HHS Public Access

Author manuscript

Addict Behav. Author manuscript; available in PMC 2018 March 01.

Published in final edited form as:

Addict Behav. 2017 March ; 66: 26–32. doi:10.1016/j.addbeh.2016.10.025.

Early Life Predictors of Alcohol-Related Attitudes Among 11-Year-Old Never Drinkers

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Abstract

Alcohol-related attitudes are evident before children have personal experience drinking alcohol and represent key proximal predictors of alcohol use, but relatively little is known about how early life characteristics predict these attitudes. Among late childhood lifetime alcohol abstainers (M_{age}=10.67 years; 51% girls), we examine predictors of positive alcohol expectancies and perceived risk of alcohol use. Data from the Millennium Cohort Study, an ongoing nationally representative longitudinal study of children born in the UK, were available from 11,097 children who completed the self-report survey at modal age 11 and reported never drinking alcohol. A sequential structural model suggested that sociodemographic factors were distal predictors of age 11 alcohol attitudes that operated, in part, through family and child risk factors (measured at ages 3 to 7). Alcohol attitudes varied by sociodemographics; for example, boys had higher positive expectancies than girls and White British children had higher positive expectancies and lower perceived risk than Black British and Asian British children. In terms of family factors, parent alcohol problems predicted children's lower perceived risk, and higher parent-child conflict predicted more positive expectancies. For child factors, children's greater cognitive skills predicted higher perceived risk, and internalizing problems predicted more positive expectancies. Indirect effects from sociodemographics through parent-child conflict and internalizing problems predicted positive expectancies; indirect effects through parent alcohol problems and cognitive skills predicted perceived risk. Future research should delve further into mechanisms underlying the development of alcohol attitudes and their potential as malleable targets for prevention.

Keywords

alcohol; expectancies; perceived risk; attitudes; children

Most children do not initiate regular or heavy alcohol use during childhood (Currie, Hurrelmann, Settertobulte, Smith, & Todd, 2000), but alcohol attitudes can serve as

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Disclosures

The Millennium Cohort Study was funded primarily by the Economic and Social Research Council (UK). Collection of alcohol expectancies and alcohol use variables at age 11 and preparation of this manuscript were funded by grant R01 AA019606 from the National Institute on Alcohol Abuse and Alcoholism to J. Maggs. The content here is solely the responsibility of the authors and does not necessarily represent the official views of the sponsors.

indicators of risk for early initiation. Attitudes about drinking begin to emerge in childhood (Andrews, Hampson, Barckley, Gerrard, & Gibbons, 2008; Donovan et al., 2004; Miller, Smith, & Goldman, 1990) and then become more positive, especially as experience with alcohol use increases (Dunn & Goldman, 1998). However, as argued by major reviews (e.g., Donovan et al., 2004; Zucker, Donovan, Masten, Mattson, & Moss, 2008), very little research using large, representative samples of children has explored precursors of such attitudes about alcohol use during childhood. In this paper we focus on sociodemographic factors as distal influences on alcohol-related attitudes, operating through family and child factors. Alcohol attitudes of interest are positive alcohol expectancies and perceived risk of alcohol use among 10- and 11-year-old lifetime alcohol abstainers in a national sample followed since infancy.

Young children tend to view alcohol and its effects in primarily negative terms (Windle et al., 2008; Zucker et al., 2008). As they move into adolescence, their endorsement of positive alcohol attitudes tends to increase, and agreement with negative alcohol attitudes decreases (Dunn & Goldman, 1998, 2000; Maggs & Schulenberg, 1998; Miller et al., 1990; Windle et al., 2008). However, there are large between-person differences in these patterns. Such differences between children are important, because alcohol attitudes are consistent predictors of later drinking behavior (Goldberg, Halpern-Felsher, & Millstein, 2002; Goldman, Del Boca, & Darkes, 1999; Griffin, Botvin, Epstein, Doyle, & Diaz, 2000; Patrick & Schulenberg, 2010; Patrick, Wray-Lake, Finlay, & Maggs, 2010; Windle et al., 2008; Zucker, Jester, Fitzgerald, Puttler, & Wong, 2003; Zucker, Kincaid, Fitzgerald, & Bingham, 1995). For example, positive expectancies in early adolescence predict alcohol use concurrently (Maggs & Schulenberg, 1998) and problem drinking in the future (Christiansen, Roehling, Smith, & Goldman, 1989; Smith, 1994; Smith, Goldman, Greenbaum, & Christiansen, 1995). Positive alcohol expectancies reported in adolescence (at age 16) predict greater quantity of drinking and symptoms of alcohol misuse in adulthood (at age 35; Patrick et al., 2010). At least one study has documented that greater perceived risk of harm from drinking measured at ages 10 to 12 was protective, associated with later initiation of drinking and less alcohol misuse in adolescence (Hawkins et al., 1997).

