

PERINATAL MENTAL DISTRESS: AN UNDER-RECOGNISED CONCERN

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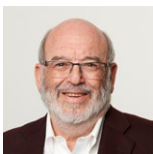
Our name, Koi Tū, was gifted by Ngāti Whātua Ōrākei. It means the sharp end of the spear. Like a spear, Koi Tū aims to get to the heart of long-term issues challenging our future.

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Key points

- Perinatal mental distress is an under-recognised condition that can have serious consequences for a woman and her baby. These include disabling effects on mood and daily functioning, and potential intergenerational cycles of compromised wellbeing.
- A woman's risk of developing perinatal mental distress is likely determined by biological vulnerabilities interacting with her pregnancy experience and her wider social and environmental context.
- Symptoms of perinatal distress are often broader than depression, and they frequently occur during or prior to pregnancy as well as after birth. Distress that arises after pregnancy should not be dismissed as temporary, hormone-driven 'baby blues'.
- Early universal screening, along with the development of a culturally-appropriate Aotearoa New Zealand-specific screening tool, is paramount for the wellbeing of both mother and child.
- Women would benefit from being able to choose from a range of therapeutic approaches, and affected families should receive tailored support to optimise their child's early development.
- Raised awareness of perinatal distress is essential to reduce stigma and encourage women to seek help.

Perinatal mental distress: A critically important public health issue

Maternal mental health remains a critically important yet under-recognised issue. It needs much greater priority within public policy frameworks in Aotearoa New Zealand. Mental distress during the perinatal period (encompassing conception through pregnancy to one year after birth) is thought to affect at least 15% of New Zealand women,ⁱ although this figure obscures the heightened risk among women of Māori, Asian, and Pacific ethnicity, for whom rates can reach one in three.¹⁻⁵ The figure also excludes the probable high prevalence of women whose symptoms fall just below the threshold of clinical detection but whose functioning and wellbeing can be as significantly affected as those meeting the criteria for formal diagnosis.⁶ For example, the prevalence of women with high subclinical levels of mental distress after birth was estimated at about 14% in a small Auckland-based survey.⁷ Larger, more recent studies overseas have reported high subclinical levels of distress in up to 30% of pregnant women.⁶ In total, therefore, mental distress may affect nearly half of all pregnant and postnatal women.

'Distress' is used here as an umbrella term to capture the range of symptoms women experience. Distress most often manifests as depression, but women also frequently exhibit anxiety and may suffer from obsessive-compulsive traits, bipolar disorder or, more rarely, psychosis.

Maternal mental distress can have serious consequences for both the woman and her baby. Adverse pregnancy outcomes, as well as the unpleasant and potentially disabling effects on mood and daily functioning, are common to major depressive disorders and are well documented in women experiencing

i We use the terminology woman/women to ensure consistency with the research referenced in this brief, however we acknowledge that not all pregnant people identify as women, and non-cisgender people have unique experiences of pregnancy. We also acknowledge that partners, adoptive parents, family, and whānau can also be affected by mood changes. This paper focuses on the pregnant and postnatal woman because of the especially high prevalence of mental distress in this group, the additional biological and social vulnerabilities associated with pregnancy and childbirth, and the potential intergenerational impacts of exposure to stress *in utero*.

perinatal distress. For some women, the extent of their suffering can be too much to bear. Suicide is the largest single cause of death for New Zealand women during and in the six weeks following pregnancy. New Zealand's maternal suicide rate is about six times higher than that of the United Kingdom, and wāhine Māori are over three times more likely to die by suicide than New Zealand European women.^{8, 9} As part of their symptoms, mothers may experience intrusive thoughts about harming their baby.

