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# How rates of perinatal mental health screening in Australia have changed over time and which women are missing out

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## Abstract

Objectives: To report rates of perinatal mental health screening from 2000 to 2017 and investigate factors associated with not being screened both antenatally and postnatally more recently (2013–2017). Methods: A longitudinal community-based study of self-reported perinatal mental health screening with a national sample of 7,566 mothers from the Australian Longitudinal Study on Women's Health reporting on 9,384 children. The main outcome measure was whether mothers were asked about their emotional wellbeing by a health professional, including completing a questionnaire. Results: From 2000 to 2017, the percentage of women not screened decreased from 40.6% to 1.7%. The percentage of women screened both antenatally and postnatally increased from 21.3% to 79.3%. From 2013 to 2017, women who were older (aOR, 0.65; 95%CI, 0.52–0.81) or had reported emotional distress (aOR, 0.77; 95%CI, 0.60–0.99) were less likely to have been screened both antenatally and postnatally. Conclusions: Despite improvements, perinatal mental health screening is not yet universal. One-in-five women are not screened both antenatally and postnatally, including women in high-risk populations such as those who have reported emotional distress. Implications for public health: Women are in regular contact with health professionals in the perinatal period. This opportunity to detect women at risk of perinatal mental health issues is too important to be missed.



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## Abstract

**Objectives**: To report rates of perinatal mental health screening from 2000 to 2017 and investigate factors associated with not being screened both antenatally and postnatally more recently (2013–2017).

**Methods:** A longitudinal community-based study of self-reported perinatal mental health screening with a national sample of 7,566 mothers from the Australian Longitudinal Study on Women's Health reporting on 9,384 children. The main outcome measure was whether mothers were asked about their emotional wellbeing by a health professional, including completing a questionnaire.

**Results**: From 2000 to 2017, the percentage of women not screened decreased from 40.6% to 1.7%. The percentage of women screened both antenatally and postnatally increased from 21.3% to 79.3%. From 2013 to 2017, women who were older (aOR, 0.65; 95%CI, 0.52–0.81) or had reported emotional distress (aOR, 0.77; 95%CI, 0.60–0.99) were less likely to have been screened both antenatally and postnatally.

**Conclusions**: Despite improvements, perinatal mental health screening is not yet universal. One-in-five women are not screened both antenatally and postnatally, including women in high-risk populations such as those who have reported emotional distress.

**Implications for public health:** Women are in regular contact with health professionals in the perinatal period. This opportunity to detect women at risk of perinatal mental health issues is too important to be missed.


**Key words:** maternal depression, perinatal screening, mental health, Australia, longitudinal study

Maternal mental health issues are common in the perinatal period (during pregnancy and the first postnatal year), with up to 20% of women reporting anxiety, depression or stress.[1] Antenatally, maternal mental health issues are associated with poorer birth outcomes such as premature birth and low birth weight[2] and may affect the foetus, potentially impacting future development.[3] Antenatal mental health is also one of the strongest predictors of postnatal mental health,[4] with symptoms likely to continue for up to 70% of women.[1] Postnatally, maternal mental health issues are associated with poorer child development due to effects on parenting practices,[5] impaired attachment between mother and child[6] and reduced physical care such as attending fewer child health checkups.[7] Additionally, maternal perinatal mental health issues have a high cost to the economy. In Australia, the productivity loss and healthcare costs related to maternal and paternal perinatal depression were estimated at almost half a billion dollars in 2012[8] and the cost of not treating perinatal depression and anxiety was estimated at $538 million in 2013.[9]

In Australia, there has been an increasing investment in perinatal mental health screening. From 2001 to 2005, the National Perinatal Depression Program[10] worked with 43 antenatal hospitals or area health services, trained 160 groups and organisations, screened 40,000 pregnant women and reached 200,000 women via publicity, education or resources. The Perinatal Mental Health National Action Plan was released in 2008[11] and was followed by the National Perinatal Depression Initiative (NPDI) 2008–2013.[12] The NPDI supported a national approach to routine depression screening, training for health professionals and perinatal-specific funding. In 2011, the first Australian national guidelines for perinatal mental healthcare were introduced, with companion documents for health professionals released in 2012. They recommended universal screening for depression once or twice antenatally and at least once in the early postnatal period.[13] These recommendations were affirmed in the clinical practice guidelines for antenatal care released in 2012[14] and updated and expanded in 2014[15] and 2017.[16]