Development of Alcohol Attitudes

The deviance proneness model provides a heuristic framework that views alcohol use as having roots in childhood as part of a deviant or suboptimal pattern of development (Sher, Grekin, & Williams, 2005). Family risks, combined with challenging temperamental or behaviors traits in children, lead to numerous problems with substance use and crime in adolescence and beyond, including early, heavy, and problematic use of alcohol (Moffitt, 1993; Petraitis, Flay, & Miller, 1995; Windle & Davies, 1999). Beliefs about the characteristics and effects of alcohol are viewed as the most proximal predictors of alcohol use behaviors through which background variables have their impact (Sher et al., 2005).

Although very little is known about early life predictors of adolescent attitudes regarding drinking, particularly in broad representative samples of alcohol-naïve early adolescents, sociodemographic, family, and child factors predict later alcohol involvement. Many early

childhood factors linked to the development of alcohol use and later problems are not alcohol-specific, but rather are broader individual and contextual risk and protective factors, such as high family stress and conflict, parenting practices, child behavioral/emotional dysregulation, and child behavior problems (Chassin, Colder, Hussong, & Sher, in press; Windle et al., 2008; Zucker et al., 2008). Additional alcohol-specific risk factors include family history of alcohol use and alcohol use by family and peers (Ouellette, Gerrard, Gibbons, & Reis-Bergan, 1999; Windle et al., 2008). Closeness and conflict with parents may also set the stage for attitudes regarding alcohol use; for example, difficulties with parents heighten risky behaviors and other child health risks (Repetti, Taylor, & Seeman, 2002). Child characteristics, such as behavioral and emotional strengths and difficulties, may also be proximal predictors of expectancies and risk perceptions related to alcohol use, as articulated by the deviance proneness model (Sher et al., 2005). These family and child characteristics are proximal variables in the development of alcohol attitudes in late childhood and early adolescence, and may help explain the influence of more distal sociodemographic factors.

The Current Study

The current study tests a sequential model to examine distal and proximal predictors of positive and negative attitudes toward alcohol use reported in late childhood, prior to alcohol use initiation. We examined sociodemographic, family, and individual child risk and protective factors for developing positive expectancies and perceiving alcohol use as risky. These attitudes are risk and protective factors for early alcohol initiation (Goldberg et al., 2002; Goldman, Darkes, & Del Boca, 1999; Griffin et al., 2000), and represent a final shared pathway through which broad and varied antecedent variables exert their impact on alcohol use (Goldman, Darkes, et al., 1999; Sher et al., 2005). We focused on the majority (88.2%) of children who had not yet consumed alcohol, because attitudes about alcohol are known to change following experience with drinking (Jester et al., 2015; Smith et al., 1995). Specific research questions examined: (1) the prevalence of positive expectancies and high perceived risk among children at the end of primary (elementary) school who had never consumed alcohol, and (2) the role of sociodemographics (e.g., gender, ethnicity, parent marital status, parent education) in predicting family factors (e.g., prenatal alcohol exposure, parent(s)' problem drinking, parent-child closeness) and child factors (e.g., cognitive skills, conduct problems, hyperactivity, internalizing problems), which in turn predict early alcohol attitudes.

Methods

Research Participants

The Millennium Cohort Study (MCS) is an ongoing nationally-representative longitudinal study of children born between September 2000 and August 2001 (in England and Wales) and November 2000 and January 2002 (in Scotland and Northern Ireland) who were residing in the UK at the age of 9 months (Dex & Joshi, 2005; Plewis, 2007). Stratified random sampling was used to achieve representation from the four UK countries, economically deprived areas, and areas with high concentrations of ethnic minority families based on

census data (Dex & Joshi, 2005; Gallop et al., 2013). At wave 1, 18,552 families including 9 month-old children and parents/guardians participated. Four follow-up surveys were conducted across childhood at ages 3, 5, and 7 years, and at the start of adolescence at modal age 11 years, when 13,287 families were interviewed (81.4% of those eligible who had not emigrated or permanently withdrawn, or were deceased) (Gallop et al., 2013). Each MCS wave was overseen by appropriate research ethics committees. Parent consent was obtained before child assent was sought. Current analyses used data from 11,097 children who completed the age 11 self-report survey and were defined as lifetime abstainers based on responding 'No' to the question, *Have you ever had an alcoholic drink—more than a few sips?;* 1488 children (11.8% of the unweighted sample) reported that they had ever consumed alcohol. Predictor variables were obtained from children's primary caregivers at ages 9 months, 3 years, and 7 years, and child self-reports at ages 7 and 11 years. Analyses were conducted in M*plus* 7.11 and used full information maximum likelihood (FIML) estimation to account for missing data and weights to account for the complex sampling design and attrition.

