

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

# EVALUATION OF A SWEDISH PARENTAL PREVENTION PROGRAM: YOUTH DRUNKENNESS, ALCOHOL-SPECIFIC PARENTING AND GENDER DIFFERENCES

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**Karolinska  
Institutet**

Stockholm 2014

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Printed by US-AB

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ISBN 978-91-7549-681-8

Evaluation of a Swedish parental prevention program:  
Youth drunkenness, alcohol-specific parenting and  
gender differences  
THESIS FOR DOCTORAL DEGREE (Ph.D.)

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To Agnes

# ABSTRACT

**Background** Research suggests that alcohol-specific parenting and parental prevention programs can be effective in the efforts to prevent underage drinking. The Örebro prevention program (ÖPP) is based on principles of alcohol-specific parenting and encourages parents to maintain restrictive attitudes towards underage drinking, with the aim to reduce youth drinking and drunkenness. A trial conducted in 1999-2001 when the program was recently developed has indicated that ÖPP leads to maintained restrictive attitudes and reduces youth drunkenness. Since then, ÖPP has been widely disseminated in Swedish schools.

**Aim** The primary aim of the present thesis was to increase the knowledge about the preventive influence of alcohol-specific parenting on youth drinking and drunkenness, more specifically to study effects of ÖPP when delivered under real-world conditions. Further aims were to study parents' use of program components and possible gender differences in alcohol-specific parenting and in the relation between alcohol-specific parenting and youth drunkenness.

**Method** The data used in the present thesis was collected within a cluster-randomized trial of ÖPP, conducted between 2007 and 2010, comprising 40 schools in 13 Swedish counties. The participating youth and their parents answered questionnaires at three occasions, in the 7<sup>th</sup> (baseline), 8<sup>th</sup> (T2) and 9<sup>th</sup> grade (T3). The thesis comprises three papers. Paper I has a cluster-randomized design with schools randomized to ÖPP (n=20) and control group (n=20), including baseline, T2 and T3 data analysed using two-level logistic regression. Paper II has a cross-sectional design including T2 data from parent-youth dyads analysed using non-parametric tests. Paper III has a longitudinal design including baseline, T2 and T3 data analysed using two-level logistic regression.

**Results** The results indicated no statistically significant program effects on youth drunkenness onset, frequent drunkenness or weekly drinking in the 9<sup>th</sup> grade (I). However, the program had an effect on alcohol-specific parenting, i.e. ÖPP parents reported more restrictive attitudes and fewer adolescents in the ÖPP group reported being served alcohol at home (I, II). Furthermore, parental servings of alcohol to youth at home in the 7<sup>th</sup> grade increased the likelihood of drunkenness onset for both 9<sup>th</sup> grade girls and boys, and general parental control decreased the likelihood of both drunkenness onset and frequent drunkenness for both girls and boys. Some gender differences were identified, adolescent girls were more likely to be served alcohol by parents at home while restrictive attitudes and parental warmth decreased the likelihood of frequent drunkenness among girls only (III).

**Discussion and conclusion** The results of the present thesis suggest that ÖPP, when delivered under real-world conditions, has no effects on youth drinking or drunkenness. This is inconsistent with the first Swedish study, and the divergent results can be explained not only by that effects tend to decrease when programs are evaluated under real-world conditions, but also by methodological differences, that the evaluated programs are not identical and by a higher level of restrictive attitudes among Swedish parents in general.

Furthermore, the results provide additional empirical support to the associations between alcohol-specific parenting and youth drunkenness and thus lend further support to the theoretical framework of ÖPP. Future research needs to address the family context of alcohol-specific parenting for instance by studying parental provision of alcohol to youth and the quality of the parent-youth communication about alcohol, and further to address the possible benefits of targeting both youth and parents in preventive interventions. Future preventive interventions and research would also benefit from the inclusion of a gender perspective.

# LIST OF SCIENTIFIC PAPERS

This thesis is based on the following papers, which will be referred to by their Roman numerals.

- I. Bodin, M.C., & Strandberg, A.K. (2011). The Örebro prevention programme revisited: A cluster-randomized trial of programme effects on youth drinking. *Addiction*, 106(12), 2134-2143.
- II. Strandberg, A.K., & Bodin, M.C. (2011). Alcohol-specific parenting within a cluster-randomized effectiveness trial of a Swedish primary prevention program. *Health Education*, 111(2), 92-102.
- III. Strandberg, A.K., Bodin, M.C., & Romelsjö, A. (2014). Gender differences in the prediction of parental servings of alcohol to adolescents and youth drunkenness. *Substance Use & Misuse*. Early Online: 1–10.



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## LIST OF ABBREVIATIONS

ÖPP	Örebro prevention program
RCT	Randomized controlled trial
STAD	Stockholm prevents alcohol and drug problems
MLwiN	Statistical software developed for clustered data
OR	Odds ratio
SD	Standard deviation
CI	Confidence interval
ICC	Intracluster correlation coefficient
CAN	The Swedish Council for Information on Alcohol and Other Drugs



# 1 BACKGROUND

## 1.1 ABOUT THIS THESIS

The Örebro prevention program (ÖPP) is a primary prevention program targeting parents of 13 to 16-year-old youth and is a widely disseminated program in Swedish schools. During 2007 to 2010, my main supervisor and I were conducting a cluster-randomized trial, with the primary aim of improving the knowledge base concerning effects of ÖPP. The study was designed to investigate the effects of the program on its primary outcomes, i.e. youth drinking and drunkenness, when delivered under real-world conditions. During 2012 ÖPP was revised and renamed EFFEKT (Koutakis, 2014) but I will throughout this thesis refer to the program as ÖPP which was the program version we evaluated. The scientific investigation of the effects of ÖPP in Swedish schools was at the start of our study (2007) limited to one not yet published quasi-experimental study by the program developers (published 2008) (Koutakis, Stattin, & Kerr, 2008). Since standards on the evaluation and dissemination of prevention programs suggest that at least two studies are conducted before wide dissemination (Flay et al., 2005) there was a need to extend the scientific knowledge about effects of ÖPP with a second study, and also a need to study effects of the program when delivered under real-world conditions.

## 1.2 UNDERAGE ALCOHOL USE

In the most recent annual Swedish school survey performed by the Swedish Council for Information on Alcohol and Other Drugs (CAN) 47% of Swedish 15-year-old youth report any alcohol consumption during the last 12 months. A higher proportion of 15-year-old girls report alcohol use compared to boys of the same age (50% versus 44%, respectively) while 11% of the 15-year-olds are risk-consumers (Gripe, 2013). These numbers are similar to what is reported in international surveys. American survey data suggest that 36% of 8<sup>th</sup> grade adolescents have ever consumed alcohol (Johnston, O'Malley, Bachman, & Schulenberg, 2011) while data from a recent European survey including 25 countries showed that among 12 to 16-year-olds, 60% report lifetime use of beer/wine/breezers and 34% report lifetime use of spirits (Soellner, Göbel, Scheithauer, & Bräker, 2014).

The Swedish school surveys further show that alcohol consumption among Swedish adolescents has decreased during a little more than a decade. In the year 2000 80% of 9<sup>th</sup> grade youth (age 15) reported alcohol consumption, in 2013 the corresponding number was 47%. The average amount of alcohol consumed yearly (in 100% pure alcohol) has also decreased between 2000 and 2013 (from 5.3 to 1.8, and from 2.8 to 1.3, for boys and girls respectively) and so has the numbers of adolescents who engage in heavy episodic drinking (from 23% and 33% for girls and boys respectively, to 10% for both girls and boys) (Gripe, 2013). The reasons for this decline in youth alcohol consumption could be many, such as preventive interventions and media campaigns, increased restrictiveness towards youth drinking among parents, time spent on computer game playing and a higher proportion of youths who choose not to drink alcohol at all (Leifman, 2013).

## **1.2.1 Problems associated with underage alcohol use**

Swedish as well as international data suggest that the adolescent years is a period during which many adolescents initiate and then increase their alcohol consumption (Chen & Jacobson, 2012; Gripe, 2013; Windle et al., 2008) which implies a risk of an array of negative short- and long-term consequences.

### *1.2.1.1 Early onset of alcohol use*

An early onset of alcohol use increases the risk of being involved in traffic accidents (Hingson, Edwards, Heeren, & Rosenbloom, 2009; Hingson, Heeren, Jamanka, & Howland, 2000), of being involved in physical fights (Hingson et al., 2009), of suicide attempts (Swahn, Bossarte, Ashby, & Meyers, 2010) of driving under the influence of alcohol and of hurting oneself or others (Hingson & Zha, 2009). In addition, adolescents who initiate drinking early are at a higher risk of later alcohol dependence (Dawson, Goldstein, Chou, Ruan, & Grant, 2008; DeWit, Adlaf, Offord, & Ogborne, 2000; Dooley, Prause, Ham-Rowbottom, & Emptage, 2005; Grant, Stinson, & Harford, 2001; Guttmanova et al., 2012; Hingson, Heeren, & Winter, 2006; Hingson & Zha, 2009) and abuse (DeWit et al., 2000; Dooley et al., 2005; Hingson & Zha, 2009). The lifetime alcohol dependence rates are four times higher if drinking onset occurs at age 14, in comparison with drinking onset at age 20 (Grant & Dawson, 1997).

An early onset of drinking is further associated with binge drinking (LaBrie, Rodrigues, Schiffman, & Tawalbeh, 2007), risky alcohol consumption, heavy episodic drinking (Caamano-Isorna, Corral, Parada, & Cadaveira, 2008) and excessive drinking (Llorens, Barrio, Sanchez, Suelves, & Group, 2011). An early onset has also been linked to later frequency and amount of drinking (Deutsch et al., 2013) to later heavy drinking (Hingson & Zha, 2009; Kuntsche, van der Vorst, & Engels, 2009; Rossow & Kuntsche, 2013) and also predicts a faster increase in alcohol use over time (Mason et al., 2010).

### *1.2.1.2 Heavy or frequent alcohol use*

A high frequency and amount of drinking is associated with increased risk of being injured or to injure someone else in a fight (Swahn, Simon, Hammig, & Guerrero, 2004). It is also associated with unwanted or unprotected sex (Bonomo et al., 2001), with performing poorly at school, riding with a drunk driver, smoking or using illicit drugs and with suicide attempts (Miller, Naimi, Brewer, & Jones, 2007).