Despite this investment, the lack of a national approach to data collection makes it difficult to determine whether perinatal mental

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Correction added on 22 July 2020 after first online publication: The odds ratios in the 'Results' section of the abstract were incorrectly recorded. The final sentenct was changed from "From 2013-2017, women who were older (aOR, 0.77; 95% CI, 0.60-0.99) and had reported emotional distress (aOR, 0.65; 95% CI, 0.52-0.81) were less likely to be screened both antenatally and postnatally" to "The percentage of women screened both antenatally and postnatally increased from 21.3% to 79.3%. From 2013-2017, women who were older (aOR, 0.65; 95% CI, 0.52-0.81) or had reported emotional distress (aOR, 0.77; 95% CI, 0.60-0.99) were less likely to be screened both antenatally and postnatally."

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health screening has changed over time.[12] Three large Australian studies[17-19] conducted between 2007 and 2010 found that 37% to 67% of women reported being asked about their mental health antenatally and 53% to 76% reported being asked about their mental health postnatally. In 2015, administrative data showed that 71% of women were screened for depression antenatally using the Edinburgh Postnatal Depression Scale (EPDS), although this study only included women in Queensland and was unable to report on postnatal screening or screening via other methods.[20] These studies show that many Australian women are not being screened, particularly those in private rather than public hospitals, who are older and who live in areas with higher socioeconomic status.[17,18,20] Parity and education have not been found to be predictors and there is mixed evidence regarding marital status and remoteness.[17,18,20] However, no studies have been able to track perinatal screening over time in a national sample or to report on whether it is occurring both antenatally and postnatally, as recommended. The aims of the current study were: 1) to understand long-term trends in perinatal screening from 2000 to 2017, and whether trends differ between Australian states; and 2) to investigate factors associated with not being screened according to clinical practice guidelines (i.e. both antenatally and postnatally) more recently (2013 to 2017).

## Method

### Sample

Data came from two cohorts of women participating in the Australian Longitudinal Study on Women's Health (ALSWH).[21] Women in the cohort born from 1973 to 1978 were randomly sampled from the Medicare database in 1996 when they were aged 18 to 23. This nationally representative sample has completed up to eight online or postal surveys between 1996 and 2018, at approximately three-yearly intervals. Women in the cohort born from 1989 to 1995 were primarily recruited via social media and online in 2013 when they were aged 18 to 23.[22] A broadly representative national sample has completed up to five annual surveys between 2013 and 2017.

Ethics approval for ALSWH was granted from the University of Newcastle, the University of Queensland, the Australian Government Department of Human Services and the Australian Government Department of Health. Participants provided informed consent.

### Measures

The outcome was whether mothers reported being screened during the perinatal period, and when this occurred. In surveys for the 1973–78 cohort (in 2009, 2012, 2015 and 2018) and a survey for the 1989–95 cohort (2017), mothers were asked, "For your most recent pregnancy, were you asked any questions by a midwife, GP, child health nurse or other professional about your emotional wellbeing? (e.g. given a questionnaire to complete)". The response options were 'never', 'during pregnancy', 'following birth' and 'both'.

Explanatory variables were taken from the survey completed prior to the birth (note that some variables were not available for both cohorts). Maternal and demographic variables included were: partnership status; highest educational qualification; difficulty managing on income; remoteness of residence (calculated from postcodes using Accessibility/Remoteness Index of Australia classifications[23]); state of residence; emotional distress (calculated as scoring 10 or above on the 10-item version of the Center for Epidemiological Studies Depression Scale[24] or 25 or above on the K10 Kessler Psychological Distress Scale[25]); and low social support (calculated as having support none/a little/some of the time on a 6-item version of the MOS Social Support Index[26]). Health service variables were: access to medical specialists if needed; ease of seeing the GP of their choice; and access to women's health or family planning services. Birth-related variables were pregnancy complications (gestational diabetes) or caesarean delivery.

