

DRINKING AND MOTIVATIONS TO DRINK AMONG ADOLESCENT CHILDREN OF PARENTS WITH ALCOHOL PROBLEMS

MELANIE CHALDER*, FRANK J. ELGAR¹ and PAUL BENNETT²

Department of Community Based Medicine, University of Bristol, Bristol BS6 6JL, UK, ¹Department of Family Social Sciences, University of Manitoba, Winnipeg, Canada and ²Department of Psychology, University of Wales Swansea, Swansea, UK

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Abstract — Aims: To study the influences of parental alcohol problems on adolescents' alcohol consumption and motivations to drink alcohol. **Methods:** A community sample of 1744 adolescents from schools in South Wales completed the 6-item Children of Alcoholics Screening Test, Drinking Motives Questionnaire, and survey measures of alcohol consumption. **Results:** Children of parents with alcohol problems constituted almost one-fifth of the sample group and were found to drink more frequently, more heavily, and more often alone than children of parents without alcohol problems. Parental alcohol problems were also related to internal motives to drink (e.g. coping) in their adolescent children. Across the entire sample, internal motives to drink interacted with parental alcohol problems in predicting alcohol consumption and drinking frequency. **Conclusion:** Parental alcohol problems appeared to co-exist with an asocial pattern of alcohol consumption in adolescents that involves drinking alone and drinking to feel intoxicated or to forget about problems. In addition to the external, social motives to drink, which are shared by most adolescents, nearly one in five of the adolescents studied reported salient internal motives to drink that tended to coexist with alcohol problems in their parents.

INTRODUCTION

The risk posed to children of parents with alcohol problems of experiencing emotional or behavioural difficulties or becoming involved in substance misuse have been thoroughly investigated (Chassin *et al.*, 1996; Johnson and Leff, 1999; Velleman and Orford, 2001).¹ An early study by Kandel *et al.* (1978) found that 82% of drinking parents raised offspring who also drank and that 72% of families who abstained from drinking alcohol had children who also abstained. Similarly, Kushner and Sher (1993) compared the children of parents with alcohol problems with those without such problems and found the former were twice as likely as other children to show symptoms of an alcohol use disorder. According to the most recent Diagnostic and Statistical Manual (DSM-IV-TR; American Psychiatric Association, 2000), the offspring of parents diagnosed with alcoholism are up to four times more likely to develop alcohol-related problems than individuals in the general population.

Research has identified several mechanisms involved in transmitting the risk of problem drinking from parents to their offspring—genetics, physiological sensitivity to the effects of consumption (Kaplan *et al.*, 1988), psychosocial factors such as modelling substance misuse by parents, family dysfunction, negative affect, anxiety sensitivity, availability of alcohol, and poor parental monitoring (Hussong *et al.*, 1998; MacPherson *et al.*, 2001). An alternative explanation of problem drinking in adolescents, including the children of parents with alcohol problems, relates to psychological motivations to use alcohol and expectancies about its effects (Cooper, 1994).

Adolescents often engage in risk-taking behaviours and thus may be motivated to experience the physiological or psychological enhancement gained by using alcohol (Beck *et al.*, 1995). However, other research indicates that some adolescents (particularly females) may consume alcohol to cope with negative feelings, (Carman *et al.*, 1983; Kandel *et al.*, 1991; King *et al.*, 1996) while for others (particularly males) drinking is tied closely to social conformity motives (Cooper, 1994).

Understanding how adolescents' drinking habits and motivations to drink relate to family histories of alcohol problems provides important opportunities for clinical intervention and health policy. Unlike genetically based vulnerabilities to misuse alcohol, psychological motivations and behaviours are amenable to the kinds of psychosocial interventions that can be delivered to individuals or to groups of high-risk children who may be affected by problem drinking by parents.