Furthermore, adolescent drunkenness frequency predicts alcohol-related violence, injuries, accidents, trouble with the police and symptoms of dependence (Little et al., 2012). Increased alcohol consumption in adolescence is related to alcohol use disorders (Bonomo, Bowes, Coffey, Carlin, & Patton, 2004; Mason et al., 2010) and risky sexual behaviors in young adulthood (Mason et al., 2010). Early levels of alcohol use also predict later levels of use (Visser, de Winter, Vollebergh, Verhulst, & Reijneveld, 2013) such that if adolescents drink

heavily early they are more likely to do so later too. Both an early onset of alcohol use and heavy episodic drinking is predictive of later alcohol dependence (Guttmanova et al., 2012).

Thus, underage drinking remains a significant public health concern that warrants continued prevention efforts.

### **1.3 PREVENTION OF UNDERAGE ALCOHOL USE**

#### **1.3.1 Risk and protective factors**

Preventive interventions are often developed based on the theory of risk and protective factors where a risk factor is defined as a characteristic which increases the probability of negative outcomes (Durlak, 1998; Hawkins, Catalano, & Miller, 1992) while a protective factor is the opposite. The identification of risk factors is critical when developing preventive interventions, as knowledge regarding what increases the likelihood of an adverse outcome, is the first step towards preventing that outcome (Durlak, 1998). With the aim of building a foundation for prevention, researchers have long been working to identify factors associated with the initiation and development of adolescent alcohol use (Sloboda, Glantz, & Tarter, 2012). Risk and protective factors have been identified at the community, family, school and individual level (Hawkins et al., 1992).

##### *1.3.1.1 Risk factors*

A less positive self-esteem, being risk-taking, aggressive and to perceive a low risk involved with drinking alcohol are examples of individual characteristics that increase the risk of youth excessive drinking (Llorens et al., 2011) and heavy episodic drinking (Patrick & Schulenberg, 2010). Furthermore, having positive attitudes towards alcohol use is associated with youth drinking (Cleveland, Feinberg, & Jones, 2012) and also with later alcohol abuse and dependence (Guo, Hawkins, Hill, & Abbott, 2001). Having friends who drink is predictive of adolescent drinking (Cleveland et al., 2012), heavy episodic and excessive drinking (Danielsson, Romelsjo, & Tengstrom, 2011; Llorens et al., 2011; Patrick & Schulenberg, 2010). School-based risk factors, such as truancy, have also been associated with a higher probability of youth heavy episodic drinking (Patrick & Schulenberg, 2010). At the societal level risk factors include for example availability of alcohol and the legal buying age (Hawkins et al., 1992).

##### *1.3.1.2 Protective factors*

Examples of protective factors at the individual level are for adolescents to have disapproving attitudes towards drinking and to perceive that there is a risk involved with consuming alcohol (Patrick & Schulenberg, 2010). Being committed to and doing well in school has been identified as a protective factor for adolescent alcohol use (Cleveland et al., 2012) and heavy episodic drinking (Patrick & Schulenberg, 2010). Another important protective influence is the influence of parents. Parental monitoring, parents setting curfews and knowing where adolescents are, decrease the likelihood of adolescent binge drinking (Piko & Kovacs, 2010) and heavy episodic drinking (Danielsson et al., 2011). Furthermore, a strong

attachment to parents decrease the likelihood of heavy episodic drinking (Danielsson et al., 2011) and being able to talk to parents about problems has been identified as protective of adolescent alcohol use (Cleveland et al., 2012). It seems that parents are important in the development of youth drinking behavior and this has also been acknowledged in research and development of preventive interventions.

### **1.3.2 Prevention programs**

Preventive interventions can be implemented at three levels; universal, selective and indicated. Universal prevention targets all people independent of their level of risk, while selective and indicated prevention targets individuals at a higher risk (National Research Council and Institute of Medicine., 2009). The level of prevention that is of relevance for the present thesis is universal prevention. Universal prevention of adolescent drinking includes different approaches, from community-based interventions that reduces availability of alcohol (Room, Babor, & Rehm, 2005) to programs targeting parents and children in the form of school- and family-based interventions (Foxcroft & Tsertsvadze, 2011a, 2011b). The school- and family-based preventive interventions often focus on risk factors and protective factors at the individual and interpersonal level, and may include youth training and/or parent/family skills training.

### **1.3.3 Prevention involving parents**

Systematic reviews suggest that interventions with the aim of preventing underage alcohol use may benefit from the involvement of parents. However, studies often do not report the detail of interventions why the specific contents of effective interventions, as opposed to the content of ineffective interventions, needs further research (Foxcroft & Tsertsvadze, 2011a). It has been suggested that effective parental prevention programs emphasize active parental involvement and the development of parenting skills. Further, that they often are characterized by a focus on parent-child relations, rather than an exclusive focus on substance use (Petrie, Bunn, & Byrne, 2007). Effective family-based interventions often target a range of risk and protective factors, such as parent-child relationship quality, parental involvement and child monitoring (Spath, Greenberg, & Turrisi, 2008). When analysing components in the Project Northland prevention project the researchers found that the parent involvement part of the program had the most impact on adolescent tendency to use alcohol (Stigler, Perry, Komro, Cudeck, & Williams, 2006). Effective school-based interventions targeting students often include training of resistance skills and address norms around youth alcohol consumption (Stigler, Neusel, & Perry, 2011).

Research seem to point to the involvement of parents as an important aspect of preventive interventions, and more specifically that parents may influence their adolescents drinking behavior through their parenting practices.



## **1.4 ALCOHOL-SPECIFIC PARENTING**

Alcohol-specific parenting is parenting with the aim of preventing or dealing with adolescent alcohol consumption (Ennett, Jackson, Bowling, & Dickinson, 2013; Jackson, Henriksen, & Dickinson, 1999; Spijkerman, van den Eijnden, & Huiberts, 2008; Van der Vorst, Engels, Meeus, Dekovic, & Van Leeuwe, 2005; Wood, Read, Mitchell, & Brand, 2004; Yu, 2003). Restrictive alcohol-specific parenting practices has been related to the absence of early adolescent drinking (Koning, Engels, Verdurmen, & Vollebergh, 2010a) and to lower levels of adolescent alcohol use (de Looze et al., 2014).

### **1.4.1 Alcohol-specific communication**

Parental communication regarding alcohol use, for instance about harmful consequences, expectations regarding use, and willingness to answer questions, is associated with a lower likelihood of youth drinking onset (Ennett et al., 2013). Alcohol-specific communication, for example about how to avoid peer pressure, is also predictive of lower levels of adolescent drinking and drunkenness (Turrisi, Jaccard, Taki, Dunnam, & Grimes, 2001). High-quality conversations about alcohol, i.e. children reporting that parents are interested in their opinions and takes them seriously, has also been associated with less youth alcohol use and binge drinking (Spijkerman et al., 2008). On the other hand, frequency of parental communication about alcohol has been associated with increased youth alcohol use (Van der Vorst et al., 2005) and binge drinking (Spijkerman et al., 2008), especially for boys who report high levels of drinking (Van Der Vorst, Burk, & Engels, 2010a). One explanation to this association could be that parents talk more about alcohol if their children are drinking (Van der Vorst et al., 2005).

### **1.4.2 Attitudes towards underage alcohol use**

Tolerant attitudes towards youth drinking among parents has been associated with onset of youth alcohol use, as well as regular drinking (Koning et al., 2010a) and binge drinking (Järvinen & Østergaard, 2009). Parents having lenient attitudes towards youth drinking also predicts later adolescent alcohol use (Cleveland et al., 2012) heavy drinking (Tucker, Ellickson, & Klein, 2008) and excessive alcohol use (Mares, van der Vorst, Engels, & Lichtwarck-Aschoff, 2011). In addition, disapproving of youth alcohol consumption is associated with a lower likelihood of alcohol use initiation (Ennett et al., 2013).

Parental attitudes towards adolescent drinking are important since they build the foundation of the alcohol-specific parenting behaviors parents display. Parental norms, i.e. how acceptable parents think it would be for a 13-year-old to drink alcohol in various situations, are associated with having alcohol-specific rules (Van der Vorst, Engels, Meeus, & Dekovic, 2006a) which is an important part of alcohol-specific parenting.

### **1.4.3 Alcohol-specific rules**

Alcohol-specific rules are associated with lower frequency and less intensity of youth drinking (Van der Vorst et al., 2005). Family management, including having rules about

youth drinking, is negatively associated with youth drinking onset, alcohol use (Järvinen & Østergaard, 2009) and binge drinking (Järvinen & Østergaard, 2009; Spijkerman et al., 2008). Furthermore, the use of alcohol-specific rules is related to the postponement of drinking onset among not-yet-drinking adolescents (Van Der Vorst, Engels, Dekovic, Meeus, & Vermulst, 2007; Van der Vorst et al., 2006a) and also to less adolescent drinking (Koning, van den Eijnden, & Vollebergh, 2014a). Also, lenient rules among parents have been found to increase both the risk of drinking onset and the risk of more regular drinking among adolescents (Koning et al., 2010a). In addition, an interview study involving mothers and their 3<sup>rd</sup> grade children indicated that when children perceive no rules against use of alcohol they are about twice as likely to have sipped alcohol from their parents glasses (Jackson, Ennett, Dickinson, & Bowling, 2013). It thus seems that rules are important also when it comes to sips of alcohol.

#### **1.4.4 Parental supply of alcohol to adolescents**

To provide small amounts of alcohol may be a way in which parents try to exert control over adolescent alcohol consumption (Kypri, Dean, & Stojanovski, 2007). Most child alcohol sipping occurs in the family context (Donovan & Molina, 2008) and it is not uncommon for parents to believe that letting children sip alcohol will reduce the risk of later alcohol use and lead to higher resistance skills (Jackson, Ennett, Dickinson, & Bowling, 2012). Such beliefs increase the risk of lenient alcohol-specific parenting, such as no rules or letting the children taste alcohol. There is a strong association between such beliefs and children's alcohol consumption (Jackson et al., 2012). Parental provision of alcohol or parents allowing their children to drink alcohol at home predicts increased youth alcohol consumption (Jackson et al., 1999; Kaynak, Winters, Cacciola, Kirby, & Arria, 2014; Komro, Maldonado-Molina, Tobler, Bonds, & Muller, 2007; Van der Vorst, Engels, & Burk, 2010b) and heavy episodic drinking (Livingston, Testa, Hoffman, & Windle, 2010).

