

Family Relationship Quality and Early Alcohol Use: Evidence for Gender-Specific Risk Processes

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ABSTRACT. Objective: Family characteristics (relationship quality, parental behaviors, and attitudes relating to alcohol use) are known to influence alcohol use in the mid-teen years, and there is evidence that family characteristics have different influences on mid-teen girls versus boys. This study examined child gender differences in the association of family relationship quality, parental disapproval of children's alcohol use, and parental alcohol use with early adolescent alcohol use. **Method:** Grade 6 and 8 students (modal age 11 and 13, respectively; $N = 6,837$; 52.6% female) were recruited from 231 schools across three Australian states. Hypotheses were tested using two-level ordinal logistic regression (individuals nested within schools). The main dependent measure was lifetime frequency of early adolescent alcohol consumption. Independent

variables included mother's/father's alcohol use, closeness, conflict, and disapproval of adolescent alcohol use. Control variables included sensation seeking, peer alcohol use, and socioeconomic disadvantage. **Results:** The key findings were that for the young age group (Grade 6), emotional closeness to the parent of the opposite sex was protective. Family conflict was associated with females' drinking in both age groups but not males' drinking. **Conclusions:** There was evidence of gender differences in the epidemiology of family relationship quality and early alcohol use. Social developmental models may need revision to account for these child gender differences. Gender-specific family dynamics may be an important consideration for family-oriented prevention strategy. (*J. Stud. Alcohol Drugs*, 72, 399–407, 2011)

THE EARLY ONSET OF ALCOHOL USE carries substantial risks, including alcohol-related injury and assault (Kypri et al., 2009), early sexual debut (Rothman et al., 2009), depression (Fergusson et al., 2009), and adult alcohol abuse/dependence (Palmer et al., 2009). In industrialized countries, between 21% and 30% of 12-year-olds have consumed alcohol (Donovan et al., 2004; Johnston et al., 2008; Substance Abuse and Mental Health Services Administration, 2008), and about 10% have engaged in heavy drinking (Johnston et al., 2008). Early alcohol use predicts later alcohol misuse (Buchmann et al., 2009), and hazardous alcohol use is estimated to cause 26.7% of deaths in the 15–29-year age group (Toumbourou et al., 2007).

Families have a central role in children's first experiences of alcohol use, and two theories have dominated the empirical literature on mechanisms linking family factors

and teenage alcohol use (Ennett et al., 2008; Petraitis et al., 1995). Social Learning Theory (Bandura, 1969) emphasizes the key role that parents and siblings have in the modeling and vicarious reinforcement of alcohol use (Donovan et al., 2009; Shen et al., 2001). Consistent with social learning theory, parental alcohol use and disapproval of children's alcohol use are established predictors of teenage alcohol use (Habib et al., 2010; Simons-Morton, 2004; Tildesley and Andrews, 2008). Research also shows that sibling alcohol and other drug use is related to adolescent substance use (Fagan and Najman, 2005; Kelly et al., 2010; Rajan et al., 2003). Social Control Theory (Hirschi, 1969) emphasizes the importance of connectedness with one's family and with school institutions. Consistent with this theory, emotionally close parent–child relationships predict alcohol and other drug misuse cross-sectionally among mid-teens (Choquet et al., 2008) and longitudinally (Barnes et al., 2000, 2006; Brook et al., 2000; Wills and Cleary, 1996), and parent–child closeness predicts positive outcomes for substance-using adolescents receiving intervention (Kelly, 2008). In older adolescents, family conflict predicts adolescent substance use (Kristjansson et al., 2009). Furthermore, parental and family factors may contribute to adolescents' engagement with and socialization by high-risk peer groups, both of which strongly predict adolescent alcohol and other drug use (Abar and Turrisi, 2008; Bahr et al., 2005; Capaldi et al., 2009; Martino et al., 2009).

