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INTERGENERATIONAL DISADVANTAGE: WHY MATERNAL MENTAL HEALTH MATTERS

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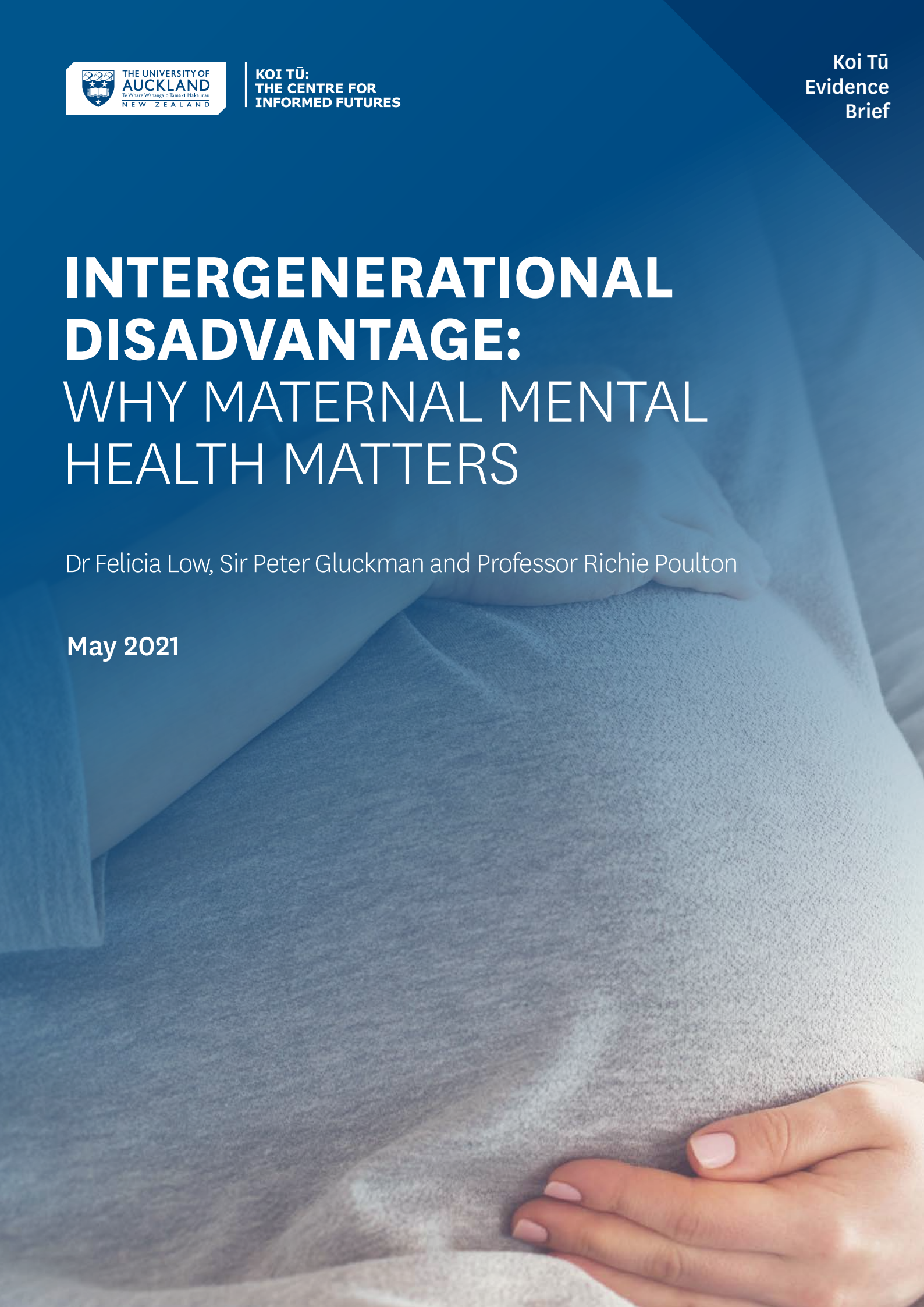

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INTERGENERATIONAL DISADVANTAGE: WHY MATERNAL MENTAL HEALTH MATTERS

Key points:

- Intergenerational disadvantage in New Zealand is driven in large part by poverty and other environmental factors
- Executive function is critical for successful passage through life, and its impairment places the individual at lifelong disadvantage
- New research shows that stress during pregnancy – even at mild to moderate levels – can affect development of the child's executive function
- This suggests that there is a biological contribution to how intergenerational disadvantage arises and becomes embedded
- This requires a rethink in how the cycle of intergenerational disadvantage can be broken
- Interventions need to focus on the mother and infant, with parental needs being supported even before the child is born