Research suggest that there might be differences in the impact of parental provision of alcohol, depending on whether the alcohol is consumed with or without parental supervision, i.e. that only parental supply of alcohol for unsupervised drinking is related to adolescent risky drinking (Gilligan, Kypri, Johnson, Lynagh, & Love, 2012a). There are studies suggesting that adolescents who report parents as their only source of alcohol supply report lower levels of risky drinking (Dietze & Livingston, 2010) and that parental provision of adolescents first drink is associated with less heavy episodic drinking (Kelly, Chan, & O'Flaherty, 2012). However, these studies only included already drinking adolescents who did engage in risky drinking (Dietze & Livingston, 2010) and heavy episodic drinking (Kelly et al., 2012). It should be stressed that adolescent alcohol consumption increases over time independent of provider (Van der Vorst et al., 2010b), and that drinking increases most among adolescents who drink at an early age (Koning, Lugtig, & Vollebergh, 2014b). The risks associated with early alcohol consumption suggest that the postponement of drinking onset for as long as possible probably is the most safe option (Kelly et al., 2012).

### **1.4.5 Gender differences**

In the 1990s, boys drank almost twice the amount of alcohol as girls (Henriksson & Leifman, 2011; Leifman, 2012) while the most recent Swedish school survey by the CAN shows that 15-year-old girls report equal levels of risky alcohol consumption as boys (Gripe, 2013).

The research on alcohol-specific parenting suggest that parents use more permissive messages with their daughters than with their sons (Reimuller, Hussong, & Ennett, 2011) and the Swedish school surveys by the CAN suggest that parents are more inclined to serve alcohol to their 15-year-old daughters. The report from 2011 shows that 38% of the girls and 34% of the boys report being served alcohol by their parents (Henriksson & Leifman, 2011). Furthermore, research suggest that prevention programs may have a different impact on girls compared to boys (Vigna-Taglianti et al., 2014).

## **1.5 THE PARENT-CHILD RELATIONSHIP QUALITY**

Research thus suggest that alcohol-specific parenting can be a tool in the prevention of underage alcohol use when it involves the following aspects; good quality communication about alcohol, restrictive attitudes towards youth drinking, strict alcohol-specific rules and no servings of alcohol at home. How influential parental rule-setting is might however depend on the parent-child relationship quality in general.

Two dimensions identified as important aspects of parenting are the emotional support and behavioral control parents provide to their children (Deater-Deckard et al., 2011). A high-quality relationship between parent and youth is protective; adolescents are less likely to use alcohol if their parents are warm, involved, provide high levels of control and solicit information about youth activities (Fletcher, Steinberg, & Williams-Wheeler, 2004). High levels of parental attachment also seem to delay the onset of binge drinking among not-yet-drinking youth (Crawford & Novak, 2002). Adolescents' acceptance of parents' values can be protective against adolescent binge drinking (Piko & Kovacs, 2010). Susceptibility to alcohol use also decrease when adolescents perceive having good communication with their parents, i.e. being asked about their day and listened to (Elder et al., 2000). It has been argued that monitoring by parents could possibly be an outcome of family closeness, which in turn is associated with youth alcohol drinking behaviors (Moore, Rothwell, & Segrott, 2010).

Concerning parental warmth the research does not present an entirely consistent picture. A systematic review including 28 longitudinal studies concluded that the scientific evidence with regard to the association between the parent-child relationship quality and youth alcohol use is mixed. Some studies find negative associations between parent-child relationship quality and youth drinking, while others find such associations only in subgroups. One explanation could be reversed causality in the association between relationship quality and youth drinking and this needs to be studied further (Visser, de Winter, & Reijneveld, 2012).

### **1.5.1 Gender differences**

This is also an area in which gender differences have been identified, suggesting that the parenting dimensions of warmth and control may not function in the same way for girls and boys (Roche, Ahmed, & Blum, 2008) such that parental control might have more influence on drinking among boys (Piko & Balázs, 2012; Roche et al., 2008; Van der Vorst, Engels, Meeus, & Dekovic, 2006b) while parental warmth is associated with a lower risk of drinking onset (Piko & Balázs, 2012) and less heavy episodic drinking (Danielsson et al., 2011) only among girls.

## **1.6 SCIENTIFIC EVALUATION OF PREVENTION PROGRAMS**

Scientific evaluation of prevention programs are often lacking and most existing evaluations have been conducted in North America, where most programs are also developed (Foxcroft & Tsertsvadze, 2011a, 2011b). One program that has shown effects on youth drinking when evaluated in the US is the Iowa Strengthening Families Program (Foxcroft & Tsertsvadze, 2011a; Spoth, Redmond, & Lepper, 1999). However the program did not show effect on youth drinking when adapted and evaluated in a Swedish randomized trial, possibly because of the Swedish adaptation of the program, e.g. fewer family hours, or due to differences in the cultural context between Sweden and the US (Skarstrand, Sundell, & Andreasson, 2014). It has been suggested that the success of the adaptation and evaluation of programs include factors such as degree of adaptation, the research design and the cultural context (Sundell, Ferrer-Wreder, & Fraser, 2013). In a large randomized multi-center study (EU-Dap) involving seven European countries effects were found of the Un-Plugged program on youth frequent drunkenness at the European level (Faggiano et al., 2010), however the program did not seem to have the same impact among Swedish youth (Lindahl & Galanti, 2006). Thus, more research is needed on school- and family-based preventive interventions in Sweden.

## **1.7 THE ÖREBRO PREVENTION PROGRAM**

### **1.7.1 ÖPP program development**

Due to increased alcohol use among Swedish 15-year-old youth in the late 1990s and a request of universal prevention programs from the Swedish National Institute of Public Health (now the Public Health Agency of Sweden) the Örebro prevention program (ÖPP) was developed by researchers at Örebro University (Koutakis et al., 2008). The theory behind ÖPP is to reduce and/or delay youth drinking and drunkenness by targeting parents' alcohol-specific parenting practices. During development of the program it was assumed that parents become less restrictive towards youth drinking as adolescents grow older. It was reasoned that if parents could instead adopt and/or maintain restrictive alcohol-specific parenting practices throughout the youths adolescent years, youth drinking and drunkenness could be reduced and/or delayed (Koutakis, 2011; Koutakis et al., 2008). The theory behind the program has gained support in research on alcohol-specific parenting (e.g. Cleveland et al., 2012; Koning et al., 2010a). Although not designed to influence parenting in general ÖPP touches upon both the control and warmth dimension of parenting, and differs from many

other prevention programs in that it targets parents only. Figure 1 provides a model of the ÖPP program theory and the assumed mechanisms of change.

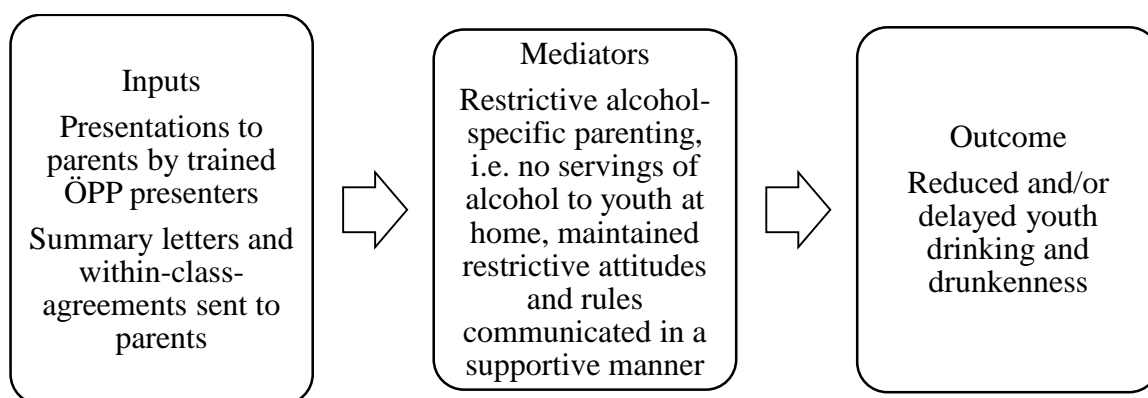


Figure 1. Model of the ÖPP program theory

#### 1.7.1.1 Dissemination

The program developers had the responsibility for administration and dissemination of the program from program development in 1999-2001 until 2006, when the responsibility was moved to the Swedish National Institute of Public Health (now the Public Health Agency of Sweden). In 2012 ÖPP was renamed EFFEKT and the program content was revised and updated by the program developer who currently is responsible for administration and dissemination of the program (Koutakis, 2014). ÖPP is probably the most widely disseminated program in Swedish schools today, the most recent “Länsrapport” from the Public Health Agency of Sweden showed that ÖPP is used in 54% of Sweden’s 290 municipalities (Folkhälsoinstitutet., 2012).

#### 1.7.2 Program content

ÖPP is a universal prevention program targeting parents of 13 to 16-year-old youth with the aim to reduce youth drinking and drunkenness. ÖPP is administered by trained program presenters (a two-day course is required to become an ÖPP presenter) at regular school-based parent-teacher meetings, once every semester during grades 7-9. The program consists of six power point presentations à 15-20 minutes during which parents are encouraged to apply restrictive alcohol-specific parenting practices. They are encouraged to adopt and/or maintain a restrictive attitude towards underage drinking and to communicate this to their youth in a clear and supportive manner. They are also advised not to serve alcohol or allow their adolescents to drink alcohol at home, i.e. to adopt a zero-tolerance towards youth alcohol use. Parents are also encouraged to formulate within-class-agreements concerning underage alcohol consumption. After each presentation a summary letter is posted to all parents in the class along with the within-class-agreements.

### 1.7.3 Previous studies of ÖPP

#### 1.7.3.1 Program effects

Three scientific investigations on effects of ÖPP have been conducted; one quasi-experimental study by the program developers (Koutakis et al., 2008), and two cluster-randomized trials of which one conducted in the Netherlands (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2011; Koning et al., 2009) and the other the Swedish trial of ÖPP on which the present thesis is based. The first study of ÖPP by the program developers was conducted between 1999 and 2001 and the study comprised 900 7<sup>th</sup> grade students and their parents in 8 schools (4 ÖPP and 4 matched control schools) who answered questionnaires at baseline and at two follow-up measurements in the 8<sup>th</sup> and 9<sup>th</sup> grade. The results suggested statistically significant program effects on youth drunkenness frequency in the 9<sup>th</sup> grade, i.e. 27% of adolescents in the control group had been drunk several times the last month compared to 12.6% of adolescents in the ÖPP group. The reported Cohen's *d* effect size was 0.35 for drunkenness, which can be regarded as low to medium. The results further indicated that parents in the ÖPP group maintained restrictive attitudes towards underage drinking to a higher extent than control parents (ÖPP group 3.81 versus control group 3.46, scale range 1-4) (Koutakis et al., 2008). Additional analyses using latent growth curve (LGM) modelling accounting for clustered data showed the same, i.e. parents in the control group became less restrictive over time while parents in the ÖPP group did not change their attitudes towards underage drinking, and the increase in youth drunkenness over time was about twice as high in the control group compared to the ÖPP group (Koutakis, 2011).