### Statistical analysis

Statistical analysis was done using SAS (version 9.4). In each survey where the screening question was answered, we identified the woman's youngest child at that survey. We then excluded women who were pregnant at the time of the survey (as they would not have the opportunity to report on postnatal screening for that pregnancy), and children that were stillborn or died within the first month (as this may have substantially influenced postnatal care and service access). Multiple births (<5%) were included as we were examining screening as a routine component of maternity care, however, only one child from multiple births was included. Some women in the 1973–78 cohort answered the screening question for more than one child as the question was asked in several surveys. To investigate changes in screening over time (Aim 1), screening rates for the 1973–78 cohort were plotted by year from 2000 to 2017. Differences in screening by demographic characteristics and covariates were calculated using cross-tabulations and chi-square tests. State-based trends were plotted for the three states with the largest number of participants (as cell sizes were too small ($<n=5$) in other states when broken down by year). To identify variables associated with not being screened both antenatally and postnatally (Aim 2), we used the five most recent years of available data (2013–2017) and combined the 1973–78 and 1989–93 cohorts in order to examine differences between older and younger mothers. Mothers without complete data on the explanatory variables were excluded. Variables associated with screening were investigated using univariate multinomial regressions, with generalised estimating equations to account for nesting of children within mothers. Interactions by cohort were used to investigate potential cohort effects. We included variables in the multivariable logistic regression based on the criterion of $p<0.10$ in univariate associations. Statistical significance for the final model was set at $p<0.05$.

## Results

For Aim 1, 6,982 mothers from the 1973–78 cohort reported on screening relating to 8,800 children from 2000–2017. The majority of women were partnered and lived in cities, and half had a university education (Table 1). Overall, 16.9% of women reported they did not receive perinatal mental health screening, 36.7% reported they were screened only once (13.4% antenatally and 23.3% postnatally), and 46.4% reported being screened both antenatally and postnatally. Women who reported they were not screened tended to have a lower level of education, more financial stress, less social support and poorer access to health services, and lived outside of major cities (Table 1).

Figure 1 plots perinatal mental health screening by year of the child's birth. The percentage of women reporting they were not screened fell from 40.6% in 2000 to 1.7% in 2017. The percentage of women reporting they were screened both antenatally and

postnatally increased from 21.3% in 2000 to 79.3% in 2017. Two points in the figure represent important transitions in trends. The first (marked as 'a') is where the percentage of women reporting not being screened fell below the percentage of women reporting being screened once (either antenatally or postnatally) or at both times (antenatally and postnatally). In the overall sample, this occurs in 2004 but there were state-based differences. This point occurred in 2004 in New South Wales, in 2006 in Victoria and in 2007 in Queensland (Supplementary Figures S1-S3). The second point (marked as 'b') is where the percentage of women reporting being screened both antenatally and postnatally is highest and the percentage reporting being screened once is in decline. In the overall sample, this point occurred in 2008 but again there were state-based differences: in New South Wales this point occurred in 2008, in Victoria in 2009 and in Queensland in 2010.

For Aim 2, we looked at the most recent five years (2013 to 2017) and combined data from the two cohorts. In total, 1,056 mothers from the 1973–78 cohort reported on screening relating to 1,078 children and 584 mothers from the 1984–95 cohort reported on screening relating to 584 children. The majority of women in the combined cohort were partnered, lived in cities and did not report any difficulty managing on income, and half had a university education (Table 2). In terms of perinatal mental health screening, 7.6% reported they were not screened, 30.4% reported being screened either antenatally (14.3%) or postnatally (16.1%), and 62.0% reported being screened both antenatally and postnatally.

