessor, 1977). PBT asserts that adolescents who are tolerant towards deviant behaviors and believe that the advantages of such behaviors outweigh the expenses are much more likely to engage in deviance. PBT therefore suggests that substance use is influenced by a combination of psychological- and social factors. Social status and self-esteem are of importance, and so is perceived parental- and peer reactions to substance use, as well as attitudes regarding academic performance. Finally, positive beliefs about the values of deviant behaviors and the reinforcing environmental components that influence such behaviors are of particular importance according to PBT (Petraitis et al., 1995, Jessor et al., 1991).

1.1.7.2 Social development model

The Social Development Model (SDM) (Hawkins & Weis, 1985) is a general theory of antisocial behaviour and delinquency. The SDM aims to integrate components from Hirchi’s social control theory (1969) and Bandura’s social cognitive theory (1977). The SDM focuses in particular on the attachment between adolescents and their substance using peers. Adolescents who are uncommitted to conventional society or badly attached to their parents and other positive role models are perceived to be more likely to engage in delinquent acts such as smoking and alcohol use. This model is rooted in the social work literature and therefore focuses more on individuals than previous control theories, how they develop socially and their interactions with others. “The focus [of the theory] is achieved by assuming that the relative influence that families, schools, and peers yield over an adolescent’s behavior shifts developmentally” (Petraitis et al., 1995, p.73). The SDM assumes that parents are the main force of influence during preschool years, teachers during young adolescent years, and finally the peers during later adolescence. The SDM also suggests that adolescents are increasingly likely to become involved with substance using peers for three major reasons. 1) If they had infrequent opportunities for rewarding interactions at home and in school during early childhood. 2) They have a few of the important interpersonal and academic skills for successful and positive interactions at home and in school, and 3) if they received little reinforcement during their interactions with parents and teachers (Petraitis et al., 1995).

Different from most other frameworks to substance use, the SDM suggests that prevention requires the “nurturing of interpersonal and academic skills among children long before they form substance-specific beliefs as adolescents and become involved with substance-using peers” (Petraitis et al., 1995, p.73). This developmental focus implies that a part of the explanation for the onset of substance use is due to individual differences among adolescents themselves and not only in differences among their social surroundings or situations. The SDM therefore incorporates individual- and higher level influences as well as the interactions within- and between them. “When [adolescents] lack interpersonal and academic skills, or when these skills are not rewarded by parents and teachers, adolescents might feel they have little to lose by becoming involved with peers who are involved in and encourage [substance use]” (Petraitis et al., 1995, p.73).

1.1.8 Theoretical perspectives in sum

This theoretical summary states some of the most influential frameworks that have been applied in the literature on adolescent cigarette smoking, alcohol use, and delinquency. In summary, most of these theories share common features and together they all play an important part in building up the foundational structure of knowledge

about adolescent substance use and delinquency. To this day, however, little has been done to join together theoretical views, as argued in review studies (Petraitis et al., 1995; Hoffman et al., 2006). The current challenge is to utilize important parts of various theories in different settings in order to better understand this interesting life-period called *adolescence*.

In short, the main focus after decades of research has been on 4 major domains: 1) The parents and family, 2) the peer group, 3) academic achievement and the school setting, and 4) on individual cognitive processes. One important area of research that needs more attention is leisure time activities. The era of adolescence is in many ways defined by what adolescents do. Icelandic studies have reported on the important protective influences of sports participation (Kristjánsson et al. 2008; Thorlindsson et al. 1998; Thorlindsson & Vilhjálmsson, 1991) and types of leisure time activities (Thorlindsson & Bernburg, 2006) but more research is needed to better understand the nature and value of these activities. These four major components; parents and family, peers, academic performance and the school setting, and participation in leisure time activities, are the major features of the discussion about The Icelandic Model of substance use prevention, discussed by Sigfusdóttir et al., 2009. The model lays emphasis on the adolescent social world rather than on cognitive processes. More research remains to be conducted among Icelandic adolescents in this regard.

1.2 SUBSTANCE USE PREVENTION

Substance use and abuse by adolescents and young adults remains one of the most challenging health and social problem in the world. Out of 19 major life-threatening risk factors, tobacco smoking is currently the second in the world and alcohol use the 8th most important one (World Health Organization [WHO], 2009). Smoking and alcohol use cause more than 7 million deaths in the world annually (WHO, 2009). Furthermore, according to the United Nation's Office on Drugs and Crime (2009) the prevalence of cannabis use once or more often during the lives of young people exceeds 25% in most of the Western world and grows fast in many other parts of the world. The estimated number of young cannabis users is now between 142 and 190 million people world wide. In line with the "gateway" hypothesis (see below) nearly all cannabis users will have began their substance use with tobacco or alcohol or both. The prevention of smoking and alcohol use initiation by 14-15 year old adolescents therefore constitutes a major opportunity to head off a path that leads into cannabis use and further drug use, delinquency and academic failure. Many studies have shown that the younger people are when they try tobacco and/or alcohol for the first time the greater the risk that they will become heavy users later in life and begin using other and stronger substances.

What follows is a summary from the scientific literature about the major risk and protective factors in adolescent substance use. For contextual purposes the discussion begins with a discussion about the distinction between primary, secondary and tertiary prevention approaches and by introducing the "gateway" hypotheses.

1.2.1 Primary, secondary, and tertiary prevention

Primary prevention approaches focus on the prevention of substance use initiation in a specifically defined group before signs of use have arisen (Sigfusdóttir et al., 2009). This means that knowledge about risk and protective factors for substance use initiation should preferably be in hand in order to focus on relevant strengths and weaknesses deemed important in the lives of the group under scrutiny. For adolescents, this of

course means that solid understanding of the major influences and key players in their lives is essential to increase the effects of protective factors and decrease the likelihood of risk factors arising (Yarnell, 2007). Secondary prevention approaches focus mainly on interrupting the development of substance use progression in the lives of adolescents. The aim is therefore to understand and apply tools to deal with known risk and protective factors after experimental use has begun with the aim of restoring healthy lifestyle patterns (Yarnell, 2007). Tertiary prevention approaches denote the prevention of the major consequences of substance abuse once the effects have become well established. The approach therefore assumes that substance use is already a major problem in the lives and living patterns among individuals or groups. In this regard substance use interventions, for example, focus on the rehabilitation of long-term substance abusers or young people that are clearly involved in associated risk behavior lifestyles (Yarnell, 2007). The focus of this dissertation is in line with the primary prevention approach, therefore analyzing factors that may be important as either risk or protective factors for substance use initiation and later progression.

1.2.2 Licit and illicit substances and the “gateway” hypothesis

During the last 20 years the hypothesis that substance use by adolescents and young adults follows a certain sequence has gained a lot of attention and considerable support (Lindsay & Rainey, 1997; O’Byrne et al., 2002; Hall & Lynskey, 2005; Choo et al., 2008). In short, the gateway hypotheses postulates that drug use typically begins with tobacco and alcohol use which leads to a greater risk of cannabis use which then promotes an increase in likelihood of use of other and stronger substances such as hallucinogens, cocaine, and heroin (DuPont, 1984; Kandel, 2002). A part of the hypothesis also reveals an increase in risk of youth developing criminal careers (Choo et al., 2008). This hypothesis entails that the earlier adolescents begin experimenting with licit substances such as tobacco and alcohol, the more likely they are to use other and stronger substances later in life. The gateway hypothesis can therefore be viewed as an endorsement for identification of primary prevention activities against early substance use.

Findings from many studies have supported the gateway hypothesis. For example, Chen et al., (2002) found a consistent association between prior cigarette smoking initiation and current alcohol use for most of eleven ethnic groups and Torabi et al., (1993) found a strong relationship between smoking behavior and later alcohol use as well as between alcohol use and later illicit substance use. Similar results have been documented by Kandel et al., (1992). Regarding illicit substances, Ferguson and Horwood (2000) found that cannabis use usually preceded the use of other illicit substances as well as strongly predicting other forms of illicit substances after controlling for well known covariates. Recently, Robinson & Scherlen (2007) have proposed an explanation to this relationship. Their argument is that the move from cannabis to other and stronger drugs, (e.g. cocaine), does not take place because of the psycho-pharmacological effect produced by cannabis substances. Rather that social factors in the environment of cannabis users promote an increase in availability and likelihood for such use. With cannabis being by far the most widely used and available illicit drug on the market the explanation lies in the environmental predispositions that cannabis users are subject to for harder drugs. There are, in short, social environmental

factors that explain the relationship between cannabis use and the use of other and harder substances. This notion has been supported by Boyum and Reuter (2005).

The conclusion from this short overview on the gateway hypothesis is that by focusing on the onset of licit substance use among children and adolescents we may be able to prevent a sequence of negative developmental stages to take place in the lives of young people. This conclusion is identical to the one by Botvin et al., (2000) where they state that “illicit drug use can be prevented by targeting the use of gateway drugs such as tobacco and alcohol”. In line with this notion the next four sections outline the most important social- and environmental factors known to influence the risk of adolescent substance use initiation.

1.2.3 Parents and family

The importance of parental- and familial factors in preventing and/or influencing adolescent substance use has been studied greatly. In short, research has shown that parental factors, largely through emotional and developmental support, rule setting and monitoring, as well as personal conduct, are among the most important features in predicting and preventing substance use initiation and continuation among adolescents. Social circumstances and background factors (e.g. demographics, SES, and financial status) are also of great importance.

Many studies have shown parental smoking and alcohol use to be influential contributors to the likelihood of identical use by adolescents (Harakeh et al., 2004; Hartman et al., 2006; Hill et al., 2005; Kuending & Kuntsche, 2006). For example, Short et al., (2007) found parental alcohol use to be independently related with adolescent use after controlling for parental allowance of alcohol use in the home, and Scholte et al. (2008) discovered that regular drinking of mothers and fathers reflected a low, but significant, increased risk to adolescent alcohol use. On the other hand, Blokland et al., (2007) found parental smoking status to be an important factor in adolescent smoking cessation and continuation, and in a comprehensive review, Avenevoli & Merikangas (2003) argued that the smoking of both parents influences adolescent smoking even though mothers generally pose a somewhat greater influence than the smoking of fathers. Recently, the direct and indirect learning influences from parental use have been criticized. In terms of adolescent cigarette smoking, there is an ongoing debate regarding the influences of parental smoking (Blokland et al., 2006; Simons-Morton et al., 1999), and alcohol use (Marsden et al., 2005; Zhang et al. (1999; Scholte et al. 2008; Seljamo et al., 2006) where studies have shown mixed results.

Parenting practices form another genre of research that has gained attention over several decades. For example, parental smoking values influence adolescent smoking (Kodl & Mermelstein, 2004; Blokland et al., 2006), and parental monitoring has been found to decrease the risk of substance use (Raboteg-Saric et al., 2001; Griffin et al., 2000), and increase resistance self-efficacy which in turn deters alcohol use among adolescents (Watkins et al., 2006). Studies have revealed the protective influence of parental support (Catanzaro & Laurent, 2004; Clark et al., 1998; Harakeh et al., 2005; Scholte et al., 2008; Simons-Morton et al. 1999; Wills et al., 2004). Parental relations have also been found to indirectly influence peer selection (Warr, 1993). With the words of Sigfusdottir et al., 2009:

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 [smoke cigarettes and drink alcohol], and those who acquire friends who [do so] are less likely to start using themselves (p.18).

Positive parental practices have also been shown to tone down the impact of peer values and influences on substance use (Bogenschneider et al., 1998; Brown et al., 1993). Furthermore, greater emotional support has been found to decrease levels of oppositional conduct and aggression (Stormshak et al., 2000). And in “addition to control and support, the amount... of time spent with parents decreases the likelihood of adolescent substance use...” (Sigfusdottir et al., 2009, p.18).

Parental expectations have also been shown to be significantly protective against adolescent smoking, even after adjusting for parental control (Simons-Morton, 2004). And findings from Hill et al. (2005) and Kristjansson et al. (2008) demonstrate that reduced family conflict and increased bonding between parents and their children decreases smoking initiation among adolescents. Moreover, Kuendig & Kuntsche (2006) found that strong family bonds were negatively related both to frequency of alcohol use and drunkenness in lifetime.

Various sources of literature have also found parental separation and divorce to be a predictor for negative development in adolescence (Kirby, 2002; Unger et al., 2001; Sigfusdottir et al., 2004; Amato, 2005; Houseknecht & Hango 2006). Parental divorce has been shown to be strongly related with family conflict (Hanson 1999; Amato and Afifi 2006) and family conflict increases the likelihood of feelings of depression and anger which in turn contributes to substance use behaviors among adolescents (Sigfusdottir et al., 2004). Studies have also shown a direct relationship between tobacco smoking, alcohol use and parental separation (Jeynes, 2001; Menning 2006).

1.2.4 Peer group

Having friends that smoke cigarettes and drink alcohol or use other drugs influences such behaviors among adolescents (Hoffman et al., 2006; Thorlindsson et al., 1998; Kristjansson et al., 2008). In contrast, “very few adolescents who report having nearly no friends who use such substances have tried [them] themselves” (Sigfusdottir et al. 2009, p.17). Research on substance use and delinquency conducted in many countries has supported this notion (Sutherland and Cressey, 1978; Akers, 1977; Nash et al., 2005; Palmqvist & Santavirta, 2006). For example, Hoffman et al., (2006) stated that the smoking of friends is one of the strongest correlates to adolescent smoking, and Kristjansson et al. (2008) found peer smoking to be the strongest of several predictors to adolescent smoking while controlling for family factors and demographics. Furthermore, Nash et al., (2005) discovered that while family factors exerted important influences on adolescent alcohol use, such factors were primarily mediated through peer influences. And Mason & Windle (2001) showed similar results demonstrating that family factors were to a large extent conditioned on peer influences in adolescent alcohol use. These latter findings reveal the possibility that relations between parental- and peer influences on adolescent substance use are more complicated than previously assumed.

