



Review

Effects of parental alcohol rules on risky drinking and related problems in adolescence: Systematic review and meta-analysis



Sonia Sharmin^{a,*}, Kypros Kypri^a, Masuma Khanam^b, Monika Wadolowski^c, Raimondo Bruno^d, John Attia^a, Elizabeth Holliday^{a,e}, Kerrin Palazzi^e, Richard P. Mattick^f

^a School of Medicine and Public Health, University of Newcastle, Newcastle, Australia

^b School of Health Science, University of Tasmania, Hobart, Australia

^c Kirby Institute, University of NSW, Sydney, Australia

^d School of Psychology, University of Tasmania, Australia

^e Clinical Research Design, Information Technology and Statistical Support (CRDITSS), Hunter Medical Research Institute (HMRI), Newcastle, NSW, Australia

^f National Drug and Alcohol Research Centre, University of NSW, Sydney, Australia

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ABSTRACT

Background: It is unclear what effect parents' rules about their children's alcohol use have on drinking in adolescence. This review and meta-analysis investigated associations between prospectively measured parental alcohol rules and later adolescent risky drinking.

Methods: Using the PRISMA guidelines, we searched eight electronic databases for a variety of terms up to 10 September 2016. We imposed no restrictions on publication year. We assessed the risk of bias and conducted a meta-analysis.

Results: We identified 13 eligible studies in four groups of specific exposures for meta-analysis. The pooled overall estimate showed that when parents set rules concerning alcohol, their children were less likely to develop risky drinking and related problems (OR = 0.64, 95% CI = 0.48, 0.86). Pooled estimates illustrate that parental alcohol rules were significantly negatively associated with adolescent risky drinking and related problems (OR = 0.73, 95% CI = 0.53, 0.99), as was parental approval of alcohol use (inverse OR = 0.41, 95% CI = 0.34, 0.50). Neither parental permissiveness (inverse OR = 0.83, 95% CI = 0.59, 1.19) nor parental disapproval of alcohol use (OR = 0.49, 95% CI = 0.20, 1.20) was significantly associated with alcohol-related problems. However, the small number of studies and variability in the point estimates in these latter two groups of studies limits inferences.

Conclusions: Parents' restrictiveness of their children's drinking was associated with lower risky drinking, but the risk of bias in the existing literature precludes strong inferences about the association. Further longitudinal studies with prospective measurement of parent behaviour, low attrition, and control for likely confounders, are needed.

1. Introduction

Risky drinking is a leading contributor to the global disease burden for adolescents (Gore et al., 2011; Patton et al., 2012). Risky drinking, defined as consuming ≥ 5 standard drinks on a single occasion at least monthly (Gore et al., 2011; Hill and Chow, 2002; National Institute on Alcohol Abuse and Alcoholism, 2016; Patton et al., 2012), is a cause of non-communicable disease, injury and sexually transmitted infection (Gore et al., 2011; Hill and Chow, 2002; Patton et al., 2012; Rehm et al., 2009). In the USA, approximately 14% of 12–20 year-old young people

reported risky drinking in the last month (Center for Behavioral Health Statistics and Quality, 2015), and this age group required 188,706 emergency room visits because of alcohol-related injuries and disorders in 2011 (Substance Abuse and Mental Health Services Administration, 2013).

The rules parents set about alcohol may affect adolescent risky drinking, as parents are among the main agents of socialization of alcohol use during early adolescence (Abar and Turrisi, 2008; Jackson and Dickinson, 1999; Wood et al., 2004). It has been well-documented that parenting practices in general (e.g., support, monitoring, and

* Corresponding author at: CCEB, Level-4, HMRI Building, Kookaburra Circuit, New Lambton Heights, NSW 2305, Australia.

E-mail addresses: sonia.sharmin.bd@gmail.com, Sonia.Sharmin@uon.edu.au (S. Sharmin), kypros.kypri@newcastle.edu.au (K. Kypri), masuma.khanam@utas.edu.au (M. Khanam), mwadolowski@kirby.unsw.edu.au (M. Wadolowski), Raimondo.Bruno@utas.edu.au (R. Bruno), john.attia@newcastle.edu.au (J. Attia), Elizabeth.Holliday@hmri.org.au (E. Holliday), Kerrin.Palazzi@hmri.org.au (K. Palazzi), R.Mattick@unsw.edu.au (R.P. Mattick).

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parent-child attachment) are inversely related to adolescent risky drinking (Barnes et al., 1994; Danielsson et al., 2011; Kaynak et al., 2013; Kopak et al., 2012; Van Der Vorst et al., 2006). However, these broader parenting practices do not explain how parents respond to children's drinking, such as by implementing rules specific to their acquisition and use of alcohol. Alcohol-specific rules refer to clear, distinct instructions concerning alcohol use, expressed approval or disapproval of adolescent drinking, as well as consistency in the use of penalties for violating those rules (Chun et al., 2008; Janssen et al., 2014; Koning et al., 2012; Van Der Vorst et al., 2005; Van Zundert et al., 2006).