Interactions by cohort in the univariate regressions were all statistically non-significant. Multivariable logistic regression models (Table 2) revealed three factors associated with receiving mental health screening both antenatally and postnatally (compared to once or never). Older mothers (the 1973–78 cohort) and women who had reported emotional distress in the survey before birth were less likely to have been screened both antenatally and postnatally. There were also some state-based differences: the percentage of women reporting being screened both antenatally and postnatally was comparable in New South Wales, Victoria, Queensland and South Australia, and higher in Western Australia, Tasmania, the Northern Territory and the Australian Capital Territory

**Table 1: Women born from 1973to 1978 in the Australian Longitudinal Study on Women's Health: demographic characteristics overall and by perinatal mental health screening for children from 2000 to 2017.**

| | Overall N (%)[b] | Timing of reported perinatal screening[a] None N (%)[b] | Once N (%)[b] | Both N (%)[b] | *p* |
|---|---|---|---|---|---|
| **Total number of children** | 8,800 (100) | 1,485 (16.9) | 3,231 (36.7) | 4,084 (46.4) | |
| **Before birth** | | | | | |
| **Partner status** | | | | | |
| Partnered | 7,499 (85.2) | 1,248 (84.0) | 2,751 (85.2) | 3,500 (85.7) | 0.292 |
| No partner | 1,299 (14.8) | 237 (16.0) | 479 (14.8) | 583 (14.3) | |
| **Highest qualification** | | | | | |
| Up to Year 12 | 2,234 (25.4) | 500 (33.7) | 788 (24.4) | 946 (23.2) | <0.001 |
| Trade/Diploma | 2,132 (24.2) | 379 (25.5) | 795 (24.6) | 958 (23.4) | |
| University | 4,434 (50.4) | 606 (40.8) | 1,648 (51.0) | 2,180 (53.4) | |
| **Difficulty managing income** | | | | | |
| Easy | 1,955 (22.2) | 305 (20.6) | 696 (21.5) | 954 (23.4) | <0.001 |
| Not bad | 3,517 (40.0) | 555 (37.4) | 1,303 (40.3) | 1,659 (40.6) | |
| Difficult sometimes | 2,393 (27.2) | 414 (27.9) | 893 (27.6) | 1,086 (26.6) | |
| Difficult always/impossible | 934 (10.6) | 210 (14.1) | 339 (10.5) | 385 (9.4) | |
| **Remoteness of residence** | | | | | |
| City | 5,035 (57.2) | 754 (50.8) | 1,914 (59.3) | 2,367 (58.0) | <0.001 |
| Inner regional | 2,172 (24.7) | 403 (27.1) | 790 (23.5) | 1,009 (24.7) | |
| Outer regional/remote | 1,593 (18.1) | 328 (22.1) | 557 (17.2) | 708 (17.3) | |
| **Emotional distress** | | | | | |
