

Clare McCormack<sup>1,2</sup>, Delyse Hutchinson<sup>1,2,3,4,5</sup>, Lucy Burns<sup>1</sup>, Judy Wilson<sup>1</sup>, Elizabeth Elliott<sup>6</sup>, Steve Allsop<sup>7</sup>, Jake Najman<sup>8</sup>, Craig Olsson<sup>4</sup>, Sue Jacobs<sup>9</sup>, Richard Mattick<sup>1</sup>

<sup>1</sup>National Drug and Alcohol Research Centre, UNSW, Australia. <sup>2</sup>Australian Centre for Perinatal Science, UNSW, Australia. <sup>3</sup>Murdoch Children's Research Institute, Royal Children's Hospital, Australia. <sup>4</sup>Centre for Social and Early Emotional Development, Deakin University, Australia. <sup>5</sup>Department of Paediatrics, and School of Psychological Sciences, University of Melbourne, Australia. <sup>6</sup>Paediatrics and Child Health, University of Sydney, Australia. <sup>7</sup>National Drug Research Institute, Curtin University, Australia. <sup>8</sup>Queensland Alcohol & Drug Research Education Centre, University of QLD, Australia. <sup>9</sup>Dept of Obstetrics, Royal Prince Alfred Hospital, Australia.

Contact: c.mccormack@unsw.edu.au

## Introduction

A significant number of women continue to consume alcohol while pregnant, with rates in Australia estimated to be 37%<sup>1</sup>. Prenatal exposure to alcohol is associated with increased risk of birth defects, and poor developmental outcomes.

Choosing to drink alcohol once pregnancy is recognised is a different behaviour to drinking alcohol without awareness of pregnancy, and thus may be associated with different predictors. The period of pregnancy between conception and recognition is a unique period that warrants focussed study.

However, it is often unclear whether alcohol consumption prior to pregnancy recognition is taken into account. Retrospective studies may be deliberately or inadvertently prompting women to only report alcohol consumed once becoming aware they were pregnant, so may underestimate their consumption.



## Aims

- (1) Identify factors associated with alcohol use in the period between conception and pregnancy recognition
- (2) Describe patterns of change to alcohol use following pregnancy recognition and factors predicting whether women will cease, reduce, or continue alcohol consumption.

## Method

### Participants

Data were drawn from a prospective pregnancy cohort study, "The Triple B Study: Bumps, Babies and Beyond". Pregnant women ( $n=1487$ ) recruited from antenatal clinics at metropolitan public hospitals

### Measures

Women were asked about alcohol use during the first trimester (T1), with consumption recorded separately pre- and post-recognition of pregnancy. Measurements were standard drinks (S.D.; 10g alcohol per drink).

Participants were categorised into five levels of alcohol consumption using a composite method incorporating both frequency and quantity<sup>2</sup>:

"Abstinent" (no alcohol)

"Low" ( $\leq 7$  S.D. per week, up to 2 S.D. per occasion)

"Moderate" ( $\leq 7$  S.D. / week,  $> 2$  to  $\leq 4$  S.D. per occasion)

"Binge" ( $\leq 7$  S.D. per week,  $> 4$  S.D. per occasion)

"Heavy" ( $> 7$  S.D. per week; frequency of at least weekly)

**Change** in alcohol use from pre- to post-pregnancy recognition was classified either as cessation, reduction, or no reduction.

### Cessation

Women who drank alcohol prior to pregnancy recognition but abstained after

### Reduction

Women who drank alcohol after pregnancy recognition but at a lower level than before

### No reduction

Women who drank at the same level before and after pregnancy recognition

## Results

Most women ( $n=884$ , 59.4%) drank alcohol between conception and pregnancy recognition. Table 1 shows adjusted comparisons between drinkers and abstainers. Drinkers overall were of higher SES backgrounds, older, more likely to be in their first pregnancy, more highly educated, more likely to smoke and use illicit substances, and less likely to have planned their pregnancies.

