

Full title: An exploration of the impact of non-dependent parental drinking on children

Running title: Impact of non-dependent parental drinking

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Authors:

Lucy Bryant, Institute of Alcohol Studies, Alliance House, 12 Caxton Street, London SW1H 0QS (for correspondence: 02072224001, lbryant@ias.org.uk)

Anne Marie MacKintosh, Institute for Social Marketing, University of Stirling, Stirling, FK9 4LA

Linda Bauld, Usher Institute, University of Edinburgh, Doorway 1, Old Medical School, Teviot Place, Edinburgh, EH8 9AG

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ABSTRACT

Aims: To examine the impact of non-dependent parental drinking on UK children aged 10-17.

Methods: Cross-sectional survey of UK parents and their children in 2017 (administered to one parent in a household, then their child, totalling 997 adults and 997 children) (Foster *et al.*, 2017), providing linked data on parental drinking from parent and child perspectives. The survey included measures of parents' alcohol consumption and drinking motivations (both reported by parents), and children's exposure to their parent's drinking patterns and children's experiences of negative outcomes following their parent's drinking (both reported by children), plus sociodemographic measures.

Results: Logistic regression analysis indicates a significant positive association between parental consumption level and children reporting experiencing negative outcomes. Witnessing a parent tipsy or drunk and having a parent who reported predominantly negative drinking motives were also associated with increased likelihood of children reporting experiencing negative outcomes. Age was also associated, with older children less likely to report experiencing negative outcomes following their parent's drinking.

Conclusions: Findings suggest levels of and motivations for parental drinking, as well as exposure to a parent tipsy or drunk, all influence children's likelihood of experiencing negative outcomes.

SHORT SUMMARY

Within non-dependent levels of alcohol consumption, increases in alcohol consumption by parents and witnessing parents tipsy or drunk increases the likelihood of negative outcomes for children. Negatively-motivated parental drinking episodes also increase this likelihood.

INTRODUCTION

A substantial proportion of UK children live with a parent drinking at a non-dependent level; estimates suggest around 30% of UK children aged under-16 live with one or more binge drinking parents, and 22% with a hazardous drinker (Manning *et al.*, 2009). But little is understood about impacts to children living with non-dependent drinkers (Adamson and Templeton, 2012).

There is reason to suspect that non-dependent parental drinking has the capacity to impact children. Not only has research shown children to be highly aware of their parents' drinking (Eadie *et al.*, 2010) and heavy drinking occasions (Valentine *et al.*, 2012), and to develop early understandings of alcohol, at least in part, at home (Velleman, 2009; Valentine, *et al.*, 2014), but what work exists examining non-dependent parental drinking suggests that harm may not be confined to children of dependent drinkers (Adamson and Templeton, 2012). A systematic review found non-dependent parental drinking was associated with harm to children in almost two-thirds of associations examined (Rossow *et al.*, 2016). Further, harms to children including increased risk of alcohol initiation or drinking escalation (Randolph *et al.*, 2018), increased risk of adolescent alcohol misuse (Yap *et al.*, 2017) and later life alcohol-related hospitalisation (Hemmingsson *et al.*, 2017) have all been found to be associated with non-dependent parental drinking.

Further, other factors may mediate such associations. For example, children's attitudes towards parental drinking are affected by parents' drinking motivations – 7 to 12-year-olds view drinking negatively in most contexts except celebrations (Eadie

et al., 2010). Could drinking motives affect impacts for, not only attitudes of, children? Exposure to parental drinking patterns may also mediate outcomes; examining parental alcohol use and its association with preteen alcohol use, Smit *et al.*, (2018) demonstrated this association to be positively mediated by exposure to parental drinking. Further, grey literature findings show children are more likely to report negative outcomes from parents' drinking (like worry or embarrassment) if they had seen their parent drunk or tipsy, irrespective of how much parents regularly drank (Foster *et al.*, 2017).^{*} Also, demographic features; the influence of parental drinking on children's drinking has been shown to vary with children's age (Randolph *et al.*, 2018: 97), but age effects regarding other harms to children remain underexplored. In a 2012 literature review, socioeconomic advantages were proposed as a possible protective factor for children experiencing dependent parental drinking (Adamson and Templeton, 2012), but this has not been examined regarding non-dependent parental drinking. Further, how might parent gender be associated with parental drinking outcomes for children? Meta-analysis and systematic review studies have reported mixed results regarding associations with mothers' or fathers' drinking and their children's drinking (Rossow *et al.*, 2016; Yap *et al.*, 2017).

