

Prediction of periconception alcohol use from adolescence and young adulthood: A 20-year prospective cohort study

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Background:

- Consumption of alcohol use in women peaks in the reproductive years
- Alcohol use continues into pregnancy, despite risk of neurodevelopmental harm to the fetus
Prevalence estimates suggest:
 - ~30% in the United States
 - ~37-80% in Australia, United Kingdom, New Zealand (Hutchinson, Int J Epi, under review; O'Keefe, BMJ, 2015)
- *Periconception* refers to the time before during and after conception
- Risk of prenatal alcohol exposure higher in the periconception period
- Understanding continuity of earlier drinking patterns into the periconception period may inform earlier intervention.



Aim: To examine the rates of periconception alcohol use (prior to pregnancy awareness) and the extent to which preconception patterns of alcohol use (spanning adolescence to young adulthood) predict patterns of continuing drinking into pregnancy.

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Preconception (1992-2006)

N = 1000 women; study entry staggered across Waves 1-2

Wave	1	2	3	4	5	6	7	8	9
Age	14.9	15.4	15.9	16.3	16.8	17.4	20.6	24.1	29.1
n	463	907	888	875	854	848	866	824	806

Frequent drinking (≥ 3 days in the past week)
Binge drinking (≥ 5 drinks per day in the past week)

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Perinatal (2006-2014)

N = 609 children to 398 VAHCS women

1	2	3
32 weeks' gestation n=414	10 weeks' postpartum n=535	1 year postpartum n=576

Trimester 1 (retrospective): Frequency of drinks consumed immediately prior to pregnancy awareness

Table 1. Frequency and proportion of women reporting periconception alcohol use (N=398)

	Periconception			Post-conception		
	n	%	95% CI	n	%	95% CI
Daily	27	6.7	(4.2 - 9.1)	6	1.5	(0.3 - 2.7)
3x Weekly	47	11.6	(8.5 - 14.7)	0	0	-
1x Weekly	123	30.3	(25.8 - 34.8)	12	3.0	(1.3 - 4.6)
Monthly	115	28.3	(23.9 - 32.7)	35	8.6	(5.9 - 11.4)
Never	94	23.2	(23.2 - 27.3)	353	87.0	(83.7 - 90.2)

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Table 2. Frequency and prediction of periconception drinking from preconception frequent and binge drinking (N=382)

Preconception Drinking	Periconception Drinking						Logistic Regression		
	Never		Monthly		3+ weekly		OR	(95% CI)	p
3+ days per week	%	95% CI	%	95% CI	%	95% CI			
Young adulthood									
None	31.8	(26.4, 37.7)	62.1	(56.0, 67.8)	6.1	(3.8, 9.8)	Ref		
1 wave	5.2	(1.9, 13.2)	59.7	(48.4, 70.2)	35.1	(25.2, 46.4)	6.87	(3.7, 12.8)	<0.001
2+ waves	9.1	(3.3, 22.1)	36.4	(23.5, 51.6)	54.6	(39.7, 68.7)	13.31	(5.4, 33.0)	<0.001
Persistence									
None	31.5	(26.0, 37.5)	62.2	(56.0, 68.0)	6.4	(3.9, 10.2)	Ref		
Adolescence	40.0	(14.9, 71.8)	60.0	(28.2, 85.1)	-	-	0.51	(0.1, 2.4)	0.155
Young adulthood	7.0	(3.4, 14.0)	52.0	(42.2, 61.7)	41.0	(31.7, 51.0)	7.95	(4.3, 14.7)	<0.001
Adolescence to young adult	4.8	(0.6, 28.3)	47.6	(27.4, 68.7)	47.6	(27.4, 68.7)	10.62	(3.5, 32.0)	<0.001
Binge									
Young adulthood									
None	33.2	(26.7, 40.3)	58.7	(51.4, 65.6)	8.2	(5.0, 13.1)	Ref		
1 wave	19.8	(13.2, 28.6)	65.1	(55.5, 73.6)	15.1	(9.4, 23.3)	1.83	(1.0, 3.2)	<0.001
2+ waves	9.8	(5.1, 17.8)	51.1	(40.9, 61.2)	39.1	(29.7, 49.5)	5.32	(2.7, 10.4)	<0.001
Persistence									
None	35.2	(28.8, 43.3)	59.3	(51.1, 67.1)	5.5	(2.8, 10.7)	Ref		
Adolescence	25.6	(14.24, 41.72)	56.4	(40.5, 71.1)	18.0	(8.7, 33.4)	1.98	(0.8, 5.1)	0.399
Young adulthood	13.6	(8.36, 21.47)	64.6	(55.1, 73.0)	21.8	(15.0, 30.6)	2.96	(1.8, 5.0)	<0.001
Adolescence to young adult	17.1	(10.5, 26.47)	51.1	(40.7, 61.5)	31.8	(22.9, 42.3)	3.99	(1.9, 8.3)	<0.001

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Problematic drinking = heavy binge drinking, alcohol use disorder

Risky drinking = frequent, binge, heavy binge, alcohol use disorder

Table 3. Frequency and prediction of periconception drinking from problem and risky drinking (N=391)

Preconception Drinking	Periconception Drinking						Logistic Regression		
	Never		Monthly		3+ weekly		OR	(95% CI)	p
Problematic drinking	%	95% CI	%	95% CI	%	95% CI			
Young adulthood (Waves 8-9)									
No problem drinking	29.0	(24.0, 34.5)	57.6	(51.8, 63.2)	13.5	(10.0, 17.9)	Ref		
Problem drinking	10.2	(5.4, 18.6)	61.4	(50.8, 71.0)	28.4	(19.9, 38.8)	2.58	(1.5, 4.4)	<0.001
Risky drinking									
Young adulthood (waves 8-9)									
No risky drinking	34.9	(28.4, 42.0)	50.8	(43.7, 57.9)	14.3	(10.0, 20.1)	Ref		
Risky drinking	14.3	(10.0, 20.1)	66.1	(59.1, 72.6)	19.6	(14.5, 25.9)	2.13	(1.3, 3.4)	<0.001

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Conclusion:

- Alcohol use is **common** in the periconception period
- **Frequent periconception drinking** in women with normative drinking patterns preconception
- Problematic and risky drinking preconception increased risk for periconceptual drinking
- **Continuity of drinking** from pre-pregnancy to periconception
- Public health initiatives for periconception drinking should be widely disseminated in the mid-20s
- **Strengthen public health messages** about the need to reduce or avoid drinking when there is a likelihood of pregnancy.

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