Measures

Sociodemographic Predictors—Sample characteristics are presented in Table 1. Sociodemographic predictors included *gender* (48.9% male); *ethnicity* based on parent report, coded as White British (83.7%), Asian British (Indian, Pakistani, Bangladeshi, 7.9%), Black British (Black Caribbean, Black African, Black Other, 3.4%), or Other British (5.0%); child *age*, coded as 11 years or greater when interviewed (66.2% yes; sample modal age 11, range 10–12); and *region* of residence in infancy (82.0% England, 8.9% Scotland, 4.8% Wales, 4.3% Northern Ireland). Parent sociodemographic predictors assessed when the child was 3 years old were *parents' marital status* (63.1% married); highest *educational level* of either parent on a 6-point scale (28.4% had NVQ level 4 or 5, equivalent to a college degree or higher); and being a *young mother* (<20 years at child's birth, 9.2%).

Family Factors—*Prenatal exposure to alcohol* was assessed via the mother's retrospective reports when the child was an infant. Mothers who drank seven or more units of alcohol (1 unit=8g of pure alcohol) per week or six or more units per occasion (1.8% yes) were coded as having prenatal exposure (Kelly et al., 2009). The mother's and her partner's *problem drinking* were assessed when the child was 3 years old using the CAGE (Mayfield, McLeod, & Hall, 1974). Problem drinking was coded as present for a family if symptoms exceeded 1 for women (Bradley, Boyd-Wickizer, Powell, & Burman, 1998) or 2 for men (Dhalla & Kopec, 2007).

Closeness and conflict between parents and children were assessed by mother reports to the Child Parent Relationship Scale (Driscoll & Pianta, 2011; Pianta, 1992) when the child was 3 years, with response options ranging from 1 (definitely doesn't apply) to 5 (definitely applies). *Parent-child closeness* was assessed as the mean of seven items (α=.69; e.g., "It is easy to be in tune with my child's feelings"; see also Kiernan & Huerta, 2008). *Parent-child conflict* was measured as the mean of seven items (α=.80; e.g., "Dealing with my child drains my energy"; see also Russell, Ford, Rosenberg, & Kelly, 2014).

Child Factors—*Cognitive skills* (Connelly, 2013) was assessed at age 7 using the Bracken School Readiness Composite to capture knowledge of colors, letters, numbers, and shapes (Bracken, 2002), and the naming vocabulary subtest of the British Ability Scales II to measure expressive verbal ability (Elliott, Smith, & McCulloch, 1997). Age-adjusted scores on the three scales were standardized and averaged.

The Strengths and Difficulties Questionnaire (SDQ; Goodman, 2001) was used to collect parent reports of the child's behavioral adjustment at age 7. The 25-item SDQ consists of five subscales, each comprising five items, with each item rated for the child by the caregiver using the scale Not true (0), Somewhat true (1), or Certainly true (2). Means were computed for each subscale assessing *Conduct problems* (α=.66; e.g., "often has temper tantrums"), *Hyperactivity* (α=.78; e.g., "restless, overactive, cannot stay still for long"), *Emotional symptoms* (α=.64; e.g., "many fears, easily scared"), *Peer problems* (α=.57; e.g., "tends to play alone"), and *Prosocial* behaviors (α=.69; e.g., "shares readily with others"). *Internalizing problems* were assessed by children's self-report at age 7 on two items (r = .24) including how often they feel sad and how often they feel worried. Response scale was Never (0), Some of the time (1), and All of the time (2).

Alcohol Attitudes—*Positive expectancies* were measured using a scale adapted from Guo, Hawkins, Hill, and Abbott (2001). At modal age 11, children indicated in a private self-completion booklet (i.e., not seen by parents or the interviewer) their agreement or disagreement with four statements (α =.74; e.g., "Drinking beer, wine, or spirits is a way to make friends with other people"), Strongly Agree (3), Agree (2), Disagree (1), and Strongly Disagree (0). Averages were computed; higher scores indicated more positive expectancies.

To assess *perceived risk* of experimenting with alcohol, cohort members were asked, "How much do you think people risk harming themselves if they try one or two alcoholic drinks?" rated as No Risk (0), Slight Risk (1), Some Risk (2), or Great Risk (3). Positive expectancies and perceived risk were modeled as separate outcomes due to conceptual considerations, their low inter-correlation (r=−.13), and factor analyses demonstrating a clear two-factor solution (not shown).