Evidence regarding the association between parental alcohol rules and adolescent risky drinking is conflicting. Some longitudinal studies find that lenience (e.g., parental approval or permissiveness of alcohol use) is associated with a higher likelihood of risky drinking in adolescence (Ennett et al., 2016; Loveland-Cherry et al., 1999). However, others do not find such an association (Fairlie et al., 2012; Reifman et al., 1998; Varvil-Weld et al., 2014). Some cross-sectional studies find that strict rules are associated with a lower likelihood of adolescent risky drinking (Habib et al., 2010; Van Der Vorst et al., 2005), while others find that adolescents are less likely to be involved in risky drinking and alcohol-related problems when they are permitted to drink at home under parental supervision (Bellis et al., 2007; Wells et al., 2005). This approach may teach adolescents to drink moderately and generalize to contexts where alcohol is available without adult supervision (Donovan and Molina, 2008). Conversely, by allowing adolescents to drink in any social context, parents may be communicating a permissiveness that extends unhelpfully to unsupervised environments (Van Der Vorst et al., 2010). Adolescents may assume that apparent permissiveness amounts to overt approval of their drinking (Van Der Vorst et al., 2006) and this may facilitate experimentation (Kaynak et al., 2014). These cross-sectional studies do not, of course, establish a temporal relation between exposure and outcome. Moreover, several studies did not adjust estimates of association for likely confounders [e.g., parent drinking (Maimaris and McCambridge, 2014; Viner et al., 2012)]. Therefore, the true association between parental alcohol rules and later adolescent risky drinking remains unclear.

To date, no reviews have synthesized longitudinal studies to investigate associations between prospectively measured parental alcohol rules and subsequent adolescent risky drinking. We aimed to critically investigate longitudinal studies and conduct a meta-analysis to address the question: "Do the rules parents make about alcohol affect the likelihood that their adolescent children become risky drinkers?"

2. Material and methods

2.1. Selection and eligibility criteria

We used the PRISMA guidelines (Moher et al., 2015) and formulated eligibility criteria using the PICO (P – Populations/People/Patient/Problem, I – Intervention(s), C – Comparison, O – Outcome) worksheet and search strategy (Table 1) (Sackett, 1997).

We systematically reviewed prospective longitudinal studies including prospective cohort studies, randomized trials, and non-

randomized trials, while excluding cross-sectional and retrospective studies. We specified a lag between exposure and outcome of 12 months or as close to 12 months as possible. We included published peer-reviewed English language journal articles without restriction on the year of publication. We included articles where different parenting factors including alcohol rules were combined as a predictor of adolescent risky drinking, as well as studies investigating the effectiveness of parent intervention. We excluded studies if, during the assessment of exposure, adolescents' age was close to 18 years [e.g., (Varvil-Weld et al., 2014)]. We included studies in which the terminology used to describe the outcome approximated the consumption of ≥ 5 drinks on a single occasion at least monthly, namely: *alcohol misuse*, *drunkenness*, *problem drinking*, *binge drinking*, *intoxication*, *peak drinking*, and *heavy episodic drinking*. We also included alcohol-related problems encompassing academic, social, health and legal consequences of alcohol use.

2.2. Search strategy

We searched eight electronic databases (Medline, MEDLINE In-Process and Other Non-Indexed Citations, EMBASE, PsycINFO, CINAHL, Scopus, Dissertations and Theses, and Cochrane Library) up to 10 September 2016, for the following core terms: *parenting*, *parental rules*, *parent approval*, *parental disapproval*, *parental permissiveness*, *adolescent*, *youth*, *risky drinking*, *binge drinking*. Search (mesh) terms were developed with the assistance of chief faculty librarian of the School of Medicine and Public Health at the University of Newcastle. Supplementary Appendix A Table 1 provides an example of the search strategy conducted in PsycINFO. Two reviewers (SS and MK) independently assessed titles and abstracts of articles and then screened full-text articles based on eligibility criteria to finalize articles for data extraction. They listed studies in separate Excel files, utilising a column to explain the reason for exclusion or inclusion of articles after reading titles and abstracts. Reviewers then met to check the concordance of their findings. They consulted with the third reviewer (KK) to resolve any disagreements that arose. Forward (Google Scholar) and backward (bibliographies of included articles) searches were performed to check if any articles were missed during initial searches. A third reviewer (KK) assessed the included articles independently to confirm inclusion based on the eligibility criteria. We contacted the authors of ten studies (Chun et al., 2008; Janssen et al., 2014; Koning et al., 2011; Koutakis et al., 2008; Loveland-Cherry et al., 1999; McMorris et al., 2011; Nash et al., 2005; Reifman et al., 1998; Reimuller et al., 2011; Van den Eijnden et al., 2011) to seek information regarding exact *p*-values, retention rates, what confounders were adjusted for, and whether blinding was used in trials. However, we received information from authors of only two studies regarding confounders and retention rate (Chun et al., 2008; Reifman et al., 1998). This review was registered in PROSPERO (reference: CRD42016032404) on 18 January 2016.

2.3. Data extraction and validity assessment

Two investigators (SS and MK) used the Cochrane Public Health Group Data Extraction and Assessment Template (Higgins and Green, 2008) to extract information from included articles. They assessed the risk of bias using the Cochrane risk of bias assessment tool for

Table 1
PICO Worksheet (parental rules about alcohol and adolescent risky drinking).

Population	Adolescents whose exposure assessment occurred prior to the age of 18 years.
Intervention	Parental alcohol rules (strict/lenient); for instance, parental approval or disapproval of adolescent drinking (supervised/unsupervised access), parental permissive alcohol rules.
Comparison	We compared children who were exposed or unexposed to parental rules about alcohol.
Outcome	The outcome is adolescent risky drinking defined as drinking ≥ 5 standard drinks on a single occasion at least monthly. Different terms were used in the studies as risky drinking: alcohol misuse, drunkenness, problem drinking, binge drinking, intoxication, peak drinking, heavy episodic drinking, and alcohol-related problems. Here, alcohol-related problems include academic, social, health and legal consequences due to excessive alcohol use. We considered all of these as risky drinking for this review.

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