| No | 6,653 (81.0) | 1,005 (77.0) | 2,415 (79.9) | 3,233 (83.1) | <0.001 |
| Yes | 1,562 (19.0) | 300 (23.0) | 606 (20.1) | 656 (16.9) | |
| **Low social support** | | | | | |
| Ok support | 7,452 (90.5) | 1,148 (87.6) | 2,716 (89.8) | 3,588 (92.1) | <0.001 |
| Low support | 782 (9.5) | 163 (12.4) | 309 (10.2) | 310 (7.9) | |
| **Access to specialists** | | | | | |
| Don't know | 573 (7.0) | 87 (6.6) | 221 (7.3) | 265 (6.8) | <0.001 |
| Excellent/very good | 4,222 (51.2) | 587 (44.7) | 1,512 (49.9) | 2,123 (54.5) | |
| Good | 2,095 (25.4) | 368 (28.0) | 786 (25.9) | 941 (24.1) | |
| Fair/poor | 1,353 (16.4) | 272 (20.7) | 512 (16.9) | 569 (14.6) | |
| **Access to GP of choice** | | | | | |
| Don't know | 156 (1.9) | 28 (2.1) | 59 (1.9) | 69 (1.8) | 0.004 |
| Excellent/very good | 2,382 (28.9) | 356 (27.1) | 815 (26.9) | 1,211 (31.1) | |
| Good | 2,500 (30.3) | 398 (30.3) | 934 (30.8) | 1,168 (30.0) | |
| Fair/poor | 3,206 (38.9) | 533 (40.5) | 1,224 (40.4) | 1,449 (37.1) | |
| **Access to women's health/family planning** | | | | | |
| Don't know | 3,009 (36.5) | 529 (40.2) | 1,144 (37.7) | 1,336 (34.3) | <0.001 |
| Excellent/very good | 2,388 (29.0) | 293 (22.3) | 764 (25.2) | 1,331 (34.2) | |
| Good | 1,562 (18.9) | 235 (17.9) | 613 (20.2) | 714 (18.2) | |
| Fair/poor | 1,284 (15.6) | 258 (19.6) | 510 (16.8) | 516 (13.3) | |
| **Access to maternal and child health** | | | | | |
| Don't know | 815 (26.2) | 73 (25.9) | 300 (29.1) | 442 (24.5) | <0.001 |
| Excellent/very good | 1,466 (47.1) | 112 (39.7) | 439 (42.6) | 915 (50.8) | |
| Good | 570 (18.3) | 55 (19.5) | 200 (19.4) | 315 (17.5) | |
| Fair/poor | 263 (8.4) | 42 (14.9) | 92 (8.9) | 129 (7.2) | |
| **Maternal age at child's birth** | | | | | |
| 20-24 | 84 (1.0) | 38 (2.6) | 32 (1.0) | 14 (0.3) | <0.001 |
| 25-29 | 1,301 (14.8) | 418 (28.2) | 479 (14.8) | 404 (9.9) | |
| 30-34 | 4,224 (48.0) | 703 (47.3) | 1,628 (50.4) | 1,893 (46.4) | |
| 35-39 | 2,922 (33.2) | 299 (20.1) | 1,004 (31.1) | 1,619 (39.6) | |
| 40 + | 269 (3.1) | 27 (1.8) | 88 (2.7) | 154 (3.8) | |
| **Pregnancy complications[c]** | | | | | |
| No | 8,278 (94.2) | 1,406 (94.7) | 3,037 (94.1) | 3,835 (94.0) | 0.603 |
| Yes | 510 (5.8) | 78 (5.3) | 189 (5.9) | 243 (6.0) | |
| **Caesarean delivery** | | | | | |
| No | 6,409 (72.9) | 1,054 (71.1) | 2,329 (72.2) | 3,026 (74.1) | 0.042 |
| Yes | 2,383 (27.1) | 429 (28.9) | 897 (27.8) | 1,057 (25.9) | |