As with perceived parental support, peer support has been of interest to scholars for some time (Kristjansson et al., 2008; Piko, 2000; Wills et al., 2004). There is however, much less known about the processes underlying the peer influences on smoking and alcohol use, outside the almost certified statute that peer cigarette smoking and alcohol use increases subsequent risk for adolescent use, as stated above. However, recent review studies have called this statute into question (Hoffman et al., 2006) arguing that the peer selection processes should receive increased attention in future research (Scholte et al. 2008; Groh et al. 2007) because the order of cause and effect is often difficult to presume. Depending on definition, however, peer support has been shown to be related with adolescent cigarette smoking in the form of perceived attitudes to smoking (de Vries et al., 2008), and that adolescents are more likely to use substances in a peer environment more accepting of such acts (Alexander et al., 2001). Regarding alcohol, Nash et al. (2005) discovered that peer influences worked as a mediator between family factors and adolescent alcohol use, and in the context of abstinence, Groh et al. (2007) have shown that peer support decreases the likelihood of alcohol use. Some scholars, e.g. Piko (2000) and Catanzaro & Laurent (2004), have argued that findings regarding the differential impact of support from friends versus the family have proven inconsistent. In some cases the effects of peer support have been found to be operating in opposite direction to parental support (Wills et al., 2004). A lot remains to be done to better understand the relative importance of peers in adolescent cigarette smoking and alcohol use.

1.2.5 Leisure time

Lately, investigators have given increased attention to the functions of leisure time activities in adolescent lifestyle- and behavior development. Many studies have shown that participation in structured and supervised activities, exercise and sports reduces the likelihood for adolescent substance use (Thorlindsson & Vilhjalmsson, 1991; Thorlindsson et al., 1998; Moore & Werch, 2005; Kristjansson et al., 2008; Thorlindsson et al., 2007; Caldwell & Smith, 2006). Thinkers such as Bourdieu, (1993) have pointed out that supervised youth activities are important for they provide opportunities for participation in activities where adolescents can find interesting things to work at while advancing new skills and objectives which to strive for. Furthermore, supervised youth work or structured leisure time activities “provide opportunities through which adolescents can be reached, influenced and supported in positive ways” (Sigfusdottir et al., 2009, p.18). This often takes place by participation in mentorship- or community programs, or through relations with a supervising adult (e.g. a teacher or a sports coach) (Cullen, 1994).

Mahoney & Stattin (2000) found participation in highly structured leisure time activities to be related with lower levels of antisocial behaviors while participation in activities with low structure were associated with high levels of antisocial behavior, including substance use. Furthermore, low structured activities were characterized by deviant peer relations and worse parent-adolescent relations that both serve to promote adolescent substance use. These results were similar for girls and boys. Similar relations were found by Yin, et al., (1999) when applied to Mexican-American adolescents. In line with this notion, Borawski et al., (2003) found that for both boys and girls (mean age = 15.7) increase in unsupervised time was strongly associated with increase in risk behavior, including both alcohol- and marijuana use. Caldwell and

Darling (1999) discovered that adolescents who perceive lower levels of parental monitoring are more likely to associate with substance using peers but this relationship is mediated through partying. In this study unstructured social settings served to promote substance use and partying. Leisure time boredom, the feeling that leisure time experiences do not provide sufficient stimulus, has also been shown to predict school drop-out (Wegner et al., 2008) but findings regarding substance use prevention and leisure time boredom are still somewhat mixed. Wegner et al., (2006), for example, found no relation between substance use and leisure boredom among high school students in South Africa but Greene and Banerjee (2009) found unsupervised time with peers to be indirectly associated with adolescent smoking behavior through relations with delinquent peers. Finally, findings by Darling et al., (2005) suggest that extracurricular activities in the school setting are generally positive for youth development but they found no direct relations between such activities and substance use.

Another example is about work intensity. Many young adolescents, particularly in Iceland (Kristjansson et al., 2006) work along with their school studies. A study by Safran et al., 2001 showed work intensity to be negatively related to structured leisure activities and positively related with substance use. Longest and Shanahan (2007) discovered a similar relationship for alcohol use but this association was primarily mediated through parenting practices.

This short review suggests that the nature of leisure time activities and associations with peers in particular is important in predicting adolescent smoking and alcohol use. Moreover, that the associations between parental practices (e.g. monitoring), peer group influences, and leisure time activities are complex and interrelated. On the whole, the relative importance of leisure time activities, as an explanation for adolescent substance use, remains a challenge.

1.2.6 Neighborhoods and schools

Most adolescents at the age of 14-15 spend a significant amount of their time inside and around their schools. The school is therefore much more than merely an institution where children and youth learn to develop their academic skills and acquire new knowledge. It is also an important social institution. Studies have shown that in schools and neighborhoods where parents know their children's friends and are acquaintants or friends with the parents of their children's friends, an indicator known as intergenerational closure in the social capital literature (Coleman, 1988), all children in the local community benefit from such a relationship between parents (Thorlindsson et al., 2007; Sigfusdottir et al., 2009). This is true even though their parents are not necessarily a part of the parental network. With regards to cigarette smoking and alcohol use, supporting a strong link between parents and children and between parental groups in the local community is an important preventive factor. Sigfusdottir et al., (2009) write:

...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 (p.19).

Studies have revealed the probable importance of the school setting in adolescent cigarette smoking and alcohol use. For example, Alexander et al., (2001) found the likelihood of current smoking to be associated with peer groups where at least half of the group were current smokers, one or two of the best friends were smokers, and with higher prevalence of school smoking. In a multilevel study by Maes and Lievens (2003) the authors found a significant variation between schools in adolescent tobacco smoking and alcohol use after controlling for individual effects. Kim & McCarthy (2006) found a similar pattern their study on Asian Pacific Islanders. Moreover, school performance has been shown to be of importance where decrease in academic achievement was associated with increase in alcohol use (Mason & Windle, 2001). Another important element in relation to the schools are the school-based neighborhoods. Studies have shown that neighborhood characteristics are related with adolescent smoking and alcohol use, that these characteristics are over and above the individual relations suggesting that neighborhood specific factors may be of importance, known as “contextual effects” (Thorlindsson et al., 2007; Ennett et al., 1997). For example, Bernburg et al., (2009) discovered that in neighborhoods where disrupted family processes are common (e.g. weak ties between parents and adolescents) all adolescents in the neighborhood will be affected making substance use more likely for any individual adolescent in the neighborhood. This was found to take place mostly because of associations with delinquent peers. Put simply, in these neighborhoods the contextual influences of disrupted family processes are over and above the individual level effects on adolescent substance use. These influences were furthermore found for all types of substance use.

The findings reviewed above highlight the cluster influences of neighborhoods and schools in smoking and alcohol use among adolescents but much more research remains to be carried out before we can fully understand the relative importance of these higher level platforms.

1.2.7 Substance use prevention in Iceland

The results from annual surveys in Iceland indicated that substance use among adolescents rose greatly during the last decade of the 20th century. As an example the rate of daily smoking among 14-15 year old students in 10th grade of school increased from 15% to 23% between 1992 and 1998, lifetime hashish use rose from 7% to 17% during the same period and alcohol use increased as well (Thorlindsson et al., 1998). This increase in usage was in line with a similar trend among adolescents during the 1990s and the first years of the 21st century that was documented in many first world countries (Hibell et al., 2004; Bauman & Phongsavan, 1999). Sigfusdottir et al., (2008) have described the situation in Iceland:

The increase in substance use in Iceland was well documented in the national survey results. The findings, widely discussed in the Icelandic media, were alarming to the public. Apart from concern about the consequences of smoking, [alcohol use], and other substance use on long-term health status, the short-term consequences of substance use, such as consumption of alcohol on automobile injuries and fatalities, [was also of major concern]. The public discussion led to a growing concern about the general well-being of youth in Iceland and a political consensus that municipalities, schools, and the national government needed to take action to do more to prevent substance use (p.2).

As a result, a specified substance use prevention approach was founded and has been in operation in Iceland over the past 12 years, or since 1998. This approach, sometimes labeled “the Icelandic model of substance use prevention” has been outlined recently in scientific publications where the PhD candidate was among the authors (Sigfusdottir et al., 2009; Sigfusdottir et al., 2008). The figure below graphically depicts the major components of the approach:

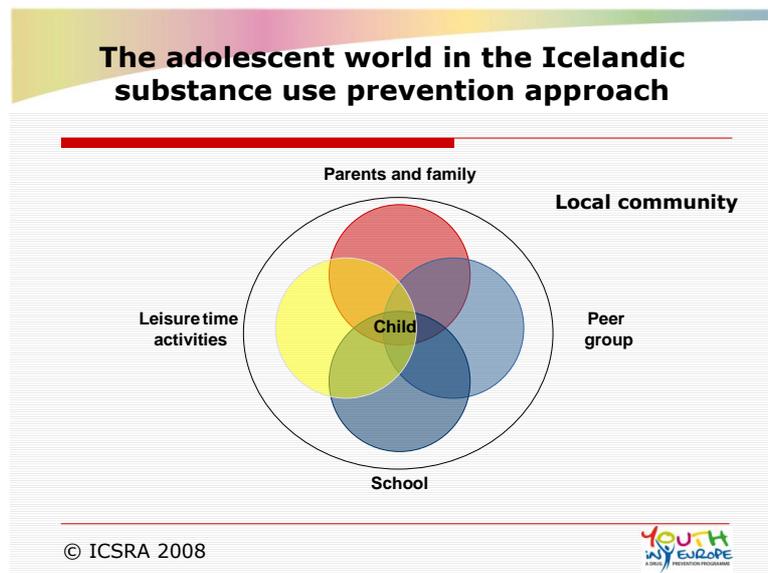


Figure 1. A graphical presentation of substance use prevention focus in Iceland.

As shown, the model is in line with the literature review above in identifying key factors for substance use risk and prevention. It has a primary prevention focus but also leans into secondary preventive scenes. In sum, it lays importance to community health promotion, identifying clearly defined risk and protective factors where researchers, policy makers, and practitioners work in dialogue with one another in order to decrease the likelihood of substance use development among adolescents. The main emphasis of the approach is working in local communities (e.g. school districts and municipalities) where the grass-root work is carried out using evidence-based practices grounded on methodologically solid data about the relationship with parents and family, peer group influences, school factors, and leisure time activities. The aim of this PhD-project is to investigate further, and in greater detail, important factors in the social environment of Icelandic adolescents that contribute to the likelihood of cigarette smoking and alcohol use initiation in the light of primary prevention efforts that may be of utility in applied public health setting.

1.3 THE FOUR STUDIES

Study I maps key factors associated with cigarette smoking among Icelandic 14-15 year olds(9th and 10th graders), such as family structure, socioeconomic status, perceived

parental reaction to smoking, parental support, parental monitoring, time spent with parents, parental practices, parental smoking behaviors, family conflicts, sibling smoking behaviors, peer smoking, perceived friends' acceptance of smoking, alcohol use, smoke-free tobacco use, academic achievement, and participation in physical activity. Study II directs the attention more closely to the internal family life and the association between adolescent cigarette smoking and alcohol use with parental divorce and separation. Studies have shown for decades that children and adolescents that have experienced parental separation are more likely to engage in smoking and alcohol use than others during adolescence. This relationship, on the other hand, is strongly related to the nature of the family life before and after the divorce. Study III looks at the relative importance of parents and peers. In particular, the differences in influences of parental and peer support and perceived reactions by parents and peers to smoking and alcohol use after controlling for well known factors such as the smoking and alcohol use of these significant others. Studies I-III use cross-sectional data from the population-based "Youth in Iceland" survey in 2006. Study IV is an attempt to test the trends in cigarette smoking, alcohol use, parental monitoring, and leisure time activities among Icelandic youth by pooling together five sets of data from 1997 to 2009. The study also seeks to identify if relative changes in these factors have been different in areas using a community health-promotion intervention over the last 12 years than in other areas that have solely been subject to national messages and campaigns about substance use prevention and/or specific school-based local operations.

2 MATERIAL AND METHODS

2.1 SAMPLE

The data for the first three papers in the dissertation were based on the population-based study, *Youth in Iceland 2006*. The study was designed to monitor adolescent health risk behaviors, substance use, emotional well-being, delinquency, social bonding, the role of significant others, several leisure time activities, and changes in social circumstances. The study base includes all non-institutionalized children who were enrolled in the obligatory 9th and 10th grades, ages 14 to 15 years, in all Icelandic secondary schools during March 2006. All students in these grades that were eligible for inclusion (e.g. not on sick leave or educational trips) participated in the study. The Icelandic school system is fundamentally based on public schools and they are all governed by the Ministry of Education and use the same curriculum. Furthermore, each birth cohort in the Icelandic population counts between 4000 and 4500 individuals. Because of the simplicity and convenience in accessing students, data is collected among all possible participants and not based on a sample in the conventional sense. The data collection was carried out in collaboration with the Icelandic Centre for Social Research and Analysis (ICSRA) at Reykjavik University and the Icelandic Ministry of Education, Science, and Culture.

A total of 7,430 students in 9th and 10th grade (49% males) completed the questionnaire in 2006, yielding a response rate of 81% of the total population of Iceland in these cohorts. A background check on the non-respondents was carried out in the aftermath of the data collection. It revealed no particular pattern for non-respondents versus participants in the study. Out of 178 schools, data from one school of medium size was lost in mail and three small and rural schools refused to take part in the study. The remainder of non-respondents were equally distributed across the schools within the capital area and the more rural parts of Iceland. In some schools a class-travel or educational tour prevented individual classes from participation in the study, and in others high rates of children with illness or flu resulted in a significantly lower response rate than otherwise expected.

The study base in study IV is data from *five* studies in the Youth in Iceland series, from the years; 1997¹, 2000, 2003, 2006, and 2009. The emphasis is on changes in trends of substance use and associated risk and protective factors. Data collection was carried out using the same protocol as outlined above regarding the 2006 study. The study base varied between 7,882 and 9,278 individuals, and respondents numbered between 6,346 and 7,758 (81 to 90% of the total population). Table 1 shows the total number of participants, response rates, and gender ratios for each year.

¹ In 1997 the Institute for Educational Research, the predecessor to ICSRA, carried out the data collection using a similar protocol as the latter since.

