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Short Communication

Drunkenness and heavy drinking among 11 year olds - Findings from the UK Millennium Cohort Study

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ABSTRACT

Heavy drinking among young people is linked to negative consequences including other risky behaviours, educational failure and premature mortality. There is a lack of research examining factors that influence heavy and binge drinking in early adolescence as prior work has focused on older teenagers. The objective of this paper was to identify individual and family factors associated with drunkenness and episodes of heavy drinking in early adolescence. We analysed data on 11,046 11 year olds from the UK Millennium Cohort Study. Multivariate logistic regression was used to estimate odds ratios for associations. 1.2% of participants reported having been drunk, and 0.6% reported having had 5 or more drinks in a single episode. Participants who reported drunkenness were more likely to be boys (1.6% vs 0.7%, $p < 0.01$), to have socioemotional difficulties (2.6% vs 1.0%, $p < 0.001$), to report antisocial behaviours (none = 0.6%, 1 = 2.0%, 2 or more = 7.0%, $p < 0.001$), report truancy (6.0% vs 1.0%, $p < 0.001$), smoke cigarettes (12.0% vs 0.8%, $p < 0.001$). Parental drinking did not appear to be associated with the odds of drunkenness. Associated with higher odds of drunkenness were: having friends who drank (OR = 5.17); having positive expectancies towards alcohol (OR 2 + = 2.02); ever having smoked cigarettes (OR = 5.32); the mother-child relationship not being close (OR = 2.17). Associated with a reduced odds of drunkenness was having a heightened perception of harm from drinking 1–2 drinks daily (OR - some risk = 0.48, great risk = 0.40). Our findings support policies aimed at multiple levels, starting in the preadolescent years, which incorporate individual, family, and peer factors.

1. Introduction

Drinking rates among teenagers in the UK are higher than the European average (Hibell et al., 2012). Heavy and binge drinking patterns among young people are of concern as they are linked to negative consequences including educational failure, other risky behaviours and premature mortality, and these drinking patterns potentially track into adulthood (Davies, 2013; Paavola et al., 2004; World Health Organization, 2014). One study from the US estimated that 0.2% of 11 year olds had either been drunk or had drank heavily (Donovan and Molina, 2013), and a school based survey reported that 0.4% of 11–13 year olds in the UK had binge drank (Fuller and Hawkins, 2014). However, there is a lack of research examining the factors that influence heavy and binge drinking in early adolescence as prior work has focused on older teenagers (Davies, 2013; Marshall, 2014). Improving our understanding of the influences linked to heavy drinking patterns in the early adolescent years could help inform alcohol harm reduction strategies. The theoretical framework developed by Kuther (2002) has been tested empirically in previous reports suggesting that peer, parent and family factors are all important influences on drinking behaviours in older teenagers (Cable and Sacker, 2008). Drawing on Kuther's theory of drinking behaviours, the objective of this paper was to identify individual and family factors associated with drunkenness and episodes of heavy drinking in early adolescence. To do this, we analysed data from the UK Millennium Cohort Study when participants were aged 11 years.

2. Methods

The Millennium Cohort Study (MCS) is a UK nationally representative prospective cohort study of children born into 19,244 families between September 2000 and January 2002. Participating families were selected from a random sample of electoral wards (an administrative area) with a stratified sampling design to ensure adequate representation of all four UK countries, disadvantaged and ethnically diverse areas. The first sweep of data was collected when cohort members were around 9 months and the subsequent four sweeps of data were collected at ages 3, 5, 7, and 11 years. At the 11 year sweep 69% of the original sample participated in the survey. Interviews were conducted during home visits with cohort members and their carers during which questions were asked about alcohol consumption, socioeconomic circumstances and

Abbreviations: MCS, Millennium Cohort Study.

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family relationships. Cohort members filled out a self-completion booklet in a private place within the home.