*I was standing in the kitchen and I remember having the most peaceful and clear thought:
I'll kill myself. If I'm dead, I'll be asleep. – Emily Writes, writer and mother.¹⁰*

In the longer term, children whose mothers were hindered in their bonding and parenting capabilities due to mental distress, even at mild to moderate levels, may go on to have mood disorders including anxiety, and girls have a much higher chance of experiencing depression during pregnancy when they reach that life stage.¹¹ Depression during pregnancy is associated with altered fetal brain development and biochemistry, including compromised development of executive functionsⁱⁱ in the child.^{13, 14} Impaired executive functions place a person at greater risk of negative lifelong consequences such as school failure, job instability, and poorer physical and mental health.¹² Supporting women with their mental health is therefore a vital step in interrupting intergenerational cycles of negative impact.^{12, 15}

*I wanted my baby to feel as helpless as I did, and take responsibility for
the frustration that I was feeling – which is a ludicrous thing for a baby to do.
– Hayley, a New Zealand mother.¹⁶*

A complex interplay of biology and society

A woman's risk of developing perinatal distress is likely determined by the interaction of biological factors with her wider social and environmental context. It is clear that the psychosocial risk factors for developing perinatal distress are also common to mental distress in the general population, such as low income, lack of social support, or a difficult family environment.¹⁷ But the risk and any biological propensity can be exacerbated by pregnancy-related factors. In New Zealand women, such factors include unplanned or complicated pregnancy, difficult birth experience, and infant temperament.^{1, 3, 18}

*[I]t feels like I've been eroding away. Losing who I am, the very essence of myself.
– Linda Jane Keegan, writer and mother.¹⁹*

Emerging research into the biological contributors to perinatal distress suggests possible hormonal and genetic influences, although the specific mechanisms are not yet clear.²⁰⁻²⁵ Certain genes have been found to play a role in both perinatal distress and non-perinatal mental disorders, while other genes may be unique to perinatal distress.^{21, 23, 26}

A hormone system that could potentially be involved is one that is activated in response to stress called the hypothalamic-pituitary-adrenal axis.²¹ It can be altered by a steroid called allopregnanolone that is derived from the hormone progesterone, which the placenta makes during pregnancy.²⁷ Recent research has linked low levels of allopregnanolone with increased likelihood of perinatal distress.

ii Executive functions are a set of cognitive processes that help with paying attention, planning ahead, working towards goals, and restricting impulsive behaviours. They are essential for success in school and working life, and for maintaining good relationships with others.¹²

In 2019, a synthetic form of allopregnanolone called brexanolone was approved in the United States as the first-ever drug designed specifically to treat perinatal distress.^{20, 28}

Although there is more to understand, what is clear is that perinatal distress is more than simply a social or a hormonal issue. Symptoms of distress that many women experience after their baby is born must not be dismissed as simply being the ‘baby blues’ that are assumed and expected to be minor and temporary. While biological influences may include hormone-driven baby blues for some women who only develop transient symptoms after giving birth, perinatal distress is a discrete, complex, and important phenomenon about which understandings have rapidly evolved in recent years.

Mum said: 'it's okay, it's just the baby blues'. I remember distinctly thinking: 'I don't think baby blues include trying to kill your child'. – Erica, a New Zealand mother.¹⁶

Perinatal mental distress often starts before or during pregnancy, even if it is unrecognised until after the birth. Some women experience depression or anxiety for the first time after they give birth, but for many who experience perinatal distress, their general mood state of less-than-optimal mental wellbeing largely remains constant throughout pregnancy and into the postnatal period.²⁹ The strongest predictor of postnatal distress is depression during pregnancy, and the most important risk factor for distress during pregnancy is a prior history of depression or anxiety.^{29, 30} Postnatal distress is therefore frequently a continuation of a set of symptoms that emerged during or even before pregnancy. However, the demands of caring for a newborn, such as the rapid increase in sleep deprivation, can affect or compound a woman’s distress.³¹ The experience of motherhood and any other related factors, such as a traumatic birth or a baby requiring intensive care or changed domestic circumstances, can exacerbate pre-existing distress to the point where a previously unnoticed or well-managed issue becomes more pressingly apparent to the woman and those around her.