Table 1. Number of participants in the *Youth in Iceland* surveys, 1997, 2000, 2003^a, 2006, and 2009.

<i>Year</i>	<i>N</i>	<i>% of population</i>	<i>% males</i>
1997	7,758	90	52
2000	6,346	82	49
2003	7,099	81	52
2006	7,430	81	49
2009	7,514	84	49

^a In 2003, the *Youth in Iceland* survey became the Icelandic part of the ESPAD survey (Hibell et al., 2004). Measures on parental monitoring and leisure-time activities are not applicable for that year.

2.2 PROCEDURES

The ICSRA has been responsible for conducting the Youth in Iceland study series in a tri-annual sequence since the year 2000 and has developed a rigorous data collection planning procedure that was followed as before. First, the headmaster or principal of each school was contacted, the study introduced, and participation of the school secured. Second, each school nominated a supervising contact agent (SCA). The SCA is responsible for the distribution of standardized introductory letters to parents that are submitted by ICSRA to the school and each child takes home to its parent(s). Approval for participation is based on passive parental consent and the parents have 7 days to withdraw their child from the study. In previous years the number of participants that are withdrawn from participation has been from two to five individuals, and so it was this time when 4 parents chose to withdraw their children from the study. Third, during the first week of March 2006 each school received a box with pre-packed stacks of anonymous questionnaires in a specific class envelope for each numbered class eligible for participation in the study. The SCA distributed the class envelopes to each supervising teacher or assistant member of staff. Each class-based envelope contained the relevant number of questionnaires based on official registration number of pupils by the Icelandic Bureau of Statistics, a matched number of anonymous envelopes for sealing each questionnaire before handing back to the respective supervisor, and an instruction letter for the supervising individual on how to carry out the survey within the class-room setting. The SCA was then responsible for sending the box back to the ICSRA and had received a prepaid postage stamp and a sticker with the ICSRA address to put on the box. Some schools in the capital area chose to send the boxes back by their own staff.

2.3 PARTICIPANTS

All students who attended school on the day that the questionnaire was scheduled to be administered completed the questionnaire in the classroom. Students were instructed not to write their name, social security number, or any other identifying information, anywhere on the questionnaire. They were instructed to complete the entire questionnaire, and to ask for help if they had any problems or had any questions for clarification. Once students had completed the questionnaire, they were asked to seal it

in the envelope provided before returning the envelope to the supervising teacher or a member of staff. If any of the study respondents needed help in understanding certain questions they were instructed to close their questionnaire and ask for help. The supervising teacher or staff member would approach the student with an empty questionnaire for the student to point out which question he/she was having trouble understanding. A prior study about any possible teacher effects in this data collection methodology revealed no specific pattern of results between data collected by teachers or by administrative assistants (Bjarnason, 1995).

2.4 DATA HANDLING AND FILE PREPARATION

After receiving the boxes back from the participating schools the questionnaires were removed from the envelopes and the keel cut off. Then optimal scanning was used to prepare all the questionnaires into a single file that may be converted to a Text, Microsoft Excel or SPSS (Statistical Program for the Social Sciences) file. The scanner type is Canon DR-9080C and uses the second generation Eyes & Hands software from ReadSoft AB in Helsingborg, Sweden. After the data had been scanned and prepared to a single file the data cleaning process began. First, all questionnaires with missing values of 85% or more for all questions were deleted from the common file. Those respondents who claimed they had been involved in all negative life events experiences during the last 30 days asked for in question 40 (see Appendix) were also deleted from file and so were those admitting to have tried all illicit substances 40 times or more often in their lifetime (q59a-1). Also, all respondents that claimed to have used the fake drug “relewine” at any time in their lives were deleted from the main data file. All together 132 individuals, or 1.74%, were deleted from the file in the data cleaning process leaving a total of 7,430 responses eligible for analysis.

2.5 MEASURES

Most of the measure constructs in the Youth in Iceland study series have been taken from international sources and are based on published studies on reliability and validity of scales. For the 2006 study, particular attention was given to measures on health behavior and associated factors such as support networks and neighborhood functions. All questionnaire additions and changes were supervised by the author. Some questions in the Youth in Iceland series have been developed by ICSRA (Sigfusdottir et al., 2009), others as a part of the European-wide ESPAD survey (The European School Survey Project on Alcohol and Other Drugs) (Hibell et al., 2004; 2009) and still others are dated back to the days of the Institute for Educational Research (IER), the predecessor to ICSRA which was closed down in 1998. An English version of the 2006 questionnaire is included in the Appendix.

2.5.1 Measures used in papers I-IV

Studies I, II, and III all use background questions no. 1 (gender), 4 (family structure) and 5-6 (parental education), and study I uses question 12 on family income as well. Study I analyzes questions 23 on parental support, 25 on time spent with parents, 27 on parental control and 63 on perceived parental reactions to cigarette smoking. Study I also uses questions 40 d-g on family conflict and 49 on the smoking of significant others. In study I, peer group relations were assessed with questions 34 on perceived

peer respect if one would smoke cigarettes, and the smoking of friends is measured with question 66. Physical activity is measured in question 69, academic achievement in question 17, and alcohol consumption during last 30 days is asked about in question 56. Finally, study I uses questions 53 for smoke free tobacco use. Study II uses question 40c on divorce and/or separation from parents, and questions 40d-g on family conflict. Study II also utilizes questions no. 51 on cigarette smoking and 56 on alcohol use. Parental relations are assessed with questions 25 and 27 in study II and residential mobility with questions 45a and b. Study III uses questions 50 and 51 to assess cigarette smoking and 56 on alcohol use. It uses questions 23 and 24 on parental and peer support, and 63 and 34 to measure perceived parental reactions to cigarette smoking and alcohol use and perceived peer respect for such use. Finally, parental and peer smoking and alcohol use is assessed with questions 49 and 66 in study III. As reported, study IV is based on trends analysis and changes over time. It uses data from 5 different datasets but all questions are identical for use between studies, unless indicated otherwise in the paper. With regards to the 2006 questionnaire it bases on questions 56 and 57 on alcohol use, and 51 on cigarette smoking. Questions 27e and 27f are used to analyze changes in parental monitoring over time, 69b for participation in organized sports and 71g for partying.

2.6 DATA ANALYSES

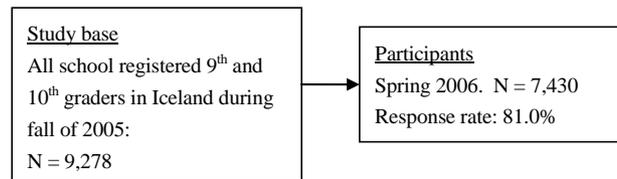
All statistical analyses were done by using the statistical program SPSS (see papers I-IV for details of statistical analysis of each study).

The Icelandic Data Protection Authority was informed and has approved of all data handling and analyses in this dissertation (Reference no. 2008020170).

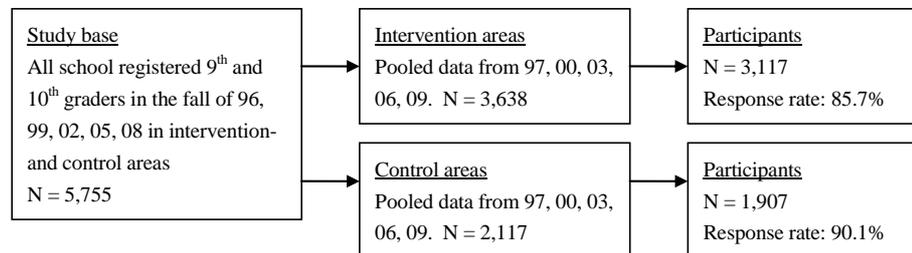
3 RESULTS

3.1 FLOWCHARTS

Papers I-III



Paper IV



3.2 STUDY I

Just over 15% of adolescents reported having smoked a cigarette at some point in their lifetime with 8.8% counted as daily smokers and 6.7% as occasional smokers. We analyzed the unadjusted and adjusted Odds Ratios with 95% confidence intervals for both groups of smokers. The direction of variable coding expected to be protective against tobacco use was treated as the reference group in all instances.

The demographic variables for parental education and family income were not related to the likelihood of adolescent smoking in the adjusted analysis but adolescents not living with both parents had an increased risk of being daily smokers (OR = 1.52, 95% CI = 1.09-2.13). Parental support and parental control were significantly related to daily smoking in the unadjusted analysis but not in the adjusted analysis. However, “time spent with parents” was significant in both the crude and adjusted analyses for daily smoking (adjusted OR = 2.27, 95% CI = 1.50-3.44) but not occasional smoking. The family conflict variables, “interparental serious verbal conflict,” and “parent-adolescent violence” were only related to smoking in the unadjusted analysis but not in the adjusted models for both daily and occasional smoking but “interparental violence” was borderline significant in the adjusted analyses for occasional smoking. However, the “parent-adolescent serious verbal conflict” variable was significant in the crude and adjusted analysis for both daily smoking (adjusted OR = 2.83, 95% CI = 1.98-4.04) and occasional smoking (adjusted OR = 1.72, 95% CI = 1.27-2.33). In addition, father’s, mother’s, and sibling’s smoking all increase the risk of adolescent daily smoking in the crude analysis but father’s smoking was not significant in the adjusted analysis whereas mother’s and sibling’s smoking continues to be of importance. Of all

the family factors in the study “perceived parental reactions if one would smoke” is the most important risk factor both in the crude and adjusted analyses (adjusted OR for daily smoking = 8.92, 95% CI = 6.04-13.17). Expecting more respect from peers if one would smoke increased the risk in the adjusted analysis for daily smoking (OR = 3.27, 95% CI = 2.09-5.13), and occasional smoking (OR = 2.25, 95% CI = 1.43-3.53).

Also, the risk of being a daily smoker increased to over 17-fold when peers smoke when adjusted for other factors in the analysis (OR = 17.17, 95% CI = 6.18-47.71). This is by far the strongest risk factor for daily smoking in the study. Engagement in physical activity (adjusted OR for daily smoking = 2.15, 95% CI = 1.48-3.13) and doing well in school (adjusted OR for daily smoking = 2.12, 95% CI = 1.49-3.02) were negatively related to smoking. However, academic achievement was not significantly related to occasional smoking in the adjusted analysis. Drinking alcohol during last 30 days was strongly related to daily smoking (OR = 7.64, 95% CI = 5.11-11.41) and occasional smoking (OR = 8.81, 95% CI = 6.13-12.64), and smoke-free tobacco use was strongly related to both daily (OR = 5.74, 95% CI = 3.93-8.37) and occasional smoking (OR = 3.57, 95% CI = 2.56-4.98) after adjustments.

3.3 STUDY II

Just over 23% of the participants reported that they had experienced parental divorce at some point in their life. Approximately 16% had smoked one cigarette or more during the last 30 days and 33% admitted to having had a drink of alcohol during the last 30 days. A little less than 35% reported that they had changed schools during the last 5 years and a similar proportion of respondents reported that they had moved between areas or neighborhoods during the last 5 years. About 37% of the study participants reported that they had been involved in serious argument with their parents, and 23% of having witnessed a serious argument between their parents. However, far fewer respondents had either experienced, or witnessed, physical violence in the home; just over 5% reported involvement in physical violence in the home, with an adult, at some point in time, and approximately 6% claimed to have witnessed physical violence in the home between adults. In multivariate analysis cigarette smoking and alcohol use were modeled separately as dependent outcomes. Model 1 included the dependent outcome and the predictor variables for gender and parental divorce only. In Model 2 the parental variables, time spent with parents and parental monitoring, were added to the model, then the social change items were added to Model 3; the fourth and final model also contains the 4 family-conflict variables.

First, controlling for gender only, having experienced parental divorce more than doubles the odds of cigarette smoking (OR = 2.12, 95% CI 1.84-2.44). Second, when adding the parental variables to the equation the odds of cigarette smoking decreases (OR = 1.82, 95% CI 1.56-2.13). Both time spent with parents (OR = 0.69, 95% CI 0.66-0.72) and parental monitoring (OR = 0.85, 95% CI 0.81-0.88) are protective against the risk of cigarette smoking in this model. Third, when adding the social-change variables to the model, the OR for parental divorce drops (OR = 1.68, 95% CI 1.44-1.97). Overall, the odds ratios for the relationship between parental divorce and adolescent smoking decreased by 34% between Models 1, 2, and 3. However, after adding the family-conflict variables to the equation in the fourth and final model, the observed relationship almost disappears and is no longer significant at the 95% level (OR = 1.18, 95% CI 0.99-1.40). The most important family-conflict variable is

involvement in serious arguments (OR = 2.47, 95% CI 2.10-2.90), followed by involvement in physical violence (OR = 1.76, 95% CI 1.31-2.37). Furthermore, the relative importance of the family-conflict variables to the likelihood of cigarette smoking is much greater than the other variables entered in the equation in the first three models.

Controlling for gender only, having experienced parental divorce increases the odds of alcohol use by 66% in the first model (OR = 1.66, 95% CI 1.48-1.87). Second, when adding the parental variables to the equation the risk of alcohol use decreases to OR = 1.44 (95% CI 1.27-1.63). As with cigarette smoking, both time spent with parents (OR = 0.74, 95% CI 0.72-0.77) and parental monitoring (OR = 0.85, 95% CI 0.82-0.88) are protective against the odds of alcohol use in this model. Third, when adding the social-change variables to the model, the OR for parental divorce drops to 1.36 (95% CI 1.19-1.54). Overall, the odds ratios for the relationship between parental divorce and adolescent alcohol use has decreased by 30% between Models 1, 2, and 3. However, as with cigarette smoking, when adding the family-conflict variables to the equation in the fourth and final model, this relationship disappears (OR = 1.03, 95% CI 0.90-1.18). Also as before, the most important family-conflict item is involvement in serious arguments (OR = 1.93, 95% CI 1.71-2.18), followed by involvement in physical violence (OR = 1.60, 95% CI 1.21-2.13). The relative importance of the family-conflict variables to the likelihood of alcohol use is similar in strength as all other variables entered in the equation in the first three models.