The Dutch study involved four conditions, a parent intervention, a student intervention, a combined parent-student intervention and a control condition. The parent intervention was modelled after ÖPP and administered at parent-teacher meetings with summary letters and within-class-agreements sent to parents after each meeting. The student intervention comprised four lessons (and an additional session 1 year later) and aimed to increase self-control skills and build healthy attitudes towards alcohol use among the students (Koning, Verdurmen, Engels, Eijnden, & Vollebergh, 2012a; Koning et al., 2009). The results suggested statistically significant program effects of the combined parent-student intervention on youth weekly drinking at follow-up measurements 10 months, 22 months (Koning et al., 2009) and 34 months after baseline (Koning et al., 2011). However, no statistically significant program effects on youth drinking outcomes were found of the parent intervention (ÖPP) only (Koning et al., 2011; Koning et al., 2009).

#### 1.7.3.2 Support for the program theory in the studies of ÖPP

The scientific studies of ÖPP lend support to the theory on which it relies. The program developers found that parents exposed to ÖPP maintained their restrictive attitudes to a higher degree than control parents, and that fewer adolescents in the ÖPP group reported frequent drunkenness in the 9<sup>th</sup> grade (Koutakis et al., 2008). Additional analyses suggested that the

effect of the program was explained by the change in parents' restrictive alcohol-specific attitudes, however only a small proportion of the variance was explained ( $R^2=.01$ ) (Koutakis, 2011). Tests of mediating mechanisms by Özdemir and Stattin (2012) on data from the present trial of ÖPP also suggest that ÖPP influenced youth drinking and drunkenness through the effects on parents' alcohol-specific attitudes (Özdemir & Stattin, 2012). The Dutch study further showed that the effect of the combined intervention on youth drinking was mediated through parents alcohol-specific rules and also through increased self-control among adolescents (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2013).

### *1.7.3.3 Efficacy versus effectiveness*

While a trial of program efficacy investigates the effects of an intervention under ideal circumstances, often when delivered by the program developers, a study of program effectiveness investigates the effects of an intervention when delivered under real-world conditions (Godwin et al., 2003). The trial of ÖPP described in the present thesis was designed as an evaluation of program effectiveness, the aim was thus to study whether ÖPP would have an effect on youth alcohol drinking and drunkenness when delivered under real-world conditions, e.g. with multiple presenters and with varying numbers of presentations. The study on effects of the ÖPP was at the start of the present study limited to one not yet published quasi-experimental study by the program developers. Since standards on the evaluation and dissemination of prevention programs suggest that at least two studies are conducted before wide dissemination (Flay et al., 2005) there was a need to extend the scientific knowledge about effects of ÖPP.

## **1.8 SUMMARY OF CURRENT KNOWLEDGE AND RELEVANCE OF THE PRESENT RESEARCH**

Underage alcohol use implies an increased risk of both immediate and long-term negative consequences, which makes research on the effectiveness of preventive interventions imperative. In sum, correlational evidence from cross-sectional and longitudinal studies indicates that parents are an important source of influence in the efforts to prevent underage drinking. Alcohol-specific parenting practices such as rules and communication regarding alcohol and no servings of alcohol to adolescents at home have been associated with less youth drinking. Furthermore, research indicates that there might be gender differences in parents' alcohol-specific parenting practices. Principles of alcohol-specific parenting forms the basis of the Örebro prevention program (ÖPP), a widely disseminated parental prevention program in Swedish schools, which aims to reduce youth drinking and drunkenness. The present thesis is based on a cluster-randomized trial of ÖPP and aims to study effects of ÖPP on youth drinking and drunkenness when the program is delivered under real-world conditions. The present thesis aims to investigate effects of ÖPP, alcohol-specific parenting and also to address the issue of possible gender differences in alcohol-specific parenting.

## 2 AIMS AND RESEARCH QUESTIONS

The primary aim of the present thesis was to increase the knowledge about the preventive influence of alcohol-specific parenting on youth drinking and drunkenness, more specifically to study effects of ÖPP when delivered under real-world conditions. Further aims were to study parents' use of program components and possible gender differences in alcohol-specific parenting and in the relation between alcohol-specific parenting and youth drunkenness.

The aims and research questions of each paper were:

### *Paper I*

The aim of Paper I was to provide an independent trial of the program effects on youth drunkenness onset, frequent drunkenness and weekly alcohol consumption, testing the hypothesis that children of parents exposed to ÖPP would report lower frequencies and later initiation compared to children of non-exposed parents. The research question of Paper I was: Does the ÖPP program have an effect on youth drunkenness onset, frequent drunkenness and weekly alcohol consumption?

### *Paper II*

The aims of Paper II were to investigate attitudes towards youth drinking and parents' use of program components, i.e. alcohol-specific parenting practices, among parents that have and have not been exposed to ÖPP. The research question of Paper II was: To what extent do parents in the ÖPP group respectively control group hold restrictive attitudes towards youth drinking and apply restrictive alcohol-specific parenting practices, e.g. alcohol-specific rules and not serving alcohol to youth at home?

### *Paper III*

The aims of Paper III were 1) to examine the role of adolescent gender for parents' inclination to serve alcohol to their adolescents at home also after controlling for other parenting factors and 2) to examine whether the importance of general and alcohol-specific parenting factors vary by adolescent gender, in the prediction of drunkenness onset and frequent drunkenness among youth. The research questions of Paper III were: Does adolescent gender influence parents' inclination to serve alcohol to their adolescents? Do general and alcohol-specific parenting predictors of drunkenness among youth vary by adolescent gender?



## **3 MATERIAL AND METHODS**

### **3.1 DESIGN**

The data on which the present thesis is based were collected within a cluster-randomized effectiveness trial of ÖPP, conducted between 2007 and 2010. The trial comprised 40 schools in 13 Swedish counties and the participating youth and their parents answered self-report questionnaires at three occasions, a baseline measurement in the 7<sup>th</sup> grade (T1), a 12-month follow-up measurement in the 8<sup>th</sup> grade (T2) and a 30-month follow-up measurement in the 9<sup>th</sup> grade (T3). The baseline measurement included 1752 adolescents and their parents (n=1314, 75%). Of these 1613 youths (92%) and 1227 parents (70%) participated at T2 while 1548 adolescents (88%) and 1184 parents (68%) responded at T3. The present thesis comprises three studies; the first with a cluster-randomized design where participating schools were randomized to ÖPP group (n=20) and control group (n=20) including data from baseline, T2 and T3 (I). The second study has a cross-sectional design including data from 1239 parent-youth dyads responding at T2 (II), while the third study has a longitudinal design including data from baseline, T2 and T3 (III).

### **3.2 RANDOMIZATION PROCEDURE AND POWER**

Before randomization the participating schools were stratified by cluster size and socio-economic standing. The school names were written on pieces of paper which were placed in sealed opaque envelopes and randomized in blocks of two. The randomization procedure resulted in 20 ÖPP schools (46 classes, 893 adolescents), and 20 control schools (41 classes, 859 adolescents). Estimations of statistical power were performed using G\*Power 3 (Faul, Erdfelder, Lang, & Buchner, 2007) and suggested that the sample of 1752 youth in 40 schools resulted in a sufficient statistical power (80%).

### **3.3 RECRUITMENT**

Municipal schools comprising grades 7-9, with at least two 7<sup>th</sup> grade classes in parallel, with no previous experience of ÖPP were eligible to participate in the trial. Only schools in counties where there was access to experienced local ÖPP presenters were invited. During the spring semester 2007 information about the program and about the conditions for study participation was (e)mailed to 716 school principals in 13 (of 21) Swedish counties, of which 40 schools (6%) were willing and eligible to participate. Two to three 7<sup>th</sup> grade classes, of the schools own choice, in each school were included in the study.

### **3.4 PROCEDURE AND PARTICIPANTS**

Information about the study, and about how to decline participation, was sent to parents at the beginning of the autumn semester 2007. A little more than 4% (n=92) of the parents declined participation for their child. The class teachers administered the baseline questionnaires to youth, while the follow-up questionnaires were administered by the research team. At all three occasions the adolescents answered their questionnaire in school while parents'

questionnaire was sent home to them by post. Parents and youth were informed that participation was voluntary and that all responses were treated with confidentiality.

### **3.4.1 The control group**

In order to avoid contamination the schools that were randomized to control group undertook to postpone any start of ÖPP until the participating classes had reached the 8<sup>th</sup> grade. Each control class was rewarded with 3000 SEK to their common funds (“klasskassa”) after the last measurement occasion.

## **3.5 IMPLEMENTATION OF ÖPP WITHIN THE STUDY**

The schools that were randomized to ÖPP used the program in the participating classes during the three years of the trial. ÖPP was administered by trained program presenters at regular school-based parent-teacher meetings, once every semester during grades 7-9. A total of 34 trained experienced program presenters delivered ÖPP during the study. The research team recruited the presenters, coordinated the presentations and sent the following summary letters to parents. All presenters used the same power point presentation standardized by the Swedish National Institute for Public Health (now the Public Health Agency of Sweden).

## **3.6 MEASURES**

### **3.6.1 Youth reports**

#### *3.6.1.1 Drunkenness*

Youth drunkenness was measured by two items, i.e. “How many times have you drunk alcohol to the point that you felt drunk?” and “How many times during the last four weeks have you drunk alcohol to the point that you felt drunk?” with the response options 0, 1, 2–4, 5–10, 11–20 and >20 and 0, 1, 2, 3–4, 5–7 and >8 times, respectively.

#### *3.6.1.2 Alcohol consumption*

Youth alcohol consumption was measured by 10 beverage specific frequency by quantity items regularly used in Swedish nation-wide school surveys by the CAN (Gripe, 2013; Hvidtfeldt & Gripe, 2010). For the items about frequency the response options ranged from 0 (do not drink) to 8 (drink every day). For the items about amount the response categories varied for different beverages: from 0=Do not drink (light beer/strong beer/wine/spirits/strong cider/alcopops), to 6=8 cans (light beer/strong beer), 8=More than 75cl (wine), 9=8 bottles or more (strong cider/alcopops), and 10=More than 70cl (spirits).

