



Characteristics and modifiable factors associated with periconceptional drinking

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Dr Sherly Parackal
Preventive and Social Medicine,
Dunedin School of Medicine,
University of Otago

Prevalence and patterns of Alcohol consumption during pregnancy among NZ women

Traditionally alcohol consumption data during pregnancy were collected using a single question:

Have you consumed any alcoholic drinks during your current/past pregnancy?



Prevalence of drinking in pregnancy



~25-29% drink in pregnancy

McLeod et al 2002

Watson & McDonald, 1999

Secondary analysis of *the Nutrition during Pregnancy study* data: Drinking in pregnancy categories

- “Before you were pregnant did you drink alcoholic drinks?”
- “Has your consumption of alcoholic drinks changed since you became pregnant?”
- “How has it changed?”

➤ Never Drink

➤ Don't drink now

➤ Drink less

➤ Drink same

➤ Drink More

= 29% drink in pregnancy

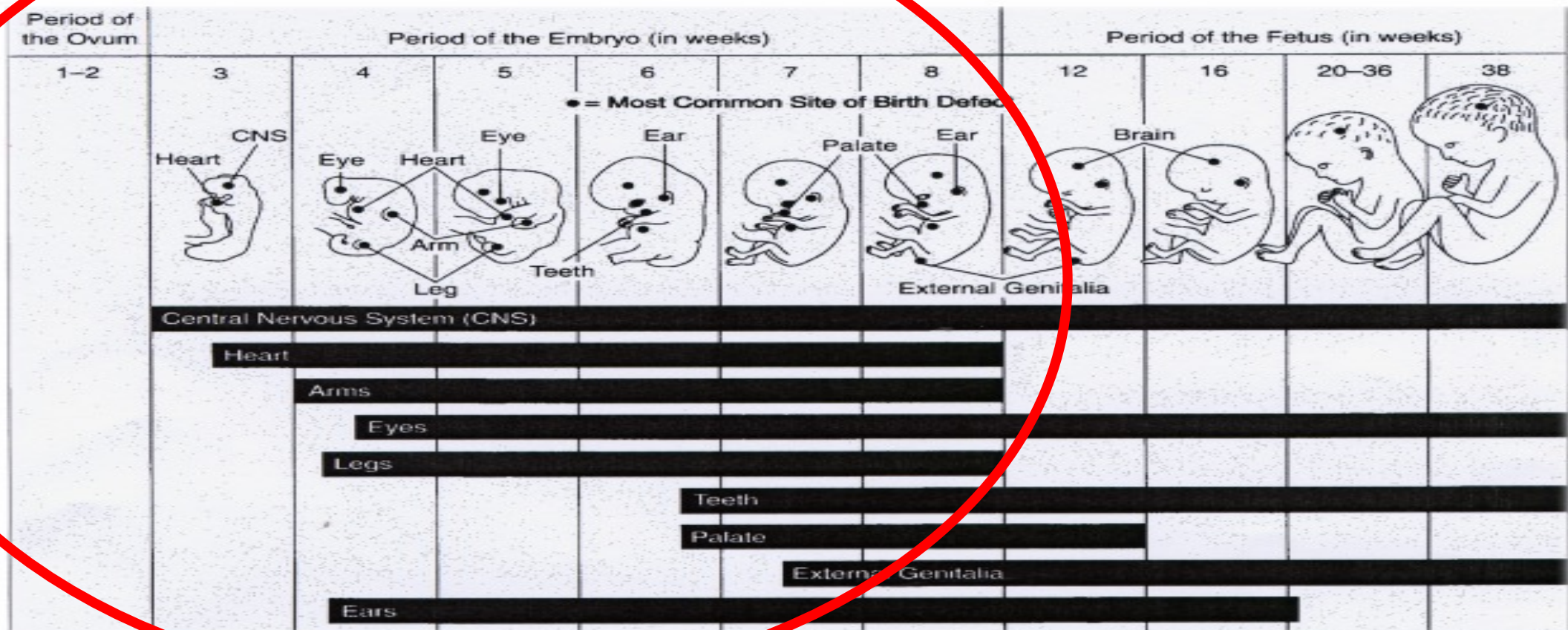


Periconceptional Alcohol Consumption

- ***Seattle Longitudinal study (Streissguth et al., 1983)***
 - **65% of all pregnant women (N = 1413) were drinking at the time of conception and on recognising pregnancy 42% continued to drink**
 - **39% of all drinkers were binge drinkers during the periconceptional period (Streissguth et al., 1994)**
- ***1988 National Maternal and Infant Health Survey (Floyd et al., 1999)***
 - **45.4% of pregnant women (N = 9953) were periconceptional drinkers (Floyd et al., 1999)**