While findings presented suggest negative outcomes for children can occur through non-dependent parental drinking, the nature of the association remains underexplored; particularly whether any association is mediated through the

^{*} The same survey data are used in the present study – see methods for details.

demographic and contextual factors discussed – eg exposure to parents' drinking patterns.

There is a pressing need to examine this issue. Addressing the gaps raised here supplement the ever-expanding, international, alcohol's harm to others literature (eg Callinan *et al.*, 2016) with an underexplored perspective of this harm – that of the child. Further, no official government guidance for parents on how their drinking might affect their children exists; the Chief Medical Officer for England's published guidance only advises how parental low-level drinking might influence children's own alcohol use (Department of Health, 2009).

This study aims to address this gap in the literature, examining the impact of non-dependent parental drinking on UK children aged 10-17. Firstly, it aims to investigate what, if any, association exists between parental alcohol consumption levels and reports of negative outcomes by children. Secondly, it aims to examine whether parents' drinking motivations, exposure to parents' drinking patterns, and sociodemographic variables, including socioeconomic status, parent gender, and child age, mediate any association identified.

METHOD

Design

An online cross-sectional survey designed by the Institute of Alcohol Studies, administered in March/April 2017, with initial findings published in grey literature

(Foster *et al.*, 2017). This survey was administered to one parent in a household, then their child, online with no researcher present – responses related to that parent and the child completing the survey only, allowing analysis of linked data to examine parental drinking from parent and child perspectives. The survey took roughly 25 minutes for the parent and child to complete in total. Language in the children's survey fit with reading age of participants.

Sample

The survey was presented to a sample of 997 parents and a child of theirs aged 10-17, providing responses from 997 adults and 997 children in total. Quotas were applied to ensure the sample was regionally representative of the UK adult population, and that at least 200 children surveyed were aged 10-11, 12-15 and 16-17. Weights to parents' gender, regional location, and social class were applied to the data, to ensure that the sample of parents matched the demographic profile of the UK adult population. Gender and social class weighting was based on the National Readership Survey (National Readership Survey, 2017), and regional weighting was applied following this to redress regional profile balance; this weighting was not intended to match the age profile of the sample to the UK adult population, as this would not reflect the UK parental population.

Procedure

Market and social research firm, ORB International, administered the survey and two preliminary focus groups to pilot some survey items – one of parents and one of

children aged 11-13, both mixed sex, and of Social Grades A and B,** with eight participants. Further to feedback gathered from these focus groups, survey items were developed with reference to some existing survey material on similar topics (including the Smoking, drinking and drug use among young people in England survey (NHS Digital, n.d.)) and in consultation with a panel of expert advisors. Survey participants were drawn from an existing ORB International database; these respondents receive incentives from ORB through a points system for surveys completed. 29 respondents were removed through quality control processes.*** The University of Stirling ethics committee provided ethical approval.

Measures

Alcohol consumption (parents'): a variant of the graduated frequency drinking assessment tool was presented to parents. However, some discrepancies between responses to these survey items suggested these had not been fully understood by all participants. Because of this, one survey item within this tool was used alone to measure consumption, asking participants on how many days in the last four weeks they had drunk a range of UK unit† amounts. To improve the reliability of this

** These relate to a social grade "classification system based on occupation" (National Readership Survey, n.d.), more detail can be found here: <http://www.nrs.co.uk/nrs-print/lifestyle-and-classification-data/social-grade/>.

*** Those frequently repeating answers, completing in unfeasibly short time, or failing unrelated quality check questions.

† One UK unit "equals 10ml or 8g of pure alcohol, which is around the amount of alcohol the average adult can process in an hour" (NHS, 2018).

measure, participants were grouped into lower, middle and upper consumption tiers, allowing comparison between participants without needing to rely on exact consumption figures. These tiers were created by splitting participants into tertiles, based on estimated total 28-day unit consumption (lower: n=308, range 0-7.5 units; middle: n=361, range 8-26 units; heavier consumption: n=328, range >26 units); 30% of parents were categorised as low consumption, 36% as medium consumption and 34% high consumption.^{††}

To assess children's exposure to their parent's consumption patterns, measures of whether children had seen their parent tipsy or drunk were included, based on survey items:

When someone is tipsy it means that they have drunk enough to be slightly wobbly, feel slightly less in control and might sound a little bit funny. They might be described as being 'a little bit drunk.' Do you think you have ever seen your [GUARDIAN] tipsy?

