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Predicting early onset of intoxication versus drinking—A population-based prospective study of Norwegian adolescents

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ABSTRACT

Aims: Recent research suggests that early onset of intoxication (EOI) may be of greater importance for a wide range of subsequent adverse outcomes than early drinking experiences without intoxication. However, research on antecedents of EOI is scarce. The present study identifies predictors of EOI and whether they differ from those of early onset of drinking (EOD).

Methods: Data was drawn from the prospective Tracking Opportunities and Problems (TOPP) study of Norwegian families (n = 382), which followed up mothers and their children with six data collections from childhood (age 1.5) to adolescence (age 14.5). Self-reports from the adolescents (parenting practices, adolescent's conduct problems and friends' deviant behaviour) and their mothers (adolescent temperament, socio-economic factors and household alcohol problems) were used to identify predictors of EOI and EOD.

Findings: A variety of temperamental, socio-economic, and family factors predicted EOI, whereas EOD was predicted of substantially fewer variables. Particularly, when controlling for relevant covariates, low levels of shyness, own conduct problems and having friends with deviant behaviour prospectively predicted EOI, but not EOD.

Conclusions: Future research and prevention efforts should take into consideration that EOI and EOD without getting drunk appear to be predicted by different risk factors in childhood and adolescence.

1. Introduction

A key focus in research on adolescent drinking behaviour has been early onset of drinking (EOD), not least because researchers have repeatedly observed associations between EOD and subsequent high levels of alcohol consumption (Fergusson, Lynskey, & Horwood, 1994; Pitkanen, Lyyra, & Pulkkinen, 2005), alcohol related problems (Hingson, Heeren, Jamanka, & Howland, 2000; Hingson, Heeren, & Zakocs, 2001), and alcohol misuse and dependence (DeWit, Adlaf, Offord, & Ogborne, 2000; Hawkins et al., 1997). In order to better prevent this negative development, research on predictors of EOD has long been prioritized, and findings have been essential in shaping alcohol prevention programs (Lemstra et al., 2010). However, in the last two decades, we have witnessed a shift in focus, suggesting that greater attention should be paid to early onset of intoxication (EOI), as it seems to play a more important role in the course of negative development than EOD (Adam et al., 2011; Kuntsche et al., 2013; Warner & White, 2003). Still, little is known about predictors of EOI. Knowledge on precursors of EOI and how they differ from EOD is important in order to better inform prevention policies and to nuance the picture of early drinking experiences in adolescence. This is the focus of the present paper.

Increasingly, longitudinal studies on consequences of early drinking behaviour have highlighted the experience of early drunkenness as an important variable. Warner and White (Warner & White, 2003; Warner, White, & Johnson, 2007) suggest that not only the timing of drinking (i.e. early onset of drinking) but also the experience (i.e. feeling drunk at initiation) is a key element in understanding the transition from early drinking experiences to detrimental drinking outcomes. Studies of early intoxication experience versus later intoxication also support this pattern, where intoxication episodes before the age of 14 represent an increased risk of heavy alcohol use, alcohol-related problems and alcohol dependency compared to intoxication onset after the age of 14 (Henry et al., 2011). In a similar vein, a short time interval between onset of drinking and onset of drinking to intoxication has been identified as a unique factor in predicting the development of heavy drinking frequency and other alcohol-related problems (e.g., work/school impairment, blackouts, and

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vomiting) (Morean, Corbin, & Fromme, 2012). Thus, several studies point at EOI rather than, or in addition to, EOD as the important factor in predicting later alcohol-related problem development. Moreover, research indicates that the context of drinking smaller amounts in early life versus intoxication differs considerably: while drinking smaller amounts of alcohol, such as sipping and tasting, typically occurs in family settings (Donovan & Molina, 2008), more excessive drinking typically occurs in the presence of peers (Treno, Alaniz, & Gruenewald, 2000). Thus, EOI may not just be a distinct predictor of later alcohol-related problems, but may also be influenced by factors other than EOD, since the settings for drinking small amounts of alcohol versus intoxication may differ. However, few studies have so far investigated possible predictors of EOI, and yet fewer have examined whether such predictors differ from those of EOD.

We were able to identify only one longitudinal study focusing explicitly on whether potential risk factors predicted different early drinking behaviours differently (onset drinking, onset drunk and onset binge drinking) (Jester et al., 2015). This study reported that higher expectancies for positive effects of consuming alcohol predicted earlier onset of drunkenness and binge drinking, but not onset of drinking. The study, however, was based on a high-risk community sample and cannot necessarily be generalized to the general population. In addition, the authors only sought to shed light on the relationship between alcohol expectancies and drinking onsets, and not a broader set of variables. Some cross-sectional studies have been conducted in population-based samples, comparing correlates with EOD and EOI. Here, both types of drinking behaviour, by and large, correlated with the same set of variables: family factors and participation in organized sports (Bu, Watten, Foxcroft, Ingebrigtsen, & Relling, 2002) and family and peer factors, conduct problems, socioeconomic factors and living area (Monshouwer, Smit, de Zwart, Spruit, & van Ameijden, 2003). These studies, however, were based on retrospective reports of drinking and EOI and thus recall bias cannot be ruled out. Moreover, the studies include only a limited set of possible confounders in their analyses. Consequently, little is known about the prospective associations between different factors in childhood and early adolescence and EOI and how they differ from associations with EOD.