There is limited evidence that family closeness and conflict have different effects on alcohol use by girls versus

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boys. In French mid-adolescents, parents' emotional support is more closely related to girls' current alcohol consumption than boys' (Choquet et al., 2008), and for Taiwanese mid-adolescents, satisfaction with family relationships is more strongly associated with social/academic problems arising from problem drinking for girls than for boys (Yeh et al., 2006). These results are consistent with the broader literature on family relationships and adolescent psychological adjustment. Several studies show that adolescent girls are more vulnerable than boys to family conflict, with adjustment problems indicated by depression and other emotional problems (Davies and Lindsay, 2004; Fergusson et al., 1995; Unger et al., 2000), and heightened feelings of self-blame and responsibility (Grych, 1998). More recently, Atkinson et al. (2009) found that girls tended to fear that family conflict would erode parent-child relationship quality more than boys. They argued that girls may experience family conflict as an "attachment threat" (Atkinson et al., 2009, p. 290) that increases the likelihood of risky behaviors like alcohol use and misuse. The greater vulnerability of girls to family distress has been postulated to arise from gender role socialization processes that intensify at puberty (the "gender intensification hypothesis"; Davies and Lindsay, 2001, 2004). Boys are hypothesized to experience greater socialization pressures to become autonomous and independent, whereas girls are hypothesized to receive greater socialization into interpersonal connectedness and emotional closeness. It is postulated that because of greater investment in emotionally close family relations, girls may experience more distress when family relationships are poor. Drawing on this theory and empirical research, the first objective of the present study was to examine gender differences in the association of family relationship quality and alcohol use among preteenagers and early teenagers. Hypothesis 1 was that for preteenagers and early teenagers, family conflict and emotional closeness to parents would predict alcohol use in girls more than boys.

Social learning and social control theories have been located within an overarching theoretical framework, Ecology of Human Development Theory (Bronfenbrenner, 1989; Brooks-Gunn et al., 1993; Ennett et al., 2008), which attaches primary importance to the context in which specific factors operate (Bronfenbrenner, 1989). Although the modeling of alcohol use by family members and the bonding of adolescents may be independently predictive of adolescent drinking, the two mechanisms are assumed to interact in such a way that amplifies or attenuates alcohol-related outcomes. For example, the positive influence of parental disapproval on adolescent alcohol use may be attenuated when family conflict is high but amplified when there are strong bonds between parents and adolescents. There is comparatively little research on interactions between alcohol-specific parental behaviors and the quality of family relationships, and findings are mixed. Some research has found that low

parental support is linked to a stronger association of parental drinking and adolescent alcohol problems (Urberg et al., 2005). Other research has found that boys model their father's alcohol use when relationships are good relative to when their relationships are poor (Andrews et al., 1997). Other research has found no association (Kandel and Andrews, 1987). Research has generally focused on drinking by older adolescents and/or high-risk populations. No research has focused on the extent to which interactions between alcohol-specific parental behaviors (use/disapproval) and family relationship quality predict early alcohol use. Parental and family influences may be more significant in the younger years compared with older years, given the growth in importance of peer groups over time (Latendresse et al., 2008).

The second objective of this study was to examine the interaction of alcohol-specific parenting and family relationship quality in the prediction of alcohol use in preteenagers and early teenagers. Hypothesis 2 built on earlier-reviewed evidence that girls are more vulnerable than boys to family conflict, and the predictions of social learning theory, where adolescent alcohol use results from parental modeling and vicarious reinforcement of alcohol use (Donovan et al., 2009; Shen et al., 2001). Hypothesis 2 was that there would be gender differences in the interaction between alcohol-specific parental factors (e.g., parental alcohol use, parental disapproval of adolescent alcohol use) and family conflict in the prediction of adolescent alcohol use. Specifically, Hypothesis 2a was that parental alcohol use would more strongly predict teenage alcohol use when family conflict is high compared with when family conflict is low, and this interaction would be more significant for girls than boys. Hypothesis 2b was that the protective effect of parental disapproval of adolescent alcohol use would be weakened when family conflict is high compared with when family conflict is low, and this interaction would be more significant for girls than boys. The interactions of emotional closeness with parental alcohol use and parental disapproval of alcohol use were treated as exploratory, given the mixed research findings and theoretical predictions in this area (Andrews et al., 1997; Kandel and Andrews, 1987; Urberg et al., 2005).