Cohort members were asked whether they had ever had an alcoholic drink, and if they said 'yes' they were asked "Have you ever drunk enough to feel drunk?", and "have you ever had 5 or more alcoholic drinks at a time?" We investigated whether reported drunkenness and episodes of heavy drinking were associated with parent and friends' drinking, cohort member characteristics and family circumstances.

Based on parent reported frequency and amount drank, parents' drinking was categorised as None; Light/moderate - those who drank but were not heavy/binge drinkers; Heavy/binge (Kelly et al., 2016). Friends' drinking was assessed by asking cohort members "How many of your friends drink alcohol?", response categories were recoded: none of them as no; some/most/all of them as yes; don't know was retained as a separate category.

Cohort member characteristics were: gender; socioemotional difficulties (normal vs high total difficulties score on the parent reported Strengths and Difficulties Questionnaire); antisocial behaviours (cohort member reported - noisy or rude in a public place, stolen something from a shop, written things or sprayed paint on a building, fence or train etc., damaged anything in a public place that didn't belong to you, categorised 0, 1, 2 or more); cohort member reported truancy (yes/no); cohort member reported ever smoked cigarettes (yes/no); positive expectancies towards alcohol (summed score of cohort member reported: "Drinking beer, wine, or spirits is a way to make friends with other people"; "It is easier to open up and talk about one's feelings after a few drinks of alcohol"; "Drinking alcohol makes people …worry less; …happier with themselves"). Negative expectancies towards alcohol (summed score of cohort member reported: "Drinking alcohol ... gets in the way of school work; ... makes it hard to get along with friends"; "if I drank alcohol without my parents' permission I would be caught and punished"). Cohort member perception of harm due to alcohol was assessed by the question "How much do you think people risk harming themselves if they drink one or two alcoholic drinks nearly every day?" (no/slight risk, some risk, great risk).

Markers of family circumstances were: parent reported family income (equivalised quintiles), parental supervision (weekday and weekend frequency of cohort member spending unsupervised time with friends as reported by parents to create a three category variable: rarely/never, sometimes, often). Markers of family relationships were: parent reported frequent battles of will with cohort member (yes/no); mother-cohort member closeness (mother reported - extremely/very close vs fairly/not very close).

2.1. Study sample

Data on cohort member drinking were available for 12,680 participants. Missing data on covariates reduced the sample to 11,046 (87.1%), as follows: friends drinking = 67; socioemotional difficulties = 481; antisocial behaviours = 27; positive expectancies = 193; negative expectancies = 322; perception of harm = 342; parental supervision = 88; frequent battles = 1115; mother-cohort member closeness = 768.

2.2. Statistical analysis

We ran multivariate logistic regression models to estimate associations between individual and family characteristics and adolescent drunkenness and heavy drinking episodes. Estimates presented are simultaneously adjusted for all variables. All analyses were carried out using Stata version 14.1 (Stata Corp) and included survey weights to take account of the unequal probability of being sampled and survey attrition.

3. Results

1.2% of study participants (n = 108) reported having ever been drunk and 0.6% (n = 59) reported having had 5 or more drinks in a single episode. Table 1 shows percents and adjusted odds ratios for drunkenness and percents of having 5 or more drinks in a single episode by investigated factors. The proportion of cohort members having had 5 drinks or more was too low to estimate multivariate associations with any degree of reliability. Cohort members who reported drunkenness were more likely to be boys (1.6% vs 0.7%, $p < 0.01$), to have socioemotional difficulties (2.6% vs 1.0%, $p < 0.001$), to report antisocial behaviours (none = 0.6%, 1 = 2.0%, 2 or more = 7.0%, $p < 0.001$), report truancy (6.0% vs 1.0%, $p < 0.001$), smoke cigarettes (12.0% vs 0.8%, $p < 0.001$), to be from poorer families (1.7% in the poorest quintile vs 0.3% in richest quintile, $p < 0.001$). Similar patterns of association were seen for cohort members who reported having had 5 or more drinks in a single episode. Parental drinking did not appear to be associated with the odds of drunkenness. Independently, having friends who drank was associated with higher odds of drunkenness (OR = 5.17), as was having positive expectancies towards alcohol (OR 2+ = 2.02), ever having smoked cigarettes (OR = 5.32) and the relationship between mother and child not being close (OR = 2.17). Factors associated with a reduced odds of drunkenness were heightened perception of harm from drinking 1–2 drinks daily (OR - some risk = 0.48, great risk = 0.40) and negative expectancies (OR 3 = 0.69, 2 = 0.59 – although this association was not statistically significant).