One way to expand knowledge of predictors of EOI is to examine whether factors previously identified as key predictors of EOD also predict EOI. Such factors have been identified within different domains of influence. One class of predictors are temperamental characteristics. For example, empirical studies have shown that inadequate emotional and behavioural self-control is related to early onset of alcohol use (Wills et al., 2001; Zucker, Donovan, Masten, Mattson, & Moss, 2008), whereas a shy and inhibited temperament may be a protective factor (Kerr, Tremblay, Pagani, & Vitaro, 1997). Within the family domain, lower parental monitoring and an adverse home environment are found to be important predictors of initiation (Donovan & Molina, 2011; Rose, Dick, Viken, Pulkkinen, & Kaprio, 2001). Likewise, parental drinking behaviour and approval of adolescent drinking are consistent predictors of early onset. Within the adolescents' and peers' behavioural domain, a large number of variables are repeatedly identified as predictors, including adolescents' lifestyle factors (e.g. smoking) and the characteristics of friends, such as deviancy and alcohol use (Donovan, 2004; Donovan & Molina, 2011; Scholes-Balog, Hemphill, Reid, Patton, & Toumbourou, 2013; Trucco, Colder, & Wieczorek, 2011). Moreover, a great range of behavioural problems (e.g. externalizing disorders and aggression) have been identified as antecedent predictors of early alcohol use initiation (McGue, Iacono, Legrand, Malone, & Elkins, 2001; Rose et al., 2001). Finally, there is some evidence that socioeconomic status influences the timing of alcohol initiation, although the findings are inconclusive (see e.g., Donovan, 2004; Melotti et al., 2013).

Research thus shows that the development of early drinking behaviour is associated with a range of early life factors—some inherent and some embedded in the family and broader social environment. Thus, in order to identify robust risk factors or predictors of EOI, it is important to include a wide range of possible predictors within different domains of influence. Several longitudinal studies of predictors of EOD have applied such a design, but no one has so far applied a prospective design to address predictors of EOI, which will be done in the present study. More importantly, previous studies of predictors of EOD fail to separate individuals who have only had small amounts of alcohol and those who have also been drunk one or more times. Consequently, some of the results may in fact reflect associations to EOI. Thus, in order to get a better understanding of predictors of EOD and EOI, separating these drinking behaviours and comparing them to each other in the analyses is required. To our knowledge, the current study is one of a kind in this respect.

The cultural context may also be of importance as patterns of alcohol use and norms regarding “drunken comportment” vary between different cultures (MacAndrew & Edgerton, 1969). The majorities of studies on EOD are carried out in the US. Thus, there is a need to examine whether the risk profiles for both EOD and EOI identified in the literature also hold in different cultural contexts with varying alcohol-related drinking patterns and norms. The current study is set in the Norwegian cultural context, which is characterized by a strict alcohol regulation policy, influenced historically by a strong temperance movement, and somewhat paradoxically, a drinking culture characterized by excessive drinking at weekends.

The primary aim of this study is to examine predictors of EOI in the age span from early childhood (1.5 years) to middle adolescence (14.5 years) using multi-informant information. We will also examine whether such predictors differ from those for EOD without EOI. The models include a wide range of prospective parent and adolescent self-reported risk factors (i.e., temperament, socio-economic factors, household alcohol problems, parenting practices, adolescent smoking, drinking and conduct problems and friends deviant behaviour) that have previously been associated with EOD, simultaneously in models predicting EOD and EOI relative to abstainers and relative to each other.

2. Methods

2.1. Participants and procedure

The sample was drawn from the Norwegian population-based prospective study Tracking Opportunities and Problems (TOPP) where mothers and their children are followed over an 18-year span. Originally 1081 families from 19 geographical health care districts in eastern Norway (28% living in large cities, 55% in densely populated areas and 17% in rural areas), were invited to the study. They were recruited when the families attended their toddlers' 18 month vaccination in 1993 at the child health clinics. Details of the study are described elsewhere (Nilsen et al., 2017; Mathiesen, Tambs, & Dalgard, 1999). The participants have been followed up over eight data collections from when the children were 1.5 years (T1) to 18.5 years (T8). Questionnaires were handed out and returned at the clinic in the three first waves. The remaining surveys were conducted by mail. From age 12.5 (T5) and thereafter, the adolescents replied to their own questionnaire. At T1, 85% (n = 913) of the invited mothers participated. Background data from the child health clinics at 1.5 years showed that non-respondent mothers did not differ significantly from responding mothers in age, education, employment status, or marital status (Mathiesen & Tambs, 1999). Attrition over time was predicted by lower educational level at baseline (Gustavson, von Soest, Karevold-, & Roysamb, 2012). The current sample includes self-report data from the mothers of children aged 1.5 to 14.5 (response rate: 51.9%, calculated on the basis of participation at T1), and adolescents at 12.5 (T5, response rate: 61.9%) and 14.5 years (T6, response rate: 50.2%). In all, adolescent and mother reported data from 382 participants were available and comprised the current sample. The participants gave their informed consent and the study was approved by the Regional Committees for Medical and Health Research Ethics.