When someone is drunk it means they have drunk enough alcohol to feel less in control, are wobbly or perhaps saying things or doing things that they wouldn't normally do or say without a drink (good or bad things). Do you think you have ever seen your [GUARDIAN] drunk?

^{††} While there was no specific requirement on drinking levels or exclusion criteria for those who might be classed as dependent drinkers for this sample, the consumption levels reported for the lower and medium tiers suggest these are less likely to comprise dependent drinkers.

Drinking motivations (parents'): parents were asked to rate how often they drank for various reasons, and at analysis stage, motives were classed as positive or negative (Table 3).^{†††} A participant's average score for positive motives was derived by summing scores for positive items and dividing it by the total number of positive items (n=4). Similarly, average negative score was derived by summing scores for the three negative items and dividing by three. Responses were then converted to a binary variable, indicating whether a respondent predominantly drank for negative reasons or not (i.e. where the mean negative motives score was greater than the mean positive motives score). Respondents with missing values on one or more drinking motive item were coded as 'not stated/missing'.

Children's negative outcomes from their parent's drinking: a binary variable showing whether children had ever experienced a negative outcome as a result of their parent's drinking was created from two survey items presenting such negative outcomes to children; children selected which, if any, of a range of negative outcomes they had experienced as a result of this through the two items (Table 2). Those who answered 'no' to all the items were classed as reporting no negative outcomes while those who answered 'yes' to one or more were classed as reporting any negative outcomes.

^{†††} This positive or negative classification does not represent a value judgement from researchers; it intends to isolate drinking reported to be motivated by a wish to avoid or alleviate negative states. Further, while some drinking motive items presented incorporate a person's alcohol expectancies (i.e. drinking "To relax or feel happier" incorporates the expectancy that drinking will achieve this state), the survey item's wording clearly asked why respondents drank, not what they expected to occur from this.

Sociodemographic measures: child's age and the surveyed parent's gender were recorded by parents. Socioeconomic statuses (SES) of children were based on their parent's reported occupation; these responses were grouped into a binary variable, Social Grade ABC1 or C2DE.[‡]

Analysis

Data were analysed using SPSS v23. Descriptive statistics have been weighted as previously described so that frequencies reflect the demographic profile of the UK adult population. Bivariate analysis, using the Pearson chi-square test has been used to examine differences, by age of child, in perceived negative outcomes from their parent's drinking. Multivariate analysis, using logistic regression, has been run to examine the association between child reports of any negative outcomes from their parent's drinking (outcome variable) and a number of control variables. Control variables were entered in blocks to enable assessment of the contribution of additional control variables as they were added. The blocks were as follows: Block 1 – child's age, gender of parent, social grade; Block 2 – parent's level of alcohol consumption; Block 3 – whether or not the child reported having ever seen their parent tipsy; Block 4 – whether or not the child reported having ever seen their parent drunk; Block 5 – whether or not parent's motives for drinking were predominantly negative. As demographic variables were controlled for in the logistic

[‡] These relate to a social grade "classification system based on occupation" (National Readership Survey, n.d.), more detail can be found here: <http://www.nrs.co.uk/nrs-print/lifestyle-and-classification-data/social-grade/>.

regression it has been run on unweighted data. As a sensitivity analysis the logistic regression was also run on weighted data and produced consistent results.

As the parent and child responses are not independent (i.e. the child responses relate to their parent's drinking) the data from both parent and child is linked, resulting in a total of 997 unweighted cases for analysis.

RESULTS

Table 1 shows the characteristics of the sample of parents and children. After weighting, approximately half (51%) of parents in the survey were female and 54% were classified as ABC1 (the higher of the two Social Grade classifications used). Children's ages ranged from 10 to 17 years with a mean age of 13.4 years (SD=2.56).