Analytic Plan—Analyses were conducted using structural equation modeling (SEM) with M*plus.* We used SEM in order to conduct regression-based path models to estimate direct and indirect effects while accounting for the complex sample design, attrition, and estimating missing data with FIML procedures. Positive expectancies and perceived risk were dependent variables in the model. A sequential structural model was used to examine whether sociodemographic factors predicted both family and child factors, and whether these in turn predicted alcohol attitudes. Indirect effects of sociodemographic factors on alcohol attitudes via family and child factors were computed. Significant correlations between predictors were included to improve model fit; non-significant correlations were pruned for parsimony. Model fit was evaluated using chi square, root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and the comparative fit index (CFI). Acceptable model fit values are .05 or lower for RMSEA and SRMR and .90 or higher for CFI, with .95 and higher preferred (Hu & Bentler, 1999).

Results

Means or frequencies are presented in Table 1. At modal age 11, positive expectancies on average were low and perceived risk of trying 1 or 2 alcoholic drinks was high. Correlations are shown in Table 2. The full model demonstrated good fit, $\chi^2 = 17.92$, $p = .79$, CFI = 1.00, RMSEA = .00, SRMR = .003. Table 3 presents results of all direct links from sociodemographics to family and child factors.

Sociodemographics, Family Factors, and Child Factors Predicting Alcohol Attitudes

Links from all predictors to positive expectancies and perceived risk are shown in Table 4. Regarding sociodemographics, boys reported higher positive expectancies than girls. Children in Wales had higher positive expectancies, and children in Northern Ireland had lower positive expectancies and higher perceived risk, each relative to children in England. White British children reported higher positive expectancies (compared to all other ethnicities) and lower perceived risk (than Asian British and Black British children), older children had higher positive expectancies, and children with married parents had higher perceived risk.

Higher parent-child conflict was associated with greater positive expectancies of alcohol use. Children whose parents reported problem drinking at child age 3 perceived lower risk of drinking. As shown in Figure 1, being from Northern Ireland, being Black, and having married parents had negative indirect effects on positive expectancies, respectively, through parent-child conflict; these children's lower risk of holding positive expectancies about alcohol use was in part mediated through lower levels of parent-child conflict. Furthermore, being from Scotland and Northern Ireland had positive indirect effects on perceived risk, respectively; these youth perceived alcohol as riskier partly through lower risk of parents' alcohol problems.

Children with higher cognitive performance at age 7 had greater perceived risk of drinking at age 11. Having more internalizing problems at age 7 was associated with higher positive expectancies of drinking. Being male had a negative indirect effect on positive expectancies (Figure 1); being male was linked to lower risk of internalizing problems, and lower internalizing problems predicted less positive expectancies. Unexpectedly, parent education had a positive indirect effect on positive expectancies: Children with more educated parents had more internalizing problems, which in turn predicted more positive expectancies. Indirect effects of country of origin and ethnicity were observed on perceived alcohol risk through cognitive skills: Children from Wales and Northern Ireland, as well as Asian British and Black British children, had lower average cognitive test scores, which in turn related to perceiving alcohol as less risky. Child older age and parent marital status and education had positive indirect effects on perceived risk through cognitive skills: Children with these background factors had higher cognitive skills, which in turn predicted greater perceived risk of alcohol use (Figure 1).

Discussion

Answering the call for research on early-life predictors of alcohol attitudes (Donovan et al., 2004; Zucker et al., 2008), this study contributes new evidence about the early childhood origins of alcohol attitudes. Findings align with the deviance proneness framework (Sher et al., 2005) and extend previous literature by demonstrating that sociodemographic and select child (i.e., cognitive skills, internalizing problems) and family (i.e., parent problem drinking, parent-child conflict) factors directly predict alcohol attitudes, and by mapping out pathways that link distal sociodemographics to alcohol attitudes through proximal child and family factors.

This study demonstrated that sociodemographics predicted alcohol attitudes among alcohol-naïve children. In particular, among never-drinkers, boys had higher positive expectancies than girls though there were no gender differences in perceived risk. Compared to children of other ethnicities, White British children who had never had alcohol had higher positive expectancies and lower perceived risk, consistent with prior findings in the MCS that White British children were more likely to have initiated drinking by age 11 (Maggs, Staff, Patrick, Wray-Lake, & Schulenberg, 2015). Children with married parents perceived alcohol as more harmful. Even within this narrow age range in the final year of primary school, older children (aged 11+) reported higher positive expectancies similar to previous research (Dunn & Goldman, 1998, 2000; Maggs & Schulenberg, 1998; Miller et al., 1990; Windle et al., 2008). Thus, alcohol attitudes among children who have not yet had a single drink of alcohol vary across groups in ways that are similar to patterns of alcohol use in adolescence and adulthood (Johnston, O'Malley, Bachman, Schulenberg, & Miech, 2015; Miech, Johnston, O'Malley, Bachman, & Schulenberg, 2015; Patrick & Schulenberg, 2010).