*Notes:*

*a: Once: reported receiving perinatal mental health screening either during pregnancy or after birth. Both: reported receiving perinatal mental health screening both during pregnancy and after birth.*

*b: N varies due to missing data on some variables.*

*c: Pregnancy complications were gestational diabetes or hypertension.*

(although the confidence intervals for some effects were wide due to small cell sizes).

## Discussion

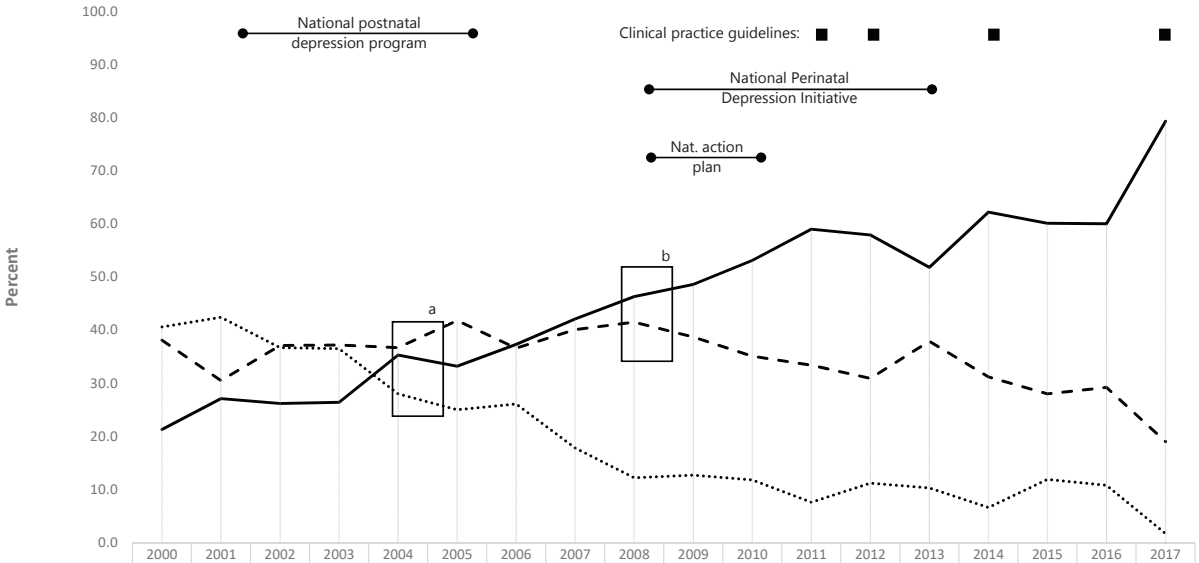
This is the first Australian study to report changes in perinatal mental health screening over time in a large national sample. Our findings suggest that perinatal mental health screening has improved considerably but is not yet in line with clinical practice guidelines. Mothers who had reported emotional distress in the survey before the birth were less likely to have been screened both antenatally and postnatally, as were older mothers. Additionally, there were differences between Australian states in screening rates.

For Aim 1, between 2000 and 2017, 60% of women reported being screened antenatally and 70% reported being screened postnatally. This percentage falls within the ranges reported in cross-sectional Australian studies: 37–71% screened during pregnancy and 53–76% after birth.[17-20] Looking at trends over time, the percentage of women reporting not being screened fell by 38.9% (from 40.6% in 2000 to 1.7% in 2017). The percentage of women reporting being screened both antenatally and postnatally increased by 58% (from 31.8% in 2000 to 79.3% in 2017). Overall, this represents clear progress. However, in 2017, one-in-five women were not being screened both antenatally and postnatally as recommended by clinical practice guidelines.

Two transitions in the trends were noteworthy. The first was when the percentage of women reporting not being screened fell below the percentages reporting being screened once (either antenatally or postnatally) or both (antenatally and postnatally). The second was when the percentage of women reporting being screened at both times was highest and 'once' was in decline. In the overall sample, this second transition coincided with the introduction of two national policy initiatives (the Perinatal Mental Health National Action Plan 200-2010[11] and the NPDI[12]), which suggests these policies may have brought about a change in clinical practice. This is affirmed by recent research that found the introduction of the NPDI resulted in earlier detection and treatment of women with a mild-to-moderate psychiatric diagnosis.[27] However, there were state-based differences in the timing of both transitions, which may reflect state-based differences in the implementation of state-wide and national policies or local differences in clinical practices.[28] These findings suggest the importance of both national and state-based initiatives to improve perinatal screening rates.

For Aim 2, looking at the most recent five years of data (2013–2017), three variables were associated with not being screened both antenatally and postnatally (compared to being screened once or not at all). Women who had reported emotional distress in the survey before the birth were 23% less likely to have been screened both antenatally and postnatally than women who had not reported emotional distress. This is concerning, as previous mental health issues are one of the strongest risk factors for perinatal depression.[1] We also found that older mothers were 35% less likely than younger mothers to be screened both during pregnancy and after birth, which is similar to findings of previous studies.[18,20] Older women may be more likely to receive care in the private health system, and therefore less likely to be screened.[17] Finally, there were state-based differences in screening, which affirms the findings of a previous study using a smaller sample of ALSWH participants.[17] Overall, the findings of these studies suggest that perinatal mental health screening is not universal, as certain mothers are missing out.

