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Anti-depressant use during pregnancy in Australia: findings from the Longitudinal Study of Australian Children

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Increasing awareness among health professionals and detection of antenatal and postnatal depression has resulted in sharp increases in the prescription of anti-depressant medication in pregnancy. The literature on effects on the newborn of antenatal anti-depressant exposure raises a number of questions about the safety of such prescription practices^{1,2} including findings of increased birth complications, lower gestational age and lowered birth weights resulting from prenatal exposure.³ This letter aims to provide information on the prevalence of anti-depressant use in Australia and the characteristics of mothers who take anti-depressants during pregnancy.

Method

Data were drawn from the first wave of The Longitudinal Study of Australian Children (LSAC) according to methods described in a technical paper.⁴ Of those selected infants who were contacted, 5,107 took part in the first wave of LSAC in 2004 (64.2% response rate). The sample for this analysis was limited to infants for whom

the primary caregiver was the child's biological mother. Mothers reported the child's gender and age, and their own age, marital status, employment, education and social disadvantage (SEIFA). Mothers were asked a single item on anti-depressants use. For depression during pregnancy, mothers were asked "Have you ever had two or more years in your life when you have felt depressed or sad most days, even if you felt OK sometimes?" Covariates included smoking, alcohol consumption and other medications taken during pregnancy.

Results

Overall, 15.6% of the sample indicated that they had been depressed for two years or more. There was a significant difference in prescription of anti-depressants in pregnancy by State ($\chi^2 = 19.05$ (7), $p=0.008$). Western Australia has one of the lowest depression rates at 12.7%, compared to other States; however, it has one of the highest rates of anti-depressant medication prescription at 3.7%, while NSW has relatively low rates at 1.3%. The study groups were calculated as mothers who, during pregnancy, had (1) taken anti-depressants (108, 2.1%); (2) been depressed for at least two years but not taken anti-depressants (602, 11.8%); and (3) had been neither depressed nor taken anti-depressants (3,534, 69.2%). Missing data on the depression variable accounted for 861 cases (16.9%). As presented in Table 1, the mothers in the anti-depressant group tended to smoke and drink more during pregnancy. They had higher depression scores at wave one (K6) and the study child was more likely to have sleep problems at wave one than either of the other groups.

Discussion

Our study found that 2.1% of Australian women reported anti-depressant use during pregnancy which is lower than current estimates

Table 1: Group characteristics; chi-square tests and ANOVAs.

Chi-square tests	Anti-D group n (%)	depressed group n (%)	control group n (%)	$\chi^2(df)$	<i>p</i>
Parity					
First child	27 (25.2)	268 (44.5)	1,391 (39.4)	15.36 (2)	<0.001
Marital status					
Married	82 (66.7)	346 (57.5)	2,712 (76.7)	101.49 (2)	<0.001
Work status					
Full-time work	14 (13.2)	53 (8.8)	359 (10.2)	49.54 (8)	<0.001
Part-time work	29 (27.4)	133 (22.1)	1,067 (30.2)		
Employed; maternity leave	4 (3.8)	40 (6.7)	360 (10.2)		
Unemployed and seeking work	5 (4.7)	33 (5.5)	94 (2.7)		
Not in labour force	54 (50.9)	342 (56.9)	1,649 (46.7)		
School completion					
Not completed school	56 (51.9)	322 (53.5)	1,368 (38.7)	51.34 (2)	<0.001
Cigarette smoking during pregnancy					
5 or more per day	30 (36.1)	134 (24.0)	358 (10.8)	112.59 (4)	<0.001
Alcohol during pregnancy					
1 glass/week or more	14 (17.1)	63 (11.3)	386 (11.7)	2.38 (4)	0.304
Does the child have any sleep problems?					
Has sleep problems	69 (63.9)	353 (58.7)	(58.7) (51.3)	16.97 (2)	<0.001
ANOVAs					
	m (sd)	m (sd)	m (sd)	f (df)	<i>p</i>
Age (years)	31.52 (5.44)	30.40 (6.24)	31.34 (5.31)	7.66 (2, 4239)	<0.001
SEIFA –disadvantage	1,010.3 (52.77)	1,003.5 (61.79)	1,012.1 (59.29)	5.37 (2, 4238)	0.005
K6	6.55 (4.65)	5.98 (4.60)	3.06 (3.03)	231.13 (2, 4165)	<0.001
Combined medications*	2.19 (1.18)	1.61 (1.12)	1.61 (.95)	17.66 (2, 4226)	<0.001

* Includes antibiotics, asthma medication, nausea medication, blood pressure tablets, iron tablets, heartburn medicines, thyroid medicines, other prescriptions medicines, over the counter medicines and painkillers taken during pregnancy

of rates in the US and Canada. Rates of prescription were highest in South Australia and Western Australia despite low to moderate overall levels of depression. The current findings add to the growing evidence that antenatal depression is associated with a complex set of fetal exposures and suggest that clinicians need to be aware that women presenting with antenatal depression are also more likely to use a range of other medications as well as smoke and drink alcohol more frequently. This may imply the need for additional professional advice, intervention and public health campaigns to reduce the prevalence of these exposures over pregnancy.