Based on indirect effects, we conclude that sociodemographic factors are distal predictors of alcohol attitudes that partially operate through more proximal family and child risk factors. These indirect effects begin to explain how distal background factors affect alcohol attitude development. Findings highlight certain demographic groups with lower levels of family and child risk factors that may protect them from risky alcohol attitudes. For example, children who were Black British, from Northern Ireland, or had married parents had less risky alcohol attitudes; these differences were linked through lower parent-child conflict and internalizing problems. Other demographic groups had lower cognitive test performance which predicted perceiving alcohol use as less harmful, placing them at heightened risk for alcohol initiation. Regarding country and ethnicity, differences in child performance on cognitive tests likely reflect differences due to multiple complex pathways including variation in community and family economic and social capital, school differences, teacher and parent expectations, and discrimination (Bornstein & Bradley, 2012; Hansen, Joshi & Dex, 2010; Kiernan & Huerta, 2008). These indirect pathways are further complicated because the same demographic group may experience both risk and protective paths. Overall, findings offer some support for theory articulating that demographic factors impact alcohol deviance proneness via child and family risk factors (Sher et al., 2005), and point to certain family and child factors that may be central to understand from an alcohol prevention perspective.

Children whose parents had alcohol problems reported lower perceived risk of harm from drinking, perhaps due to genetic similarities or to social-environmental influences such as children's greater familiarity with alcohol or exposure to more positive expectancies observed at home (Zucker et al., 1995). Conflict with parents predicted higher positive expectancies. Although conflict is an inconsistent predictor of adolescent alcohol use (Ryan, Jorm, & Lubman, 2010), perhaps early disruptions in the parent-child relationship prompt greater risk-taking tendencies in late childhood (Repetti et al., 2002) and more positive attitudes toward alcohol. Children with higher cognitive skills reported greater perceived risk of alcohol use, consistent with prior research showing that low cognitive ability is a risk factor for adolescent substance use (Chassin et al., 2004; Zucker et al., 2008). Our study further suggests that perhaps children with higher cognitive performance better understand risks of alcohol-related harm. In addition, children with greater internalizing problems in childhood reported more positive expectancies. Others have shown links between internalizing problems and alcohol use among adolescents (Windle et al., 2008; Zucker et al., 2008); our results indicate that this link may be preceded by more positive alcohol attitudes about the benefits of drinking. Taken together, results indicate that positive expectancies and perceived risk have distinct child and family predictors, reinforcing the importance of studying different alcohol attitudes separately. It is somewhat surprising that so few child difficulties predicted alcohol attitudes, particularly given the relevance of dysregulation and behavior problems in the deviance proneness framework (Sher et al., 2005). Possible explanations include the four-year time lag between child behavior and alcohol attitudes being too long to capture associations that are theoretically proximal; and externalizing behaviors being less relevant for alcohol attitude development among children who are not the earliest initiators. More research is needed to clarify these associations.

Study strengths include data from a national, prospective birth cohort study to age 11, from which we were able to identify early predictors of children's alcohol attitudes prior to alcohol initiation. Limitations include a restricted number of expectancies measured and use of a single item assessing perceived risk of drinking. Furthermore, lifetime abstinence was defined as never having more than a few sips of alcohol. Recent research has argued both for the importance of lower (e.g., drinking even a sip, Jackson, Colby, Barnett, & Abar, 2015) and higher (e.g., drunkenness, Kuntsche et al., 2013) thresholds to index key aspects of initiation. Finally, there may have been a ceiling effect for the parent-child closeness measure, limiting our ability to detect effects. In the context of a national sample followed longitudinally across childhood, the strengths outweigh the limitations. Using comparable data before and after children initiate alcohol use, research should also investigate whether alcohol attitudes mediate associations between risk factors and later alcohol use and problems.

Results suggest specific characteristics of families and children that indicate susceptibility to alcohol use based on their alcohol-related attitudes prior to ever having a drink. Family-, school-, and community-based universal intervention programs can improve parenting and family relationships, delay initiation and substance use (e.g., Foxcroft & Tsertsvadze, 2012; Redmond et al., 2009), and alter alcohol-related attitudes and expectancies to lower risk (e.g., Botvin & Griffin, 2004; Komro et al., 2000; Maggs & Schulenberg, 1998). Given strong proximal links between expectancies and alcohol use, further family-based efforts to

bolster negative expectancies and delay the growth of positive expectancies could be effective.

