

## Gender difference in young adult's problem gambling by 30 years: a longitudinal study of maternal alcohol consumption influences

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### Outline

- Rationale
- Research questions
- Data and Methods
- Results
- Conclusion

### Rationale

- Between 5.3% - 12.1% of Australian adults are estimated to manifest behaviours associated with problem gambling; males are involved in gambling more than females (Davidson and Rodgers 2010; Billi et al. 2014; Sproston et al. 2012; Attorney-General 2012; Centre 2013; Acil Allen Consulting 2014).
- Cross-sectional and longitudinal evidence shows alcohol consumption/ alcohol use disorder is associated with the risk of problem gambling (Delfabbro 2008; LaBrie et al. 2003; Welte et al. 2001; Nehlin et al. 2013; Banwell et al. 2006).

- Literature review has also found that:
  - Maternal alcohol consumption predicts an offspring's alcohol use (Van Der Vorst et al. 2009; Mares et al. 2011; Poelen et al. 2007; Englund et al. 2008; Cleveland et al. 2014).
  - The co-occurrence of alcohol consumption and problem gambling among offspring (Barnes et al., 2009).
- There is no study, to our knowledge, examining the relation between

**Mother's alcohol consumption trajectories  
and  
Offspring's problem gambling**

### Research questions

1. Is there an association between maternal alcohol consumption and offspring adult's problem gambling behaviour?
2. Does maternal alcohol consumption have greater impact on male than female young adult's gambling behaviour?

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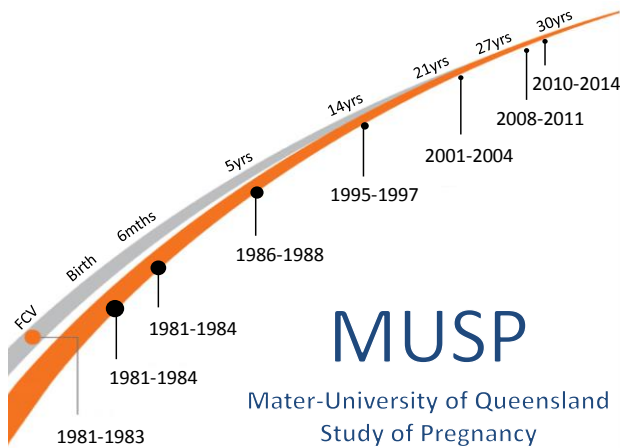
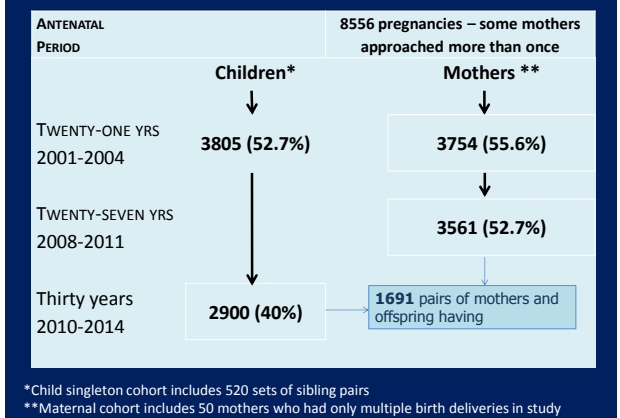


Fig 1: Flowchart – % Retained in Study at Each Phase of Data Collection



- The present study used MUSP data across six time points (baseline, 6 month, 5, 14, 21 and 30 year f/u surveys)

**n=1,691**

#### Included:

- Mothers: provided details of their AC from baseline up to 21 yr f/u
- Offspring: provided data on gambling behaviour at 30 yr f/u

### Measure of problem gambling

- Children were asked questions on gambling at 30 year f/u survey

✓ Q178: Do you spend money on gambling? (Yes/No)

Those responding 'Yes' were asked to complete a short version of Canadian Problem Gambling Index (CPGI) determining their problem gambling behaviour during the last 12 months

Nine questions of CPGI with possible answers (never, sometime, most of the time, and always)

- Bet more than afford to lose
- Gamble with larger amounts
- Tried to win back losses
- Borrowed or sold to get money
- Felt have a problem with gambling
- Caused health problems
- Told had gambling problem
- Caused financial problems
- Felt guilty about gambling

- Individual CPGI items were scored as 0, 1, 2, 3 to generate overall score

- Individual scores of nine questions were categorised into four groups:

0 = non-problem gamblers\*

1-2 = low risk

3-7 = moderate risk

More than 8 = problem gamblers

\* Included those who had not spending money for gambling and those who gambled for recreational purpose

- Moderate risk and problem gambling only account for 3.2% and 1.1% of sample
- To increase statistical power, we collapsed four gambling behaviours into two groups where:

0= non-problem gambling      →      No risk behaviour

1-2 = low risk  
3-7 = moderate risk  
More than 8 = problem gamblers      }      Some risk behaviours associated with problem gambling

## Measure of maternal alcohol consumption trajectories and covariates

### Frequency & Quantity of alcohol use

#### How often do you drink alcohol?

(daily, few times a week, few times a month, few times a year, rarely, never)

#### How much alcohol do you drink at those time?

(seven or more glasses, five or six glasses, three or four glasses, one or two glasses, less than one glass, never drink)

Weekly alcohol consumption was estimated by:

multiplying the mid-point estimation of frequency and the mid-point of quantity response

Alcohol consumption trajectory was defined based on weekly alcohol consumption:

- **Abstainers:** no alcohol or very little alcohol
- **Occasional drinkers:** <1 drink/week
- **Moderate drinkers:** from 1 to 14 drinks/week
- **Heavy drinkers:** >14 drinks/week

Alcohol consumption scores were used to project possible trajectories of alcohol consumption over time

### Measure of Covariates

- Mother's SES (maternal age at baseline, family income and marital status at 14 yrs)
- Paternal alcohol consumption at 14 yrs
- Young adult's SES (education, income, and marital status at 14 yrs)
- Young adult's alcohol consumption at 30 yrs

Trajectories of maternal alcohol consumption over 21 year



Young adult's problem gambling at 30 year

#### Covariates

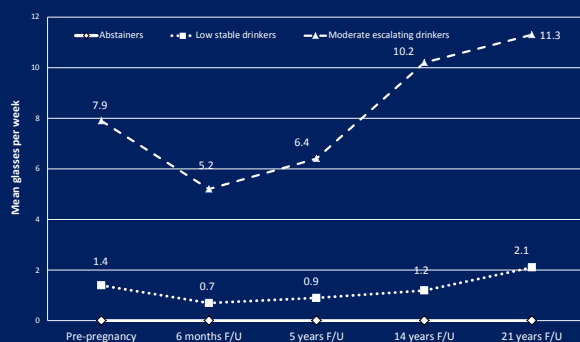
- Mother's SES (baseline age, income and marital status at 14 yrs)
- Paternal alcohol use problems at 14 yrs
- Child's SES (income, education, marital status at 21 yrs)
- Child's alcohol consumption at 30 yrs

## Data analyses

- Group-based trajectory modelling applied
- Collinearity examining correlations among main predictor and covariates
- Multinomial logistic regression employed for bivariate and multivariate associations for general sample as well as male/female groups

- Rationale
- Research questions
- Data and Methods
- Results
- Summary of findings

## Trajectories of maternal alcohol consumption over 21 yrs f/u (number on each phase of trajectory represent mean glasses per week)



## Frequency of maternal AC trajectories over 21 years

Trajectories	Frequency	Percentage
Abstainers	291	17.2
Low stable	1092	64.6
Moderate escalating	308	18.2
<b>Total</b>	<b>1691</b>	<b>100</b>

## Frequency of young adult's problem gambling at 30 yrs

Problem gambling behaviour	Frequency	Percentage
No risk	1511	89.4
Risky behaviour	180	10.6
<b>Total</b>	<b>1691</b>	<b>100</b>

## Cross-tabulation between maternal AC trajectories and young adult's problem gambling

Trajectories of maternal AC over 21 yrs	Young adult's problem gambling risky behaviours at 30 yrs		
	No risk %	Risky behaviour %	N
Abstainers	91.7	8.3	291
Low stable	90.3	9.7	1092
Moderate escalating	83.8	16.2	308

*Chi-square = 12.88; p < .01*

### Cross-tabulation between maternal AC trajectories and young adult's problem gambling

Trajectories of maternal AC over 21 yrs	Young adult's problem gambling risky behaviours at 30 yrs		
	No risk %	Risky behaviour %	N
Abstainers	91.7	8.3	291
Low stable	90.3	9.7	1092
Moderate escalating	83.8	16.2	308