A useful way of conceptualizing drinking motivations was provided by Cox and Klinger (1988). Their model is based on basic operant learning principles and describes drinking as a rational, purposeful behaviour in which the individual chooses to drink because he or she expects that positive affect will be enhanced, negative affect will be reduced, or both. Essentially, a person's drinking is governed by balancing expected positive affective consequences of using alcohol with expected negative affective consequences. However, it emphasizes the need to view drinking behaviour in the context of other goals and incentives in people's lives and that biological, psychological, environmental, and cultural variables can all influence an individual's expectations about how choosing to drink will change their overall affect. Based on this understanding, Cooper (1994) developed the Drinking Motives Questionnaire (DMQ) to assess adolescents' motives to drink across four specific domains: social, enhancement, coping, and conformity. Social and enhancement motives are considered positive motives for alcohol, while coping and conformity motives are considered to be negative motives. The DMQ also categorizes motives to drink as being either internal or external; enhancement and coping motives being internally

*Author to whom correspondence should be addressed at: Department of Community Based Medicine, University of Bristol, Cotham House, Cotham Hill, Bristol BS6 6JL, UK. Tel.: +44 (0)117 331 0863; Fax: +44 (0)117954 6677; E-mail: Melanie.Chalder@bris.ac.uk

¹This group is often referred to as "children of alcoholics" or "COAs" but it was not possible in this study to confirm whether the parents of children placed within this group were dependant on alcohol. Therefore, we elected to use the longer (but perhaps more accurate) term "children of parents with alcohol problems."

generated and social and conformity motives being externally generated.

Research supports both the construct and convergent validity of the DMQ in adolescents (Cooper, 1994) but there are few data available on its psychometric properties among young people at risk for alcohol problems. The DMQ may prove useful in studying whether drinking motives in adolescent offspring of parents with alcohol problems differ from individuals in the general population. Given that this group is more likely than others to witness drinking and intoxication at home and to drink themselves as a consequence of this, it is also possible that they would be more likely to drink as a means to manage stress and negative feelings (i.e. coping) than other groups. In the language of Cox and Klinger (1988), such children may report stronger internal motives to drink than children from homes with no evidence of alcohol-related problems.

The goal of the present study was to screen for parental alcohol problems in a sample of adolescents and compare children of parents with alcohol problems to those with no evidence of abuse in relation to regard to alcohol consumption and motives to drink. A secondary objective was to test the criterion validity of the DMQ in this population using measures of reported alcohol consumption. It was hypothesized that children of parents with alcohol problems would report greater alcohol consumption and stronger internal motives to drink than those without this background. It was also hypothesized that the influence of parental alcohol problems on drinking frequency and alcohol consumption would be exacerbated (i.e. moderated) by internal motives to drink.

SUBJECTS AND METHODS

Subjects

A community sample of 1744 adolescents was recruited from nine secondary schools in South Wales as part of the Teenage Alcohol Project (TAP), a pilot study for a randomized trial of a school-based intervention designed to reduce binge-drinking in young people (Chalder and Moore, 2003). These schools comprised a stratified sample, broadly representative of the state secondary schools in the Gwent and Bro Taf Health Authority areas of Wales, in terms of geographic location, school size, free school meal entitlement, and educational attainment. The study recruited pupils between years 8 and 9, subject to parental opt-out (0.9%) and written pupil consent (99.3%). The sample was 48.9% female and had a mean age of 13.7 (SD = 0.7, range 13–15) years. Participants were not paid but schools were financially compensated for facilitating the data collection.

Measures

Parental alcohol problems. The abbreviated Children of Alcoholics Screening Test (CAST-6; Hodgins *et al.*, 1993) is a 6-item self-report measure of the degree of psychological distress associated with parental drinking behaviour, family discord related to parental alcohol consumption, and attempts to control or escape from parental drinking. The six items were factor analytically derived from the original 30-item version of the scale (Jones, 1983) and require respondents to rate

statements as either 'true' or 'false'. The items are: 'Have you ever thought that one of your parents had a drinking problem? Did you ever encourage one of your parents to quit drinking? Did you ever argue or fight with a parent when he or she was drinking? Have you ever heard your parents fight when one of them was drunk? Did you ever feel like hiding or emptying a parents' bottle of liquor? Did you ever wish that a parent would stop drinking?' The CAST-6 reliably discriminates between children of alcoholic parents and children of non-alcoholic parents and has been shown to demonstrate a high degree of internal consistency and test-retest reliability in young adolescents (Havey and Dodd, 1995) as well as other populations (Hodgins *et al.*, 1993). Hodgins and Shrimp (1995) found good cross-validity of the CAST-6 showing high correlations with the 30-item version ($r = 0.92\text{--}0.94$) and agreement to other longer screening measures, yielding 97% accuracy with its recommended cut point of three or more items endorsed.