Prevention approaches

Since perinatal distress symptoms appearing after birth are often indicative of an earlier problem, early intervention is paramount. Managing distress during pregnancy helps prevent a woman’s condition from worsening once she gives birth,³¹ and lessens the amount of stress her baby is exposed to *in utero*, thus reducing intergenerational consequences. Universal screening should be implemented for all pregnant women at the first lead maternity carer visit, and repeated in mid-pregnancy and again postnatally. Midwives and other lead maternity carers are ideally placed to carry out screening; however, it is imperative that any screening programme is supported by appropriately-resourced maternal mental health services.³² At present, existing publicly-funded services are insufficient to meet women’s needs, particularly for Māori, Pacific, and Asian women.³³ Services should be available for women experiencing any degree of distress, not only those most severely affected,^{6, 32} and women with a prior history of mental illness should automatically be offered a referral for specialist help.

The Edinburgh Postnatal Depression Scaleⁱⁱⁱ is a widely-used screening tool for perinatal distress in the community. This tool has been validated for Tongan and Samoan women living in New Zealand,³⁴ but it does not appear to have been tested for relevance in Māori women. Furthermore, it may not pick up on differences in symptom presentation in high-risk groups due to differences in how mental distress manifests in non-Western cultures. For instance, perinatal distress may present primarily as physical

iii This tool was initially developed to screen specifically for postnatal depression, as reflected in its name; however, it is now also used for screening during pregnancy.

ailments rather than emotional or mood problems in Māori women.³⁵ Similarly, Asian women may experience unexplainable pain such as stomach pain or headaches as their body's way of expressing that something is wrong.³⁶ Consideration should be given to the development of a screening tool customised to New Zealand's diverse ethnic makeup, encompassing a wider range of cultural world views and concepts of wellbeing. Such a tool should use the term 'perinatal distress' rather than 'postnatal depression' to reflect the fact that symptoms are not limited to depression and may present at any time during pregnancy.

Raised awareness of the high prevalence of perinatal distress is needed to reduce stigma and encourage women to seek help. Awareness should be promoted in partners, wider family and whānau, and healthcare providers, as well as women themselves.

One day I placed my screaming baby on the floor, went to the shed ... and called my husband. If I didn't have that fleeting moment and call him I don't know if I or my baby would be here today. – Jess, a New Zealand mother.¹⁶

Families need support to thrive. Firstly, support can help prevent perinatal distress in the first place. Secondly, proactive support of children whose mothers were affected will reduce the likelihood of those children developing mental illness. At a societal level, this requires continued investment in social policies aimed at improving the social determinants of health, as well as prioritising family-focused policies such as paid parental leave.^{11, 17}

Management approaches

Management should follow a two-pronged approach. Firstly, women at risk of developing perinatal distress would benefit from preventive care to reduce the chance of them becoming symptomatically unwell and women with existing symptoms need treatment and environmental management to help restore wellbeing. This should include being able to choose psychosocial and psychological interventions, either instead of or in addition to medication. Psychotherapy, cognitive behavioural therapy, counselling, and peer telephone support are all effective at both preventing and treating perinatal distress.^{37, 38} Women should also have the choice to access culturally-appropriate options.^{36, 39}

*I'm born from Papatūānuku,^{iv} so of course I return to her for healing.
– Joanne Rama, midwife and mother.³⁹*

For a minority of women, management will include antidepressant medication, which may be effective at reducing the severity of symptoms.⁴¹ There are limitations to antidepressants, including a lack of evidence of efficacy for preventing perinatal distress,⁴² concerns around taking medication during pregnancy and while breastfeeding, and a distrust of European medical philosophies by some women.^{35, 36} Treatment with brexanolone, the recently approved drug for perinatal distress, is promising but costly and requires an inpatient stay. Research is ongoing to develop oral formulations,^{20, 28} which when available could be considered.

iv In the Māori world view, Papatūānuku is the land. She is a mother earth figure who gives birth to all things, including people.⁴⁰