Acknowledgments

The Millennium Cohort Study was funded primarily by the Economic and Social Research Council (ESRC). Collection of alcohol expectancies and alcohol use variables at age 11 were funded by grant R01 AA019606 from the National Institute on Alcohol Abuse and Alcoholism. Authors' effort on this manuscript was supported by R01 AA019606 and ESRC RES-579-0001. The content here is solely the responsibility of the authors and does not necessarily represent the official views of the sponsors.

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Highlights

- Alcohol attitudes of age 11 never drinkers varied by early life characteristics
- Indirect effects through parent-child conflict and internalizing to expectancies
- Indirect effects through parent alcohol misuse and cognitive ability to perceived risk

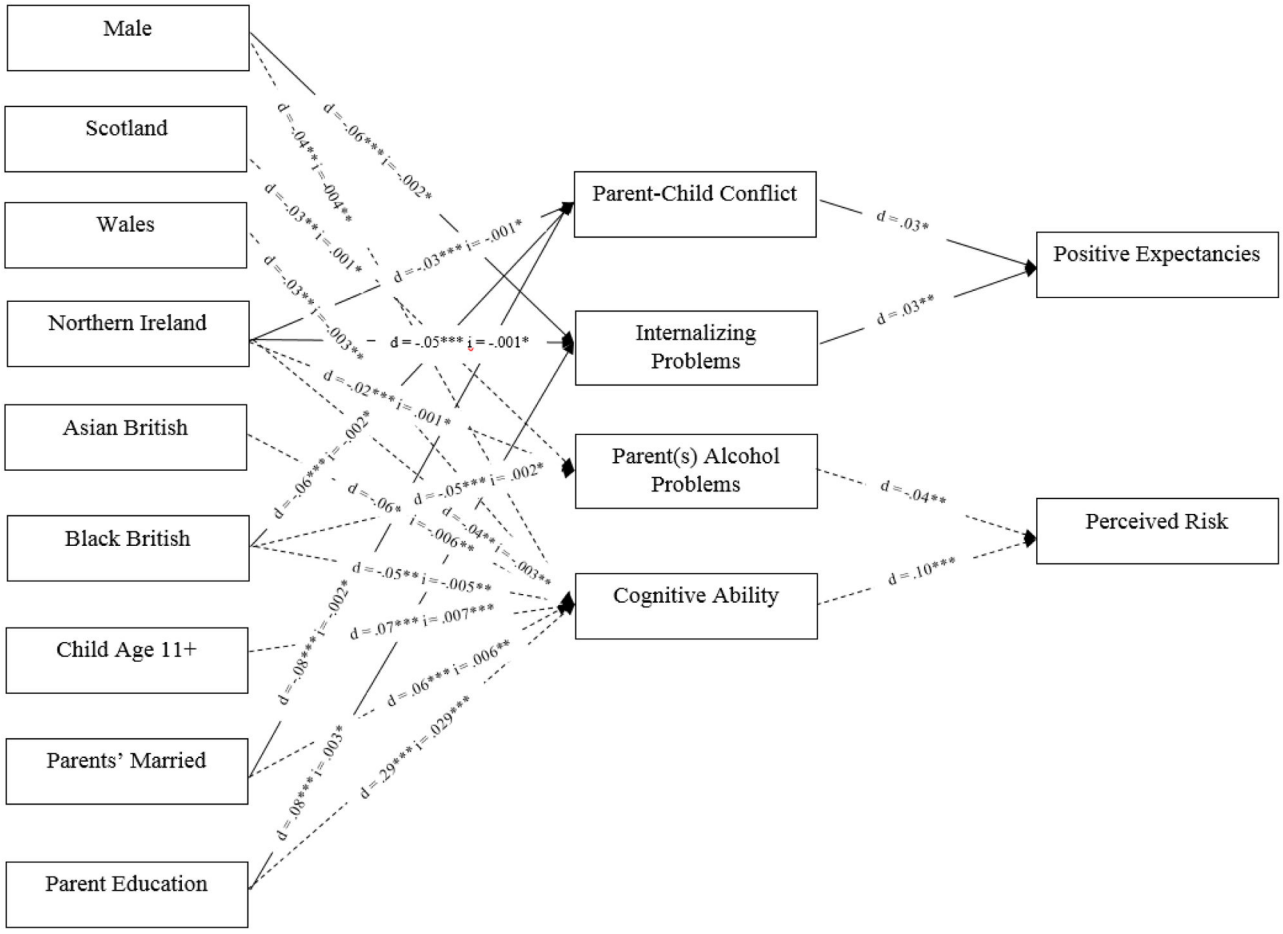

Figure 1. Indirect Effects from Sociodemographics to Alcohol Attitudes through Family and Child Factors

Note. Standardized direct effects (d) and indirect effects (i) are shown. Solid lines indicate indirect effects for positive expectancies. Dashed lines indicate indirect effects for perceived risk. Only variables involved in significant indirect effects are pictured; all other variables and paths were included in the model with reference groups as shown in Tables 3 and 4. *p< .05, ** p < .01, ***p < .001.