Table 1

Over half (51%) of the children indicated that they had ever seen their parent tipsy while 31% indicated having ever seen their parent drunk. The maximum number of negative outcomes reported was 11 (Figure 1), with a median of 0 (inter-quartile range = 1). More than a third (35%) of children indicated at least one negative outcome from their parent's drinking (Table 2). A higher proportion of younger children (10 to 13 years) reported any negative outcomes (39%) compared with 32% of 14 to 17 year olds who did so ($p < 0.05$). The most commonly reported negative outcomes from parental drinking, for both age groups, were their parent giving them

less attention than usual (12%) and being put to bed later than usual (11%), with both being reported by a higher proportion of 10 to 13 year olds compared with 14 to 17 year olds. The younger age group were also more likely to report being put to bed earlier (7% of 10 to 13 year olds as opposed to 2% of 14 to 17 year olds, $p<0.001$) and spending less time doing homework (8% of 10 to 13 year olds as opposed to 3% of 14 to 17 year olds, $p<0.01$).

Figure 1

Table 2

The vast majority of parents (82% to 95%) indicated ever drinking for each positive motive presented (Table 3). More than half (56% to 60%) drank for each negative reason presented. For the vast majority of parents (86%), their positive drinking motives score was greater than or equal to their negative motives score; for 10% of parents their motives were predominantly negative. The remaining 4% could not be categorised, due to missing responses on one or more items.

A logistic regression analysis indicated that, while the likelihood of the child reporting any negative outcomes from their parent's drinking did not vary significantly by parent's gender or by social grade, it did vary by the child's age. Consistent with the bivariate analysis, older children (aged 14 to 17 years) were less likely than younger ones (10 to 13 years) to report negative outcomes (Adj OR = 0.49, 95% CI 0.36 to 0.67, $p<0.001$) (Table 4).

After controlling for demographics (parent's gender, Social Grade (ABC1 v C2DE) and age of child) a significant positive association was found between parental consumption level and child's reporting of negative outcomes. A higher level of parental alcohol consumption was associated with increased likelihood of the child reporting negative outcomes. Children of parents who drank at the medium level were more likely than those of low consumption parents to report negative outcomes (Adj OR = 1.71, 95% CI 1.16 to 2.53, $p=0.007$), while children of parents who drank at the highest level of consumption were more than twice as likely to report negative outcomes (Adj OR=2.40, 95% CI 1.74 to 3.31, $p<0.001$) compared with children of those who drank less.

Children reporting having seen their parent tipsy (but not drunk) (Adj OR=2.47, 95% CI 1.66 to 3.67, $p<0.001$) or drunk (including having also seen them tipsy at any time) (Adj OR = 7.45, 95% CI 5.10 to 10.88, $p<0.001$) was also associated with increased likelihood of reporting negative outcomes.

When parents' motives for drinking were added to the model it made a significant contribution (χ^2 for block = 11.524, $p=0.003$). Having a parent who reported predominantly negative motives for drinking was associated with greater likelihood of the child reporting negative outcomes (Adj OR = 2.33, 95% CI 1.39 to 3.89, $p=0.001$).

Table 3

Table 4

DISCUSSION

Likelihood of children experiencing a negative outcome increases with parental alcohol consumption

35% of children reported at least one of the negative outcomes presented, due to their parent's drinking (drinking as reported by parents). This supports previous work suggesting that harm is not confined to children of dependent drinkers (e.g. Rossow *et al.*, 2016). Results of the logistic regression offer further insight. Children of parents whose drinking placed them within the middle consumption tier of this sample were around one and a half times more likely to report a negative outcome from their parent's drinking, compared with children of parents in the lower consumption tier; children of parents in the highest consumption tier were more than twice as likely to report a negative outcome from their parent's drinking as the children of parents in either the lower or middle consumption tier. This suggests that harms to children might begin from low levels of parental drinking, and that the likelihood of this harm increases with parental consumption.

Older children were found to be less likely to report negative outcomes resulting from their parent's drinking, possibly because parental influence decreases, or children's perspectives on drinking change, with age (eg Eadie *et al.*, 2010) – younger children may be more inclined to link negative experiences with parental drinking.