3.4 STUDY III

In this study we used ordinary least squares regression, run in a stepwise manner, to test the relative importance of several independent variables on adolescent smoking and alcohol use, with *F* significance tests for differences in variance explained between models. Such stepwise models are run by first revealing the variable accounting for the greatest amount of variance in the dependent variable, the second model is run with the two variables accounting for the most variance in the dependent variable, and so on until no additional variance is accounted for by including new variables from a predefined pool of variables. This method leaves out any variable that does not account for any additional variance explained in the dependent outcome.

First, peer smoking accounted for the largest part of the variance in cigarette smoking, 34.9%, with a standardized beta coefficient of .59 in the first model but .41 in the 10th and final model. Perceived parental reactions to cigarette smoking added a further 5.7% of variance explained, in model 2, with a beta of -.26 in the second model and -.21 in the 10th and last model. Perceived respect from peers if smoking cigarettes added a further 2.4% to variance explained, with the total being 43.0% in the third model, with a standardized β of -.18, and continuing to be stable throughout the 10 models. Fathers and mothers smoking added a further 0.6% of variance explained. The remaining 5 variables of parental support, peer support, gender, family structure and parental education together added a combined 0.8% of the explained variance, increasing the total to 44.4% in the 10th and final model.

With regards to adolescent alcohol use, all variables except for parental education added significantly to variance explained. First, peer use accounted for the largest amount of variance in alcohol use, being 35.8%, with a standardized beta coefficient of .60 in the first model and .40 in the final model. Perceived parental reactions to

drunkenness added a further 6.5% of variance explained in model 2, with a beta of -.28 in the second model falling to -.22 in the 9th and last model. Respect from peers if drinking added a further 2.6% of variance explained, with the total being 44.9% in the third model, having a standardized β of -.19 in the third model and continuing to be stable throughout all models. The remaining 6 variables explained additional 1.2% of the variance in alcohol use. The total variance explained for alcohol use was 46.1% in the 9th and final model.

In sum; for both cigarette smoking and alcohol use only three variables; peer use, perceived parental reaction to use, and perceived respect from peers if using, account for nearly all the variance explained in the dependent variables. Parental and peer support, on the other hand, have negligible relations to adolescent cigarette smoking and alcohol use in our models.

3.5 STUDY IV

This study used pooled data from five cross-sectional surveys to analyze trends in cigarette smoking and alcohol use, parental monitoring and leisure time activities, among Icelandic adolescents over a period of 12 years, from 1997 to 2009. We divide the data into intervention and control areas based on their participation in primary prevention activities conducted on the municipal level.

The odds ratio (OR) for trends in *any alcohol use* in the whole of Iceland was 0.84 (95% CI 0.82, 0.85, $p = .000$) during the study period. For the intervention group, the OR was 0.77 (95% CI 0.73, 0.81, $p = .000$), and for the control group the OR was 0.86 (95% CI 0.80, 0.92, $p = .000$). The interaction term for time*intervention between the intervention and control groups had an OR of 0.89 (95% CI 0.82, 0.98, $p = .012$), indicating that the reduction in any alcohol use was significantly greater in the intervention group than it was in the control group. The OR for the trend in *alcohol intoxication during the last 30 days* for the whole of Iceland was 0.79 (95% CI 0.77, 0.80, $p = .000$), 0.69 (95% CI 0.65, 0.74, $p = .000$) for the intervention group, and 0.80 (95% CI 0.74, 0.87, $p = .000$) for the control group. The interaction term for time*intervention had an OR of 0.86 (95% CI 0.78, 0.96, $p = .004$), indicating that the reduction over time in alcohol intoxication was significantly greater in the intervention group than in the control group. The OR for the trend in *daily smoking* for Iceland was 0.78 (95% CI 0.76, 0.80, $p = .000$), 0.73 (95% CI 0.67, 0.79, $p = .000$), for the intervention group, and 0.81 (95% CI 0.73, 0.91, $p = .000$) for the control group. The interaction term for time*intervention had an OR of 0.90 (95% CI 0.77, 1.00, $p = .099$). Although not statistically significant, the direction of the reduction in daily smoking over time is consistent with the other findings.

Next we analyzed trend for *parental monitoring* indicators. First we looked at the ratio of *parents knowing with whom their adolescents are in the evenings*. The OR for the whole of Iceland was 1.26 (95% CI 1.24, 1.28, $p = .000$), 1.36 (95% CI 1.28, 1.44, $p = .000$) for the intervention group, and 1.22 (95% CI 1.13, 1.33, $p = .000$) for the control group. The interaction term time*intervention had an OR of 1.11 (95% CI 1.00, 1.22, $p = .044$); this result is also consistent with greater beneficial change over time for the intervention group compared to the control group. Second, we identified changes in the ratio of *parents knowing where their adolescents are in the evenings*. For Iceland, this indicator increased positively for most of the study period, with an OR of 1.19 (95% CI 1.17, 1.21, $p = .000$). The OR for the intervention group was 1.28 (95% CI

1.21, 1.36, $p = .000$) and 1.17 (95% CI 1.09, 1.26, $p = .000$) for the control group. The interaction term time*intervention had an OR of 1.10 (95% CI 1.00, 1.20, $p = .059$), also directionally consistent with our other results.

Lastly, we directed our attention to the leisure time activities. We analyzed trends in *sports participation* (either in a sport club or with a team 4 times per week or more often) and *going to parties* at least once each week. The OR for the trend in participation in sports for the whole of Iceland was 1.12 (95% CI 1.10, 1.14, $p = .000$), indicating a significant increase in this leisure-time activity during the study period. The trend in sports participation in the intervention group was 1.13 (95% CI 1.07, 1.20, $p = .000$) and for the control group it was 1.02 (95% CI 0.95, 1.09, $p = .619$). The OR for the interaction term for time*intervention was 1.11 (95% CI 1.02, 1.21, $p = .015$), indicating a greater increase in participation in sports for the intervention group than for the control group. We then looked at the prevalence of going to parties at least once every week. For Iceland, the OR for trend was 0.81 (95% CI 0.78, 0.83, $p = .000$), while the OR for the intervention group was 0.72 (95% CI 0.66, 0.79, $p = .000$) and 0.85 (95% CI 0.75, 0.96, $p = .010$) for the control group. The OR for the interaction term for time*intervention was of 0.85 (95% CI 0.73, 0.99, $p = .034$), indicating a greater decrease in going to parties for the intervention group than for the control group.

These results suggest that the prevention activities conducted on the municipal level may be having a significant influence on trends in substance use as well as risk and protective factors.

4 DISCUSSION

4.1 SUMMARY OF FINDINGS

The findings of studies I-IV challenge the current sphere of knowledge in several ways. First, results indicate that multiple social factors influence smoking behaviors among adolescents, including alcohol use. Prevention approaches and programs should account for such diversity while at the same time consider contextual factors such as socio-economic indicators that are known to be important determinants for the likelihood of adolescent smoking. Second, increase in probability of smoking and alcohol use among adolescents as a result of parental divorce or separation does not need to be a fact. By avoiding family conflicts, including direct conflict between parents and their children, before and after separation, parents can prevent such increase in likelihood of cigarette smoking and alcohol use. Direct conflicts between parents and children as a result from tensions in the home should be a priority in that regard. Third, by demonstrating to their children that adolescent cigarette smoking and/or alcohol use are not acceptable behaviors, parents can substantially decrease the likelihood of usage by their adolescent children. Likewise, through supportive mechanisms (e.g. healthy leisure time activities) and motivation around the peer group, prevention work should target peer respect for smoking and/or alcohol use as an important factor that may increase the likelihood for such use. Finally, prevention activities conducted in several municipalities in Iceland over the past 12 years have shown that by emphasizing health promotion activities in the local community setting and collaboration with local youth- and prevention workers, cigarette smoking and alcohol use has decreased more than in other municipalities. Moreover, the relative increase in supportive mechanisms such as parental monitoring and sports participation was greater in such communities than in others, and so was the subsequent decrease in party lifestyles.

4.2 THEORETICAL CONTEXT

As stated in section 1.1.8 it is important to utilize frameworks and ideas from several theories in order to increase understanding of key factors that influence adolescent cigarette smoking and alcohol use initiation and progression. What follows is a separate discussion about each of the four studies in the light of several of the theories outlined in sections 1.1.2 to 1.1.7.

4.2.1 Study I

Study I identifies several factors associated with cigarette smoking, among them alcohol use. In line with control theory, PBT and the SDM not living with both parents increases risk of smoking and alcohol use because the processes underlying attachment to parents are disrupted. In line with the same theories study I found “interparental violence” and “parent-adolescent serious verbal conflict” to be strongly related with increased risk of cigarette smoking. Furthermore, parental support and control was found to be negatively associated with usage but “time spent with parents” was found to be more strongly protective in this regard. Study I therefore suggests that the time adolescents spend with their parents, and not necessarily what they do with their parents, symbolizes an important domain of understudied area regarding parental

factors. In line with learning theories such as SLT and SCT, the smoking of mothers, fathers and siblings was found to increase the odds of being a smoker. However, of all the family factors “perceived parental reaction if one would smoke” was the most important one (OR = 8.92 for daily smoking). This finding is in line with problem behavior theory, control theory and the social development model that all discuss (in different words) the importance of the strength of the parent-adolescent relationship. For example, PBT asserts that deviant behaviors such as cigarette smoking that are not “socially punished” are effectively “socially rewarded”.

As has been known for decades, peer smoking was very strongly related with the smoking behaviors of study participants and by far the single strongest predictor of cigarette use with an OR of over 17 for daily smoking. This finding comes as no surprise. Merton (1938), Cohen (1955) and their followers in the strain tradition of criminology pointed towards the significance of the peer group and so have learning theories, including SLT and SCT, thereafter. Another important finding in study I was that “respect from peers if smoking” was strongly related with current smoking status (OR = 3.27 for daily smoking). This finding is in line with several theoretical approaches from different domains: In the early days of criminology and health behavior theory, as far back as to the origins of the theory of differential association in the 1930s and the health belief model in the 1950s, personal perceptions of how a behavior will affect social status (e.g. in the peer group) has been known to be an important behavioral determinant. The theory of reasoned action and the theory of planned behavior have followed but this notion is also included in different forms within control theory, the SDM and PBT.

Finally, physical activity was protective against cigarette smoking. This finding may be interpreted in line with theories that emphasize the importance of the peer-group such as learning theories since smoking is less likely to be accepted in peer related settings that are characterized by physical activity. Also, doing well in school decreased the risk of smoking behaviors which is in line with control theory, the SDM and PBT which all underline the importance of school bonding. Problem behavior theory specifically signals how multiple risk behaviors are interrelated. It should therefore come as no surprise that study I found adolescent smokers also much more likely than non-smokers to use smoke-free tobacco and to drink alcohol.

4.2.2 Study II

In study II an attempt was made to explain why adolescents that have experiences parental divorce or separated are more likely than other adolescents to smoke cigarettes and drink alcohol. These results may be interpreted in line with several theories. In line with the theory of social control, the social development model and problem behavior theory, adolescents that have experienced parental divorce or separation are over two times more likely to smoke cigarettes on a daily basis and about 66% more likely to have used alcohol during the last 30 days than adolescents that live with both parents. It is conceivable that the nature of the parent-adolescent relationship and bonding will be affected by the changes in circumstances that are created with parental separations. In the aftermath of a divorce the parents are both as individuals fulfilling a role by themselves that they used to meet together. As a result, they will have less opportunity to spend time with their children and parental monitoring will automatically be decreased. Study II found these parental factors protective against cigarette smoking

and alcohol use and when they were added to the statistical models the OR of the divorce variable were reduced from OR of 2.12 to 1.82 for smoking and OR of 1.66 to 1.44 in alcohol use. In line with the personal part of general strain theory (as opposed to the macro level societal part); feelings and emotions such as stress, frustration, anger, depression and anxiety that may have been awakened by the parental separation can be regarded as “strain” that increases the risk of delinquent acts such as cigarette smoking and alcohol use. Also, in line with learning theories, less time and monitoring will decrease the opportunities for positive parental learning influences. Another important change that is likely to take place after parental divorce and/or separation is living relocation and switching schools. Both events may be regarded as potentially stressful and therefore in line with general strain theory. On the other hand, attachment to conventional values and societal institutions may also have been interrupted by relocation and the changing of schools which of course increases the likelihood of needing to create new friends and leaving the old ones. In line with control theory and the SDM this process may be regarded as potentially difficult and risk behavior enhancing. In the statistical models neither moving nor switching schools had a significant association with cigarette smoking or alcohol use after the inclusion of other variables, apart from moving residence that increases the OR for smoking by 38%.

On the other hand, the principal motivation for study II was to look more closely at the underlying processes within families that may explain why adolescents that have separated parents are more likely to smoke cigarettes and drink alcohol than other adolescents. Having had a serious argument with parents was the single most important family factor that contributed to a greater likelihood of cigarette smoking, by OR of nearly 2.5, and alcohol use with OR of almost 2. Other factors were of less importance but involvement in physical violence in the home increased the OR for cigarette smoking by 76% and alcohol use by 60%. However, as expected the prevalence of such involvement was only about 5%. After including the family conflict variables the relationship between cigarette smoking and parental divorce as well as between alcohol use and parental divorce became insignificant at the 95% level. With regards to theoretical approaches, control theory points towards the importance of attachment, describing it as the “affection and sensitivity to others” that may have been decreased after parental separation. The social development model points towards the importance of healthy family processes. The SDM integrates aspects of control theory and social cognitive theory and identifies how less bonding with parents and increased stress serve to increase the likelihood of delinquency development such as cigarette smoking and alcohol use through a time sequence. Such a negative development may have been awakened by the parental separation process.