Table 1

Descriptive Information

	Mean/Frequency (%)	SD	Range
Sociodemographic Factors			
Male (9 mo)[a]	49.8%		
Ethnicity (9 mo)			
White British	83.7%		
Asian British	7.9%		
Black British	3.4%		
Other British	5.0%		
Age 11+ Years at Interview (age 11)	65.7%		
UK Country (9 mo)			
England	82.0%		
Scotland	8.9%		
Wales	4.8%		
N. Ireland	4.3%		
Parents Married (age 3)	63.1%		
Parent Education (age 3)	2.81	1.42	0 – 5
Mother Age <20 Years at Child Birth (9 mo)	9.2%		
Family Factors			
Prenatal Alcohol Exposure (9 mo)	0.02	0.14	0, 1
Parent(s) Alcohol Problems (age 3)	0.21	0.41	0, 1
Parent-Child Closeness (age 3)	4.77	0.37	1 – 5
Parent-Child Conflict (age 3)	2.23	0.82	1 – 5
Child Factors			
Cognitive Skills (age 7)	.043	0.75	−3.37 – 3.23
Conduct Problems (age 7)	1.39	1.62	0 – 10
Hyperactivity (age 7)	3.23	2.49	0 – 10
Emotional Symptoms (age 7)	1.53	1.73	0 – 10
Peer Problems (age 7)	1.16	1.47	0 – 10
Prosocial Behavior (age 7)	8.57	1.67	0 – 10
Internalizing Problems (age 7)	0.74	0.42	0 – 2
Alcohol Attitudes			
Positive Expectancies (age 11)	1.77	0.62	1 – 4
Perceived Risk (age 11)	2.44	.77	0 – 3

Note. Weighted frequencies and means are reported.

[a]The child age at which each measure was assessed is shown in parentheses.

Table 2

Correlations among Alcohol Attitudes, Family, and Child Factors

	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.
1. Positive Expectancies	−.13***	.02	.01	−.002	.03*	.03*	.02	.02	−.03	−.02	−.03	.02
2. Perceived Risk	1	−.02	.06**	.05**	−.04**	.11***	−.05**	−.06***	−.02	−.02	.04**	.03
3. Prenatal Alcohol Exposure		1	.07***	−.02	.01	−.02	.02	.03	.01	.01	−.003	.02
4. Parent(s') Alcohol Problems			1	−.03*	.08***	.02	.002	.01	.002	.01	−.02	.02
5. Parent-Child Closeness				1	−.23***	.14***	−.20***	−.21***	−.11***	−.19***	.22***	.03
6. Parent-Child Conflict					1	−.10***	.36***	.31***	.24***	.21***	−.23***	.002
7. Cognitive Skills						1	−.24***	−.32***	−.18***	−.18***	.11***	.08***
8. Conduct Problems							1	.55***	.36***	.34***	−.42***	−.04*
9. Hyperactivity								1	.29***	.33***	−.37***	−.03*
10. Emotional Symptoms									1	.42***	−.16***	.06***
11. Peer Problems										1	−.27***	.02
12. Prosocial Behavior											1	−.004
13. Internalizing Problems												1