#### *3.6.1.3 Alcohol servings at home*

Youths were asked whether they were ever served alcohol at home by their parents with the response options of 0=No, my parents do not drink alcohol, 1=No, never, 2=Yes, sometimes I may have a sip from my parents glasses, 3=Yes, sometimes I can have a glass of alcohol, 4=Yes, sometimes I can have a bottle of wine or a number of beers.

#### *3.6.1.4 Alcohol-specific rules*

Alcohol-specific rules were measured by 10 items, e.g. “I am allowed to drink alcohol with my friends at a party”, developed by Van der Vorst et al. (2005) with reported Cronbach’s alphas of 0.91-0.92 (Van der Vorst et al., 2005). The response options ranged from 1=Not applicable to 4=Highly applicable.

#### *3.6.1.5 Parental warmth*

Parental warmth was measured by six items, e.g. “They always show how proud they are of me”, developed and previously used by Kerr and Stattin with reported Cronbach’s alpha of 0.82 (Kerr & Stattin, 2003). The response options ranged from 1=Completely applicable to 4=Not at all applicable. The items were reversed and summed so that higher numbers indicated a higher level of parental warmth.

#### *3.6.1.6 General parental control*

General parental control was measured by five items, e.g. “Do you need to have your parents’ permission to stay out late on a weekday evening?”. The scale was developed by Kerr and Stattin with reported Cronbach’s alphas of 0.78-0.82 (Kerr & Stattin, 2003). The response options ranged from 1=Yes, always to 5=No, never. These items were added to the questionnaire at T2. The items were reversed and summed so that higher numbers indicated a higher level of parental control.

### **3.6.2 Parents reports**

#### *3.6.2.1 Attitude towards underage drinking*

Parents’ attitude towards underage drinking was measured by an item used in the first study of ÖPP (Koutakis et al., 2008). The response options ranged from the most lenient 1=“It is natural for children our son or daughter’s age to be curious about trying alcohol. We trust that our son/daughter drinks in a responsible way” to the most strict 4=“A child our son or daughter’s age is way too young to drink alcohol at all. We think it is obvious that adolescents under 18 years should not concern themselves with alcohol”. Parents were asked to choose the response option that best described their own point of view.

#### *3.6.2.2 General parental control*

General parental control was measured by five items, e.g. “Do your child need your permission to stay out late on a weekday evening?”. It was the same five items administered to youth, only revised to reflect the parent perspective. These items were developed and previously used by Kerr and Stattin with reported Cronbach’s alphas of 0.75-0.77 (Kerr & Stattin, 2003).

#### *3.6.2.3 Alcohol-specific rules and communication*

Parents were asked if they had alcohol-specific rules for their youth with the response options yes and no, and whether they communicated these rules to their adolescents (response options

ranged from 0=No, I/we do not have any alcohol-specific rules to 5=Yes, we often talk about rules regarding alcohol). Parents were also asked about whether they had communicated their view on underage drinking to their adolescents with response options ranging from 0=No, not yet to 4=Yes, often.

#### *3.6.2.4 Background measures*

Parents' education level and mothers' country of birth.

### **3.7 SAMPLE CHARACTERISTICS**

#### **3.7.1 Schools**

The participating schools were located in diverse types of municipalities in 13 out of 21 Swedish counties. In 2006 which was the year before study onset, the grade point average in the participating schools was 208.5 while the national grade point average was 205.3. Since the standard deviation of the national grade point average was 18.7 (Skolverket., 2006) a difference of 3 points between the participating schools and the national average can probably be considered negligible.

#### **3.7.2 Youth**

All participating adolescents started the 7<sup>th</sup> grade at study onset (age 13) and 51.1% were girls. Drunkenness onset was reported by 12% (n=210) of the adolescents at T1, while 1.2% (n=21) reported frequent drunkenness and 1.1% (n=19) reported weekly alcohol consumption. At T1 31.7% (n=552) of the adolescents reported being served alcohol at home.

#### **3.7.3 Parents**

Almost 40% (n=520) of parents had a university level education and 13% (n=227) of the mothers were born in a non-Scandinavian country. At baseline parents mean value of restrictive attitudes towards underage drinking was 3.86 (SD=0.39) (scale range 1-4).

### **3.8 ATTRITION**

Among the 1752 youth who participated in the measurement at T1, 139 (7.9%) were absent at T2, while 204 (11.6%) were absent at T3 (see flow-chart in Paper I). There was no loss of participating schools during the trial.

### **3.9 STATISTICAL PROCEDURES**

#### **3.9.1 Paper I**

##### *3.9.1.1 Sample*

Analyses were based on data from all 1752 youth and their parents (n=1314) measured at baseline, T2 and T3.

### *3.9.1.2 Missing data*

Four sets of analyses were performed for each drinking outcome, treating missing data as missing (analysing completers only), as negatives (0), as positives (1) and with missing data imputed by the Multiple Imputation Procedure in SPSS 18.0.

### *3.9.1.3 Analysis*

Data was analysed using two-level logistic regression models in the MLwiN 2.10 software program, developed especially for clustered data (Rasbasch, Steele, Browne, & Goldstein, 2009). This was because unit of randomization (school) differed from unit of analysis (individual) resulting in data which violates the assumption of data independence present in standard statistical methods.

## **3.9.2 Paper II**

### *3.9.2.1 Sample*

Analyses were based on data from 1239 youth-parent dyads measured at T2.

### *3.9.2.2 Missing data*

Inclusion in the analyses was based on the response of both parent and youth at T2.

### *3.9.2.3 Analysis*

Data was analysed using non-parametric tests in SPSS 18.0. Pearson's  $\chi^2$  was used for analyses of dichotomized data while the Mann-Whitney U-test was used for ordinal data.

## **3.9.3 Paper III**

### *3.9.3.1 Sample*

Analyses were based on data from all 1752 youth and their parents (n=1314) measured at baseline, T2 and T3.

### *3.9.3.2 Missing data*

Aside from the attrition of participants, 10–58 responses (0.6%–3.3%) were missing due to lack of responses on individual items. Missing data was imputed using the Multiple Imputation Procedure in SPSS 19.0.

### *3.9.3.3 Analysis*

Data was analysed using multivariate two-level logistic regression models in the MLwiN 2.10 software program (Rasbasch et al., 2009), especially developed for clustered data.

## **3.10 ETHICAL PERMISSION**

Prior to onset, the study was approved by the Stockholm ethical review board (Dnr 2007/5:3).

## 4 MAIN FINDINGS

The results of the papers included in this thesis are fully presented in Papers I, II and III. Below follows a brief summary of each paper.

### 4.1 PAPER I

*The Örebro prevention programme revisited: A cluster-randomized trial of programme effects on youth drinking (Bodin & Strandberg, 2011)*

**Background:** Research suggests that restrictive alcohol-specific parenting is associated with less youth drinking. Such findings build the foundation of ÖPP, a parental prevention program targeting alcohol-specific parenting with the aim to reduce youth drinking and drunkenness. The program targets parents of 13 to 16-year-old youth with the main message to maintain restrictive attitudes towards youth drinking. At the start of the present trial the scientific study of program effects was limited to one (not yet published) study by the program developers. The wide spread of the program and standards of evaluation recommending at least two studies, of which one preferably done independent of the program developers (Flay et al., 2005), there was a need to extend the knowledge base concerning effects of ÖPP on youth drinking and drunkenness.

**Aim:** To provide an independent trial of the program effects on youth drunkenness onset, frequent drunkenness and weekly alcohol consumption, testing the hypothesis that children of parents exposed to ÖPP would report lower frequencies and later initiation compared to children of non-exposed parents.

**Results:** In the 8<sup>th</sup> grade, there was one statistically significant program effect on one drinking outcome measure under one of four ways to handle attrition, i.e. when every non-responder was coded as having been drunk frequently there was a significantly lower likelihood (OR=0.62) for adolescents in the ÖPP group to have been drunk frequently during the last four weeks. No statistically significant program effects were observed on any of the drinking outcomes, i.e. drunkenness onset, frequent drunkenness or weekly alcohol consumption, in the 9<sup>th</sup> grade. Parents in the ÖPP group reported more restrictive attitudes towards underage drinking compared to parents in the control group at the 30-month follow-up measurement in the 9<sup>th</sup> grade (3.78 compared to 3.56). There were also fewer adolescents in the ÖPP group who reported being served alcohol at home in the 9<sup>th</sup> grade, 36.7% compared to 44.1% in the control group. The mean number of presentations given during the trial was 4.7 (SD=0.99). Of the 46 ÖPP classes 74% (n=34) made written within-class-agreements after the first (n=28) or second (n=6) presentation. The most common agreements were for parents to contact each other if something happened (65%, n=30) and to not serve alcohol to the youth at home (54%, n=25). Among responders in the control group, 11.6% reported that an adult in the household had ever been exposed to ÖPP.

## 4.2 PAPER II

*Alcohol-specific parenting within a cluster-randomized effectiveness trial of a Swedish primary prevention program (Strandberg & Bodin, 2011)*

**Background:** The main message of ÖPP is for parents to maintain restrictive attitudes towards youth drinking and to apply restrictive alcohol-specific parenting practices, i.e. not to serve alcohol to their adolescents at home and to set rules regarding alcohol use. The first study of ÖPP, by the program developers, indicated that parents in the ÖPP group maintained restrictive attitudes to a higher extent than parents in the comparison group (Koutakis et al., 2008). However, more research was needed about whether and how parents' restrictive attitudes were manifested towards the youth in terms of alcohol-specific rules and servings of alcohol to youth at home.

**Aim:** To investigate parents' attitudes towards underage drinking and parents' use of program components, i.e. alcohol-specific parenting practices such as having alcohol-specific rules and not serving alcohol to youth at home, among parents that have and have not been exposed to ÖPP.

**Results:** A significantly larger proportion of parents in the ÖPP group, compared to the control group, reported having a restrictive attitude towards underage drinking (89.2% versus 81.7%), applying alcohol-specific rules (92.8% versus 88.5%) and communicating about alcohol-specific rules with their adolescents (92.9% versus 89.6%). In addition, significantly fewer adolescents in the ÖPP group reported being served alcohol at home by their parents, 36.6% compared to 44.7% of the adolescents in the control group.