4.2.3 Study III

In study III a widely studied phenomena; social support, is revisited with the aim of challenging the current knowledge base with regards to the protective effects on adolescent cigarette smoking and alcohol use. Identical to study II we investigate cigarette smoking and alcohol use separately and use the same set of potentially influential variables in the respective statistical models. We incorporate parental- and peer support, the smoking and/or alcohol use of significant others (mothers, fathers, peers) and two additional, less studied, variables; perceived parental reactions and peer respect for use, into linear regression models, run in a stepwise manner, while

controlling for family structure and gender. The overall aim is to identify increase in variance explained by inclusion of more variables and to see which of those explains the most in the dependent outcome and if any variables are deemed unnecessary in the models. Interestingly only three variables account for nearly all the explained variance in both cigarette smoking and alcohol use; peer use, perceived parental reactions to use, and perceived peer respect if using. The remaining seven variables in the smoking models and six variables in alcohol use account for less than 1.5% additional variance.

Control theory, the SDM and PBT all incorporate the importance of relationships with parents and peers in this regard and the learning theories, SLT and SCT, identify the importance of smoking and drinking of significant others. In addition, the theory of reasoned action and the theory of planned behavior point towards the importance of the cognitive perceptions of the prospective user, in particular with regards to the peer group influences. This is also true for the classical peer-group delinquency theories of criminology introduced in section 1.1.3 as well as for the health belief model of health behavior.

Social support has been widely studied in many different fields (e.g. sociology, criminology, social psychology, health promotion, and public health). Generally it is acknowledged that parental support is protective against cigarette smoking and alcohol use but more mixed results have been found for peer support as adolescents may turn to peers for support whether they are users or non-users. The social development model and problem behavior theory both underline the importance of the developmental- and age-dependent sequence needed to understand these influences. In short, in order to be protective against cigarette smoking and alcohol use, parental support needs to be consistent in the lives of children prior to them reaching the age-span of adolescence. The risk is that otherwise they will turn to depend more on their peers for support, which all theories view as potentially harmful. In our cross-sectional models the importance of parental support is found to be very limited. The learning theories point towards the importance of smoking and alcohol use of significant others. As in study I peer smoking is indeed found to be the strongest of all predictors in both statistical models of this study. On the other hand, the use of fathers and mothers is found to be of very limited importance in both cases. The most important discovery in study III are the cross-theoretical findings that the cognitive perception of how parents will react to use and how usage will influence one's respect status in the peer group are the most important determinants of smoking and alcohol use, in addition to peer use. The health belief model, the TRA and TPB all point to this importance. By combining them with variables from the developmental perspectives and the learning theories we have shown that such cognitive factors should be included with social factors to better understand smoking and alcohol behaviors of adolescents.

4.2.4 Study IV

This study attempts to assess the substance use prevention and health promotion activities that have been implemented in several municipalities across Iceland by pooling together five datasets; from 1997, 2000, 2003, 2006 and 2009 for analysis of trends over time. Analyses are limited to municipalities from outside the capital area and to those that have either been working with these activities consecutively for the whole time-period or not at all.

In line with control theory, the SDM and PBT the proposed municipal activities are set to encourage the increase of parental monitoring as a protective factor to smoking and alcohol use. Parental monitoring is measured with self-reported questions about how well the respondents feel that two statements apply to them a) “my parents know where I am in the evenings”, and b) “my parents know whom I am with in the evenings”. In line with the health behavior theories; TRA and TPB, the peer group theories from criminology, and the learning perspectives, SLT and SCT, study IV also assesses changes in participation in organized sports. Sport participation has been considered an important substance use prevention tool in Iceland. Finally, study IV evaluates changes in cigarette smoking and alcohol use for the two groups under scrutiny, from 1997 to 2009.

The importance of the peer-to-parents relations is identified by control theory, the SDM and PBT. Parents are perceived to provide an important deterrent to delinquency development through emotional support, behavioral sanctions and monitoring of youth lifestyle and whereabouts. In line with this notion, the results of study IV indicate a greater increase over time in parental monitoring in the intervention group than in the control group. Likewise, participation in organized and formal sports is viewed as a platform for the development of healthy lifestyle and engagement in health promoting peer group relations. The learning theories underline the importance of non-delinquent settings such as in organized sports clubs that are supervised by responsible adults (e.g. trainers/coaches), and the strain theories emphasize the importance of access to healthy opportunities as probable determinants for a decreased likelihood of delinquency development. As suggested by these theories, study IV reveals a consistent increase in sports participation in the intervention group over the study period but no change is observed for the control group. Finally, cigarette smoking and alcohol use was found to decrease overall in Iceland during the study period. Furthermore, such usage decreased more in the intervention group than in the control group.

4.3 STRENGTHS AND LIMITATIONS

Studies I-IV have several strengths. First, the data used in papers I-III includes responses from over 80% of all 9th and 10th graders in Iceland and is therefore highly representative of non-institutionalized 14-15 year old youth in the country. Furthermore, as outlined in section 2.1, a background check on those that did not participate in the study did not reveal any particular pattern between respondents and non-respondents. Second, the data for study IV represents about 86% and 90% respectively of all possible respondents in the intervention- and control communities from 1997, 2000, 2003, 2006 and 2009. Third, we operate with reliable and valid international measuring tools and most single item measures have been used in other international studies, including the European ESPAD surveys (Hibell et al., 2009). Fourth, a standardized school-based data collection protocol, developed by ICSRA, is utilized in all instances. Fifth, we incorporate ideas from several theoretical approaches from subjects within the social- and health sciences that to this day have largely been used independently of one another.

Several limitations should also be mentioned. First, studies I-III are based solely on cross-sectional material. We are therefore unable to draw any firm conclusion regarding causality between dependent and independent variables. Second, all studies are based on self-reported data. Consequently, we cannot rule out the possibility of

some responses being without foundation. Third, other variables than analyzed in studies I-III may be important for adolescent smoking and alcohol use. Fourth, in study IV we are unable to demonstrate with certainty that the relative change in the intervention communities compared to the control communities is due only to the intervention activities. It may well be that the communities working with the suggested health promotion approach have done other things as well or simply put more emphasis on prevention work than the comparison communities. In addition, Iceland has a small and relatively homogeneous population. This makes direct conclusions based on the intervention impossible because we cannot exclude co-interventions and/or contamination effects from other sources. Fifth, in all the studies analyses are carried out with only individual-level data. Some recent Icelandic studies (e.g. Bernburg et al., 2009; Thorlindsson et al., 2007) suggest that by incorporating the higher-level context into the analyses we may be able to increase our understanding of factors influencing adolescent substance use. Finally, the developmental and time-oriented nature of the social development model and problem behavior theory can of course not be outlined clearly in cross-sectional studies. In addition, some theoretical approaches (e.g. social capital theory) introduced in the first section of the thesis were not used in the analytical framework of studies I-IV. Future studies may benefit from these frameworks as well.

4.4 FUTURE STUDIES

A considerable knowledge has been gained to understand the social, behavioral and contextual factors underlying adolescent cigarette smoking and alcohol use initiation and progression. However, much remains to be better understood in this regard. Future research would benefit from continuing to utilize a combination of theoretical approaches to gain understanding of the mechanisms that contribute to such usage. Ideally, studies should also incorporate a range of study designs. For example, by using a prospective longitudinal design and beginning to monitor participants well before they reach the age-span designed as “adolescence” we might be able to contribute substantially to knowledge regarding the developmental mechanisms suggested by the social development model and problem behavior theory to influence cigarette smoking and alcohol use initiation. Research has shown that most adult heavy users, both smokers and drinkers, begin their use during adolescence and nearly all before the age of 18. The battle against the health-, social-, emotional-, and societal influences of such use, for example against chronic disease development, disrupted families, increase in depression rates, and decrease in societal trust, should emphasize the importance of preventing use before any tinkering begins. The future of primary prevention rests on this notion. Progression of usage, on the other hand, is a somewhat different sphere. Primary and secondary prevention approaches may often lean into one another. For example, during 9th and 10th grade of secondary school, tinkering with smoking and/or alcohol may not necessarily lead into regular use. Nevertheless, as stated above, preventing any usage among adolescents as long as possible is the most effective prevention approach.

Future research is also much needed in the area of peer influences. Studies from the social sciences (e.g. sociology and criminology) have underlined the importance of the peer group. Nevertheless, to this day much remains to be better understood about the processes and directions underlying the peer group influences in public health.

Also, if possible, studies would benefit from a random assignment into intervention and control groups. Randomization with under-aged minors may on the other hand often be difficult for ethical reasons. Future studies would also benefit from using biological measures (e.g. genetic markers) in addition to the social- and behavioral measures used in our studies. To this day, social and behavioral research on health behavior on the one hand and behavioral oriented biological studies on the other hand have primarily been separate entities.

5 ACKNOWLEDGEMENTS

Understandably, one will not complete a doctoral degree without help and support from many different entities. I want to acknowledge the role of several people that have contributed, directly and indirectly, to the work of this PhD thesis. I can only hope I am not forgetting anyone but if so, please accept my apologies, you know who you are.

First and the foremost I want to thank my loving wife, long lasting partner and best friend, Anna Gréta Hrafnadóttir, whom I was so lucky to meet in 1993, for her support, companionship, and almost endless patience in listening to my complaints about supervisors, data analysis, administrative issues, teaching, writing, and everything else. Also to my two lovely sons, Hugli Freyr and Núi Steinn, for their sincere hearts and unconditioned love that always cheers me up. I thank my father Kristján G. Sigvaldason for his vision and wisdom over the years and all the talks we have had about social affairs, politics, culture, history and public health, and my mother Úrsúla E. Sonnenfeld and her husband Jón Kristinsson for their continuing support and fruitful discussions around the dinner table over the years. I also want to thank my parents-in-law, Hrafnhildur Gunnarsdóttir and Örn Jóhannesson, for their support and all the baby-sitting when I have been away and left Anna alone with our boys.

From Reykjavik University I especially want to thank my co-supervisor and friend, Inga Dóra Sigfusdóttir, for taking me on board in late December in 2004, for opening up all her doors for me ever since, and for all the good times we have had together. Likewise, I want to thank her brother Jón Sigfússon, the director of ICSRA, for his friendship and support over the years, and all the enjoyable times we have had both in Iceland and abroad. Thanks to Jack James for his valuable contribution to papers III and IV and helpful comments and discussions during the last year or so. I also would like to thank all my other colleagues and co-workers at RU, especially from the School of Health and Education: Geir Gunnlaugsson, the late Guðjón Magnússon, Margrét Lilja Guðmundsdóttir, Þórdís Lilja Gísladóttir, Þráinn Hafsteinsson, Ásrún Matthíasdóttir, Erlingur Richardsson, Pétur Sigurðsson, Kristján Halldórsson, Willum Þór Þórsson, Chien Tai Shill, Viðar Halldórsson, Birna Baldursdóttir, Hrefna Pálsdóttir, Sjöfn Sigurðardóttir, Ingibjörg Sveinsdóttir, Elín Þorgeirsdóttir, Bryndís Björk Ásgeirsdóttir, Berglind Gísladóttir, Einar Steingrímsson, Þorlákur Karlsson, Heiðís Valdimarsdóttir, and of course all my former and present students.

Sincere thanks to my supervisor at KI, Ásgeir R. Helgason, for his guidance and wisdom and for all the fun we have had on my journeys to Sweden, and to his partner, Karin Eriksson for hosting me on several occasions. From the University of Iceland I want to thank Thorolfur Thorlindsson for helpful comments and wisdom over the years. From Columbia University in New York I want to thank my co-supervisor and friend, John P. Allegrante for his support, mentoring and friendship since 2005 and for all the fun we have had together in several countries of the world. From the Ministry of Education, Science and Culture in Iceland I want to thank our supporter and friend Erlendur Kristjánsson for his commitment to youth research over several years. From the Icelandic Cancer Society I want to thank Laufey Tryggvadóttir for offering me to participate in the Nordic School of Cancer Epidemiology in August 2007 and January 2008 which formed the basis for paper I.

Finally, I want to thank all the hard-working prevention people I have been acquainted with over the last 5 years in municipal offices, schools and lecture halls all

over Iceland and all the parents that I have spoken to in local level presentations around the shores of our country. You have taught me so much!

6 REFERENCES

- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology* 30: 47-87.
- Ajzen, I. (1985). From decisions to actions: A theory of planned behavior. In Kuhl, J. and Beckman, J. (eds.). *Action-Control: From cognition to behavior*, pp: 11-39. New York: Springer.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Encwood Cliffs. NJ: Prentice Hall.
- Akers, R.L. (1977). *Deviant behavior: A social learning approach* (2nd edition). Belmont: Wadsworth.
- Akers, R.L., Krohn, M.D., Lanza-Kaduce, L., & Radoceovich, M. (1979). Social learning and deviant behavior: A specific test of a general theory. *American Sociological Review*, 44: 636-655.
- Alexander, C., Piazza, M., Mekos, D., & Valente, T. (2001). Peers, Schools, and Adolescent Cigarette Smoking. *Journal of Adolescent Health*, 29: 22-30.
- Amato, P.R. (2005). The impact of family formation change on the cognitive, social, and emotional well-being of the next generation. *Future for Children*, 15: 75-96.
- Amato, P.R. and Afifi, T.D. (2006). Feeling caught between parents: Adult children's relations with parents and subjective well-being. *Journal of Marriage and the Family*, 68: 222-235.
- Asbridge, M., Tanner, J., & Wortley, S. (2005). Ethno-specific patterns of adolescent tobacco use and the mediating role of acculturation, peer smoking, and sibling smoking. *Addiction*, 100: 1340-1351.
- Avenevoli, S., & Merikangas, K.R. (2003). Familial influences on adolescent smoking. *Addiction*, 98(suppl 1): 1-20.
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavior change. *Psychological Review* 84: 191-215.
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs. NJ: Prentice Hall.
- Bauman, A., Phongsavan, P. (1999). Epidemiology of substance use in adolescence: prevalence, trends, and policy implications. *Drug and Alcohol Dependence*, 55: 187-207.
- Bernburg, J.G., Thorlindsson, T., Sigfusdottir, I.D. (2009). The neighbourhood effects of disrupted family processes on adolescent substance use. *Social Science & Medicine*, 69: 129-137.
- Bjarnason, T. (1995). Administration mode bias in a school survey on alcohol, tobacco and illicit drug use. *Addiction*, 90: 555-559.
- Blokland, E.A.W.D.E., Hale, W.W., Meeus, W., & Engels, R.C.M.E. (2006). Parental anti-smoking socialization – Associations between parental anti-smoking socialization practices and early adolescent smoking initiation. *European Addiction Research*, 12: 25-32.