*$p < .05$,

**$p < .01$,

***$p < .001$.

Table 3

Paths from Sociodemographics to Family and Child Factors

	Family Factors				Child Factors						
	Prenatal Alcohol Exposure	**Parent(s) Alcohol Problems**	**Parent-Child Closeness**	**Parent-Child Conflict**	**Cognitive Skills**	**Conduct Problems**	**Hyper-activity**	**Emotional Symptoms**	**Peer Problems**	**Prosocial Behavior**	**Internalizing Problems**
Sociodemographics → Family and Child Factors											
Male	.00(.01)	−.003(.01)	−.07(.01)***	.03(.01)**	−.03(.01)**	.11(.01)***	.18(.01)***	−.01(.01)	.08(.01)***	−.18(.01)***	−.06(.01)***
Ethnicity[a]											
Asian British	−.03(.01)***	−.05(.02)*	−.10(.02)***	.03(.02)	−.06(.02)**	.01(.01)	.03(.01)*	.06(.02)**	.12(.02)***	−.04(.02)*	.01(.01)
Black British	−.04(.01)***	−.06(.01)***	.001(.02)	−.06(.01)***	−.05(.02)**	−.04(.02)*	−.04(.02)*	−.01(.02)	.03(.01)*	.02(.02)	.01(.02)
Other British	−.03(.01)**	.01(.02)	.01(.01)	−.01(.01)	−.01(.02)	−.01(.02)	.00(.02)	.03(.02)*	.05(.01)***	−.01(.02)	.03(.01)*
Age 11+	−.01(.01)	.01(.01)	−.01(.01)	−.01(.01)	.07(.01)***	−.03(.01)*	−.05(.01)***	.00(.01)	−.01(.01)	.02(.01)	.01(.01)
Region[b]											
Scotland	−.01(.01)	−.03(.01)**	−.001(.01)	−.02(.01)*	−.02(.02)	−.004(.01)	−.02(.01)	−.02(.01)*	−.02(.01)	−.003(.01)	−.03(.01)**
Wales	−.01(.01)	−.01(.01)	−.01(.01)	−.03(.01)***	−.03(.01)**	−.01(.01)	−.01(.01)	−.01(.01)	−.01(.01)	.02(.01)*	−.01(.01)
N. Ireland	−.01(.01)	−.03(.01)***	−.01(.01)	−.03(.01)***	−.04(.01)**	−.001(.01)	.00(.01)	−.01(.01)	−.01(.01)	−.02(.01)	−.05(.01)***
Parents Married	−.07(.01)***	−.02(.01)	.04(.01)**	−.08(.01)***	.06(.01)***	−.12(.02)***	−.12(.02)***	−.04(.02)***	−.09(.02)***	.04(.01)**	.02(.02)
Parent Educ.	.003(.01)	.04(.02)*	.19(.02)***	−.04(.02)*	.29(.01)***	−.18(.02)***	−.14(.02)***	−.13(.02)***	−.14(.02)***	.07(.02)***	.08(.02)***
Young Mother	.04(.02)	.02(.02)	−.06(.02)**	.08(.02)***	.07(.01)***	.06(.02)*	.04(.02)*	.02(.02)	.03(.02)	−.03(.02)	−.04(.02)*

Note. Estimates come from the final model. Standardized beta coefficients are reported, with standard errors in parentheses. $\chi^2 = 17.29$, $p = .79$, RMSEA = .00 (90% CI = .00 – .01), CFI = 1.00, SRMR = .003.

*$p < .05$,

**$p < .01$,

***$p < .001$.

[a]White British is the reference category.

[b]England is the reference category.

Table 4

Paths from Sociodemographics and Family and Child Factors to Alcohol Attitudes

	Positive Expectancies	Perceived Risk
	***Multivariable* β(SE)**	***Multivariable* β(SE)**
Sociodemographics		
Male	.100(.01)***	.003(.01)
Ethnicity[a]		
Asian British	−.133(.02)***	.045(.01)***
Black British	−.037(.01)**	.057(.01)***
Other British	−.051(.01)***	.017(.01)
Age 11+ Years at Interview	.039(.01)**	.004(.01)
UK Country[b]		
Scotland	−.020(.01)	.024(.01)
Wales	.015(.01)*	.006(.01)
N. Ireland	−.034(.01)***	.036(.01)***
Parents Married	−.021(.01)	.032(.01)*
Parent Education	−.007(.01)	.016(.01)
Mother <20 Years at Child Birth	.001(.02)	.019(.02)
Family Factors		
Prenatal Alcohol Exposure	.008(.01)	−.007(.02)
Parent(s') Alcohol Problems	.006(.01)	−.044(.02)**
Parent-Child Closeness	.008(.01)	.031(.02)
Parent-Child Conflict	.031(.01)*	−.011(.02)
Child Factors		
Cognitive Skills	.022(.01)	.101(.02)***
Conduct Problems	.010(.02)	−.007(.02)
Hyperactivity	.008(.02)	−.004(.02)
Emotional Symptoms	−.026(.01)	.009(.02)
Peer Problems	−.015(.02)	.012(.02)
Prosocial Behavior	−.008(.01)	.017(.02)
Internalizing Problems	.031(.01)**	.017(.02)

Note. Estimates shown are the final model. Standardized beta coefficients are reported, with standard errors in parentheses. $\chi^2 = 17.29$, $p = .79$, RMSEA = .00 (90% CI = .00 – .01), CFI = 1.00, SRMR = .003.

*$p < .05$,

**$p < .01$,

***$p < .001$.

[a]White British is the reference category.

[b]England is the reference category.