The present study focuses on the role of the family in the early development of alcohol use and is unique in several respects. First, the study focuses on an age range when alcohol use commonly starts and major biopsychosocial transitions occur, such as moving into high school and the onset of puberty. Second, the study examines how family relationship quality affects early drinking experiences, at a stage of adolescence when family influences are at their strongest (Steinberg et al., 1992). Third, the study explores the extent to which early alcohol use is associated with interactions between family factors. Fourth, the study examines the influence of family factors independent of known strong predictors of adolescent alcohol use, including peer alcohol use (Capaldi et al., 2009), sibling alcohol use (Kelly et al.,

2010), and sensation seeking (George et al., 2010). Fifth, the study uses multilevel modeling to control for clustering of data at the school level of analysis (Kelly et al., 2010), thus reducing the risk of inflated correlations at the individual level.

Method

Survey procedure

The original data collection involved a two-stage sampling strategy (community and school) in which 231 participating schools in 31 communities in Victoria, Queensland, and Western Australia were selected. The community-sampling frame consisted of Statistical Local Areas (SLAs; an Australian Standard Geographic Classification structure consisting of nonoverlapping spatial units [Australian Bureau of Statistics, 2009] with greater than 17,000 inhabitants). These SLAs were stratified into quartiles of socioeconomic disadvantage based on Socio-Economic Indexes for Areas (SEIFA; Australian Bureau of Statistics, 2009). Eligible communities were randomly selected from SEIFA quartiles to represent state distributions in advantage/disadvantage and urban and nonurban locations. Within each community, primary ($n = 164$) and secondary schools ($n = 82$) were randomly selected. Of schools invited to participate, 83% ($n = 443$) responded, and of these, 52% agreed to participate (59% and 43% at Grade 6 and 8 levels, respectively). If a school declined to participate in the survey, another school from the same SLA and education sector was randomly selected. If there were no additional schools in the area, then

SEIFA scores for contiguous SLAs were examined and additional schools were randomly selected that had the closest SEIFA score. Adolescents participated only if signed parental consent was obtained (67% response rate). The survey was web-based and completed during school class time (paper copies were provided when computer resources were not available). The survey was approved by the University of Melbourne Human Research Ethics Committee. Further details of the survey methods are described elsewhere (Hemp-hill et al., 2010).

Sample

The initial sample consisted of 7,866 adolescents in Grades 6 (last or second-to-last year of primary school in all states; modal age = 11) and Grade 8 (first or second year of high school; modal age = 13). The analysis dataset consisted of 6,837 children (52.6% female) in Grades 6 (54.1%) and 8 (45.9%). Of the initial sample, 151 participants were excluded because of their response on the honesty item (see *Measures*), and 878 participants were excluded because of missing data on one or more key variables. Tests of differences between included and excluded participants on categorical variables showed no significant difference in lifetime drinking. There were significant differences between included and excluded cases on mother's drinking, $\chi^2(3) = 17.3, p < .01$; father's drinking, $\chi^2(3) = 49.56, p < .001$; siblings' drinking, $\chi^2(3) = 75.82, p < .001$; SEIFA quartile, $\chi^2(3) = 16.78, p < .01$; emotional closeness to the father, $\chi^2(1) = 22.93, p < .05$; family conflict, $\chi^2(1) = 17.67, p < .05$; and school grade, $\chi^2(1) = 10.23, p < .01$. Excluded cases were more likely than

TABLE 1. Descriptives for ordinal and continuous key variables split by gender and age

Ordinal key variables	Boys				Girls			
	Year 6 ($n = 1,794$)		Year 8 ($n = 1,447$)		Year 6 ($n = 1,904$)		Year 8 ($n = 1,692$)	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Lifetime alcohol use								
Never	1,098	61.2	618	42.71	1,476	77.52	878	51.89
One/two times	423	23.58	332	22.94	291	15.28	392	23.17
Three to five times	116	6.47	208	14.37	64	3.36	184	10.87
Six or more times	157	8.75	289	19.97	73	3.83	238	14.07
Mother's alcohol use								
Never	473	26.37	334	23.08	485	25.47	340	20.09
Occasionally	1,158	64.55	926	63.99	1,238	65.02	1,134	67.02
Most days	125	6.97	161	11.13	147	7.72	174	10.28
Every day	38	2.12	26	1.8	34	1.79	44	2.6
Father's alcohol use								
Never	265	14.77	186	12.85	311	16.33	196	11.58
Occasionally	1,079	60.14	829	57.29	1,196	62.82	1,051	62.12
Most days	339	18.9	337	23.29	316	16.6	338	19.98
Every day	111	6.19	95	6.57	81	4.25	107	6.32
Continuous predictors ^a	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Mother closeness	0.17	0.85	-0.33	1.03	0.27	0.87	-0.20	1.13
Father closeness	0.28	0.88	-0.11	0.94	0.12	0.98	-0.34	1.07
Family conflict	0.03	1.03	0.03	0.93	-0.11	1.02	0.07	0.99
Parental disapproval	0.10	0.95	-0.24	1.09	0.19	0.88	-0.11	1.03