Secondly, women affected by perinatal distress may find it more difficult to bond with their child.¹¹ This imposes an extra burden on these children, who are already at increased risk of psychological disorders and impaired executive functions due to potential genetic risk factors and the altered fetal brain development that is associated with maternal depression during pregnancy. To assess mother-child bonding, a tool such as the Postpartum Bonding Questionnaire could be used. Women and their family and whānau should be offered early assistance where needed, such as tailored parenting classes with suggestions for home-based activities that promote bonding and interaction. Effective interventions include skin-to-skin contact for infants and responsively engaging in ‘serve and return’ (interactive to-and-fro) activities with older babies that can help brain development.¹¹ Women whose symptoms are more severe may require more intensive support to optimise their relationship with their newborn. This may include interactive therapies provided through specialised mother-infant mental health services and/or a period of care in a mother and baby inpatient or day unit.⁴³

I'm going to counselling now to deal with issues that I never even knew were there.

It's helped me realise . . . that a lot that has happened is not all my fault.

– Roimata, a New Zealand mother.³⁵

Fetal life and early childhood is a time of rapid brain development, and at this stage the brain is at its most malleable or plastic. Supportive social policies are therefore crucial for young families during this window of opportunity. Children should be assessed for executive functioning during the preschool years and offered individualised interventions if required. This will help provide a strong foundation for lifelong wellbeing for that child and for future generations.

References

1. Underwood L, Waldie KE, D'Souza S, Peterson ER, Morton SM. A longitudinal study of pre-pregnancy and pregnancy risk factors associated with antenatal and postnatal symptoms of depression: Evidence from Growing Up in New Zealand. *Maternal & Child Health Journal*. 2017; 21: 915-31.
2. Deverick Z, Guiney H. Postnatal depression in New Zealand: Findings from the 2015 New Mothers' Mental Health Survey. Wellington: Health Promotion Agency, 2016.
3. Abbott MW, Williams MM. Postnatal depressive symptoms among Pacific mothers in Auckland: prevalence and risk factors. *Australian and New Zealand Journal of Psychiatry*. 2006; 40: 230-8.
4. McDaid F, Underwood L, Fa Alili-Fidow J, Waldie KE, Peterson ER, Bird A, et al. Antenatal depression symptoms in Pacific women: Evidence from Growing Up in New Zealand. *Journal of Primary Health Care*. 2019; 11: 96-108.
5. Signal TL, Paine S-J, Sweeney B, Muller D, Priston M, Lee K, et al. The prevalence of symptoms of depression and anxiety, and the level of life stress and worry in New Zealand Māori and non-Māori women in late pregnancy. *Australian and New Zealand Journal of Psychiatry*. 2017; 51: 168-76.
6. Meaney M. Perinatal maternal depressive symptoms as an issue for population health. *American Journal of Psychiatry*. 2018; 175: 1084-93.