Table 1: Adjusted comparison of maternal characteristics of drinkers and abstainers

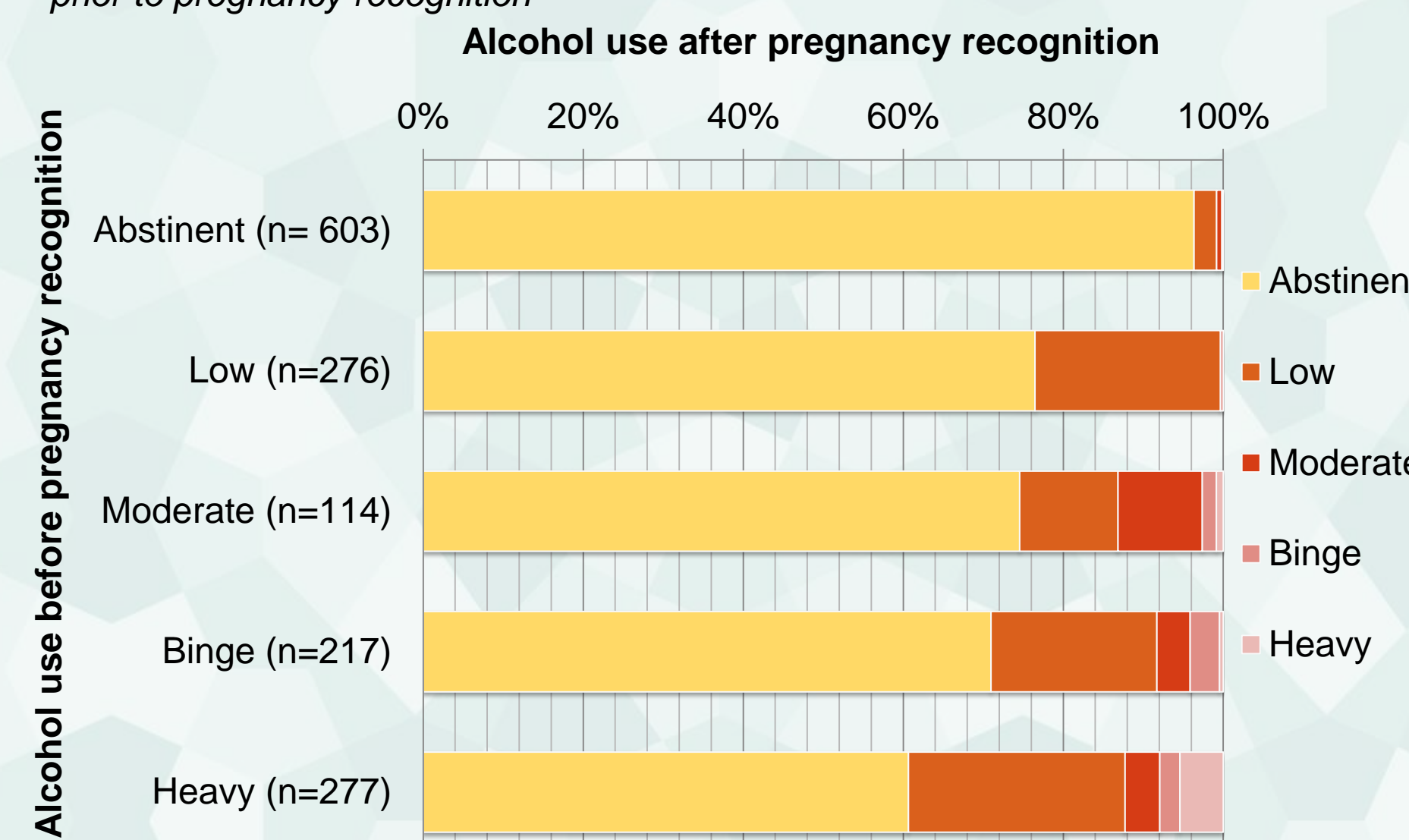
	Abstainers (%)	Drinkers (%)	Adjusted OR
<b>Household SES</b>			
Low	7.8	3.1	0.313***
Moderate	38.5	26.6	0.590***
High	53.7	70.4	1
<b>Maternal age</b>			
$\leq 24$	10.6	7.2	0.552*
25-29	22.9	20.2	0.795
30-35	39.5	44.9	1.110
$\geq 36$	26.9	27.7	1
<b>Parity</b>			
0	49.7	59.5	1.959*
1-2	44.5	36.6	1.476
3+	5.8	3.8	1
<b>Pre-pregnancy BMI</b>			
Underweight	8.5	5.7	0.651
Normal weight	55.1	63.9	1.210
Overweight	20.2	16.6	0.863
Obese	16.2	13.8	1
<b>Education</b>			
Some school	12.4	7.2	0.527**
Year 12	10.2	12.9	1.205
Certificate / Diploma	15.8	14.0	0.863
Bachelor or higher	61.6	65.9	1
<b>Marital status</b>			
Not married	32.5	38.9	1.169
Married	67.5	61.1	1
<b>Tobacco use</b>			
No	88.1	79.0	0.414***
Yes	11.9	21.0	1
<b>Illicit substance use</b>			
No	95.4	91.6	ns
Yes	4.6	8.4	1
<b>Pregnancy planning</b>			
Unplanned	21.6	26.8	1.525**
Planned	78.4	73.2	1