Drinking motives

The DMQ (Cooper, 1994) is a 20-item self-report measure based on Cox and Klinger's (1988) four-factor model of motives to drink alcohol. Items describe internal (coping and enhancement) and external (social and conformity) motives. Respondents are asked to rate the relative frequency of drinking associated with each of 20 motives to drink on a 5-point scale (1 = 'almost never/never', 2 = 'some of the time', 3 = 'half of the time', 4 = 'most of the time', and 5 = 'almost always/always'). Sample items include: 'Because it helps you enjoy a party' (Social), 'Because it helps you when you feel depressed or nervous' (Coping), 'Because you like the feeling' (Enhancement), and 'So you won't feel left out' (Conformity). Each factor score ranges from 5 to 25 with higher scores reflecting stronger motivation. Cooper (1994) found that each drinking motive related to a distinct pattern of contextual antecedents and drinking-related outcomes among American adolescents and that these relationships did not vary significantly by age, gender, or race.

Alcohol consumption

The TAP questionnaire included a number of other measures of demographics, drinking contexts, and episodes of drunkenness. Among these was a 7-day drink diary that recorded the number and type of alcoholic drinks consumed on each day of the previous week. These data were later converted to a continuous measure of alcohol units consumed. Also measured were the number of days during the previous week on which alcohol was consumed (drinking frequency).

Socioeconomic status

Socioeconomic status was measured using the Family Affluence Scale (FAS; Currie *et al.*, 1997), a brief measure of material wealth comprising three items, 'Does your family have a car or a van?' (no = 0, yes = 1, yes, two or more = 2), 'Do you have your own bedroom?' (0 = no, 1 = yes) and 'During the past year, how many times did you travel away on holiday (vacation) with your family?' (0 = not at all, 1 = once, 2 = twice, 3 = more than twice). These items produced an ordinal scale ranging from 0 (lowest affluence) to 6 (highest affluence). The FAS is less subject to non-response than other

child self-report measures of parental occupational status (Currie *et al.*, 1997) and has demonstrated good criterion validity. In previous research, the FAS showed a 3-fold increase in the likelihood of poor health attributable to low socioeconomic status (Torsheim *et al.*, 2004).

Procedure

Participants were surveyed in assembly-hall settings, under examination conditions, on three separate occasions: at baseline, 1 month after the intervention, and 6 months following the intervention. The data discussed in the present study originate from the final post-intervention data cycle since this was the only data cycle to include both the DMQ and CAST-6. Code numbers were used to identify participants within the study, in order to preserve anonymity and ensure confidentiality.

Data analysis

Data were entered using SPSS 11.5 DE module and subsequently analysed using SPSS 12.0 (Chicago, IL) and EQS 6.0 (Multivariate Software, Encino, CA). Analyses were adjusted for any effects of the TAP intervention (fixed effect) or school clustering (random effect). Children of parents with alcohol problems were identified using the recommended criterion of three or more items endorsed on the CAST-6. Group comparisons were conducted using between-groups ANOVAs and χ^2 -tests. Confirmatory factor analysis (CFA) was used to verify the 4-factor structure of the DMQ. To test the effects of parental problem drinking and gender on drinking frequency and motives to drink, 2-way ANOVAs were used with error terms, adjusted for a random effect of school cluster. The moderating effects of drinking motives in the relations between parental alcohol problems and drinking were tested using regression with interaction terms (Baron and Kenny, 1986). Equal weights were used for all units within each level.

RESULTS

A total of 312 participants (18.2% of the sample) were classified as children of parents with alcohol problems. No age, gender, or school cluster differences were found between this group of children and children from families without evidence of alcohol-related problems. However, children of parents with alcohol problems were more likely to report drinking two or more alcoholic drinks per week, to have been drunk during the past 3 months, or to expect to get drunk again during the next two weeks (Table 1). They were also more likely than children from families without alcohol problems to drink alone, although the majority of alcohol was consumed in social situations irrespective of group. With regard to the reasons provided for using alcohol, a higher proportion of children of parents with alcohol problems reported drinking 'to forget their problems' and drinking 'to get drunk'. They were also less likely to indicate that they drank because they liked the taste of alcoholic drinks.