Vulnerability of the foetus to developmental insults from alcohol exposure (Coles 1994)



Alcohol in Pregnancy Study 2005 (APS2005)

- **Jointly funded by the Ministry of Health and the Alcohol Advisory Council**
- **Baseline study**
- **Research Design**
 - **Target population – Women aged 16- 40 years**
 - **Research Design– Cross Sectional**
 - **Data collection method – RDD Telephone survey administered via WATI**



Publications

1. Opinions of non-pregnant New Zealand women aged 16-40 years about the safety of alcohol consumption during pregnancy. [Drug Alcohol Rev.](#) **2009** Mar;28(2):135-41. doi: 10.1111/j.1465-3362.2008.00018.x.
2. Warning labels on alcohol containers as a source of information on alcohol consumption in pregnancy among New Zealand women. [Int J Drug Policy.](#) **2010** Jul;21(4):302-5. doi: 10.1016/j.drugpo.2009.10.006.
3. Prevalence and correlates of drinking in early pregnancy among women who stopped drinking on pregnancy recognition. *matern child health j.* **2013**, 17 : 520-529
4. A renewed media-mix, based on the dynamic transactional model, for communicating the harms of alcohol to women in New Zealand. *Health Promotion International*, day033. Advance online publication. **2018** doi: [10.1093/heapro/day033](#)

Prevalence and Correlates of Drinking in Early Pregnancy Among Women who Stopped Drinking on Pregnancy Recognition

S. M. Parackal · M. K. Parackal · J. A. Harraway

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Abstract Women of child bearing age that regularly drink alcohol are at risk for drinking in early pregnancy. Evidence indicates a majority of women stop alcohol consumption on pregnancy recognition. However, there is a dearth of studies reporting on patterns and correlates of drinking in early pregnancy prior to stopping on pregnancy recognition, which the current study aims to address. In 2005, a New Zealand nationwide cross-sectional survey was conducted on a random sample of 1,256 women aged 16–40 years. Data were collected via an interviewer-administered questionnaire using a web-assisted telephone interviewing system. Of the 1,256 women who participated, 127 (10 %) were currently pregnant and 425 women (34 %) were previously pregnant. Half of currently pregnant women and 37 % of previously pregnant women

women stop alcohol consumption on pregnancy recognition but prior to this, drink at levels posing a risk for the developing foetus. Women most at risk for drinking and binge drinking in early pregnancy were younger in age and exhibited risky drinking behaviour prior to pregnancy. A targeted intervention to reduce the risk for an alcohol exposed pregnancy is warranted for sexually active younger women in New Zealand and elsewhere.

Keywords Women of childbearing age · Binge drinking · Pregnancy · Prior to pregnancy recognition

Introduction

Alcohol Consumption in Pregnancy (n = 552)



Responses	Pregnant (n = 127)	Had a baby in the past 5 years (n = 425)
I drank some alcohol, but only before I knew I was pregnant and stopped once I knew I was pregnant	49.6 (40.6-58.6)	36.7 (32.1-41.5)
I drank some alcohol otherwise in pregnancy	12.6 (7.4-19.7)	13.4 (10.3-17.0)
I stopped drinking alcohol before I became pregnant	20.5 (13.8-28.5)	26.1 (22.0-30.6)
I never drink alcohol anyway	17.3 (11.2-25.0)	23.8 (19.8-28.1)

Characteristics of women at risk for periconceptional drinking (Parackal et al 2013)

- **Women aged 30 years and below**
- **Risky drinking prior to pregnancy**



Periconceptional Alcohol Consumption Study

- **Funded by Health Promotion Agency NZ**

- **Dr Mathew Parackal; Assoc Prof John Harraway**

Periconceptional Alcohol Consumption Study

- **Target Population: Women aged 18 to 35 yrs**
- **Primary Objective: To identify modifiable determinants of periconceptional drinking**
- **Research Design: Cross sectional**
- **Data collection: Hybrid Survey (mail and web)**
- **Sample Size: 1080**



Maternal status

Maternal Status	% (95% CI)
Currently pregnant	5.2% (4.0-6.8)
Previously Pregnant	18.4% (16.0-21.1)
Currently planning a pregnancy	8.7% (6.9-10.9)
None of the above (Not pregnant)	67.6% (64.5 -70.6)

Risky drinking according to maternal status

	Maternal Status			
	Currently Pregnant (n = 62)	Previously Pregnant (n = 201)	Planning pregnancy (n = 77)	Not Pregnant (n = 716)
Risky drinkers (AUDIT-C \geq 3)	56.0 (42.2-68.9)	55.6 (47.5-63.4)	56.4 (44.2-67.9)	61.0 (56.9-65.0)
(%; 95% CI)				