- Blokland, E.A.W.D.E., Hale, W.W., Meeus, W., & Engels, R.C.M.E. (2007). Parental Support and Control and Early Adolescent Smoking: A Longitudinal Study. *Substance Use & Misuse*, 42(14): 2223-2232.
- Blumer, H. (1969). *Symbolic Interactionism: Perspective and Method*. Berkeley: University of California Press.
- Bogenschneider, K., Wu, M.Y., Raffaelli, M., Tsay, J.C. (1998). Parent influences on adolescent peer orientation and substance use: The interface of parenting practices and values. *Child Development*, 69, 1672-1688.
- Borawski, E.A., Ievers-Landis, C.E., Lovegreen, L.D., Trapl, E.S. (2003). Parental Monitoring, Negotiated Unsupervised Time, and Parental Trust: The Role of Perceived Parenting Practices in Adolescent Health Risk Behaviors. *Journal of Adolescent Health*, 33: 60-70.
- Botvin, G.J., Griffin, K.W., Diaz, T., Scheier, L.H., Williams, C., Epstein, J.A. (2000). Preventing illicit drug use in adolescents: Long-term follow-up data from a randomized control trial of a school population. *Addictive Behaviors*, 25: 769-774.
- Bourdieu, P. (1983). Ökonomisches Kapital, kulturelles Kapital, soziales Kapital. In Kreckel, R. (editor.) *Soziale Ungleichheiten*. Göttingen: Otto Swartz & Co. pp. 183-98.
- Bourdieu, P. (1993). *The Field of Cultural Production*. Polity Press, Cambridge.
- Boyum, D., Reuter, P. (2005). *An analytic assessment of U.S. drug policy*. Washington DC: American Enterprise Institute.
- Brown, B.B., Mounts, N., Lamborn, S.D., Steinberg, L. (1993). Parenting practices and peer group affiliation in adolescence. *Child Development*, 64: 467-482.
- Caldwell, L.L., Darling, N. (1999). Leisure context, parental control, and resistance to peer pressure as predictors of adolescent partying and substance use: An ecological perspective. *Journal of Leisure Research*, 31: 57-77.
- Caldwell, L.L., Smith, E.A. (2006). Leisure as a context for youth development and delinquency prevention. *Australian and New Zealand Journal of Criminology*, 39: 398-418.
- Catanzaro, S.J., & Laurent, J. (2004). Perceived family support, negative mood regulation expectancies, coping, and adolescent alcohol use: Evidence of mediation and moderation effects. *Addictive Behaviors*, 29: 1779-1797.
- Chen, X., Unger, J., Palmer, P., Weiner, M., Johnson, C., Wong, M., Austin, G. (2002). Prior cigarette smoking initiation predicting current alcohol use: Evidence for a gateway drug effect among California adolescents from eleven ethnic groups. *Addictive Behaviors*, 27: 799-817.
- Choo, T., Roh, S., Robinson, M. (2008). Assessing the „Gateway Hypothesis” among middle and high school students in Tennessee. *Journal of Drug Issues*, 38: 467-492.
- Clark, D.B., Neighbors, B.D., Lesnick, L.A., Lynch, K.G., & Donovan, J.E. (1998). Family functioning and adolescent alcohol use disorders. *Journal of Family Psychology*, 12(1): 81-92.
- Cloward, R., & Ohlin, L. (1960). *Delinquency and Opportunity*. Free Press.
- Cohen, A. (1955). *Delinquent boys*. Free Press.

- Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology* 94: 95-120.
- Cullen, F.T. (1994). Social support as an organizing concept for criminology: Presidential address to the Academy of Criminal Justice Sciences. *Justice Quarterly*, 11, 527-559.
- Darling, N., Caldwell, L.L., Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research*, 37: 51-76.
- de Vries, H., Backbier, E., Kok, G., & Dijkstra, M. (1995). The Impact of Social Influences in the Context of Attitude, Self-Efficacy, Intention, and Previous Behavior as Predictors of Smoking Onset. *Journal of Applied Psychology*, 25(3): 237-257.
- DuPont, R.L. (1984). *Getting tough on gateway drugs: a guide for the family*. Washington DC: American Psychiatric Press.
- Engels, R.C.M.E., Vitaro, F., Blokland, E.D.E., de Kemp, R., & Scholte, R.H.J. (2004). Influence and selection processes in friendships and adolescent smoking behaviour: the role of parental smoking. *Journal of Adolescence*, 27: 531-544.
- Ennett, S.T., Flewelling, R.L., Lindrooth, R.C., Norton, E.C. (1997). School and neighborhood characteristics associated with school rates of alcohol, cigarette, and marijuana use. *Journal of Health and Social Behavior*, 38(1): 55-71.
- Ferguson, D.M., Horwood, L.J. (2000). Does cannabis use encourage other forms of illicit drug use? *Addiction*, 95 (4): 505-520.
- Flay, B.R., & Petraitis, J. (1991). Methodological issues in drug abuse prevention research: Theoretical foundations. In Leukfeld and Bukowski (Eds.). *Drug abuse and prevention research: Methodological issues* (Research Monograph 107, pp. 81-109). Rockville, MD: National Institute of Drug Abuse.
- Green, L.W. (2006). Public Health Asks of System Science: To Advance Our Evidence-Based Practice, Can You Help Us Get More Practice-Based Evidence? *American Journal of Public Health*, 96: 406-413.
- Greene, K., Banjeree, S.C. (2009). Examining unsupervised time with peers and the role of association with delinquent peers on adolescent smoking. *Nicotine & Tobacco Research*, 11: 371-380.
- Griffin, K.W., Botvin, G.J., Scheier, L.M., Diaz, T., Miller, N.L. (2000). Parenting practices as predictors of substance use, delinquency, and aggression among urban minority youth: Moderating effects of family structure and gender. *Psychology of Addictive Behaviors*, 14: 174-184.
- Groh, D.R., Jason, L.A., Davis, M.I., Olson, B.D., & Ferrari, J.R. (2007). Friends, Family, and Alcohol Abuse: An Examination of General and Alcohol-Specific Social Support. *The American Journal on Addictions*, 16: 49-55.
- Hall, W.D., Linskey, M. (2005). Is cannabis a gateway drug? Testing hypotheses about the relationship between cannabis use and the use of other illicit drugs. *Drug and Alcohol Review*, 24: 39-48.
- Hanson, T.L. (1999). Does parental conflict explain why divorce is negatively associated with child welfare? *Social Forces*, 77: 1283-1316.

- Harakeh, Z., Scholte, R.H.J., de Vries, H., & Engels, R.C.M.E. (2005). Parental rules and communication: their association with adolescent smoking. *Addiction*, 100: 862-870.
- Harakeh, Z., Scholte, R.H.J., Vermulst, Ad.A., de Vries, H., R.C.M.E., & Engels (2004). Parental factors and adolescents' smoking behavior: an extension of The Theory of planned behavior. *Preventive Medicine*, 39: 951-961.
- Hartman, C.A., Lessem, J.M., Hopfer, C.J., Crowley, T.J., & Stallings, M.C. (2006). The family transmission of adolescent alcohol abuse and dependence. *Journal of Studies on Alcohol*, 67(5): 657-664.
- Hawe, P. & Shiell, A. (2000). Social Capital and Health Promotion: A Review. *Social Science & Medicine*, 51: 871-885.
- Hawkins, J.D., Catalano, R.F., & Miller, J.Y. (1992). Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention. *Psychological Bulletin*. 112, 64- 105.
- Hawkins, J.D., Weis, J.G. (1985). The Social development model: An integrated approach to delinquency. *Journal of Primary Prevention*, 6(2): 73-97.
- Hibell, B., Andersson, B., Bjarnason, T., Ahlström, S., Balakireva, O., Kokkevi, A., Morgan, M. (2004). *The 2003 ESPAD report*. Stockholm, Sweden: The Swedish Council for Information on Alcohol and Other Drugs (CAN) and the Pompidou Group at the Council of Europe.
- Hibell, B., Guttormsson, U., Ahlström, S., Balakireva, O., Bjarnason, T., Kokkevi, A., Kraus, L. (2009). *The 2007 ESPAD report*. Stockholm, Sweden: The Swedish Council for Information on Alcohol and Other Drugs (CAN) and the Pompidou Group at the Council of Europe.
- Hill, K.G., Hawkins, J.D., Catalano, R.F., Abbott, R.D., & Guo, J. (2005). Family influences on the risk of daily smoking initiation. *Journal of Adolescent Health*, 37: 202-210.
- Hirschi, T. (1969). *Causes of Delinquency*. Berkeley: University of California Press.
- Hoffman, B.R., Sussman, S., Unger, J.B. & Valente, T.W. (2006). Peer Influences on Adolescent Cigarette Smoking: A Theoretical Review of the Literature. *Substance Use & Misuse*, 41: 103-155.
- Houseknecht, S.K., Hango, D.W. (2006). The impact of marital conflict and disruption on children's health. *Youth & Society*, 38, 58-89.
- Janz N.K., Champion, V.L., & Strecher, V.J. (2002). The Health Belief Model. In, Glanz, K., Rimer, B.K. & Lewis, F.M. (eds.). *Health Behavior and Health Education; Theory, Research and Practice* (3rd edition). Jossey-Bass.
- Jessor, R., Donovan, J.E., & Costa, F.M. (1991). *Beyond adolescence: Problem behavior and young adolescent development*. Cambridge, England: Cambridge University Press.
- Jessor, R., & Jessor, S.L. (1977). *Problem behavior and psychosocial development*. New York: Academic Press.
- Jeynes, W.H. (2001). The effects of recent parental divorce on their children's consumption of alcohol. *Journal of Youth and Adolescence*, 30: 305-319.
- Kandel, D.B. (2002). *Stages and pathways of drug involvement: examining the gateway hypothesis*. New York: Cambridge University Press.

- Kandel, D.B., Yamaguchi, K., Chen, K. (1992). Stages of progression in drug involvement from adolescence to adulthood: Further evidence for the gateway theory. *Journal of Studies on Alcohol*, 53(5): 447-457.
- Kawachi, I., Kim, D., Coutts, A. & Subramanian, S.V. (2004). Commentary: Reconciling the three accounts of social capital. *International Journal of Epidemiology*, 33: 682-690.
- Kim, J., McCarthy, W.J. (2006). School-level contextual influences on smoking and drinking among Asian and Pacific Islander adolescents. *Drug and Alcohol Dependence*, 84: 56-68.
- Kirby, J.B. (2002). The influence of parental separation on smoking initiation in adolescents. *Journal of Health and Social Behavior*, 43: 56-71.
- Kodl, M.M., Mermelstein, R. (2004). Beyond modeling: Parenting practices, parental smoking history, and adolescent cigarette smoking. *Addictive Behaviors*, 29: 17-32.
- Kornhauser, R.R. (1978). *Social Sources of Delinquency*. Chicago: University of Chicago Press.
- Kristjansson, A.L., Sigfusdottir, I.D., Allegrante, J.P., & Helgason, A.R. (2009). Parental divorce and adolescent cigarette smoking and alcohol use: Assessing the importance of family conflict. *Acta Paediatrica*, 98: 47-52.
- Kristjansson, A.L., Sigfusdottir, I.D., Allegrante, J.P., & Helgason, A.R. (2008). Social correlates of cigarette smoking among Icelandic adolescents: A population-based cross-sectional study. *BMC Public Health*, 8:86.
- Kristjansson, A.L., Sigfusdottir, I.D., James, J.E., Allegrante, J.P., Helgason, A.R. (2010). Perceived parental reactions and peer respect as predictors of adolescent cigarette smoking and alcohol use. *Addictive Behaviors*, 35, 256-259.
- Kristjansson, A.L., Sigfusdottir, I.D., & Sigfusson, J. (2006). *Young People in Iceland in 2006 [Ungt Fólk 2006]*. Reykjavik: ICSRA.
- Kuendig, H., & Kuntsche, E. (2006). Family bonding and adolescent alcohol use: Moderating effect of living with excessive drinking parents. *Alcohol and Alcoholism*, 41(4): 464-471.
- Lindsay, G.B., & Rainey, J. (1997). Psychological and pharmacological explanations of nicotine's "gateway drug" function. *Journal of School Health*, 67(4): 123-126.
- Longest, K.C., Shanahan, M.J. (2007). Adolescent work intensity and substance use: The mediational roles of parenting. *Journal of Marriage and the Family*, 69: 703-720.
- Mahoney, J.L., & Stattin, H. (2000). Leisure activities and adolescent antisocial behavior: The role of structure and social context. *Journal of Adolescence*, 23(2): 113-127.
- Marsden, J., Boys, A., Farrell, M., Stillwell, G., Hutchings, K., & Hillebrand, J., et. al. (2005). Personal and social correlates of alcohol consumption among mid-adolescents. *British Journal of Developmental Psychology*, 23(3): 427-450.
- Mason, W.A., & Windle, M. (2001). Family, religious, school and peer influences on adolescent alcohol use: A longitudinal study. *Journal of Studies on Alcohol*, 62(1): 44-53.