The groups were compared with respect to their motives to drink and consumption of alcohol. Table 2 shows descriptive statistics on data from the four DMQ factors, alcohol consumption (units consumed during previous week), and

Table 1. Alcohol consumption by adolescents of parents with and without alcohol problems

	Parental alcohol problems (%) <i>n</i> = 312	No parental alcohol problems (%) <i>n</i> = 1406	χ^2
<i>Consumption and drunkenness</i>			
Usually drink two times a week or more	22.8	16.5	6.09*
Was a little drunk in past 3 months	67.5	61.2	3.79
Was seriously drunk in past 3 months	44.0	35.7	6.80**
Will drink in next 2 weeks	54.1	51.1	0.90
Will get little bit drunk in next 2 weeks	36.0	30.1	3.94*
Will get seriously drunk in next 2 weeks	18.2	11.1	11.38***
<i>Drinking context</i>			
Usually drink with friends	65.0	58.7	3.50
Usually drink with relatives	59.2	64.1	2.15
Usually drink with girlfriend/boyfriend	18.5	14.5	2.63
Usually drink alone	9.2	5.1	6.65*
<i>Reason for drinking</i>			
Drink to get a little bit drunk	30.5	33.7	0.68
Drink to get seriously drunk	21.1	12.0	10.71***
Drink to forget my problems	15.8	6.4	18.22***
Drink because I like the taste	32.6	47.9	14.43***

* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$.

Table 2. Mean (SD) motivations to drink in adolescents of parents with and without alcohol problems

	Parental alcohol problems		No parental alcohol problems	
	Males	Females	Males	Females
<i>Motivations to drink</i>				
Social	2.47 (1.16)	2.43 (1.12)	2.21 (1.13)	2.28 (1.09)
Coping	2.00 (1.08)	2.00 (1.05)	1.64 (0.90)	1.66 (0.86)
Enhancement	2.38 (1.29)	2.31 (1.25)	2.06 (1.18)	2.05 (1.10)
Conformity	1.92 (1.01)	1.55 (0.80)	1.61 (0.83)	1.45 (0.73)
<i>Alcohol consumption</i>				
Median	0.00	0.90	0.00	1.59
<i>Drinking frequency</i>				
Median	1.43 (1.80)	1.55 (1.65)	1.12 (1.37)	1.21 (1.43)

drinking frequency (days drinking during the previous week). The internal consistency of DMQ factors was adequate ($\alpha = 0.77-0.91$) and correlations among the four factors were positive and statistically significant (Table 3). CFA of the four-factor structure of the DMQ showed an adequate fit of the model to our data, χ^2 (df 164) = 2053.1, $P < 0.01$, Bentler-Bonett normed fit index (NFI) = 0.90, comparative fit index (CFI) = 0.90, and error estimations were low, standardized root mean square residual (RMSEA) = 0.09 [95% confidence interval (CI) = 0.05-0.12].

ANOVAs showed that children of parents with alcohol problems reported significantly stronger coping, enhancement, and conformity motives to drink than those from families with no reported alcohol-related problems (Table 4). These children also reported drinking more often and consuming more alcohol during the previous week (Table 5).

Table 3. Intercorrelations between DMQ factors

Subscale	1	2	3	4
<i>Parental alcohol problems (n = 312)</i>				
1. Social	—	0.68	0.81	0.47
2. Coping		—	0.61	0.60
3. Enhancement			—	0.44
4. Conformity				—
<i>No parental alcohol problems (n = 1416)</i>				
1. Social	—	0.68	0.80	0.51
2. Coping		—	0.65	0.63
3. Enhancement			—	0.50
4. Conformity				—

All correlations significant at $P < 0.01$.