Contraception use among women **not pregnant**

- Not pregnant women who were sexually active with a male partner (n= 517)
- Frequency of contraception use
(Always, Sometimes, Never)
- Type of contraception used



Effectiveness of contraception used (n = 517)

Level of effectiveness (CDC 2015)	% (95% CI)
Most effective (Implant, IUD, Permanent sterilization)	13.8 (11.0 - 17.2)
Effective (Pill, Depo Provera injection)	46.3 (41.7- 50.9)
Less effective (Male condom, female condom, withdrawal, diaphragm, vaginal ring)	12.9 (10.1-16.4)
Least effective (Fertility based methods, irregular or non-users of contraception)	27.0 (22.8 - 31.7)

Effectiveness of contraception used and Risky drinking (AUDIT-C ≥ 3) among sexually active Non-pregnant women of child bearing age (n = 517)

	n	Effectiveness of contraception	Risky drinkers
		% [95% CI]	
Most Effective (Implant, IUD, Permanent sterilization)	75	14.5 [11.5-17.6]	77.3 [67.9-86.8]
Effective (Pill, DPV injection)	252	48.8 [44.5-53.2]	77.0 [71.8-82.2]
Less Effective (Condom, withdrawal, diaphragm, ring, foam, cervical cap, jelly/cream)	68	13.2 [10.3-16.1]	67.6 [55.2-78.5]
Least Effective (fertility awareness based methods, irregular use or non-use)	121	23.4 [19.8-27.1]	66.9 [58.6-75.3]

Levels of potential risk for periconceptional drinking

Level	Label	Characteristics
1	Low Risk	Most Effective contraception+ Abstainers+ non-Risky drinkers
2	Medium Risk	Effective contraception + Risky drinkers
3	High Risk	Less Effective + Least Effective + Risky drinking

Characteristics of interest

- **Age**
- **Ethnicity**
- **Education**
- **Employment**
- **Income**
- **Smoking**

Findings

Women who were categorised **as medium OR high potential risk for drinking in the periconceptional period** if pregnancy occurred due to failed contraception OR non-use of contraception were **more likely to be younger** than those in the **low risk group**

Modifiable factors of interest

- Awareness of alcohol guidelines for women
- Awareness of harmful effects of alcohol
- Awareness of guidelines on drinking in pregnancy and while planning pregnancy
- Knowledge about fetal consequences of maternal drinking
- Motivation for drinking: Drinking Motives Questionnaire-revised (Cooper 1994)
- Self efficacy to refuse alcohol in different situations: Drinking refusal self-efficacy questionnaire -revised (Oei et al 2005)

Drinking Motives Questionnaire – Revised (Cooper 1994)

- **20 items**
 - **Reasons why people may be motivated to consume alcohol**
- **Rate on a 5-point scale**
 - **1 = Almost never/never ; 5 = Almost Always/Always**
- **Reduced to four dimensions 5 items each with a maximum score of 25**
 - **Social motives**
 - **Coping motives**
 - **Enhancement motives**
 - **Conformity motives**

Drinking refusal self-efficacy questionnaire-revised (DRSEQ_R) Oei et al 2005

- **19 items – participants rate their ability to resist alcohol in various situations on a 6-point scale**
 - **1 = 1 am very sure I could not resist drinking**
 - **6 = I am very sure I could resist drinking**
- **The responses are then reduced to three dimensions**
 - **Social Pressure (5 items: maximum score = 30)**
 - **Emotional relief (7 items: maximum score = 42)**
 - **Opportunistic (7 items: maximum score = 42)**



Findings

- Awareness of guidelines and knowledge about alcohol harm and fetal consequences of maternal drinking were **not associated with potential risk of periconceptual drinking** if pregnancy occurred due to failed contraception OR non-use of contraception
- Higher scores for drinking for social reasons and enhancement had a **positive association with higher levels of potential risk for drinking in the periconceptual period** if pregnancy occurred due to failed contraception OR non-use of contraception
- Lower scores for resistance to social pressure to drink had a **positive association with higher levels of potential risk for drinking in the periconceptual period** if pregnancy occurred due to failed contraception OR non-use of contraception

Conclusions

- **Majority of those who drink in pregnancy do so prior to recognition of pregnancy**
- **More than half of these women are risky drinkers hence are likely to continue their pre-pregnancy risky drinking behaviours into early pregnancy**
- **Addressing the drivers of social drinking would have positive impacts on reducing the risk of alcohol exposed pregnancies**

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