Intergenerational disadvantage in Aotearoa New Zealand

Intergenerational disadvantage refers to the impact of parental socioeconomic and other limitations on the child, leading to disadvantages such as poverty and reduced educational and future employment opportunities. This may in turn impact on the next generation when that child becomes a parent, and so on.[1] Intergenerational disadvantage is arguably one of the most important social issues facing our future. It tends to become reinforced in a vicious cycle, its severity and social repercussions are likely to be cumulative, and yet successive policy interventions, both fiscal and social, have had limited effectiveness in reducing its presence or impact.

Intergenerational disadvantage is generally regarded as being underpinned by low socioeconomic status, although other factors such as the educational attainment, skills, emotional capacities and behaviours of the parents also play a role. During the late 1980s and 1990s, the rates of child poverty in New Zealand more than doubled and have not declined since (Figure 1). Māori and Pacific children are considerably overrepresented in these statistics.

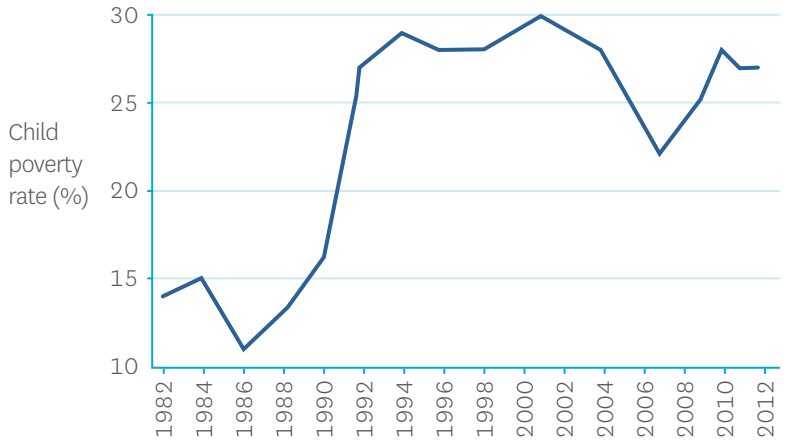

Figure 1: Child poverty rates in New Zealand, 1982–2012, as measured by residence in households with <60% of median income after housing costs. Adapted from Boston & Chapple 2014.[2]

Children born in the 1990s have now reached the typical age of parenthood, suggesting that our society now contains a greater percentage of people whose early development has been disadvantaged for at least one generation and probably more. In 2019, more than one-third of children (36%) lived in a low- or very-low-income household.[3]

High levels of deprivation, in the context of the wider social milieu, are an irrefutable cause of intergenerational disadvantage. However, emerging research over the last few years now strongly supports the idea that in addition to environmental factors, there is also a *biological* basis in how intergenerational disadvantage becomes manifest and is perpetuated. New evidence shows that moderate or even mild stress during pregnancy can have adverse outcomes on a child's neurodevelopment and emotional and cognitive outcomes. While the broader environmental context exerts an obvious postnatal influence, a growing body of research points to pregnancy as a critical window during which the foundations of a child's emotional and behavioural developmental pathways are built.

This new appreciation underscores the need to rethink how the cycle of intergenerational disadvantage can be broken, beyond the current minimally effective remedial approaches. More specifically, the research suggests that interventions should focus primarily on the **mother and infant**, particularly regarding maternal mental health and the development of executive function in the child.

The importance of executive function

Executive function refers to the ability to consciously control behaviour in working towards a goal. It involves a set of high-level neurocognitive processes such as flexible thinking, the ability to regulate attention and emotion, goal setting, planning and organisation, and the operation of working memory.[4] The foundations for these processes are laid in the first 1,000 days after conception, and are mostly complete by age 5.

Executive function is absolutely central to the ability to learn. It helps with acquiring knowledge and solving problems, and is therefore critically important in school, work, and other aspects of daily life. Furthermore, it is protective against adversity by promoting psychological resilience.[5] Accordingly, any impairments to executive function will have lifelong costs in the form of greater risks of disorders in learning, mental health, school failure, poor relationships and antisocial behaviour, reduced earnings, and interactions with the justice and welfare system. The Dunedin Multidisciplinary Study has shown that nearly 80% of adult economic burden could be attributed to just 20% of study participants, highlighting the disproportionate contribution of a small population group to overall societal costs.[6] Notably, the risk of a participant ending up in the high-cost group could be predicted by indicators of executive function at age 3, and other childhood risks such as socioeconomic deprivation.