7. Thio IM, Browne MAO, Coverdale JH, Argyle N. Postnatal depressive symptoms go largely untreated. *Social Psychiatry and Psychiatric Epidemiology*. 2006; 41: 814-8.
8. PMMRC. Fourteenth annual report of the Perinatal and Maternal Mortality Review Committee | Te pūrongo ā-tau tekau mā whā o te Komiti Arotake Mate Pēpi, Mate Whaea Hoki: Reporting mortality and morbidity 2018 | Te tuku pūrongo mō te mate me te whakamate 2018. Wellington: Health Quality & Safety Commission, 2021.
9. Knight M BK, Tuffnell D, Patel R, Shakespeare J, Kotnis R, Kenyon S, Kurinczuk JJ (Eds.) on behalf of MBRRACE-UK. Saving lives, improving mothers' care - Lessons learned to inform maternity care from the UK and Ireland Confidential Enquiries into Maternal Deaths and Morbidity 2017-19. Oxford: National Perinatal Epidemiology Unit, University of Oxford, 2021.
10. Writes E. Emily Writes: We have a post-natal depression epidemic and it's killing mothers. *The Spinoff*. 2017 July 24. Available from: <https://thespinoff.co.nz/parenting/24-07-2017/emily-writes-we-have-a-post-natal-depression-epidemic-and-its-killing-mothers>.
11. Low F. Bonding: A brilliant brain builder. The importance of supporting parents to bond with their child from the earliest years. Auckland: Koi Tū: The Centre for Informed Futures, 2022.
12. Low F, Gluckman P, Poulton R. Executive functions: A crucial but overlooked factor for lifelong wellbeing. Auckland: Koi Tū: The Centre for Informed Futures, 2021.
13. Wu Y, Lu Y-C, Jacobs M, Pradhan S, Kapse K, Zhao L, et al. Association of prenatal maternal psychological distress with fetal brain growth, metabolism, and cortical maturation. *JAMA Network Open*. 2020; 3: e1919940-e.
14. Centre for Holistic Initiatives for Learning and Development. Maternal mental health and well-being during pregnancy linked to brain development and function in children. 2021. Available from: https://thechild.sg/wp-content/uploads/sites/25/2021/07/EI_001_CHILD_Importance-of-Maternal-Mood_For-Circulation-digital.pdf.
15. Low F, Gluckman P, Poulton R. Intergenerational disadvantage: Why maternal mental health matters. Auckland: Koi Tū: The Centre for Informed Futures, 2021.
16. Nightingale M. Mothers reveal the darker symptoms of postnatal depression: 'I became really scared of myself'. *NZ Herald*. 2021 April 8. Available from: <https://www.nzherald.co.nz/nz/mothers-reveal-the-darker-symptoms-of-postnatal-depression-i-became-really-scared-of-myself/M5PDZOXSGH2CMFEVAIBWZ6MSJM/>.
17. Walker H. Āhurutia te rito: It takes a village. How better support for perinatal mental health could transform the future for whānau and communities in Aotearoa New Zealand. Auckland: Mahi a Rongo | The Helen Clark Foundation, 2022.
18. Innovation Unit. Mai te whai-ao ki te ao mārama: Coming into the light - Mothers' experiences of distress and wellbeing during pregnancy and the first year of motherhood. . Wellington: Te Hiringa Hauora/Health Promotion Agency, 2019.
19. Keegan LJ. I won't suddenly be well: On the pain of not being the mother you want to be. *The Spinoff*. 2017 June 9. Available from: <https://thespinoff.co.nz/parenting/09-06-2017/i-wont-suddenly-be-well-on-the-pain-of-not-being-the-mother-you-want-to-be>.