Chi-square = 12.88;  $p < .01$

### Maternal alcohol consumption trajectories and young adult's problem gambling risky behaviour at 30 year

Maternal alcohol consumption trajectories	Young adult's problem gambling risky behaviours at 30 yr			
	Adjusted			
	Model 1 <sup>a</sup>	Model 2 <sup>b</sup>	Model 3 <sup>c</sup>	Model 4 <sup>d</sup>
Abstainers	1.0	1.0	1.0	1.0
Low stable	1.2 <sup>NS</sup>	1.1 <sup>NS</sup>	1.1 <sup>NS</sup>	0.9 <sup>NS</sup>
Moderate escalating	<b>2.0</b> (1.2-3.5)	<b>2.1</b> (1.1-4.1)	<b>2.2</b> (1.1-4.2)	1.6 <sup>NS</sup> (0.8- 3.2)

Note: No risk as reference group; <sup>a</sup>Controlled for mother's SES; <sup>b</sup>Controlled for model 1 plus paternal alcohol problems at 14 yrs; <sup>c</sup>Controlled for model 2 plus young adult's SES at 21 yrs; <sup>d</sup>Controlled for model 3 plus young adult's alcohol consumption at 30 yrs.

### Maternal alcohol consumption trajectories and female offspring's alcohol use disorder at 21 year

Maternal alcohol consumption trajectories	Female young adult's problem gambling risky behaviours at 30 yr			
	Adjusted			
	Model 1 <sup>a</sup>	Model 2 <sup>b</sup>	Model 3 <sup>c</sup>	Model 4 <sup>d</sup>
Abstainers	1.0	1.0	1.0	1.0
Low stable	0.8 <sup>NS</sup>	0.6 <sup>NS</sup>	0.7 <sup>NS</sup>	0.6 <sup>NS</sup>
Moderate escalating	1.0 <sup>NS</sup>	1.1 <sup>NS</sup>	1.2 <sup>NS</sup>	1.0 <sup>NS</sup>

Note: No risk as reference group; <sup>a</sup>Controlled for mother's SES; <sup>b</sup>Controlled for model 1 plus paternal alcohol problems at 14 yrs; <sup>c</sup>Controlled for model 2 plus young adult's SES at 21 yrs; <sup>d</sup>Controlled for model 3 plus young adult's alcohol consumption at 30 yrs.

### Maternal alcohol consumption trajectories and male offspring's alcohol use disorder at 21 year

Maternal alcohol consumption trajectories	Male young adult's problem gambling risky behaviours at 30 yr			
	Adjusted			
	Model 1 <sup>a</sup>	Model 2 <sup>b</sup>	Model 3 <sup>c</sup>	Model 4 <sup>d</sup>
Abstainers	1.0	1.0	1.0	1.0
Low stable	1.7 <sup>NS</sup>	2.1 <sup>NS</sup>	2.0 <sup>NS</sup>	1.5 <sup>NS</sup>
Moderate escalating	<b>3.7</b> (1.7-8.0)	<b>4.8</b> (1.8-12.9)	<b>2.2</b> (1.7-13.1)	1.6 (1.0- 8.7)

Note: No risk as reference group; <sup>a</sup>Controlled for mother's SES; <sup>b</sup>Controlled for model 1 plus paternal alcohol problems at 14 yrs; <sup>c</sup>Controlled for model 2 plus young adult's SES at 21 yrs; <sup>d</sup>Controlled for model 3 plus young adult's alcohol consumption at 30 yrs.

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### Conclusion

- Maternal trajectory of moderate-escalating alcohol consumption over 21 yrs independently associated with a risk of young adult's problem gambling behaviour at 30 yrs (adjusted for other covariates with the exception of alcohol use by offspring)
- No significant association between maternal drinking trajectories and female young adult's problem gambling behaviour
- The maternal moderate escalating alcohol consumption trajectory predicts male young adult's problem gambling behaviour, adjusted for a range of covarates

- Parental alcohol related problems may contribute to young adult's problem gambling behaviour.
- Alcohol consumption by offspring partially mediates the association between mothers' moderate-escalating drinking and young adult's problem gambling behaviour.

Possible explanations about the association:

Males are more likely to consume alcohol and to gamble at a risky level than female → males are more likely to reflect such association than females

Males learned gambling behaviour from their mothers as previous studies have showed that alcohol drinking women are more likely to gamble and take risks

Mothers who consume more alcohol have offspring who are more likely to consume alcohol. Gambling behavior of offspring reflect their own level of disinhibition which may involve gambling as an outlet.

**Q&A**

**Thank you!**