^aMeans for continuous variables are centered.

included cases to report that their mother consumed alcohol every day, their father never consumed alcohol, and they had a sibling who consumed alcohol. There were no significant differences on other independent variables. Key descriptives on child and parental alcohol consumption (split by group) are provided in Table 1.

Measures

The measures were based on the Communities That Care Youth Survey, an epidemiological assessment instrument that was developed in the United States (Arthur et al., 2002) and adapted for Australian youth populations (Beyers et al., 2004; Bond et al., 2000; Hemphill et al., 2010). The Australian survey scales demonstrate similar reliability to U.S. populations, with α coefficients for multi-item scales generally above .70 (Kelly et al., 2010). Child lifetime alcohol use was derived from the following item: "In your lifetime, how often have you had more than a few sips of an alcoholic beverage?" (4-point Likert scale: 1 = *never*, 2 = *one to two times*, 3 = *three to five times*, 4 = *six or more times*). Mother's and father's alcohol use was assessed with this item: "Does your mother/father drink alcohol" (5-point

Likert scale: 1 = *never*, 2 = *occasionally*, 3 = *most days*, 4 = *every day*, 5 = *ex-drinker*). Sibling alcohol use was measured with the following: "Have any of your brothers or sisters ever drunk alcohol?" (4-point scale: 1 = *yes*, 2 = *no*, 3 = *don't know*, 4 = *don't have brothers or sisters*). Peer alcohol use was assessed with this item: "In the past year, how many of your best friends have tried alcohol when their parents didn't know about it?" (1 = *none*, 2 = *one or more friends*).

Family conflict was measured using three items (4-point Likert scales: 1 = *YES!*, 2 = *yes*, 3 = *no*, 4 = *NO!*): "We argue about the same things in my family over and over," "People in my family often insult and yell at each other," and "People in my family have serious arguments" ($\alpha = .79$). Closeness to each parent was measured using three items, using the same response options as for family conflict. Items included, "Do you feel close to your mother/father?" "Do you share your thoughts and feelings with your mother/father?" and "Do you enjoy spending time with your mother/father?" ($\alpha = .80$ and $.82$ for mothers and fathers, respectively). Parental disapproval of drinking was measured using two items: "How wrong do your parents feel it would be for you to drink (beer or wine)/(spirits) regularly?" (4-point scale: 1 = *not wrong at all*, 2 = *a little bit wrong*, 3 = *wrong*, 4 = *very*