20. Ali M, Aamir A, Diwan MN, Awan HA, Ullah I, Irfan M, et al. Treating postpartum depression: What do we know about brexanolone? *Diseases*. 2021; 9: 52.
21. Yu Y, Liang H-F, Chen J, Li Z-B, Han Y-S, Chen J-X, et al. Postpartum depression: Current status and possible identification using biomarkers. *Frontiers in Psychiatry*. 2021; 12.
22. Mehta D, Grewen K, Pearson B, Wani S, Wallace L, Henders AK, et al. Genome-wide gene expression changes in postpartum depression point towards an altered immune landscape. *Translational Psychiatry*. 2021; 11: 155.
23. Pouget J, Taylor V, Dennis C-L, Grigoriadis S, Oberlander T, Frey B, et al. Preliminary insights into the genetic architecture of postpartum depressive symptom severity using polygenic risk scores. *Personalized Medicine in Psychiatry*. 2021; 27-28: 100081.
24. Kim S. Oxytocin and postpartum depression: Delivering on what's known and what's not. *Brain Research*. 2013; 1580: 219-32.
25. Schiller CE, Meltzer-Brody S, Rubinow DR. The role of reproductive hormones in postpartum depression. *CNS Spectrums*. 2015; 20: 48-59.
26. Viktorin A, Meltzer-Brody S, Kuja-Halkola R, Sullivan P, Landén M, Lichtenstein P, et al. Heritability of perinatal depression and genetic overlap with nonperinatal depression. *American Journal of Psychiatry*. 2016; 173: 158-65.
27. Meltzer-Brody S, Kanes SJ. Allopregnanolone in postpartum depression: Role in pathophysiology and treatment. *Neurobiology of Stress*. 2020; 12: 100212.
28. Kaufman Y, Carlini SV, Deligiannidis KM. Advances in pharmacotherapy for postpartum depression: A structured review of standard-of-care antidepressants and novel neuroactive steroid antidepressants. *Therapeutic Advances in Psychopharmacology*. 2022; 12: 1-12.
29. Fitzgerald E, Parent C, Kee MZL, Meaney MJ. Maternal distress and offspring neurodevelopment: Challenges and opportunities for pre-clinical research models. *Frontiers in Human Neuroscience*. 2021; 15: 635304.
30. Kee MZL, Ponmudi S, Phua DY, Rifkin-Graboi A, Chong YS, Tan KH, et al. Preconception origins of perinatal maternal mental health. *Archives of Women's Mental Health*. 2021; 24: 605-18.
31. Phua DY, Chen H, Chong YS, Gluckman PD, Broekman BFP, Meaney MJ. Network analyses of maternal pre- and post-partum symptoms of depression and anxiety. *Frontiers in Psychiatry*. 2020; 11: 785.
32. Mellor C, Payne D, McAra-Couper J. Midwives' perspectives of maternal mental health assessment and screening for risk during pregnancy. *New Zealand College of Midwives Journal*. 2019; 55: 27-34.
33. Ministry of Health. Maternal mental health service provision in New Zealand: Stocktake of district health board services. Wellington: Ministry of Health, 2021.
34. Ekeroma A, Ikenasio-Thorpe B, Weeks S, Kokaua J, Puniani K, Stone P, et al. Validation of the Edinburgh Postnatal Depression Scale (EPDS) as a screening tool for postnatal depression in Samoan and Tongan women living in New Zealand. *New Zealand Medical Journal*. 2012; 125: 41-9.
35. Merritt M. A case study for helping to prevent postnatal depression: Towards a cultural tool for Maori women [Masters thesis]: Massey University; 2005.
36. Ho E, Feng K, Wang I. Supporting equitable perinatal mental health outcomes for Asian women. A report for the Northern Region District Health Boards. Auckland: Asian Family Services, 2021.
37. Dennis CL, Dowswell T. Psychosocial and psychological interventions for preventing postpartum depression. *Cochrane Database of Systematic Reviews*. 2013; Issue 2. Art. No.: CD001134.
38. Dennis CL, Hodnett ED. Psychosocial and psychological interventions for treating postpartum depression. *Cochrane Database of Systematic Reviews*. 2007; Issue 4. Art. No.: CD006116.
39. Perinatal Anxiety & Depression Aotearoa. Power of contact - reducing the stigma and discrimination - a Mātauranga Māori approach. 2022. Available from: <https://pada.nz/pada-videos/>.
40. Royal TAC. Story: Papatūānuku - the land. Te Ara - the Encyclopedia of New Zealand; 2007. Available from: <https://teara.govt.nz/en/papatuanuku-the-land>.
41. Brown JV, Wilson CA, Ayre K, Robertson L, South E, Molyneaux E, et al. Antidepressant treatment for postnatal depression. *Cochrane Database of Systematic Reviews*. 2021; Issue 2. Art. No.: CD013560.
42. Molyneaux E, Telesia LA, Henshaw C, Boath E, Bradley E, Howard LM. Antidepressants for preventing postnatal depression. *Cochrane Database of Systematic Reviews*. 2018; Issue 4. Art. No.: CD004363.

43. Brockington I, Butterworth R, Glangeaud-Freudenthal N. An international position paper on mother-infant (perinatal) mental health, with guidelines for clinical practice. *Archives of Women's Mental Health*. 2017; 20: 113-20.



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