4. Discussion

Only a small proportion – just over 1% - of 11 year olds in this UK population sample reported having been drunk and an even smaller proportion reported having had 5 or more drinks in a single episode. Having friends who drank, having positive expectations towards alcohol and ever having smoked had the largest magnitude of association with reported drunkenness. Our findings largely support Kuther's theory of behaviour (Kuther, 2002) in that markers of supportive family relationships were linked to a reduced chance of drunkenness and heavy drinking, and that expectancies towards alcohol, and perceptions of the potential harms due to daily drinking were associated with cohort member drinking in the expected way.

Similar to our findings, a school based survey in the UK (Fuller and Hawkins, 2014) estimated that 0.4% of 11–13 year olds had drank 5 or more drinks in a single episode. A study from the US (Donovan and Molina, 2013) reported lower rates of drunkenness and heavy drinking (0.2%) among 11 year olds, but this dissimilarity in estimates might be explained by country level differences in attitudes and social norms towards drinking. Similar to our previous findings that having friends who drank was strongly associated with ever having had a drink among 11 year olds (Kelly et al., 2016), we found that having friends who drank was strongly correlated with reported drunkenness. Unlike our prior work on drinking in this age group, we found here that parental drinking was not linked to drunkenness. These observations of a lack of association with parents drinking and strong associations with friends drinking, smoking and positive expectancies towards alcohol perhaps suggest that, when it does occur, heavy drinking at this age is more likely to take place in peer group settings.

The strengths of this analysis include that we used data from a large sample representative of 11 year olds in the UK. We were able to simultaneously examine relationships with parents and friends drinking along with rich contextual information about young people's understanding of the risk of drinking alcohol, their expectancies towards alcohol and family relationships. Potential limitations include that, due to data availability, the analyses were cross sectional thus causal inference cannot be drawn. Data on cohort member and friends' drinking were reported by the cohort member and thus may be prone to under or over estimation, although closed questions as used in this study have been shown to be valid markers of alcohol consumption in adolescents (Lintonen et al., 2004). There were no data available on the context of cohort member drinking and so it was not possible to assess the circumstances in which, where, or with whom, 11 year olds experienced drunkenness.

A study comparing young people in Italy and Finland showed that expectations around drinking were shaped by family, peers and broader societal norms (Rolando et al., 2012), and a recent review concluded that interventions not solely focused on alcohol, including aspects aimed at improving overall wellbeing such as self-esteem, were most effective in reducing drunkenness and heavy drinking among teenagers (Foxcroft and Tsertsvadze, 2012). Consistent with these reports we found that individual factors such as other risky behaviours, including

Table 1
Associations of drunkenness and heavy drinking among 11 year olds with individual and family factors, Millennium Cohort Study.