Alternatively, it may be because some outcomes presented were more relevant to younger children. Table 2 shows that there were statistically significant differences in reporting levels of four outcomes between children aged 10-13 and 14-17; it may be

useful to replicate this work with an alternative list of outcomes, excluding these, to test if this is the case. No effect was identified for parent gender or SES – surprising considering previous proposals that higher SES may be protective when parents drink dependently (Adamson and Templeton, 2012) and that mixed findings of associations between mothers' or fathers' drinking and children's drinking have previously been identified (Rossow *et al.*, 2016; Yap *et al.*, 2017).

Further research is required to understand mechanisms for the associations found and absence of gender and SES effects.

Witnessing a parent tipsy or drunk increases the likelihood of a child experiencing a negative outcome

Results of the logistic regression suggest that, irrespective of parental drinking level, witnessing parents tipsy more than doubles the likelihood of children experiencing a negative outcome, while seeing parents drunk increases it further – concerning, given that more than half (51%) of children reported seeing their parent tipsy, and almost a third (31%) drunk. These exposures to parental drinking patterns appear to warrant further investigation.

Drinking motives matter – negatively motivated parental drinking episodes are associated with negative outcomes for children

Children whose parents reported predominantly negative motives for drinking were more than twice as likely to report a negative outcome, irrespective of how much

their parent drank overall, or whether they had seen them drunk or tipsy. This is a new finding; while previous research has noted that drinkers reporting certain drinking motives may more often experience harmful outcomes than other drinkers (eg Coleman and Cater, 2005), this suggests drinking motivations of non-dependent parental drinkers are associated with negative outcomes for children. Further research would be beneficial to understand why this association may be present.

Limitations

An online panel is an appropriate method of recruiting parents and quota controls help to ensure recruitment of parents with a range of demographic characteristics. However, as a non-probability sample, this limits generalisability to the UK parental population. There was no specific requirement or exclusion based on drinking levels for this sample. It is possible, therefore, that a portion of respondents would be categorised as dependent drinkers, but without an AUDIT C measure or similar, we cannot identify them. However, as the results indicate that the medium tier (with 28-day consumption of 8-26 UK units) showed increased likelihood of children reporting negative outcomes, this suggests that the results hold for a group who are less likely to comprise dependent drinkers. Survey methodologies introduce self-report limitations; surveys were administered online with no researcher present, meaning parents had the opportunity to influence children's responses. Children may incorrectly categorise instances of parents drunk or tipsy, or fail to attribute some negative outcomes they experience to their parent's drinking (as has been shown regarding their own drinking (Gmel *et al.*, 2009)). The harmful outcomes presented to children were likely not homogenous in the 'level' of harm they represented;

however, this work was not attempting to measure harm levels, but harm's presence. Further, it is possible parental drinking occasions discussed by children here do not correspond with their parent's predominant drinking motivations (although using a variable approximating a respondent's most common motivation limits this possibility). Additionally, conversion of measures to binary variables (facilitating robust statistical analysis) involves some data loss. It is also important to consider that a third variable effect may be at work in the associations identified.

Concluding thoughts

This research contributes to an emerging base examining impacts of non-dependent parental drinking on children. Not only does this work confirm suggestions that harm to children may not be confined to children of parents drinking at dependent levels but demonstrates a need to consider parental drinking levels and motivations, and exposure to parental drinking patterns, in order to create the most positive environments for children. This is highly relevant to UK policymakers, and government guidance ought to be updated to reflect these findings. Parents drinking non-dependently and their children represent a substantial proportion of the population; this research highlights a need to ensure that these parents are able to make well-informed decisions for their children.

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CONFLICT OF INTEREST STATEMENT:

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TABLES:

Table 1: Sample characteristics

	Unweighted		Weighted	
	n	%	n	%
Parents:				
Gender				
Male	395	40	490	49
Female	602	60	510	51
Social Grade				
ABC1	656	66	540	54
C2DE	341	34	460	46
Total parents	997	100	1000	100
Children:				
Age				
10 yrs	194	19	195	20
11 yrs	136	14	129	13
12 yrs	89	9	92	9
13 yrs	85	9	84	8
14 yrs	90	9	95	9
15 yrs	80	8	78	8
16 yrs	184	18	182	18
17 yrs	139	14	145	14
Mean age (SD)	13.4	(SD=2.55)	13.4	(SD=2.56)
Total children	997	100	1000	100