TABLE 2. Main effects model of lifetime drinking by sex and grade

Variable	Boys				Girls			
	Year 6 (n = 1,794)		Year 8 (n = 1,447)		Year 6 (n = 1,904)		Year 8 (n = 1,692)	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Emotional closeness to mother	0.83**	[0.72, 0.95]	1.01	[0.89, 1.14]	0.98	[0.85, 1.14]	0.95	[0.86, 1.05]
Emotional closeness to father	1.07	[0.93, 1.22]	0.96	[0.84, 1.10]	0.84**	[0.74, 0.95]	0.97	[0.87, 1.09]
Family conflict	1.05	[0.95, 1.17]	1.06	[0.94, 1.19]	1.27***	[1.13, 1.44]	1.16**	[1.04, 1.30]
Parental disapproval of alcohol use	0.65***	[0.58, 0.72]	0.51***	[0.46, 0.57]	0.69***	[0.61, 0.78]	0.53***	[0.48, 0.59]
Mother's drinking (ref.: never drinks)								
Occasionally	2.05***	[1.55, 2.71]	2.24***	[1.66, 3.02]	1.96***	[1.37, 2.81]	1.75***	[1.29, 2.37]
Most days	2.27**	[1.43, 3.61]	2.88***	[1.85, 4.46]	2.16**	[1.27, 3.67]	2.39***	[1.54, 3.70]
Every day	3.16**	[1.53, 6.55]	2.12	[0.91, 4.94]	2.08	[0.87, 4.98]	1.48	[0.72, 3.04]
Father's drinking (ref.: never drinks)								
Occasionally	1.00	[0.71, 1.42]	1.47	[1.00, 2.17]	1.94**	[1.23, 3.06]	1.82**	[1.21, 2.74]
Most days	1.31	[0.87, 1.96]	1.72*	[1.11, 2.66]	2.55***	[1.52, 4.28]	1.86**	[1.18, 2.93]
Every day	1.68	[1.00, 2.84]	2.22**	[1.25, 3.94]	2.22*	[1.10, 4.48]	3.07***	[1.74, 5.40]
Sibling's drinking (ref.: siblings have consumed alcohol)								
Siblings do not drink	0.35***	[0.28, 0.44]	0.40***	[0.32, 0.51]	0.44***	[0.34, 0.57]	0.40***	[0.32, 0.51]
Don't know	0.56**	[0.38, 0.84]	0.58*	[0.38, 0.89]	0.54*	[0.32, 0.90]	0.45**	[0.28, 0.72]
Don't have siblings	0.63*	[0.41, 0.98]	0.60	[0.36, 1.02]	0.51*	[0.29, 0.91]	0.80	[0.48, 1.32]
One or more close friends drink	1.60*	[1.12, 2.30]	2.18***	[1.71, 2.79]	2.87***	[1.75, 4.70]	2.52***	[1.99, 3.19]
Sensation seeking	1.56***	[1.41, 1.72]	1.55***	[1.40, 1.71]	1.53***	[1.33, 1.77]	1.65***	[1.47, 1.84]
SEIFA quartile (ref.: most disadvantaged)								
2nd quartile	1.30	[0.94, 1.80]	1.13	[0.81, 1.58]	1.04	[0.70, 1.55]	1.18	[0.84, 1.66]
3rd quartile	1.41*	[1.03, 1.94]	0.90	[0.64, 1.28]	0.81	[0.55, 1.20]	1.25	[0.87, 1.80]
4th quartile	1.27	[0.92, 1.76]	1.23	[0.87, 1.74]	0.95	[0.64, 1.41]	1.23	[0.83, 1.82]
Cutpoints	Est.	SE	Est.	SE	Est.	SE	Est.	SE
K_{11}	0.65	0.20	0.70	0.22	1.77	0.26	1.06	0.23
K_{12}	2.21	0.20	2.07	0.22	3.34	0.27	2.58	0.24
K_{13}	2.97	0.21	3.15	0.23	4.13	0.29	3.61	0.25
School level variance	0.10	0.06	0.06	0.04	0.21	0.09	0.11	0.05
n schools	164		78		163		76	

Notes: OR = odds ratio; CI = confidence interval; ref. = reference; SEIFA = Socio-Economic Indexes for Areas.

* $p < .05$; ** $p < .01$; *** $p < .001$.

wrong) (interitem correlation = .76). Sensation seeking was measured using three items (e.g., “I have done something dangerous on a dare”) ($\alpha = .66$). As a check on the reliability of responses, there were two questions asking about the use of a fictitious drug and each participant was asked, “How honest were you in filling out this survey?” (5-point Likert scale: 1 = *I was honest all of the time* to 5 = *I was not honest at all*). Participants who reported using the fictitious drug or dishonesty were excluded from the analyses. The derived measure of socioeconomic status was the quartile of SEIFA disadvantage (see above).

Analysis

Statistical analyses were performed with STATA Release 10 (StataCorp LP, College Station, TX). The statistical design was an ordinal multinomial logistic regression (individuals [$n = 6,837$] nested within schools [$n = 231$]), with random effects estimation for school, and children’s lifetime alcohol use as the dependent variable. The key independent variables were mother’s/father’s alcohol use, parental disapproval of alcohol use, emotional closeness to the mother/father, and family conflict. SEIFA scores entered as a fixed effect at the school level of analysis. A two-level model (individuals within schools) was used because school-level random variance is often significant in studies of youth substance misuse (Ennett et al., 2008; Kelly et al., 2010). Model testing was conducted on four groups separately: sixth grade males ($n = 1,794$), eighth grade males ($n = 1,447$), sixth grade females ($n = 1,904$), and eighth grade females ($n = 1,692$). This approach avoided the potential collinearity and interpretability problems of a more complex (four-way) design that included age and gender with interactions for family variables. The interaction terms focused on parental disapproval/alcohol use and family relationship quality variables (emotional closeness/conflict). Where interactions involved a split by mother/father (i.e., emotional closeness, parent alcohol use), two interaction terms (one for each parent) were simultaneously entered.

