

Seasonal and Gestational Variation in Perinatal Depression in a Prospective Cohort in New Zealand

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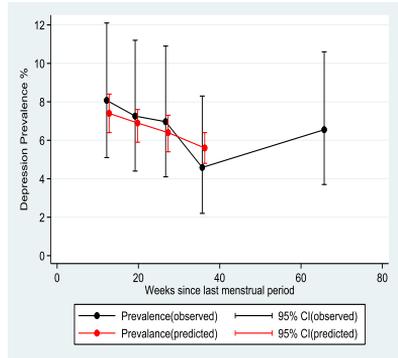
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Introduction & Aims

- Perinatal depression has substantial impact on the health of mothers, babies, and their families
- Suicide is the leading cause of maternal death in NZ¹
- Prevalence of antenatal depression is 10-15%, and postnatal depression occurs in around one in six women^{2,3}
- There is minimal evidence regarding variation with gestation and season; increased rates of postnatal depression have been associated with autumn and winter deliveries⁴
- Our study aimed to: 1) Describe prevalence of perinatal depressive symptoms in a NZ cohort 2) Investigate the trend in depression over gestational age; 3) Assess the influence of season on antenatal and postnatal depression.

Figure 1. Trends in observed and model predicted prevalence of perinatal depression



Methods

- Secondary analysis of data from a prospective cohort with assessment at five perinatal visits
- EDS score ≥ 13 used to identify those likely suffering from depressive illness³
- Prevalence described at each time point
- Longitudinal modeling with generalized estimating equations (GEE) with binary outcome variables used to investigate antenatal gestational and seasonal variation; simplified to logistic regression model in the postnatal period and effect of season on postnatal depression investigated using univariate models

Table 1. Effect of season on the prevalence of depression during antenatal and postnatal periods

	Antenatal	Postnatal
	OR (95% CI)	OR (95% CI)
Unadjusted		
Autumn	Ref	Ref
Winter	2.29 (1.08 – 4.89)	3.65 (0.40 – 33.72)
Spring	2.12 (0.90 – 5.01)	8.40 (1.01 – 69.52)
Summer	2.02 (0.86 – 4.75)	7.41 (0.63 – 87.19)
Adjusted*		
Autumn	Ref	**
Winter	3.15 (1.01 – 9.82)	
Spring	3.16 (1.05 – 9.55)	
Summer	2.95 (0.95 – 9.17)	

*Adjusted for age, smoking status, BMI, ethnicity, working status, having a partner, qualifications, income, living arrangements, parity, PSQI

** not adjusted due to small numbers (n=15)

Results

- Depression prevalence decreased from 8.1% at 11-15 weeks to 4.6% by 35-37 weeks, increased to 6.6% postnatally (non significant, fig 1)
- In comparison with autumn, antenatal depression prevalence was higher during winter and spring (OR 3.15, CI 1.01 - 9.82 and OR 3.16, CI 1.05 – 9.55) and prevalence of postnatal depression was higher in spring (OR 8.40, 95% CI 1.01 – 69.52) (table 1)
- Poor sleep associated with increased risk of antenatal depression (OR 4.27, CI 1.22 – 14.93); CS associated with increased risk of postnatal depression (OR 5.03, CI 1.29 – 19.64)

Conclusion

This is the first study to demonstrate significant seasonal variation in antenatal depression with higher rates seen in winter and spring. Our finding of highest risk of postnatal depression in spring, corresponding to autumn delivery, is in keeping with several previous studies.⁵ Proposed mechanisms for seasonal effect include variation in serotonin metabolism, vitamin D levels, cortisol, melatonin, and tryptophan.⁶ This study supports greater awareness of perinatal depression particularly in winter and in spring.