### 4.3 PAPER III

*Gender differences in the prediction of parental servings of alcohol to adolescents and youth drunkenness (Strandberg, Bodin, & Romelsjo, 2014)*

**Background:** Recent Swedish school surveys suggest that parents are more inclined to serve alcohol at home to their 15-year-old daughters compared to their sons of the same age (Henriksson & Leifman, 2011) and studies indicate that the influence of family characteristics on youth drinking might not function in the same way for adolescent girls and boys (Roche et al., 2008). There is a need to extend the knowledge on parenting factors that predict parental servings of alcohol to youth, and to investigate possible gender differences in the impact of alcohol-specific parenting on adolescent girls and boys.

**Aim:** To examine the role of adolescent gender for parents inclination to serve alcohol to their adolescents at home also after controlling for other parenting factors, and to examine whether the importance of general and alcohol-specific parenting factors vary by adolescent gender, in the prediction of drunkenness onset and frequent drunkenness among youth.

**Results:** The results showed that 15 to 16-year-old girls were more likely to be served alcohol by parents at home compared to boys of the same age (OR=1.36). Higher levels of general parental control and a more restrictive parental attitude towards youth drinking significantly decreased the likelihood of parental servings of alcohol to youth (OR=0.96 and OR=0.54, respectively). Being served alcohol by parents at home in the 7<sup>th</sup> grade increased the likelihood of drunkenness onset in the 9<sup>th</sup> grade for both girls and boys (OR=2.76 and OR=1.95, respectively) while a higher level of parental control decreased the likelihood of drunkenness onset (OR=0.90 and OR=0.92) and frequent drunkenness (OR=0.92) for both girls and boys. A restrictive attitude towards underage drinking (OR=0.57), and a higher level of parental warmth (OR=0.94) decreased the likelihood of frequent drunkenness only for girls.



## 5 DISCUSSION

The primary aim of the present thesis was to increase the knowledge about the preventive influence of alcohol-specific parenting on youth drinking and drunkenness, more specifically to study effects of ÖPP when delivered under real-world conditions. Further aims were to study parents' use of program components and gender differences in alcohol-specific parenting and in the relation between alcohol-specific parenting and youth drunkenness.

### 5.1 EFFECTS OF ÖPP

The results of the present thesis suggest that when delivered under real-world conditions, approximately one decade after the original study, ÖPP does not seem to reduce drinking or drunkenness among Swedish 15-year-old youth. No statistically significant program effects were observed in the 9<sup>th</sup> grade on any of the drinking outcomes, i.e. drunkenness onset, frequent drunkenness or weekly alcohol consumption. The results did suggest one statistically significant program effect on frequent drunkenness in the 8<sup>th</sup> grade (T2) under one of four attrition scenarios. However, since there was a risk of bias in T2 data due to differential attrition in favor of the ÖPP group, any result including T2 data required cautious interpretation (I). Previous research have suggested that prevention programs may have a different impact on girls and boys (Vigna-Taglianti et al., 2014) however preliminary analyses without account taken to clustering give no indication that ÖPP would work differently for girls and boys.

#### 5.1.1 Preliminary analyses using structural equation modelling

Following the publication of Paper I, the loss of statistical power due to the dichotomization of the outcome variables was commented upon in an editorial letter from Özdemir & Stattin (2012). The authors also reported briefly in the editorial letter on results from their reanalysis of data from the present trial. With a latent growth modelling (LGM) approach and data analysed in their ordinal format including baseline, T2 and T3 data Özdemir and Stattin found program effects on life-time drunkenness ( $P < 0.034$ ) and past-month drunkenness ( $P < 0.054$ ), while finding no effects on frequency or amount of drinking (Özdemir & Stattin, 2012). However, as reported in Paper I and discussed in a subsequent response to Özdemir and Stattin (Bodin, 2012) we found the 8<sup>th</sup> grade measurement (T2) to be biased in favor of the ÖPP group due to differential attrition across the study groups. Differential attrition is an important source of bias to consider when determining the credibility of effect estimates from evaluations of program effects (Higgins & Green, 2011; Shadish, Cook, & Campbell, 2002) why any results including data from the T2 measurement require cautious interpretation. In order to acknowledge the critique of our dichotomization of outcome variables made by Özdemir & Stattin (2012) while also acknowledging the problems with attrition bias at T2, we tested whether effects of ÖPP on youth alcohol consumption would be detected when the outcome variables were analysed in their ordinal format including baseline and T3 data only. Preliminary analyses using structural equation modelling in LISREL 8.80 (Jöreskog & Sörbom, 2006) support what we found in Paper I, and tentatively suggest that there is no

statistically significant difference with regard to relative mean of alcohol consumption between the groups in the 9<sup>th</sup> grade. There also appears to be no difference between the groups in change in alcohol consumption over time between the 7<sup>th</sup> and 9<sup>th</sup> grade. However, since these analyses have not accounted for clustering in the data and only included youth with complete responses to the alcohol consumption items additional analyses will be needed before results can be reported with greater certainty and detail.

The results of the present thesis thus are inconsistent with what was found in the first Swedish study of ÖPP which indicated statistically significant program effects on youth drunkenness frequency in the 9<sup>th</sup> grade (Koutakis et al., 2008). However, it is not uncommon for an effectiveness trial to show smaller or no effects compared to initial studies of efficacy (Ringwalt, Clark, Hanley, Shamblen, & Flewelling, 2009). A cluster-randomized trial conducted in the Netherlands showed results similar to the results in the present thesis. The evaluated parent intervention (ÖPP) was effective only in combination with a student intervention and not when given solely (Koning et al., 2011; Koning et al., 2009). However, cultural differences could have contributed to these results and must be taken into consideration.

### **5.1.2 Possible explanations for the divergent results**

There are several possible reasons for why the program effects on youth drunkenness that were reported in the first study by the program developers (Koutakis et al., 2008) were not reproduced within this thesis.

#### *5.1.2.1 Not identical programs*

One of the reasons could be that the evaluated programs are not identical. In the first study of program effects ÖPP was delivered in the participating schools by the program developer, it was part of a larger initiative against youth drinking (Koutakis et al., 2008) and also involved an organized leisure time activity component (Koutakis, 2011). This latter component was dropped after the first study since there was no increase in youth participation in organized activities (Koutakis et al., 2008). Just as in the present trial of ÖPP, the implementation of the program in the first study included presentations given to parents at parent-teacher meetings, encouragement of within-class-agreements and summary letters sent to parents after each presentation. However, in the first study the program also involved several other send outs to parents, including information letters before the data collections, booklets containing information about what parents can do to prevent adolescent problem behavior and an activity catalogue describing leisure time activities available in the community. Each semester at least three mailings were made to parents in the ÖPP schools. Furthermore, introductory meetings were held with community politicians, the school boards and the teachers in the participating communities/schools. Activity days were arranged at the schools with opportunities for youth to try different activities. Participating students also had a log book aimed to encourage personal interests and give information about leisure time activities in the neighborhood. The overall aim of the program was also presented in the local radio and

newspapers (Koutakis, 2011). While the version of ÖPP that we evaluated consisted solely of information on alcohol-specific parenting to parents, the version of ÖPP that was implemented during the first trial was more similar to a community-based intervention targeting several risk and protective factors. Even though the first trial showed no increase in youth participation in organized leisure time activities, the personal feed-back given in students log books could have been important.

#### *5.1.2.2 Efficacy versus effectiveness*

The present trial of ÖPP was designed as a study of program effectiveness, thus the aim was to test whether ÖPP would reduce youth drinking and drunkenness when delivered under real-world conditions. Efficacy studies evaluate effects of interventions under ideal circumstances, often delivered by the program developers, while effectiveness evaluations study the effects when the intervention is delivered under real-world conditions (Godwin et al., 2003). For a prevention program to have effect it is crucial that it is implemented as planned (Durlak & DuPre, 2008; Dusenbury, Brannigan, Falco, & Hansen, 2003) and one of the reasons that effectiveness trials often show less effects than the initial efficacy trials (Hallfors et al., 2006; Ringwalt et al., 2009) is that program fidelity tends to be lower when an intervention is implemented in regular practice (Botvin, 2004).

#### *5.1.2.3 Program implementation within the present trial of ÖPP*

During our trial of ÖPP an average of 4.7 presentations was given in the ÖPP schools (I), which is slightly lower than the five presentations given in the first trial (Koutakis et al., 2008). A total of 3-6 summary letters were sent to 87% of the parents in our trial (Strandberg & Bodin, 2011). This is a lower number of mailings than what was sent to parents in the first study, who received three mailings each semester (Koutakis et al., 2008). It is however a higher number than what was reported in a mapping of the use of ÖPP in Stockholm 2009 where 27% of the schools had sent summary letters to parents. The same survey showed that 70% of the schools reported that parents made within-class-agreements (Orrevad, 2009) which is in line with what was found in our study (74%) (I). To conclude, the program dosage of ÖPP in the present trial was somewhat lower than in the first study (Koutakis et al., 2008), but well in comparison with and in some aspects above when ÖPP is given in regular practice (Orrevad, 2009). Since 87% of the parents in the ÖPP group received the summary letter at least three times during the trial, and 74% of the ÖPP classes made within-class-agreements in the 7<sup>th</sup> grade, it is most likely that the majority of parents was reached by the key message of ÖPP.

#### *5.1.2.4 Methodological differences*

There are also differences between the first study (Koutakis et al., 2008) and the present study of ÖPP in terms of study groups and research design which may have contributed to the different results. Empirical evidence suggest that non-randomized trials result in effect estimates that tend to indicate more benefits of an intervention compared to the effects found

in trials with a randomized design. However, it should be noted that this must not always be the case (Higgins & Green, 2011).

#### *5.1.2.5 High levels of restrictive alcohol-specific parenting in general*

The lack of effects could be explained by a higher level of restrictive alcohol-specific parenting in general. Since the development of the program the key message of ÖPP - maintained restrictive attitudes towards underage drinking and no servings of alcohol to youth at home - has been spread nationally through media campaigns and public health initiatives. Among the examples are the IQ campaign on TV and the information to parents in the booklet "Tonårsparlören". The idea of a generally higher level of restrictiveness among parents is supported by the more restrictive attitudes reported by parents in the present trial in the 7<sup>th</sup> grade (3.86) (I), compared to parents in the first study (3.72) (Koutakis et al., 2008). Also, the Swedish school surveys by the CAN show that the proportion of 9<sup>th</sup> grade adolescents who report being served alcohol at home decreased between 2007 and 2010 (Hvidtfeldt & Gripe, 2010). Similar results were found in the Swedish six-community alcohol and drug prevention trial in which more restrictive attitudes towards the supply of alcohol to youth were reported at follow-up (Hallgren & Andréasson, 2013). Altogether, this indicates that parents have become more restrictive towards youth drinking in general. It should be stressed that the present thesis shows that parents in both the ÖPP group and the control group report high levels of restrictive alcohol-specific attitudes (I, II), and although the difference between the groups is statistically significant it may not have been large enough to translate into differences in terms of youth drinking behavior.