Results

Brant tests (Long, 1997; Long and Freese, 2003) were used to assess the plausibility of the parallel regressions assumption. Results indicate that this assumption was plausible for each of the analysis subgroups except Grade 6 boys, where there was a significant violation, $\chi^2(36) = 54.67$, $p = .024$. The violation primarily related to the coefficient for parental disapproval of alcohol use, which had a larger effect at higher thresholds of the outcome variable. Given that the parallel regressions assumption was plausible for key variables of interest (conflict/cohesion), we opted to retain the ordinal logistic model to preserve the comparability of Grade 6 boys with other groups.

The main effects model of lifetime alcohol use (Hypothesis 1) included all key variables (mother’s/father’s alcohol use, parental disapproval of adolescent alcohol use, emotional closeness to the mother/father, family conflict) and all control variables (sibling alcohol use, alcohol use by best friends, sensation seeking, and SEIFA quartile [the latter entered at the school level]). The results for key and control variables are presented in Table 2. For sixth grade boys, there were significant protective main effects for emotional closeness to the mother ($p < .01$) and parental disapproval of alcohol use ($p < .001$). Mother’s drinking was associated with higher risk of adolescent alcohol use ($p < .001$ for occasional drinking, $p < .01$ for higher levels). Emotional closeness to the father was a nonsignificant predictor of lifetime alcohol use for this group. Among the control variables, sibling non-drinking was a significant protective factor ($p < .001$), and there was increased risk of adolescent alcohol use when best friends consumed alcohol ($p < .05$) and sensation seeking was high ($p < .001$). When SEIFA was in the middle-upper range (third quartile), there was an increased risk of adolescent alcohol use ($p < .05$).

For eighth grade boys, the results showed a significant protective effect for parental disapproval ($p < .001$) and significant increases in adolescent alcohol use when mothers consumed alcohol ($p < .001$, except the highest category—every day—which was nonsignificant) and fathers consumed alcohol ($p < .001$, except the lowest category—occasionally—which was nonsignificant). Effects for sibling non-drinking, peers’ drinking, and sensation seeking were similar in magnitude and significance to sixth grade boys. Neither emotional closeness to mothers/fathers nor family conflict were related to adolescent alcohol use for this group. Girls in sixth grade showed significant main effects for emotional closeness to the father ($p < .01$), family conflict ($p < .001$), parental disapproval ($p < .001$), mother’s drinking ($p < .01$ to $p < .001$, highest category nonsignificant), and father’s drinking ($p < .05$ to $p < .001$). The magnitude and significance of effects for sibling alcohol use, peer alcohol use, and sensation seeking in sixth grade girls were similar to boys in both age groups. Emotional closeness to the mother was nonsignificant for sixth grade girls. Girls in eighth grade showed significant main effects for all variables except emotional closeness to the mother and father, and mother’s everyday alcohol use. The SEIFA quartile was unrelated to drinking for girls in both groups. All other main and simple main effects were nonsignificant.

The results relating to Hypothesis 2a (testing the interaction of family conflict with parental alcohol use) are presented next. With the exception of Grade 8 boys, this interaction was nonsignificant at all levels of mother and father alcohol use. For Grade 8 boys, there was a significant interaction for mother drinks most days by family conflict (odds ratio [OR] = 1.92, 95% CI [1.17, 3.15], $p < .01$). The effect was in the expected direction. Mother’s alcohol use was associated with