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Majority rule for assigning Aboriginality in linked hospital data

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Under-identification of Aboriginality has been a longstanding issue for administrative datasets in Australia.^{1,2} One result of under-identification that manifests in linked data is inconsistent identification: people may be identified as Aboriginal in one hospital admission but not in another. The researcher must decide how to resolve these inconsistencies.

Any way of assigning Aboriginality when patients have inconsistent records involves a sensitivity-specificity trade-off. A highly specific method, such as only counting patients as Aboriginal if every record identifies them as Aboriginal, could produce a group that is very likely to be all Aboriginal, but at the risk of severely underestimating the number of Aboriginal people. Because Aboriginality is well-known to be under-counted, it is tempting to use a highly sensitive method, such as counting as Aboriginal all people who have any record identifying them as Aboriginal. The risk in this case is that misidentification of non-Aboriginal people as Aboriginal will reduce the observed

differences between Aboriginal and non-Aboriginal groups, making Aboriginal health status appear better than it actually is.

In most cases there is no ‘gold standard’ for assessing which method is most appropriate.

The problem of inconsistent identification arose in a study examining hospitalisations among Aboriginal people receiving long term dialysis (article in preparation). In this study population, the Australia and New Zealand Dialysis and Transplant Registry (ANZDATA) reports provide another estimate of the number of Aboriginal people that can be compared with numbers derived from the hospital data.³ The ANZDATA registry includes all people in Australia and New Zealand who receive dialysis for end stage kidney disease. Although some Aboriginal people may choose not to identify as Aboriginal for the registry, this remains the most accurate data source available for the dialysis population and is believed to have good Aboriginal identification.⁴

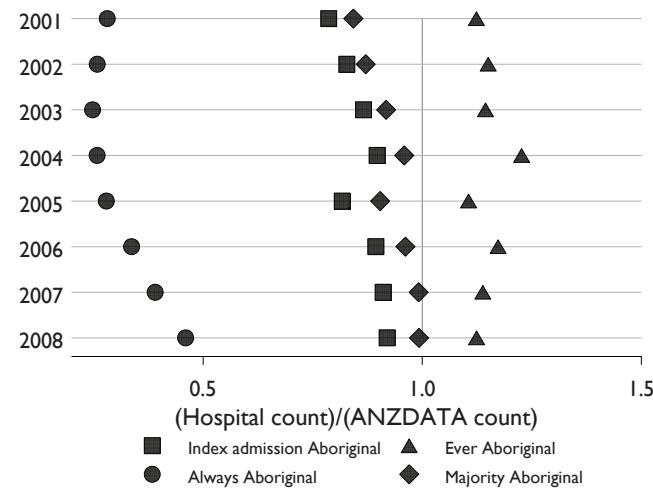
From longitudinally linked NSW Admitted Patients Data Collection (APDC), records were extracted for 8,430 patients receiving dialysis for end stage kidney disease between 1 July 2000 and 30 June 2009. To match ANZDATA criteria,³ non-residents of NSW and residents of the Greater Southern Health Area were excluded, leaving 7,937 patients. Of these, 127 patients were identified consistently as Aboriginal and 238 patients were inconsistently identified.

Four criteria for assigning Aboriginality on the APDC were assessed:

- Patients identified as Aboriginal on the index admission ('index admission')
- Patients consistently identified as Aboriginal ('always Aboriginal')
- Patients with any record identifying them as Aboriginal ('ever Aboriginal')
- Patients identified as Aboriginal in the majority of records ('majority Aboriginal').

The number of Aboriginal people from each of these definitions was compared with the number in the ANZDATA reports (Figure 1). The ‘index admission’ method underestimates the number of Aboriginal people by about 10-20%. ‘Always Aboriginal’ severely

Figure 1: Comparison of Aboriginal numbers in linked hospital data and ANZDATA reports.



Values less than 1 mean the definition of Aboriginality identifies fewer Aboriginal people than in the ANZDATA reports and values greater than 1 mean the number is an overestimate compared with ANZDATA.