#### *5.1.2.6 Lower levels of youth drinking in general*

One aspect to consider is also that ÖPP was developed and initially studied as a response to increased youth drinking (Koutakis et al., 2008). Since then the proportion of Swedish 9<sup>th</sup> grade youth who report alcohol consumption has decreased, from 80% in the year 2000 to 47% in 2013 (Gripe, 2013). There may be various reasons for this decrease in youth alcohol consumption, for example preventive interventions and media campaigns during the time period, youth spending time on computer game playing and also that a higher proportion of youths choose not to drink alcohol at all (20% in the year 2000 compared to almost 50% 2013) (Leifman, 2013). In the first trial of ÖPP 27% of youth in the control group reported frequent drunkenness during the last four weeks in the 9<sup>th</sup> grade (Koutakis et al., 2008), while the corresponding proportion in the present trial was 18.5% (I). There thus seems to have been a trend towards less alcohol consumption among Swedish youth in general during the time period in which the present trial of ÖPP was conducted.

#### *5.1.2.7 Information-based prevention programs*

It has been argued that interventions based on information only cannot be expected to affect behavior (Room, 2005; Svensson, 2006). Also, some research suggests that preventive programs targeting parents need to be combined with interventions targeting students to reach an effect on youth drinking (Koning et al., 2011; Koning et al., 2009). Another important

preventive influence is the community-based interventions that aim at reduced availability of alcohol (Room et al., 2005). A recent review suggests that reducing youth access to alcohol and reducing community acceptance of youth drinking may enhance the effects of family- and school-based programs (Cairns et al., 2011).

## **5.2 ALCOHOL-SPECIFIC PARENTING AS A TOOL IN THE PREVENTION OF UNDERAGE ALCOHOL USE**

### **5.2.1 ÖPP program theory**

The results of the present thesis show that parents who participate in ÖPP maintain their level of restrictive alcohol-specific parenting. Parents who participate in ÖPP report more restrictive attitudes towards underage drinking compared to parents in the control group at the 30-month follow-up measurement in the 9<sup>th</sup> grade (I). In addition, a significantly larger proportion of ÖPP parents report having alcohol-specific rules and communicate these to their adolescents (II) and fewer adolescents in the ÖPP group report being served alcohol at home (I, II).

Additional analyses of data from the first study of ÖPP (Koutakis et al., 2008) showed that the effect on youth drunkenness was explained by the change in parents' restrictive alcohol-specific attitudes, although this explained only a small proportion of the variance ( $R^2=.01$ ) (Koutakis, 2011). Similar results were found in a mediation analysis by Özdemir and Stattin in re-analyses of our data (Özdemir & Stattin, 2012). The test of mediation was beyond the scope of the present thesis, however the results of the present thesis add evidence to research suggesting that alcohol-specific parenting is an important component in preventive efforts targeting underage drinking, thus also lending further support to the theoretical framework of ÖPP.

Preliminary analyses without account taken to the clustering of data showed that adolescents who were served alcohol at home in the 7<sup>th</sup> grade were more likely to report drunkenness and weekly drinking in the 9<sup>th</sup> grade, compared to non-served youth (Strandberg & Bodin, 2011). In addition, preliminary analyses showed that less drinking was reported in the 9<sup>th</sup> grade by adolescents whose parents maintained their restrictive attitudes towards youth drinking, compared to adolescents whose parents became less restrictive over time (OR=0.30-0.46) (I). The results in Paper III, based on analyses with account taken to clustering, also suggested that both girls and boys who reported being served alcohol at home in the 7<sup>th</sup> grade were more likely to report drunkenness onset in the 9<sup>th</sup> grade, and further that a restrictive parental attitude towards youth drinking decreased the likelihood of frequent drunkenness among girls in the 9<sup>th</sup> grade (III). The present thesis thus showed results in line with previous research on alcohol-specific parenting suggesting a relationship between restrictive alcohol-specific parenting practices and less youth drinking (de Looze et al., 2014; Ennett et al., 2013; Jackson et al., 1999; Koning et al., 2010a; Spijkerman et al., 2008; Van der Vorst et al., 2005; Wood et al., 2004; Yu, 2003). It should be emphasized that parental servings of alcohol to youth increased the likelihood of drunkenness onset among the 15-year-old adolescents in the

present trial. A large number of studies show the short- and long-term negative consequences of consuming alcohol early in life (Deutsch et al., 2013; Guttmanova et al., 2012; Hingson et al., 2009; Hingson & Zha, 2009; Rothman, DeJong, Palfai, & Saitz, 2008). Due to these risks the safest alternative for parents most likely is to not serve alcohol to their adolescents in order to postpone drinking onset (Kelly et al., 2012).

Paper III further indicated that parental alcohol servings to youth did not increase the likelihood of frequent drunkenness in the 9<sup>th</sup> grade (III) suggesting that other factors are important in the prediction of more frequent drunkenness. For example, having friends who drink has been identified as a very influential risk factor for adolescent binge drinking and heavy episodic drinking (Crawford & Novak, 2002; Danielsson et al., 2011; Llorens et al., 2011; Patrick & Schulenberg, 2010).

### **5.2.2 The parent-child relationship quality**

Although not designed to influence parenting in general, the content of ÖPP touches upon the control and warmth dimension of parenting, i.e. the assumption being that holding a restrictive attitude and a zero-tolerance against youth drinking works better when applied within a warm and supportive parent-child relationship. General parental control was the only significant predictor of both drunkenness outcomes for both girls and boys (III), which adds support to that parental monitoring and supervision of adolescent behavior is important in order to prevent or reduce youth drinking (Fletcher et al., 2004; Hurt, Brody, McBride Murry, Berkel, & Chen, 2013; Moore et al., 2010; Van der Vorst et al., 2006b). The results of the present thesis showed that parental warmth decrease the likelihood of frequent drunkenness among girls, which is in line with previous studies suggesting that the parent-child relationship quality might be a more important protective factor for adolescent girls (Danielsson et al., 2011; Piko & Balázs, 2012).

The results of the present thesis probably reflect that alcohol-specific parenting takes place in a family context. Parents' restrictive alcohol-specific attitudes may also be expressions of, or dependent on, other characteristics of the family and the effect of attitudes and rules might depend on the quality of the parent-child relationship in general. Research reviews provide some support for such an assumption; effective family interventions often involve a focus on the parent-child relationship (Petrie et al., 2007). A relationship between parent and child characterized by warmth and affection, where the child feels accepted and receive support, guidance and encouragement, and can talk to the parents is predictive of less youth drinking (Ryan, Jorm, & Lubman, 2010 1271). Studies also suggest that the influence of alcohol-specific parenting varies depending on the general parenting style (Bahr & Hoffmann, 2010; Jackson, 2002). For instance, when compared to youth who perceived their parents as authoritative, i.e. high levels of emotional warmth and behavioral control, adolescents who perceived their parents as permissive, authoritarian, or indifferent were more likely to think it was not ok for parents to have a say about their drinking (Jackson, 2002). Recent research also suggest that alcohol-specific rules works best in combination with high-quality communication (Koning, van den Eijnden, Verdurmen, Engels, & Vollebergh, 2012b).

### **5.2.3 Gender differences**

The results of the present thesis show that 15-year-old girls are more likely to be served alcohol by parents at home compared to boys of the same age (III) which is line with what has been found in the Swedish nation-wide school surveys by the CAN (Hvidtfeldt & Gripe, 2010). The present thesis also shows that this association remains significant after controlling for other parenting variables. Previous research further suggests that parents use more permissive messages regarding alcohol use with their daughters than with their sons (Reimuller et al., 2011). The reasons why parents apply somewhat different alcohol-specific parenting practices for adolescent girls and boys have not been thoroughly investigated. Part of the explanation could be that girls usually mature earlier than boys and parents have more trust that their daughters will use alcohol in a safe way (Deković, Noom, & Meeus, 1997; Reimuller et al., 2011) or that they will not end up in trouble to the same extent as same age boys. It is important to note that alcohol use is associated with negative consequences for both girls and boys, and sometimes even more so for girls; a greater proportion of Swedish 15-year-old girls report quarrels or problems with friends and family as a consequence of their alcohol consumption (Leifman, 2012). The most recent Swedish school survey by the CAN also showed that 15-year-old girls report equal levels of risky alcohol consumption as boys (Gripe, 2013).

## **5.3 METHODOLOGICAL CONSIDERATIONS**

### **5.3.1 Differential attrition**

Differential attrition is an important source of bias to consider when determining the credibility of effect estimates from evaluations of program effects (Higgins & Green, 2011; Shadish et al., 2002). As discussed in Paper I differential attrition in T2 data required a cautious interpretation of the results from analyses including data from that measurement occasion. When such attrition is present on the outcome variable of interest, which it was in our T2 data, this offers the best available estimate of the pseudo-effect that can be expected at follow-up (Shadish et al., 2002).

### **5.3.2 The validity of youth's self-reports**

The validity of self-reported data is always a concern, due to the possibility of both underestimations and overestimations. However, research indicates that the validity of self-reported data often is satisfactory when confidentiality is guaranteed (Brenner, Billy, & Grady, 2003). The information youths provide about the frequency of their drinking is often of sufficient reliability (Koning, Harakeh, Engels, & Vollebergh, 2010b).

### **5.3.3 The validity of parents' self-reports**

The fact that it is often difficult or impossible to keep participants in trials of psychosocial interventions blinded to their group assignment introduces a risk of bias (Higgins & Green, 2011). Theoretically, the knowledge of group membership may have led parents assigned to

the ÖPP group to respond in a socially desirable way, for example by reporting higher levels of restrictive attitudes towards youth drinking.

### **5.3.4 Generalizability of findings**

Forty schools (6%) in 13 counties were willing and eligible to participate in our trial of ÖPP which is a small fraction of the total number of invited schools (n=716). The primary reason for not answering the invitation to participate was most likely that the information did not reach the school principals. However, the participating schools showed a municipal and geographical diversity, and their grade point average was similar to the national average.