	Covariates %	Drunkenness		5+ drinks %
		%	Adjusted[a] OR (95%CI)	
Mother's drinking				
None	21.8	0.9	1	0.6
Light/moderate	59.1	1.2	1.27 (0.65 to 2.47)	0.5
Heavy/binge	16.3	1.3	0.99 (0.41 to 2.38)	0.7
Missing	2.8	1.8	1.49 (0.41 to 5.39)	0.7
Father's drinking				
None	8.1	0.8	1	0.2
Light/moderate	36.4	1.1	1.53 (0.50 to 4.62)	0.5
Heavy/binge	17.3	0.7	0.76 (0.23 to 2.47)	0.5
Father absent from household	27.6	1.6	1.06 (0.36 to 3.11)	0.9
Missing	10.6	1.3	1.19 (0.35 to 4.00)	0.3
Friends drink				
No	78.0	0.6	1	0.1
Yes	8.2	6.2	5.17 (3.12 to 8.56)***	4.3
Don't know	13.7	1.6	1.83 (0.94 to 3.57)	0.9
Alcohol expectancies				
Positive				
0	51.1	0.6	1	0.2
1	23.1	1.1	1.31 (0.66 to 2.61)	0.5
2+	25.9	2.4	2.02 (1.06 to 3.86)*	1.3
Negative				
3	51.6	1.0	0.69 (0.37 to 1.29)	0.3
2	32.4	1.1	0.59 (0.31 to 1.11)	0.7
0 or 1	16.1	1.9	1	1.1
Perception of harm from 1 to 2 drinks per day				
Great risk	54.4	0.7	0.40 (0.22 to 0.72)**	0.2
Some risk	33.3	1.0	0.48 (0.27 to 0.87)*	0.6
No/slight risk	12.2	3.6	1	2.0
Gender				
Girl	49.3	0.7	1	0.5
Boy	50.7	1.6	1.67 (0.94 to 2.96)	0.7
Equivalised household income				
Richest	20.1	0.3	1	0.2
Second	19.9	0.5	1.36 (0.49 to 3.76)	0.0
Third	20.4	1.9	4.84 (2.02 to 11.63)***	0.8
Fourth	21.0	1.5	2.76 (1.08 to 7.06)*	0.9
Poorest	18.7	1.7	2.76 (1.16 to 6.57)*	0.8
Socioemotional difficulties				
No	86.7	1.0	1	0.5
Yes	13.3	2.6	1.08 (0.56 to 2.06)	1.3
Cigarette smoking				
No	96.9	0.8	1	0.4
Yes	2.9	12.0	5.32 (2.72 to 10.40)***	7.6
No answer	0.2	2.6	1.02 (0.10 to 10.66)	0.0
Anti-social behaviours				
0	76.8	0.6	1	0.2
1	18.3	2.0	1.66 (0.89 to 3.07)	0.9
2+	4.8	7.0	1.92 (0.85 to 4.34)	4.8
Truancy				
No	95.9	1.0	1	0.4
Yes	3.5	6.0	1.67 (0.84 to 3.32)	5.4
No answer	0.7	0.0	–	0.0
Un-supervised time at weekend/weekday				
Never/rarely	29.8	0.7	1	0.4
Sometimes	30.6	1.1	1.31 (0.69 to 2.51)	0.5
Often	39.6	1.6	1.44 (0.72 to 2.87)	0.8
Relationship between mother and child				
Very/extremely close	93.3	1.0	1	0.5
Fairly/not very close	6.8	3.0	2.17 (1.00 to 4.72)*	0.9
Frequent battles with parents				
No	70.8	0.9	1	0.4
Yes	29.2	1.8	1.22 (0.70 to 2.14)	0.9

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.
[a] Models simultaneously adjust for all variables.

smoking, were related to drunkenness at age 11. We also found some evidence that supportive family relationships were linked to reduced odds of drunkenness. Our observations that awareness of the harms from alcohol is associated with reduced odds of drunkenness lend support to strategies to empower young people to say no to alcohol regardless of their expectancies surrounding the putative benefits of drinking or their friends' drinking behaviour. This is particularly important, as undoubtedly, peer influences become stronger in shaping young people's behaviours as adolescence proceeds. Thus, our findings support policies aimed at multiple levels, starting in the preadolescent years, which incorporate individual, family, and peer factors.

5. Conclusion

The proportion of UK 11 year olds reporting drunkenness and drinking heavily is very low with the vast majority of children at this age not having drank alcohol or done so heavily. Identifying factors linked to heavy drinking early in adolescence helps to inform harm reduction strategies not just confined to the teenage years but with potential knock on benefits across the rest of the lifecourse.

Conflicts of interest

None.

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