**Figure 1: Self-reported perinatal mental health screening for births by year between 2000 and 2017 (cohort born in 1973-78, N=8800 births) and perinatal mental health policy initiatives.**




| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Never | 40.6 | 42.4 | 36.7 | 36.5 | 28.0 | 25.0 | 26.1 | 17.8 | 12.2 | 12.7 | 11.8 | 7.6 | 11.2 | 10.3 | 6.6 | 11.9 | 10.8 | 1.7 |
| Once | 38.1 | 30.5 | 37.1 | 37.2 | 36.7 | 41.8 | 36.6 | 40.1 | 41.5 | 38.7 | 35.1 | 33.4 | 30.9 | 37.9 | 31.2 | 28.0 | 29.2 | 19.0 |
| Both | 21.3 | 27.1 | 26.2 | 26.4 | 35.3 | 33.2 | 37.3 | 42.1 | 46.3 | 48.6 | 53.1 | 59.0 | 57.9 | 51.8 | 62.2 | 60.1 | 60.0 | 79.3 |

*Note:*

*"a" highlights when the percentage of women reporting "never" being screened falls below the percentage reporting being screened "once" (i.e. during pregnancy or after birth) and "both" (i.e. during pregnancy and after birth); "b" highlights when the percentage of women reporting being screened "both" is highest and the percentage reporting being screened "once" is in decline.*

### *Strengths and limitations*

Our sample was large, national, longitudinal and broadly representative of the population. We used maternally reported mental health screening, which enabled us to capture a broader range of mental health issues than just depression, along with a wider range of assessment methods and health professionals. The main limitation was that we did not have data on whether mothers received maternity care in the public or private healthcare systems, and previous studies have shown that mental health screening rates are lower in private care.[17,20] Additionally, our screening measure was retrospectively self-reported, which can introduce recall bias.[17] However, screening rates in our study were comparable to those in other Australian studies,[17-19] including one using administrative data.[20] For future research, the national collection of data items relating to perinatal mental health and psychosocial screening is a priority, as it will allow information to be collected consistently within the National Perinatal Data Collection, both within and across jurisdictions, and enable monitoring of progress over time.[16]

## Implications for public health

For some women, screening for perinatal mental health issues can be the first step in a pathway of care.[29] Standardised screening increases the identification of women experiencing clinically relevant anxiety and depression[30,31] and women who are asked about their mental health are more likely to be referred for further support[32,33] and to take up treatment.[33] Universal screening, as currently recommended, is acceptable to the majority of women when sensitively integrated into routine care, and is rated as feasible by the majority of health professionals.[11] However, there is some debate about the benefits of perinatal mental health screening.[29,33,34] Not all women who screen positive will attend a subsequent mental health assessment[35,36] or engage in treatment,[36,37] and treatment for depression does not work for everyone.[38] Additional concerns about universal screening include lack of time and resources, potential over-diagnosis and lack of appropriate and accessible support services available for women who screen positive.[1] Some of these concerns may be overcome by conducting screening in a way that has therapeutic benefit;[28,39] by implementing integrated enhanced care and stepped care models[1,34,40] and providing educational interventions and support for health professionals regarding screening;[28,41] and by wider access to effective low-intensity or self-guided treatments. While further research is required on the balance of risks and benefits, and to understand how to best overcome the barriers and challenges, screening for mental health issues in the perinatal period is well justified[42] and efforts need to be made to align current practices with clinical guidelines.

**Table 2: Women born from 1973 to 1978 and 1989 to 1995 in the Australian Longitudinal Study on Women's Health (N=1,662): demographic characteristics overall, and univariate associations and multivariable logistic regression with perinatal mental health screening for children born from 2013 to 2017.**