increased risk of Grade 8 boys' alcohol use (OR [mother drinks occasionally compared with never] = 2.23, 95% CI [1.66, 3.00], $p < .001$), and this effect was stronger when family conflict was elevated. There was also a significant interaction between father's alcohol use (all levels) and family conflict (OR [father drinks occasionally] = 0.61, 95% CI [0.42, 0.89], $p < .05$; OR [father drinks most days] = 0.58, 95% CI [0.37, 0.89], $p < .05$; OR [father drinks every day] = 0.38, 95% CI [0.21, 0.67], $p < .01$). These effects were not in the expected direction. There were significant main effects for father's alcohol use, and the relationship between father's alcohol use and Grade 8 boys' alcohol use was positive (OR [father drinks occasionally] = 1.52, 95% CI [1.03, 2.26], $p < .05$; OR [father drinks most days] = 1.81, 95% CI [1.16, 2.83], $p < .01$; OR [father drinks every day] = 2.76, 95% CI [1.51, 5.07], $p < .01$), but this effect was substantially weakened when family conflict was elevated.

In relation to Hypothesis 2b (testing the interaction of family conflict with parental disapproval of alcohol use), there was only one of the four groups for which this interaction was significant. For Grade 6 boys, the interaction of family conflict by disapproval of alcohol use was significant (OR = 1.12, 95% CI [1.02, 1.23], $p < .05$), and there was a protective main effect for parental disapproval of alcohol use (OR = 0.63, 95% CI [1.43, 1.78], $p < .001$). These results indicated that the protective effects of disapproval of alcohol use on child lifetime alcohol use were eroded with high family conflict. For Grade 6 and Grade 8 girls, there were no significant interactions on the above terms beyond main effects. The main effects included in the model of interactions were similar in magnitude and direction to those reported in Table 2 and, therefore, are not detailed here. The interaction of disapproval of alcohol use and mother's/father's alcohol use was nonsignificant for all age groups.

Exploratory analyses were conducted on the interaction of emotional closeness to mothers/fathers and parental alcohol use, as well as between emotional closeness to mothers/fathers and parental disapproval of alcohol use. None of these interactions were significant across the four groups.

Discussion

The major finding of this study was that there were gender differences in the association of family relationship quality with early alcohol use. The results for family conflict were consistent with Hypothesis 1. Family conflict predicted lifetime alcohol use for preteen and early teenage girls, but family conflict was unrelated to boys' alcohol use. The significance of findings for emotional closeness to parents was conditional on the parent-child gender combination and the age of the child. Specifically, emotional closeness to the parent of the opposite gender predicted lifetime alcohol use in Grade 6 boys and girls. The results were not consistent with Hypothesis 2—the hypothesized interactions were not

significant for girls. In contrast to Hypotheses 2a and 2b, there were significant interactions between family conflict and father's alcohol use/parental disapproval for boys but not girls.

The results for family conflict are broadly consistent with the predictions of gender role socialization theory (Davies and Lindsay, 2001, 2004) and with earlier-reviewed empirical research demonstrating that girls are more vulnerable than boys to family conflict. The present findings point to the possibility that alcohol is used instrumentally by young teenage girls to cope with anxiety or stress arising from family problems (Comasco et al., 2010; Kuntsche et al., 2008). Speculatively, it is also possible that these problems are reciprocal once they begin. Drawing on Patterson's notion of coercive cycles (Ary et al., 1999; Patterson and Stouthamer-Loeber, 1984), family conflict may trigger alcohol use, which in turn triggers further family distress (Huh et al., 2006; King and Chassin, 2004), leading to compounded alcohol-related risks over time. To establish such mechanisms, further research is needed on the extent to which family conflict/distress longitudinally predicts alcohol consumption and on the extent to which this association is mediated by adolescent drinking motives.

The significant main effect of emotional closeness to the parent of the opposite sex is new in the empirical literature and points to the importance of acknowledging the complexity of family systems and the potential importance of dyads within families to adolescent health and well-being (Coley et al., 2009). This finding is not one that fits neatly with social control theory, where emotional closeness to both parents and for both age groups would be expected to be significant. Systematic gender differences in the magnitude of perceived mother's/father's care is unlikely to account for the finding. The internal consistency of the emotional closeness scale was high and similar in magnitude for mothers and fathers, and the association of emotional closeness with alcohol use was not systematically higher for one parent versus the other. The findings are consistent with the possibility that emotionally close father-daughter relationships and mother-son relationships may be especially important at particular periods of vulnerability, such as transitions to high school or the onset of puberty (Forbes and Dahl, 2010; Martin et al., 2002). The effect needs replication with other similar-age samples. If the finding is replicated, social developmental models may need enrichment. Speculatively, the finding evokes developmental models that draw on individuation from same-sex parents as an important stage in identity formation and psychological adjustment (Erikson, 1968; Ollech and McCarthy, 1997). If the opposite-gendered parent can meet individuation needs through the provision of an emotionally close relationship, the risk of deviancy, including alcohol use, may be reduced.