Table 2: Child reporting of negative outcomes arising from their parent's drinking

<i>Base: all children (weighted)</i>	Total <i>(n=1000)</i>	Age (yrs)		p value^{‡‡}
		10-13 <i>(n=500)</i>	14-17 <i>(n=500)</i>	
	%	%	%	
Be more unpredictable than normal with you	8	8	8	n.s.
Give you less attention than usual	12	15	10	p<0.05
Miss a family meal or gathering	5	5	5	n.s.
Argue with you more than normal	7	6	7	n.s.
Put you to bed earlier than usual	5	7	2	p<0.001
Been less comforting and sensitive with you than normal	6	7	5	n.s.
Put you to bed later than usual	11	13	9	p<0.05
Made you late for school	1	1	1	n.s.
Spend less time doing your homework	6	8	3	p<0.01
Pay less attention at school	3	3	3	n.s.
Miss an event/occasion you were supposed to go to (like a family dinner)	3	3	2	n.s.
Play less than normal	4	5	3	n.s.
Think that your parents argue more than normal	8	7	8	n.s.
Any of above negative outcomes	35	39	32	p<0.05

^{‡‡} χ^2 test for differences between age groups

Table 3: Parental reporting of motives for drinking (frequency of drinking for these reasons)

Frequency of drinking for these reasons	Never	Ever	<i>Rarely</i>	<i>Some of the time</i>	<i>Almost always</i>
Positive motives					
To relax or feel happier	5	95	9	56	29
Because it makes social gatherings more fun	10	90	14	56	21
Because it is fun	12	88	17	54	16
Because you like the feeling / get a buzz	18	82	24	45	13
Negative motives					
Because it helps when you feel depressed or nervous	40	60	27	26	7
To escape your problems	41	59	26	26	7
So as not to feel left out	44	56	32	20	4

Base: all respondents (n=1000, weighted)

Table 4: Logistic regression of association between demographics, parental consumption, children's reported exposure to parental drinking patterns, parental consumption motivation measures, and child reporting any negative outcomes from parent's alcohol consumption

		Whether child reported any negative outcomes 1 = Yes (n=358), 0 = No (n=639)				
		N	AOR ^{††}	95% CI Lower	95% CI Upper	P
Block 1	Child's age					
	10 to 13 years	504	Ref			
	14 to 17 years	493	0.49	0.36	0.67	<.001
	Gender (of parent)					
	Male	395	Ref			
	Female	602	0.97	0.71	1.33	.854
Block 2	Social grade					
	C2DE	341	Ref			
	ABC1	656	1.36	0.99	1.88	.059
Block 3	Parent's alcohol					<.001
	Low	308	Ref			
	Medium v low	361	1.71	1.16	2.53	.007
	High v medium/low	328	2.40	1.74	3.31	<.001
Block 4	Whether seen parent tipsy or drunk					<.001
	No – neither drunk nor tipsy	411	Ref			
	Yes – tipsy but not drunk	219	2.47	1.66	3.67	<.001
	Yes – drunk (including tipsy and drunk)	304	7.45	5.10	10.88	<.001
	Not sure/not stated	63	1.45	.76	2.76	.254
Block 5	Parent's motives for drinking					.003
	Positive motives at least equal to negative	862	Ref			
	Negative motives outweigh positive	91	2.33	1.39	3.89	.001
	Missing/not stated	44	0.73	0.33	1.61	.433
Model summary for each block and final model						
Test of model coefficients					Nagelkerke R ²	
	χ^2	df	p			
Block 1	11.184	3	.011		0.02	

Block 2	88.546	2	<.001	0.13
Block 3	127.802	3	<.001	0.28
Block 4	11.524	2	.003	0.29
Final model [§]	239.057	10	<.001	0.29

Base: all respondents, parents and children linked (unweighted n=997)

††† adjusted for all other variables in the model, Adj OR, adjusted odds ratio (based on final model); ref, reference category; 95% CI, 95% confidence interval.

§ Hosmer & Lemeshow (final model) $\chi^2= 6.805$, df=8, p=0.56. Cases correctly classified: 74.5%

FIGURE HEADINGS AND LEGENDS:

Figure 1:

Heading: Child reports of negative outcomes from parent's drinking

Legend: The percentage of children reporting range of totals of negative outcomes experienced.