Table 4. Analysis of variance on motivations to drink

Source	df	F	η	P
<i>Social</i>				
Sex (S)	1	0.03	0.00	0.87
Error	1568	(0.84)		
COA (C)	1	7.15**	0.07	<0.01
Error	1568	(214.16)		
S \times C	1	0.24	0.00	0.63
Error	1568	(7.12)		
<i>Coping</i>				
Sex (S)	1	0.24	0.00	0.63
Error	1572	(4.90)		
COA (C)	1	32.75**	0.14	<0.01
Error	1572	(638.05)		
S \times C	1	0.01	0.00	0.78
Error	1572	(1.68)		
<i>Enhancement</i>				
Sex (S)	1	0.05	0.00	0.83
Error	1564	(1.57)		
COA (C)	1	13.94**	0.09	<0.01
Error	1564	(459.82)		
S \times C	1	0.00	0.00	0.99
Error	1564	(0.02)		
<i>Conformity</i>				
Sex (S)	1	24.66**	0.12	<0.01
Error	1613	(379.19)		
COA (C)	1	13.40**	0.09	<0.01
Error	1613	(206.02)		
S \times C	1	2.73	0.04	0.10
Error	1613	(42.01)		

Adjusted for TAP treatment condition (covariate) and school cluster (random effect). Values enclosed in parentheses represent mean square errors.
* $P < 0.05$; ** $P < 0.01$.

Irrespective of parental alcohol problems, females were found to consume more units of alcohol than males although there were no apparent gender differences in terms of drinking frequency. Males, however, did show significantly stronger conformity motives to drink than females. There were no interactions of gender and parental alcohol problems associated with motivations to drink, alcohol consumption, or drinking frequency.

Regression analysis was used to study the influences of parental alcohol problems and motives to drink on drinking frequency (Table 6) and alcohol consumption (Table 7). The CAST-6 was a continuous variable in these analyses representing the magnitude of parental alcohol problems across the sample ($M = 1.17$, $SD = 1.67$, $\alpha = 0.81$). Table 6 shows parental alcohol problems related to drinking frequency after

Table 5. Analysis of variance on alcohol consumption

Source	df	F	η	P
<i>Drinking frequency</i>				
Sex (S)	1	1.64	0.03	0.20
Error	1516	(3.40)		
COA (C)	1	12.99*	0.09	<0.01
Error	1516	(26.97)		
S \times C	1	0.11	0.00	0.75
Error	1516	(0.22)		
<i>Alcohol consumption</i>				
Sex (S)	1	4.99	0.05	0.03
Error	1516	(625.87)		
COA (C)	1	6.60	0.06	0.01
Error	1516	(827.10)		
S \times C	1	0.00	0.00	0.97
Error	1516	(0.14)		

Adjusted for TAP treatment condition (covariate) and school cluster (random effect). Values enclosed in parentheses represent mean square errors.
* $P < 0.05$; ** $P < 0.01$.

adjustment for gender, age, TAP intervention, and school clustering. Coping and enhancement motives to drink also predicted drinking frequency while social and conformity motives to drink did not. More importantly, the interactions of parental alcohol problems and social, enhancement, and conformity motives to drink were each predictive of drinking frequency above and beyond their added influences, indicative of an exacerbating effect of these motives on the relation between parental alcohol problems and adolescent drinking. The moderating effect of parental alcohol problems and motives to drink accounted for 65% of the variance in drinking frequency.

A similar pattern was found in the influences of parental alcohol problems and drinking motives on alcohol consumption (Table 7). Coping and enhancement motives predicted overall consumption, while the interaction between parental alcohol problems and drinking motives was additionally predictive of consumption, accounting for 42% of the variance in consumption. However, only coping motives to drink seemed to exacerbate the influence of parental alcohol problems on consumption while conformity motives to drink appeared to attenuate this relationship.

DISCUSSION

The objective of this study was to compare adolescent children of parents with alcohol problems with those from families without such problems, with regard to their self-reported consumption of alcohol and motivations to drink. The results demonstrate strong support for the three research hypotheses. First, parental alcohol problems were related to adolescents' use of alcohol. Second, children from families with alcohol-related problems were more likely to show greater internalizing motives to drink alcohol than those from families without such problems. Third, internal motives to drink (coping and enhancement) moderated the influence of parental drinking problems on alcohol consumption. These findings build upon previous research on the health and health behaviours of this population.