Aside from two significant results relating to the family conflict experienced by older boys, the evidence was scarce that parental alcohol use and parental disapproval interacted

with family relationship quality to predict alcohol use. In particular, there was no evidence in any of the four groups that emotionally close parent–child relationships were associated with strengthened or weakened effects for parental disapproval or parental alcohol use. This appears at odds with the predictions of social ecological models about family microsystems (Ecology of Human Development Theory; Bronfenbrenner, 1989; Brooks-Gunn et al., 1993; Ennett et al., 2008). Although the influence of family relationship quality varied by gender, the results of this study suggest that protective mechanisms are simpler than what might be predicted from social ecological models. Notably, parental disapproval of alcohol use had a significant protective effect that was independent of family relationship quality for most groups. We suspect that adolescents' subjective experiences of family conflict and closeness may be reactive to parental limit setting on issues like alcohol-related risk. For some families, event-based increases in family conflict and decreases in perceived emotional closeness may be a relatively inert by-product of effective management of alcohol-related issues. Future observational research examining the dynamics of parent–adolescent discussions about alcohol consumption and subsequent adolescent alcohol use would be useful.

Although interactions between alcohol-related parental behaviors and family relationship were few, the interactions for Grade 8 boys warrant exploration. One of these interactions was in the expected direction (mother's alcohol use predicted adolescent alcohol use, and this association was stronger when family conflict was high). However, the opposite effect for fathers was observed, and this was unexpected. The effect for father's alcohol use on Grade 6 boys' alcohol use weakened when family conflict was high. Several explanations are feasible. There may be more opportunities for family drinking rituals to occur when family conflict is low, thus creating more opportunities for the modeling of alcohol use, vicarious reinforcement of alcohol use, and possibly the provision of alcohol to boys. Another possibility is that older boys may associate family conflict with their father's alcohol consumption and consequently choose not to consume alcohol. More research is needed on the temporal association of family conflict, adolescent alcohol use, and alcohol provision by fathers to sons, and possibly on drinking rituals occurring in the home setting.

The results have implications for prevention and early intervention programs for alcohol use, potentially modified to address gender differences in the influence of parents. Despite growing evidence that behaviorally oriented family and parental prevention programs are effective (Smit et al., 2008; Spoth et al., 2001, 2002, 2009), such programs are not widely used, and this study reinforces the potential value of family-based prevention. Existing evidence-based parent/family-oriented prevention programs like the Strengthening Families Program (Spoth et al., 2002, 2009) may benefit from a more targeted focus on emotional closeness to par-

ents of the opposite gender and family conflict, depending on the age and gender of the child.

The findings of the study are strengthened by controls for known strong predictors of adolescent alcohol use and the clustering of data at the school level (accounting for between 10% and 21% of variance in alcohol use). The findings are limited by the cross-sectional nature of the study. As noted, it is possible that causal directions may go in the opposite directions to those hypothesized, or directions of influence may be reciprocal. Indeed, there is good evidence that the association of parenting/family processes and adolescent substance use is bidirectional (Coley et al., 2008). Because findings related to age groups are based on cohorts, it is possible that the groups differ on variables that are not encompassed within the developmental trajectories of children. The gender-based differences found in this study may not generalize to other age groups or to families with severe relationship or alcohol problems. Prior research is consistent with the possibility that when family conflict is severe, boys and girls are similarly affected in terms of substance use (Kristjansson et al., 2009). Although we excluded participants on the basis of honesty estimates, the study relies on self-report data.

Conclusion

The results suggest that alcohol-specific parenting behaviors vary in their influence depending on closeness with particular parents, family conflict, and the age and gender of the adolescent. The results point to the importance of further investigating age and gender variation in developmental pathways to alcohol use and the potential utility of modifying family-oriented prevention programs to address these age and gender effects.

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