| | Descriptive statistics | Univariate Both (ref: Never/once) | | Multivariable Both (ref: Never/once) | |
|---|---|---|---|---|---|
| | N (%) | OR (95%CI) | *p* | OR (95%CI) | *p* |
| **Before the child's birth** | | | | | |
| **No partner** | | | | | |
| Partnered | 1,313 (79.0) | 1 (Reference) | 0.935 | – | – |
| No partner | 349 (21.0) | 0.99 (0.78, 1.26) | | – | |
| **Highest qualification** | | | | | |
| Up to Year 12 | 295 (17.7) | 1.12 (0.85, 1.47) | 0.465 | – | – |
| Trade/Diploma | 498 (30.0) | 1.14 (0.91, 1.44) | | – | |
| University | 869 (52.3) | 1 (Reference) | | – | |
| **Difficulty managing income** | | | | | |
| Easy | 317 (19.1) | 0.93 (0.70, 1.23) | 0.348 | – | – |
| Not bad | 629 (37.8) | 1 (Reference) | | – | |
| Difficult sometimes | 488 (29.4) | 0.84 (0.66, 1.08) | | – | |
| Difficult always/impossible | 228 (13.7) | 0.78 (0.57, 1.06) | | – | |
| **Remoteness of residence** | | | | | |
| City | 1,043 (62.8) | 1 (Reference) | 0.679 | – | – |
| Inner regional | 351 (21.1) | 1.09 (0.84, 1.40) | | – | |
| Outer regional/remote | 268 (16.1) | 0.94 (0.72, 1.24) | | – | |
| **State** | | | | | |
| New South Wales | 410 (24.7) | 1 (Reference) | 0.013 | 1 (Reference) | 0.024 |
| Victoria | 422 (25.4) | 1.00 (0.76, 1.33) | | 1.04 (0.79, 1.38) | |
| Queensland | 330 (19.9) | 0.97 (0.72, 1.31) | | 0.94 (0.70, 1.27) | |
| South Australia | 125 (7.5) | 0.96 (0.63, 1.44) | | 0.93 (0.61, 1.41) | |
| Western Australia | 177 (10.7) | 1.68 (1.14, 2.48) | | 1.66 (1.13, 2.45) | |
| Tasmania | 60 (3.6) | 1.76 (0.96, 3.23) | | 1.79 (0.97, 3.32) | |
| Northern Territory | 18 (1.1) | 1.28 (0.47, 3.49) | | 1.35 (0.48, 3.75) | |
| Australian Capital Territory | 48 (2.9) | 1.51 (0.78, 2.91) | | 1.59 (0.83, 3.02) | |
| Overseas | 72 (4.3) | 0.62 (0.37, 1.04) | | 0.73 (0.43, 1.23) | |
| **Emotional distress** | | | 0.098 | | |
| No | 1,329 (80.0) | 1 (Reference) | | 1 (Reference) | 0.047 |
| Yes | 333 (20.0) | 0.81 (0.63, 1.04) | | 0.77 (.060, 0.99) | |
| **Cohort** | | | | | |
| Born 1973-78 | 1,078 (64.9) | 0.66 (0.54, 0.82) | <0.001 | 0.65 (0.52, 0.81) | <0.001 |
| Born 1989-95 | 584 (35.1) | 1 (Reference) | | 1 (Reference) | |
| **Pregnancy complications[a]** | | | | | |
| No | 1,528 (91.9) | 1 (Reference) | 0.373 | – | |
| Yes | 134 (8.06) | -0.00 (0.40, 0.60) | | – | |
| **Caesarean delivery** | | | | | |
| No | 1,177 (70.82) | 1 (Reference) | 0.112 | – | |
| Yes | 485 (29.2) | -0.00 (-0.00, 0.00) | | – | |

*Note:*

*a: Pregnancy complications were gestational diabetes or hypertension.*

## Conclusions

Overall, our findings suggest perinatal mental health screening has improved considerably. However, screening is not yet universal and 21% of women are not being screened in accordance with clinical practice guidelines.

Women have frequent contact with a wide range of healthcare practitioners during the perinatal period.[7,29] This opportunity to identify women at risk of mental health issues is too important to be missed.

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## Supporting Information

Additional supporting information may be found in the online version of this article:

**Supplementary Figure 1**: Self-reported perinatal mental health screening for births by year between 2000 and 2017 in New South Wales (cohort born in 1973-78, N=2379 births).

**Supplementary Figure 2**: Self-reported perinatal mental health screening for births by year between 2000 and 2017 in Victoria (cohort born in 1973-78, N=2260 births).

**Supplementary Figure 3**: Self-reported perinatal mental health screening for births by year between 2000 and 2017 in Queensland (cohort born in 1973-78, N=1823 births).