Table 6. Regression analysis for parental alcohol problems and motivations to drink predicting drinking frequency

	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Sex (being female)	0.08 (0.07)	0.03	0.11 (0.07)	0.04	0.03 (0.03)	0.01
Age	0.23 (0.06)	0.10**	0.14 (0.05)	0.06**	0.04 (0.02)	0.02*
SES	0.12 (0.03)	0.11**	0.13 (0.03)	0.12**	0.03 (0.01)	0.02*
TAP intervention	0.01 (0.07)	0.00	0.06 (0.07)	0.02	0.04 (0.03)	0.01
Parental alcohol problems (PA)	0.11 (.02)	0.13**	0.27 (0.17)	0.06**	0.00 (0.01)	0.00
<i>Drinking motivation</i>						
Social			0.01 (0.01)	0.06	-0.03 (0.01)	-0.14**
Coping			0.05 (0.01)	0.15**	0.04 (0.01)	0.01
Enhancement			0.06 (0.01)	0.25**	0.04 (0.01)	0.02
Conformity			0.02 (0.01)	0.03	-0.04 (0.01)	-0.13**
PA \times Social					0.03 (0.00)	0.57**
PA \times Coping					0.00 (0.00)	0.01
PA \times Enhancement					0.01 (0.00)	0.18**
PA \times Conformity					0.02 (0.00)	0.32**
R^2		0.04		0.22		0.87

* $P < 0.05$; ** $P < 0.01$.

Table 7. Regression analysis for parental alcohol problems and motivations to drink predicting alcohol consumption

	Model 1		Model 2		Model 3	
	B (SE)	β	B (SE)	β	B (SE)	β
Sex (being female)	1.62 (0.58)	0.07**	1.69 (0.56)	0.07**	1.67 (0.56)	0.07**
Age	1.38 (0.44)	0.08**	0.72 (0.43)	0.04	0.76 (0.42)	0.04
SES	0.42 (0.21)	0.05*	0.47 (0.20)	0.06*	0.42 (0.20)	0.05*
TAP intervention	0.42 (0.58)	0.02	0.58 (0.55)	0.03	0.70 (0.55)	0.03
Parental alcohol problems (PA)	0.67 (0.17)	0.10**	0.27 (0.17)	0.04	0.81 (0.42)	-0.12
<i>Drinking motivation</i>						
Social		0.02	0.09 (0.09)	0.05	0.09 (0.11)	0.04
Coping			0.52 (0.09)	0.21**	0.25 (0.12)	0.10*
Enhancement			0.25 (0.08)	0.13**	0.20 (0.10)	0.11*
Conformity			0.05 (0.10)	0.02	0.27 (0.13)	0.09*
PA \times Social				0.15	0.13 (0.05)	0.03
PA \times Coping					0.15 (0.05)	0.28**
PA \times Enhancement					0.04 (0.04)	0.09
PA \times Conformity					-0.12 (0.05)	-0.19*
R^2						0.57

* $P < 0.05$; ** $P < 0.01$.

First, parental alcohol problems were associated with drinking frequency, alcohol consumption, and episodes of drunkenness among their adolescent children. A troubling, asocial pattern of drinking emerged among children of parents with alcohol problems that involved drinking alone, drinking to feel intoxicated, and drinking to forget about problems. Behaviours such as these, if left unchecked, have the potential to develop into more serious problems with alcohol use in adulthood. Parental influences on adolescents' drinking behaviour may be mediated by biological mechanisms that govern physiological sensitivity to alcohol (Kaplan *et al.*, 1988), psychological factors such as anxiety sensitivity, negative affect, and modelling the misuse of alcohol (Eiden and Leonard, 1996; MacPherson *et al.*, 2001), or environmental factors such as availability of alcohol, inadequate parenting, or family dysfunction (Hussong *et al.*, 1998; Newlin *et al.*, 2000). All these dimensions of parental alcohol problems, in combination with adolescents' tendencies to engage in risky behaviour, might have contributed to the frequent and heavy use of

alcohol, which was reported by children of parents with alcohol problems.