- Menning, C.L. (2006). Nonresident father's involvement in adolescents' smoking. *Journal of Health and Social Behavior*, 47: 32-46.
- Merton, R. (1938). Social structure and anomie. *American Sociological Review* 3: 672-682.
- Montano, D.E. and Kasprzyk, D. (2002). The Theory of Reasoned Action and the Theory of Planned Behavior. In, Glanz, K., Rimer, B.K. & Lewis, F.M. (eds.). *Health Behavior and Health Education; Theory, Research and Practice* (3rd edition). Jossey-Bass.
- Moore, M.J. & Werch, C.E.C. (2005) Sport and physical activity participation, and substance use among adolescents. *Journal of Adolescent Health*, 36, 486-493.
- Muntaner, C. (2004). Commentary: Social Capital, social class, and the slow progress of psychosocial epidemiology. *International Journal of Epidemiology*, 33: 674-680.
- Nash, S.G., McQueen, A., & Bray, J.H. (2005). Pathways to adolescent alcohol use: family environment, peer influence, and parental expectations. *Journal of Adolescent Health*, 37(1): 19-28.
- Navarro, V. (2004). Commentary: Is capital the solution or the problem? *International Journal of Epidemiology*, 33: 672-674.
- O'Byrne, K.K., Haddock, C.K., & Poston, W.S.C. (2002). Parenting Style and Adolescent Smoking. *Journal of Adolescent Health*, 30: 418-425.
- Palmqvist, R. & Santavirta, N. (2006). What friends are for: the relationship between body image, substance use, and peer influence among Finnish adolescents. *Journal of Youth and Adolescence*, 35, 203-217.
- Petraitis, J., Flay, B.R., & Miller, T.Q. (1995). Reviewing Theories of Adolescent Substance Use: Organizing Pieces in the Puzzle. *Psychological Bulletin*, 117(1): 67-86.
- Piko, B. (2000). Perceived social support from parents and peers: Which is the stronger predictor of adolescent substance use? *Substance Use & Misuse*, 35(4): 617-630.
- Pierce, J.P., & Gilpin, E. (1996). How long will today's new adolescent smoker be addicted to cigarettes? *American Journal of Public Health*, 86(2): 253-256.
- Poortinga, W. (2006). Social relations or social capital? Individual and community health effects of bonding social capital. *Social Science & Medicine*, 63: 255-270.
- Portes, A. (1998). Social Capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24: 1-12.
- Raboteg-Saric, Z., Rijavec, M., Brajsa-Zganec, A. (2001). The relation of parental practices and self-conceptions to young adolescent problem behaviors and substance use. *Nordic Journal of Psychiatry*, 55: 203-209.
- Robinson, M., Scherlen, R. (2007). *Lies, damned lies, and drug war statistics: A critical analysis of claims made by the office of national drug control policy*. Albany, NY: SUNY Press.
- Safron, D.J., Schulenberg, J.E., Bachman, J.G. (2001). Part-time work and hurried adolescence: the links among work intensity, social activities, health behaviors, and substance use. *Journal of Health and Social Behavior*, 42(4): 425-449.

- Scholte, R.H.J., Poelen, E.A.P., Willemsen, G., Boomsma, D.I., & Engels R.C.M.E. (2008). Relative risk of adolescent and young adult alcohol use: The role of drinking fathers, mothers, siblings, and friends. *Addictive Behaviors*, 33: 1-14.
- Seljamo, S., Aroma, M., Koivusilta, L., Rautava, P., Sourander, A., & Helenius, H., et al. (2006). Alcohol use in families: A 15-year prospective follow-up study. *Addiction*, 100(7): 984-992.
- Short, A.L., Hutchinson, D.M., Chapman, R., & Toumbourou, J.W. (2007). Family, school, peer and individual influences on early adolescent alcohol use: first-year impact of the Resilient Families programme. *Drug and Alcohol Review*, 26(6): 625-634.
- Sigfusdottir, I.D., Farkas, G. and Silver, E. (2004). The Role of Depressed Mood and Anger in the Relationship Between Family Conflict and Delinquent Behavior. *Journal of Youth and Adolescence*, 33: 509-522.
- Sigfusdottir, I.D., Kristjansson, A.L., Thorlindsson, T., Allegrante, J.P. (2008). Trends in prevalence of substance use among Icelandic adolescents, 1995–2006. *Substance Abuse Treatment, Prevention, and Policy*, 3:12.
- Sigfusdottir, I.D., Thorlindsson, T., Kristjansson, A.L., Roe, K., & Allegrante, J.P. (2009). Substance Use Prevention for Adolescents: The Icelandic Model. *Health Promotion International*, 24(1): 16-25.
- Simons-Morton, B. (2004). The protective effects of parental expectations against early adolescent smoking initiation. *Health Education Research*, 19(5): 561-569.
- Simons-Morton, B., Crump, A.D., Haynie, D.L., Saylor, K.E., Eitel, P., & Yu, K. (1999). Psychological, School, and Parent Factors Associated with Recent Smoking among Early-Adolescent Boys and Girls. *Preventive Medicine*, 28: 138-148.
- Stormshak, E.A., Bierman, K.L., MacMahon, R.J., Lengua, L.J. (2000). Parenting practices and child disruptive behavior in early elementary school. *Journal of Clinical Child Psychology*, 29, 17-29.
- Sutherland, E. & Cressey, D. (1978). *Criminology* (10th edition). Philadelphia: Lippincott.
- Szreter, S. and Woolcock, M. (2004). Health by association? Social capital, social theory, and the political economy of public health. *International Journal of Epidemiology*, 33: 650-667.
- Torabi, M.R., Bailey, W.J., Madjabbari, M. (1993). Cigarette smoking as a predictor of alcohol use and other drug-use by children and adolescents: Evidence of the gateway drug effect. *Journal of School Health*, 63(7): 302-306.
- Thorlindsson, T., Bernburg, J.G. (2006). Peer groups and substance use: Examining the direct and interactive effect of leisure activity. *Adolescence*, 41: 321-339.
- Thorlindsson, T., Sigfusdottir, I.D., Bernburg, J.G., & Halldorsson, V., (1998): *Vímuefnaneysla ungs fólks: Umhverfi og aðstæður (Substance Use Among Young People: Settings and Circumstances)* Reykjavík, Rannsóknarstofnun uppeldis-og menntamála.
- Thorlindsson, T., Sigfusdottir, I.D., & Bjarnason, T. (2007). Individual and Community Processes of Social Closure: A Study of Adolescent Academic Achievement and Alcohol Use. *Acta Sociologica*, 50(2): 161-178.

- Thorlindsson T. & Vilhjalmsson, R. (1991). Factors related to cigarette smoking and alcohol use among adolescents. *Adolescence*, 26:399-418.
- Unger, J.B., Li, Y., Johnson, C.A., Gong, J., Chen, X.G., Li, C.Y., Trinidad, D.R., Tran, N.T., Lo, A.T. (2001). Stressful life events among adolescents in Wuham, China: Associations with smoking, alcohol use, and depressive symptoms. *International Journal of Behavioral Medicine*, 8: 1-18.
- United Nations Office on Drugs and Crime (2009). *World Drug Report*. Vienna: United Nations.
- Vold, G.B., Bernard, T.J., & Snipes, J.B. (2002). *Theoretical Criminology* (5th edition). Oxford: OUP.
- Warr, M. (1993). Parents, Peers, and Delinquency. *Social Forces*, 72: 247-260.
- Watkins, J.A., Howard-Barr, E.M., Moore, M.J., Werch, C.C. (2006). The mediating role of adolescent self-efficacy in the relationship between parental practices and adolescent alcohol use. *Journal of Adolescent Health*, 38: 448-450.
- Webster, R.A., Hunter, M., & Keats J.A. (2002). Evaluating the effects of a peer support programme on adolescents' knowledge, attitudes and use of alcohol and tobacco. *Drug and Alcohol Review*, 21: 7-16.
- Wegner, L., Flisher, A.J., Chikobvu, P., Lombard, C., King, G. (2008). Leisure boredom and high school drop out in Cape Town, South Africa. *Journal of Adolescence*, 31: 421-431.
- Wegner, L., Flisher, A.J., Muller, M., Lombard, C. (2006). Leisure boredom and substance use among high school students in South Africa. *Journal of Leisure Research*, 38: 249-266.
- Wills, T.A., Resko, J.A., Ainette, M.G., & Mendoza, D. (2004). Role of Parent Support and Peer Support in Adolescent Substance Use: A Test of Mediated Effects. *Psychology of Addictive Behaviors*, 18(2): 122-134.
- World Health Organization (2009). *Global health risks: mortality and burden of disease attributable to selected major risks*. Geneva: The World Health Organization.
- Yarnell, J. W. G. (2007). *Epidemiology and prevention: a system-based approach*. Oxford: Oxford University Press.
- Yin, Z., Katims, D.S., & Zapata, J.T. (1999). Participation in leisure activities and involvement in delinquency by Mexican American adolescents. *Hispanic Journal of Behavioral Sciences*, 21(2): 170-185.
- Zhang, L., Welte, J.W., & Wieczorek, W.F. (1999). The influence of parental drinking and closeness on adolescent drinking. *Journal of Studies on Alcohol*, 60(2): 245-251.

7 APPENDIX

The 2006 Youth in Iceland survey questionnaire in English

+

+

+

Youth in Iceland 2006

Youth in Iceland
**A survey of the life and living conditions of
Icelandic youth**

- Confidential -

+

+

+

+

+

To students

This booklet contains several questions which you are being asked to respond to. These questions concern your opinions on various issues, as well as different types of activities you are, or might be, involved in. You have probably never participated in a survey regarding similar issues, but we still hope you can respond to these questions as conscientiously as possible, because your responses are very important. It is also important that you respond to the questions in a way which best describes your opinion. This is completely different from examinations, *as no answers are more correct than others*. The only important thing here is for your opinions to be made known.

Most of the questions have several options to choose your answer from, and you need to choose only one of them. Put an X in the box next to the answer you have chosen. Do not use a very faint pencil, and also, do not fill the box you have chosen completely. If you change your mind, the best thing to do is to completely erase the wrong answer or completely shade the box with the wrong answer, so that no white spaces can be seen. A few of the questions are such that no answers are provided, and you are requested to write your answer. In such cases, you must write very clearly, using capital letters, and put only one letter in each box. It is up to you to decide whether you will respond to each particular question, but we ask that you answer all questions to the best of your ability. If you feel that none of the answers provided to certain questions accurately describes your opinion or accurately suits you, choose the answer that you think is closest to the truth.

It will be impossible to trace your answers to you, in other words, no one you know, not your teachers, parents, acquaintances or friends, could ever access your personal responses. Make sure you do not write *your name or any personal identification numbers* on the questionnaire sheets or on the envelope provided with it. When you have finished answering all the questions, put the questionnaire in the envelope, seal it completely, and leave it on your desk. The envelopes will be collected when everyone has finished, all the questionnaires will be collected.

If you have any questions to ask about certain items, close your booklet and raise your hand. An employee or teacher will come to your desk with an unanswered version of the questionnaire to assist you without seeing your answers.

With gratitude and appreciation,

The ICSRA research team

+

+

+

+

+

PLEASE READ CAREFULLY THE INSTRUCTIONS ON THE PREVIOUS PAGE BEFORE YOU BEGIN TO ANSWER THE QUESTIONS.
Answer each question by marking X in the respective box

1. Are you a boy or a girl?

- Boy Girl

2. Year of birth? (Choose only ONE option)

- 1990
 1991
 1992
 1993
 1994
 1995
 1996

3. Grade/Class in school? (Choose only ONE option)

- 8th grade/class 9th grade/class 10th grade/class

4. Which of the following persons live in your home? (Choose only ONE option)

- Both parents
 Mother but not father
 Father but not mother
 Mother and her partner
 Father and his partner
 I live with friends
 I live on my own
 I live in different arrangements

5. What is the highest level of schooling your mother completed? (If you are mostly brought up by a fostermother you answer for her) (Choose only ONE option)

- Primary school or less
 Started high school but has not finished
 Graduated from high school
 Started junior college or trade school but has not finished
 Graduated from junior college or trade school
 Started university but has not finished
 Graduated from a university
 I don't know/doesn't apply

+

+

+

+

+

10. Are your parents born and raised in this country?

(Choose ONE option in EACH category)

- | | Yes | No | Elsewhere |
|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a) Mother is born in this country | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b) Mother is raised in this country | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c) Father is born in this country | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Father is raised in this country | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

11. Is [NATIVE LANGUAGE of Country] spoken in your home? (Choose only ONE option)

- | | | |
|--------------------------|---|-------------------------------|
| Yes | Yes, together with a different language | No, only a different language |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

12. How well off financially do you think your family is in comparison to other families in your country? (Choose only ONE option)

- Much better off
- Considerably better off
- A little better off
- Similar to others
- A little worse off
- Considerably worse off
- Much worse off

13. Which religious sect or community do you belong to? (Choose only ONE option)

- Catholic
- Lutheran
- Muslim / Islam
- Orthodox
- An Independent or Autonomous church
- Other
- I am outside religious communities

14. Do you go to school in the neighborhood you live in? (Choose only ONE option)

- | | |
|--------------------------|--------------------------|
| Yes | No |
| <input type="checkbox"/> | <input type="checkbox"/> |

+

+

+

+

+

15. How good do you think you are at school work, compared to other people your age?

(Choose only ONE option)

- Excellent, I am probably one of the best
- Well above average
- Above average
- Average
- Below average
- Well below average
- Poor, I am probably one of the worst off

16. How much time do you usually spend on homework every day?

(Choose only ONE option)

- I never do any homework
- Less than half an hour
- About half an hour
- About one hour
- About two hours
- About three hours
- About four hours
- More than four hours

17. What have your grades been in the following subjects this semester?

(Choose ONE option in BOTH categories)

	Less than 4	About 4	About 5	About 6	About 7	About 8	About 9	About 10
a) Mathematics	<input type="checkbox"/>							
b) [NATIVE LANGUAGE]	<input type="checkbox"/>							
c) [SECOND LANGUAGE]	<input type="checkbox"/>							

18. How many whole days have you been absent from school during the last 30 days?

(Choose ONE option in EACH category)

	None	1 day	2 days	3-4 days	5-6 days	7 days or more
a) Because of illness	<input type="checkbox"/>					
b) Because you "skipped" or "cut" classes	<input type="checkbox"/>					
c) For other reasons	<input type="checkbox"/>					

+

+

+

+

+

22. During the last 7 days, how often did you do any of the following?

(Choose ONE option in EACH category)

	Never	Once	Twice	3 times	4 times	5 times	6 times	7 times
a) Stayed at home for a whole evening	<input type="checkbox"/>							
b) Was outside after ten o'clock in the evening	<input type="checkbox"/>							
c) Went outside and returned after midnight	<input type="checkbox"/>							