In addition, the levels of alcohol-consumption among the youths participating in the present trial were comparable to the proportions and amounts that were reported in the Swedish annual school survey performed by the CAN the corresponding year (2010) (Hvidtfeldt & Gripe, 2010). The CAN survey showed that 62% of girls and 57% of boys reported any alcohol consumption during the last 12 months, while binge drinking once or twice a month was reported by 16% of boys and 19% of girls. In the 9<sup>th</sup> grade 44% of girls and 37% of boys reported being served alcohol by parents (Hvidtfeldt & Gripe, 2010). In the present sample lifetime drunkenness was reported by 60% of the girls and 58.6% of the boys at the 9<sup>th</sup> grade measurement, while frequent drunkenness was reported by 17.8% and 18.2% of girls and boys respectively. Being served alcohol by parents at home was reported by 42.7% of the girls and 37.8% of the boys (III).

## **5.4 STRENGTHS AND LIMITATIONS**

Important strengths of the present thesis are the longitudinal design, and the randomization of schools to conditions. Theoretically, the randomization balances the groups not only on the variables that are measured within the trial, but also on unobserved variables, and provides the best estimate of a possible intervention effect (Shadish et al., 2002). Other strengths are the large sample size and the relatively low attrition rate. Further, it is a strength that the data was collected from both youth and parents. Parents and youth reports also seem to corroborate each other in Paper I and II, such that the more restrictive attitudes reported by parents exposed to ÖPP was supported by the lower levels of alcohol servings at home reported by youth in the ÖPP group. Also, the data was collected from a relatively large sample of youth and parents in 13 Swedish counties and in different types of municipalities which probably increase the generalizability of the results.

The present thesis also has limitations. Although attrition was fairly small, the overrepresentation of youth reporting drunkenness at baseline among follow-up dropouts should be noted. The differential attrition in data at T2 is a limitation, which required that all results from analyses including T2 data were interpreted with caution.

Measures of parents own alcohol use were not included in the parent questionnaire. Parents own drinking habits may have an influence on their alcohol-specific parenting practices (Handley & Chassin, 2013) and measures of this could possibly have broadened the results



regarding alcohol-specific parenting in the present thesis. However, ÖPP does not target parental drinking why the inclusion of such measures in the parent questionnaire was not obvious.

The self-reported data collected from parents and youth in the present randomized trial constitutes the empirical data material on which the present thesis is based. Though this was optimal for the primary aim of studying program effects, additional data material could have enriched the results. For instance, interview data could have enabled more elaborate results regarding parental alcohol servings to youth at home and more detailed knowledge on the decision making process behind servings (or no servings) of alcohol to youth at home. Also, interviews with parents could have let us know more about how the program was perceived by the participating parents.

Although such qualitative studies would have been desirable and important they were beyond the scope of the present thesis. This is mainly due to that the data collection for a randomized trial is comprehensive and requires extensive time and resources in order to be managed. This is perhaps even more so in a trial delivered under real-world conditions and when the intervention is implemented over a period of 2.5 years. Therefore, the priority was to further illustrate the quantitative material with respect to parental use of program components (Paper II) and possible gender differences in alcohol-specific parenting (Paper III).

## **5.5 FUTURE RESEARCH AND PRACTICAL IMPLICATIONS**

### **5.5.1 Effects of ÖPP**

ÖPP is frequently used in Swedish schools to prevent and reduce youth drinking and drunkenness. The divergent results from the study by the program developers (Koutakis et al., 2008) and Paper I in this thesis presents a troublesome situation for municipal stakeholders and practitioners who aim for an evidence-based practice. It is encouraging that ÖPP will be one of the interventions covered in the forthcoming systematic review “Prevention of abuse among children, young people and young adults” from the Swedish Council on Health Technology Assessment (SBU., 2014). Hopefully this independent evaluation will provide more guidance for those involved in the prevention field.

### **5.5.2 Prevention of underage alcohol use**

Recent research stresses the importance of delaying the onset of drinking for as long as possible. A study showed a slower increase in amount of drinking from age 12 to 15 for non-drinking adolescents at baseline compared to those who did drink at baseline (Koning et al., 2014b). The effects of the combined intervention in the Netherlands, where the parent intervention was modelled after ÖPP (Koning et al., 2011; Koning et al., 2009) suggested that parents as well as adolescents should be targeted in the efforts to reduce and delay youth drinking. Whether such a combined intervention would be effective in the prevention of underage drinking in another cultural context than the Netherlands, is a question for future preventive intervention development and research.

### **5.5.3 Alcohol-specific parenting**

The present thesis and the previous literature on alcohol-specific parenting provide important issues to address in future research. First, the nature and influence of parental supply of alcohol to youth needs further investigation. Previous research suggest that the majority of children's alcohol sipping occurs infrequently in a family context, which could indicate that it is a matter of opportunity rather than a socialization practice by parents (Donovan & Molina, 2008). More research is needed about the predictors of parental alcohol supply, about the context in which adolescents are served alcohol (Ward & Snow, 2011) and more about in what amounts parents serve alcohol to youth (Gilligan et al., 2012a; Gilligan, Kypri, & Lubman, 2012b).

Second, research indicating that alcohol-specific rule-setting is most effective when combined with high-quality communication about alcohol use (Koning et al., 2012b) and that the influence of alcohol-specific parenting might vary depending on the general parenting style (Bahr & Hoffmann, 2010; Jackson, 2002), suggest that future preventive interventions and research aiming to reduce youth drinking needs to address alcohol-specific parenting as a part of a family context rather than as individual parenting practices (Koning et al., 2012b).

### **5.5.4 Gender differences**

The results of the present thesis and previous research have indicated that parents apply somewhat different alcohol-specific parenting practices for adolescent girls and boys. The gender perspective is not always present in the scientific literature about alcohol-specific parenting and the prevention of underage alcohol consumption, and thus needs to be included in future research. Further investigations are needed of whether the context of alcohol servings to youth by parents, and the amounts in which alcohol is served, are the same or different for adolescent girls and boys. Furthermore, the indication that prevention programs may have different impact on girls and boys (Vigna-Taglianti et al., 2014) needs to be addressed in future evaluations of preventive interventions.

## 6 CONCLUSIONS

The results of the present thesis suggest that ÖPP, when delivered under real-world conditions has no effects on youth drunkenness onset, frequent drunkenness or weekly drinking (I). This is inconsistent with the first Swedish study of ÖPP, and the divergent results can be explained not only by that effects tend to decrease when programs are evaluated under real-world conditions, but also by methodological differences, that the programs evaluated are not identical and by a higher level of restrictive attitudes towards underage drinking among Swedish parents in general.

It does not seem as the lack of effects depends on an erroneous program theory. The program does seem to influence alcohol-specific parenting (I, II). In line with previous research the results of the present thesis also suggest that there are associations between alcohol-specific parenting and youth drinking. Being served alcohol by parents at home increases the likelihood of youth drunkenness onset (III) while parents' restrictive attitudes towards youth drinking decrease the likelihood of drunkenness among youth (I). The results also show that a higher level of general parental control decrease the likelihood of youth drunkenness, and that parental warmth decrease the likelihood of frequent drunkenness among girls (III), suggesting that parenting factors in general also are important in the prevention of youth drinking.

Future research studies need to address alcohol-specific parenting in its family context, for example by looking more closely at the quality of parent-youth communication about alcohol and at parental provision of alcohol to youth, the circumstances and quantities in which it is served and possible gender differences in this regard. The Dutch study of a combined parent (ÖPP) and student intervention suggests that the prevention of youth drinking can be successful when targeting both parents and youth. Whether such a combined intervention would be effective in another cultural context is a question for future preventive intervention development and research. The future development of and subsequent research on preventive interventions should also address and include a gender perspective.

## 7 ACKNOWLEDGEMENTS

During the journey towards my doctoral degree I have had the fortune to work with such knowledgeable people, who have in different ways helped me to complete my thesis.

I want to express my sincere gratitude to my main supervisor Fil dr Maria Bodin. Working with you, Maria, has been a privilege and your integrity, proficiency and great knowledge has inspired me. Thank you for your encouragement and guidance, I have learned so much from you.

To my co-supervisors Professor emeritus Anders Romelsjö and Docent Knut Sundell; thank you for your support and for sharing your long experience of research. Knut, almost ten years ago you were my supervisor when I wrote my master's thesis in psychology. My wish to pursue a doctoral degree was born then, even if I then and at many times since have doubted that it would be possible. Thank you for the inspiration and for sharing your knowledge.

I would like to thank the adolescents, parents, and ÖPP-presenters who participated in our study, and the Swedish National Institute of Public Health (now the Public Health Agency of Sweden) for financing the ÖPP study. I also gratefully acknowledge financial support from the Alcohol Research Council of the Swedish Alcohol Retailing Monopoly (SRA) and funding from the program support to STAD (Stockholm prevents alcohol and drug problems) from the Swedish Council for Working Life and Social Research (FAS, grant number 2009-170) (now FORTE - the Swedish Research Council for Health Working Life and Welfare) and a doctoral month grant from Centre for Psychiatric Research and Education (Stockholm County Council Health Care Provision/Karolinska Institutet).

Med dr Johanna Gripenberg, director at STAD, thank you for encouragement and for allowing me to focus on my thesis during the last stage of this work. Docent Håkan Leifman, former director at STAD, thank you for giving me the opportunity to work in the ÖPP-project and to apply for doctoral studies. I also want to thank Docent Mats Ramstedt, former director at STAD, and Ylva Nork, former vice director and colleague at STAD, who gave me the opportunity to work with great freedom when I needed. Many thanks to all my colleagues at STAD (former and present) for making STAD such a nice place to work. Special thanks to Maria Ingemarsson and Camilla Jalling who commented on my Kappa and for giving me words of encouragement. Elmira, my friend and also former colleague at STAD, thank you for filling endless hours of paper work with enriching conversations.

I also want to thank Fil dr Bassam El-Khoury, for referring me to Håkan Leifman when I applied for work at STAD more than seven years ago. Thank you.

Fil dr Anna-Karin Danielsson, thank you for reviewing my Kappa and providing insightful comments.

Per and Torun, thank you for giving me strength and courage. Lisa, thank you for being my friend for longer than I can remember and for being so generous and kind. Johanna, for all the laughter and for serious conversations, and also for proofreading my Kappa. Thank you.

To my mother Ann-Catrine and Michal, father Gunnar and brother Johan with family, I am so grateful for your love, support and encouragement. And to my mother especially, thank you for everything you taught me about life, for all our conversations, for being so inspiring and endlessly supportive and also for always telling me I could do this. Thank you for always being there and for being the world's best grandmother “momli” to Agnes.

To my daughter Agnes, being your mother is a blessing every day and the most important things in life I am learning from you. I love you, more than words will ever be able to express.

Stockholm, October 2014

Anna Strandberg

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