Second, children of parents with alcohol problems showed stronger coping and enhancement motives to drink than other children in our sample. Drinking to feel the intoxicating effects of alcohol and drinking as a means to cope with negative feelings predicted both drinking frequency and alcohol consumption, even after controlling for the effects of parental alcohol problems. These trends are especially disconcerting given these children's tendency to drink more often and in larger quantities than children of parents with no evidence of alcohol problems and also because internal motives to drink can lead to greater difficulties with alcohol than drinking for external, social reasons (Cooper, 1994). Current psychological theories and treatments of alcohol problems emphasize the context in which drinking occurs and personal motives to use alcohol. Previous studies suggest that these motives are shaped by both environmental and biological factors. For instance, Newlin *et al.* (2000) found that parents who drink

as a means to manage negative feelings model this coping behaviour to their children and a recent twin study found that drinking to cope with negative feelings can be partly accounted for by genetic factors (Prescott *et al.*, 2004). In either case, the present study lends additional evidence to the case that 'how often' young people drink, 'how much' they drink, and 'why' they drink are all influenced by parental behaviour.

Third, regression analyses showed large moderating effects of motives to drink on the influence of parental alcohol problems on adolescent drinking behaviours and, more importantly, showed differential interactions on drinking frequency and alcohol consumption. Social, enhancement, and conformity motives to drink all moderated the effects of parental alcohol problems on drinking frequency, each apparently exacerbating the influence of parental symptoms on adolescent drinking. However, only coping motives appeared to exacerbate the influence of parental alcohol problems on alcohol consumption while conformity motives to drink seemed to attenuate this influence on consumption. These effects suggest two things: that children of parents with alcohol problems who are externally motivated to drink or who drink simply to feel intoxicated, drink more often than those who do not have these motives and that children of parents with alcohol problems who drink solely to cope with negative feelings tend to consume more alcohol than those who do not drink for this reason. The combination of parental alcohol problems and coping motives to drink appeared to be particularly potent in terms of heavy drinking by adolescents.

In addition to supporting the three research hypotheses, we observed that the DMQ has good criterion validity in its prediction of alcohol consumption by adolescents. The psychometric properties of the DMQ and the moderation effects shown here suggest that the DMQ could be a useful process measure in intervention studies, which aim to reduce problem-drinking in young people. Consistent with Cooper's (1994) data, males showed stronger conformity motives to drink than females but a gender difference was not found in internal motives. Further study involving a wider age range of participants may be required to determine whether females are indeed more internally motivated to drink than males.

The strengths of this study are its large sample size, high consent rate, and rigorous sample stratification, which all give external validity of the findings. Another strength is its use of validated measures of parental alcohol problems and motives to drink that, in combination, lend a unique insight into why their children are at risk of developing their own problems with alcohol. However, the cross-sectional, observational nature of the study precludes firm conclusions about the direction of influences and developmental changes and, given the narrow age range of the sample, it was not possible to replicate age effects in alcohol use and drinking motives reported elsewhere (Bradizza *et al.*, 1999; Hussong *et al.*, 1998). Aso, no data were available to study sibling groupings and interactions between children's gender and parent gender. However, the observation that boys are more affected by their fathers' misuse of alcohol than their mothers' and that girls, conversely, are more affected by their mothers' misuse of alcohol than their fathers' (Velleman and Orford, 2001) could usefully be explored in future studies on adolescents' motives to use alcohol.

With these caveats in mind, there are notable practical implications to these findings. Nearly one in five adolescents screened positive for exposure to parental alcohol problems and those identified as children of parents with alcohol problems showed a distinct, maladaptive pattern of drinking and motives to drink. There is good reason for concern for the health and social development of these young people. Of course, not all such children will inevitably have difficulties that can be attributed to parental drinking. Many do not develop any problems or mature out of their problems in their early adult years (Velleman and Orford, 2001). Research has identified a number of factors that can moderate the effects of parental drinking problems on adolescent functioning: high self-esteem or self-concept; a nurturing relationship with a non-alcoholic parent, sibling, or other family member; an internal locus of control; few stressful events in infancy; communication skills; and family cohesion (Jennison and Johnson, 2001; Velleman and Orford, 2001). Understanding how these resilience factors interact with motivations to drink may indeed hold the best promise for effective future interventions for children and families (Cox and Klinger, 2002).

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