23. How easy or hard would it be for you to receive the following from your parents?

(Choose ONE option in EACH category)

	Very difficult	Rather difficult	Rather easy	Very easy
a) Caring and warmth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Discussions about personal affairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Advice about the studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Advice about other issues (projects) of yours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Assistance with things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

24. How easy or hard would it be for you to receive the following from your friends?

(Choose ONE option in EACH category)

	Very difficult	Rather difficult	Rather easy	Very easy
a) Caring and warmth	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Discussions about personal affairs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Advice about the studies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Advice about other issues (projects) of yours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Assistance with things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

28. How much do you agree or disagree with the following? (Choose ONE option in EACH category)

	Strongly agree	Agree somewhat	Neutral	Disagree somewhat	Strongly disagree
a) My parents have friends that live close to our home	<input type="checkbox"/>				
b) My parents know many of our neighbours by name	<input type="checkbox"/>				
c) My parents sometimes visit some of our neighbours	<input type="checkbox"/>				
d) My neighbours sometimes visit my parents	<input type="checkbox"/>				
e) Sometimes we borrow things from our neighbours (e.g. milk or tools)	<input type="checkbox"/>				
f) Our neighbours sometimes borrow things from us (e.g. milk or tools)	<input type="checkbox"/>				

29. How likely or unlikely is it that your neighbours would do something about it if...?

(Choose ONE option in EACH category)

	Very likely	Rather likely	Neither	Rather unlikely	Very unlikely
a) ..the youths in the neighbourhood were skipping school and hanging around	<input type="checkbox"/>				
b) ..the youths were graffitiing on houses in the area	<input type="checkbox"/>				
c) ..the youths disrespected the adults	<input type="checkbox"/>				
d) ..if a fight broke out in front of your house	<input type="checkbox"/>				
e) ..somebody were breaking into a car or a house on your street	<input type="checkbox"/>				

30. Please answer each question by choosing one option in each category.

	Almost none	Some	A number of	Most	Almost all
a) How many kids your age living close to you do you know by sight?	<input type="checkbox"/>				
b) How many kids your age living close to you do you know by name?	<input type="checkbox"/>				
c) How many kids your age living close to you do you talk to?	<input type="checkbox"/>				

+

+

+

+

+

31. Please state if and to what extent the following applies to your situation.

(Choose ONE option in EACH category)

	Almost never	Seldom	Sometimes	Often	Almost allways
a) My parents are poorly-off financially	<input type="checkbox"/>				
b) My parents can't afford to have a car	<input type="checkbox"/>				
c) My parents hardly have enough money to pay for necessities (e.g. food, housing, phone)	<input type="checkbox"/>				
d) My parents do not have enough money to pay for the extracurricular activities that you would most like to participate in (e.g. practice musical instruments or sports)	<input type="checkbox"/>				

32. How well do the following statements apply to you?

(Choose ONE option in EACH category)

	Strongly agree	Agree somewhat	Disagree somewhat	Strongly disagree
a) Sometimes there are situations that justify people being beaten up or hit	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) When someone treats me badly I think it is okay to beat up him/her or hit him/her	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Sometimes you need to hit or punch people in order to protect your honour in your peer group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) He/she who does not respond to a personal attack by hitting or beating up the person is considered a coward in my group of freinds	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

33. How well do the following statements apply to you? (Choose ONE option in EACH category)

	Strongly agree	Agree somewhat	Disagree somewhat	Strongly disagree
a) Sometimes it is necessary to smoke cigarettes in order not to be left out in the peer group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Sometimes it is necessary to drink alcohol in order not to be left out in the peer group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Sometimes it is necessary to smoke cannabis in order not to be left out in the peer group	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. What do you consider important to do to gain respect from your friends?

(Choose ONE option in EACH category)

	Increases respect a lot	Increases respect somewhat	Has no effect	Decreases respect somewhat	Decreases respect a lot
a) To do well in school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) To do well in sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) To drink alcohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) To smoke cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) To smoke cannabis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) To look good	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) To be against the rules of adults	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) To steal from shops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

35. How well does the following describe your mood in the past week?

(Choose ONE option in EACH category)

	Almost never	Seldom	Sometimes	Often
a) I was easily annoyed or irritated	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I experienced outbursts of anger that I could not control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I wanted to break or damage things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I had a row with someone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I yelled at somebody or threw things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

36. How well do the following statements apply to you? (Choose ONE option in EACH category)

	Very well	Rather well	Rather poorly	Not at all
a) When I think about how I will look in the future, I am pleased	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I most often think that I am ugly and unattractive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I am happy with my body	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I am happy with the physical changes that have taken place in my body during the past few years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I feel physically strong and healthy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I am content with my life	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) I am happy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

37. To what extent do you agree or disagree with the following statements?

(Choose ONE option in EACH category)

	Strongly agree	Agree somewhat	Don't know	Disagree somewhat	Strongly disagree
a) One can break most rules if they don't seem to apply	<input type="checkbox"/>				
b) I follow whatever rules I want to follow	<input type="checkbox"/>				
c) In fact there are very few absolute rules in life	<input type="checkbox"/>				
d) It is difficult to trust anything, because everything changes	<input type="checkbox"/>				
e) In fact nobody knows what is expected of him/her in life	<input type="checkbox"/>				
f) One can never be certain of anything in life	<input type="checkbox"/>				
g) Sometimes one needs to break rules in order to succeed	<input type="checkbox"/>				
h) Following rules does not ensure success	<input type="checkbox"/>				

+

+

+

+

40. Have you experienced any of the following? (Choose ONE option in EACH category)

	Yes, during last 30 days	Yes, during last 12 months	Yes, more than 12 months ago	No
a) A serious accident	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) A severe illness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A separation or divorce of your parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A serious argument with your parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Witnessed a serious argument by your parents	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Witnessed a physical violence in your home where an adult was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Been involved in physical violence in your home where an adult was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) The death of a parent or sibling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) The death of a friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) A break up with a girlfriend/boyfriend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Been rejected by your friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) A separation from a friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Received an exceptionally low grade	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Father or mother lost a job	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) Been dismissed from class or sent to the principal's office	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p) Been expelled from school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
q) Experienced sexual abuse (victim)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
r) Experienced sexual abuse where an adult from within the family was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
s) Experienced sexual abuse where an adult from outside the family was involved	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

41. How well do the following statements apply to you? (Choose ONE option in EACH category)

	Applies very well to me	Applies rather well to me	Applies rather poorly to me	Applies very poorly to me
a) I feel that I am worth at least as much as others	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) I feel that I have number of good qualities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) All in all I am inclined to feel that I am a failure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I am able to do things as well as most other people	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I feel I do not have much to be proud of	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I take a positive attitude towards myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) On the whole I am satisfied with myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) I wish I had more respect for myself	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) At times I think I am no good at all	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) I certainly feel useless at times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

42. How much trust do you have in the following institutions?

(Choose ONE option in EACH category)

	Very much	Rather much	Rather little	Very little
a) The church	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Elementary schools	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Judicial courts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) The Police	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) The Parliament	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) The Government	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) The media	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Trade Unions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) The health services (e. g. hospitals and health centres)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

48. How well do the following statements apply to you? (Choose ONE option in EACH category)

	Applies to me very poorly	Applies to me rather poorly	Applies to me rather well	Applies to me very well
a) I believe in God	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) My faith is important to me	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) I pray to God on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) I regularly read in the scriptures of my faith	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) I regularly attend religious services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) I regularly take part in religious activities other than services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) I would be able to get support from God if I needed it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) I have sought support from God when I have needed it	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) My best friends are religious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Most of my acquaintances are religious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) My mother (foster/stepmother) is religious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) My father (foster/stepfather) is religious	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

49. Does someone of the following persons smoke tobacco on a daily basis?

(Choose ONE option in EACH category)

	No	Yes	Doesn't apply
a) Father	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Mother	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Sibling (one or more)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

50. How often have you smoked cigarettes in your lifetime? (Choose only ONE option)

Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40 times or more
<input type="checkbox"/>						

+

+

+

+

+

51. How much have you smoked, on average, during the last 30 days?

(Choose only ONE option)

- Nothing
- Less than one cigarette per week
- Less than one cigarette per day
- 1-5 cigarettes per day
- 6-10 cigarettes per day
- 11-20 cigarettes per day
- More than 20 cigarettes per day

52. How often have you used the following in your lifetime? (Choose ONE option in EACH category)

	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40 times or more
a) Chewing tobacco	<input type="checkbox"/>						
b) Snuff	<input type="checkbox"/>						

53. How often have you used the following during the last 30 days?

(Choose ONE option in EACH category)

	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40 times or more
a) Chewing tobacco	<input type="checkbox"/>						
b) Snuff	<input type="checkbox"/>						

54. How often have you used the following in your life time? (Choose ONE option in EACH category)

	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40 times or more
a) Ritalin that has been prescribed to you	<input type="checkbox"/>						
b) Ritalin over the counter	<input type="checkbox"/>						

+

+

+

+

+

59. How often (if ever) have you used any of the following drugs?

(Choose ONE option in EACH category)

	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	40 times or more
a) Over the counter sleeping pills or or tranquillisers	<input type="checkbox"/>						
b) Cannabis (hashish or marijuana)	<input type="checkbox"/>						
c) Amphetamines (speed)	<input type="checkbox"/>						
d) LSD (acid)	<input type="checkbox"/>						
e) Ecstasy (E-tablets)	<input type="checkbox"/>						
f) Cocaine	<input type="checkbox"/>						
g) Heroin	<input type="checkbox"/>						
h) Relevine	<input type="checkbox"/>						
i) Mushrooms	<input type="checkbox"/>						
j) Sniffing (e.g. glue)	<input type="checkbox"/>						
k) Anabolic steroids	<input type="checkbox"/>						
l) Homemade brews/poteen	<input type="checkbox"/>						

60. At what age (if ever) did you do any of the following for the first time?

(Choose ONE option in EACH category)

	Never	11 or younger	12	13	14	15 or older
a) Had a drink of alcohol	<input type="checkbox"/>					
b) Got drunk	<input type="checkbox"/>					
c) Smoked a cigarette	<input type="checkbox"/>					
d) Smoked cigarettes daily	<input type="checkbox"/>					
e) Used cannabis (hash/marijuana)	<input type="checkbox"/>					

+

+

+

+

+

61. How often (if ever) have you done any of the following during the last 12 months?

(Choose ONE option in EACH category)

	Never	Once	2-5 times	6-9 times	10-13 times	14-17 times	18 times or more
a) Stolen something worth <u>less than</u> 3 normal movie tickets	<input type="checkbox"/>						
b) Stolen something worth <u>more than</u> 3 normal movie tickets	<input type="checkbox"/>						
c) Used physical violence in order to rob/steal	<input type="checkbox"/>						
d) Broken into a building or a car to steal	<input type="checkbox"/>						
e) Damaged or vandalized things that did not belong to you	<input type="checkbox"/>						
f) Committed other offence	<input type="checkbox"/>						

What other offence:

62. Please answer the following questions as they apply to you.

(Choose ONE option in EACH category)

	Never	Once	2-5 times	6-9 times	10-13 times	14-17 times	18 times or more
a) Have you been a victim of physical violence during the last 12 months?	<input type="checkbox"/>						
b) Have you exerted physical violence during the last 12 months?	<input type="checkbox"/>						

63. How do you think your parents would react if you did any of the following?

(Choose ONE option in EACH category)

	Totally against	Very much against	Rather much against	They would not care
a) If you would smoke cigarettes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) If you would become drunk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) If you would smoke cannabis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

+

67. How often (if ever) have you been involved in the following in your life time?

(Choose ONE option in EACH category)

	Never	Once	Twice	3-5 times	6 times or more
a) Been to rehab or therapy because of drug- or alcohol abuse	<input type="checkbox"/>				
b) Been interrogated by the police because of suspicion of criminal involvement	<input type="checkbox"/>				
c) Admitted to an offence that you committed	<input type="checkbox"/>				
d) Admitted to an offence that you did not commit when interrogated by the police	<input type="checkbox"/>				
e) Denied to an offence that you did commit when interrogated by the police	<input type="checkbox"/>				
f) Been sentenced for an offence that you did not commit	<input type="checkbox"/>				

68. Do you engage in any form of physical training or sport? (Choose only ONE option)

Almost never	Once a week	Twice a week	3 times a week	4-6 times a week	Almost every day
<input type="checkbox"/>					

69. The following questions are about sports and aerobic activities

(Choose ONE option in EACH category)

	Almost never	Once a week	Twice a week	3 times a week	4-6 times a week	Almost every day
a) How often do you participate in sports and physical training in school, outside the compulsory classes (Phys. Ed. Class)?	<input type="checkbox"/>					
b) How often do you engage in sports (practice or compete) in a sports club/team?	<input type="checkbox"/>					
c) How often do you exercise or practice sports, outside school and outside a club/team?	<input type="checkbox"/>					
d) How often do you exert yourself physically so you exhaust yourself or sweat?	<input type="checkbox"/>					

+

+

+

+

+

70. Do you take part in any organized recreational- or extracurricular activities?

(Choose only ONE option)

Almost never	Less than once a week	Once a week	2-3 times a week	4-5 times a week	Almost every day
<input type="checkbox"/>					

71. How often do you do the following? (Choose ONE option in EACH category)

	Almost never	Less than once a month	1-3 times a month	1-3 times a week	4 times a week or more
a) Spend time with friends where no adult is present	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Go to the cinema/movies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Go to a café	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Stroll around and have a look at the shops	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Spend time downtown during the evening or on the weekends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Hang out inside or outside a news agent/shopping centre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Go to a party	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Go to a fast-food restaurant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Go to sporting events	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Go to a swimming pool outside school hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k) Go to a theatre	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l) Go to a library	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m) Go to classical concerts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
n) Go to concerts, other than classical ones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o) Go to playses whith live music	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
p) Go to museums or art galleries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

+

+

+

+

**Please put the questionnaire in the envelope, paste it
and return to the teacher.**

All questionnaires will be destroyed after the data entry.

We thank you very much for your participation

© ICSRA 2006