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Prevalence of drinking reduced to 19.4% following pregnancy recognition.

- **69.9% of drinkers ceased drinking**
- **18.3% reduced** their consumption
- **11.6% made no reduction** to their alcohol use.

Fig 1: Alcohol consumption following pregnancy recognition, by level of alcohol use prior to pregnancy recognition



### Reduction (vs Cessation)

Compared with women who ceased drinking, women who only reduced their level of drinking were

- **Older**
- **Less likely to have used illicit substances** prior to pregnancy awareness
- More likely to have **planned their pregnancy**
- Less likely to be moderate rather than **heavy drinkers**. (table 2)

### No Reduction (vs Cessation)

Compared to women who ceased drinking, women who continued to drink alcohol at the same level were

- **Older**
- More likely to be **underweight** than they were to be obese
- More likely to have used **illicit substances** in T1 prior to pregnancy recognition
- More likely to **have unplanned pregnancies**
- More likely to be in the **low or moderate** alcohol use category than the heavy category (table 2)

Table 2: Multinomial logistic regression of characteristics of women who reduced or continued drinking, compared to women who ceased

	Reduction vs cessation (OR)	No Reduction vs cessation (OR)
<b>Household SES</b>		
Low	1.785	0.272
Moderate	0.880	1.196
High	1	1
<b>Maternal age</b>		
$\leq 24$	0.243*	0.628
25-29	0.227	0.510
30-35	1.306	0.538
$\geq 36$	1	1
<b>Parity</b>		
0	2.704	0.649
1-2	3.203	0.914
3+	1	1
<b>Pre-pregnancy BMI</b>		
Underweight	1.557	3.840**
Normal weight	1.689	3.339
Overweight	1.310	2.233
Obese	1	1
<b>Education</b>		
Some school	0.425	0.674
Year 12	0.745	1.115
Certificate / Diploma	0.683	0.492
Bachelor or higher	1	1
<b>Marital status</b>		
Not married	0.964	1.070
Married	1	1
<b>Tobacco use</b>		
No	0.827	0.797
Yes	1	1
<b>Illicit substance use</b>		
No	0.336**	0.341*
Yes	1	1
<b>Pregnancy planning</b>		
Unplanned	1.706*	2.273**
Planned	1	1
<b>Alcohol use pre-recognition</b>		
Low	N/A	5.131***
Moderate	0.354**	3.095**
Binge	0.701	1.026
Heavy	1	1

Reference group = cessation.

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

## Conclusions

Fetal alcohol exposure early in pregnancy is highly prevalent when the period prior to pregnancy recognition is taken into account. Heavy or binge drinking during this time period was more common than low-level drinking.

However, most women reduce or cease their alcohol consumption after becoming aware of pregnancy.

Factors associated with women's decision to cease, reduce or continue alcohol use include level of alcohol use prior to pregnancy recognition, maternal age, smoking status, illicit substance use.

Greater public education about the importance of abstaining from alcohol while planning a pregnancy as well as early detection of pregnancy would be beneficial.

## References

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