Executive function is the most important higher brain function for successful passage through life. This strongly suggests that ensuring its optimal development **early in life** is the best way to reduce the risks of lifelong downstream disadvantages. Given that neurodevelopmental pathways generally become less easily reversible as a child gets older, interventions need to occur early in the life course – in fact, as early as during pregnancy and the early postnatal period.

The importance of maternal mental health

Many women experience stress, anxiety or depression during and after pregnancy. In New Zealand, studies suggest that 12–18% of pregnant women are clinically depressed,[7, 8] while an unknown but likely considerably larger proportion (perhaps 30%) fall within the sub-clinical (less severe) range.[i] Poor maternal mental health is associated with poor obstetric outcomes, but also has major consequences beyond that. Having depressive symptoms and/or anxiety during pregnancy has now been shown to affect the child's brain development, not only in terms of its structure and connectivity,[11, 12, 13] but also in terms of its functional outcomes including measures of executive function such as working memory, attention and sensory processing. All of these aspects affect school readiness and the child's subsequent journey through school and society.[14, 15]

For example, children whose mothers experienced depression during pregnancy had differences in both the microstructure of their amygdala, a brain region known to be vulnerable to environmental adversity, as well as the amygdala's connectivity to the brain circuitry controlling emotional regulation.[12] These findings suggest the potential transmission of vulnerability for mood problems from mother to child. Recent research has also linked low mood *during* (not after) pregnancy to impaired learning readiness and literacy skills in the child.[15] Importantly, some long-term impairment is seen in children whose mothers experienced sub-clinical levels of mood disturbance. This means that the total proportion of affected pregnancies is potentially high.[9, 15]

The finding that a child's development is mediated by maternal prenatal mood indicates that the observed effects are being exerted through biological rather than environmental mechanisms, although we note that postnatal maternal mood remains an important component. There are plausible biological mechanisms to explain the association between a mother's mood and her child's brain development. Stress-related maternal hormones and other signaling molecules may cross the placenta and reach the fetus, potentially affecting neurodevelopmental pathways responsible for the regulation of socioemotional responses and cognitive development.

On the other hand, research also suggests that having a positive mood during pregnancy (that is, not just an absence of low mood) has beneficial effects on the child's brain development and function.[16] This makes the point that good mental health is not merely defined by an absence of illness; critically, it also underscores the value of universal promotion of mental health among all pregnant women, in addition to targeted interventions on those needing support.

Given the life-changing nature of pregnancy, some degree of emotional impact is inevitable for all women. Whether that manifests with positive or negative effects depends on many contextual factors, such as the level of support they receive from their partner, family and whānau. However, stress can be further compounded by low socioeconomic status. Indeed, statistical analyses suggest that the mood of mother during pregnancy is a significant factor in determining how socioeconomic status affects executive function.[15] This again highlights a clear interaction between biological (prenatal) and sociological (postnatal) factors in impacting on a child's executive function. It also suggests that groups such as Māori and Pacific women, who are more likely to experience difficult socioeconomic circumstances, are also likely to bear a greater emotional burden during pregnancy.[ii] A survey found that the prevalence of depression or anxiety was greater among pregnant Māori women than pregnant non-Māori women, with 1 in 4 Māori women experiencing depressive symptoms and more than half identifying significant life stress.[7]

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i Based on cohort studies, the prevalence of pregnancies falling in the high sub-clinical range is relatively high in Australia (30%) and Singapore (29%),[9, 10] and is expected to be reasonably similar in New Zealand.

ii A study has found that further risk factors for depression during pregnancy were being of Pacific or Asian ethnicity, and perceived stress.[17]

Intergenerational disadvantage, maternal mental health, and executive function are all cyclically linked

Taken collectively, the existing and emerging research demonstrates that children born to mothers who are stressed and have suboptimal mental health are at risk of impaired executive function and lower psychological resilience. If these children in turn become pregnant later as they progress to adulthood, then their impaired emotional resilience may manifest as greater stress in pregnancy. In turn, their child's neurodevelopment is also likely to be adversely affected, potentially to a greater extent than what they had experienced themselves. Thus, a self-reinforcing feedback loop is created, and over time intergenerational disadvantage leads to greater adversity and worse community outcomes (Figure 2).

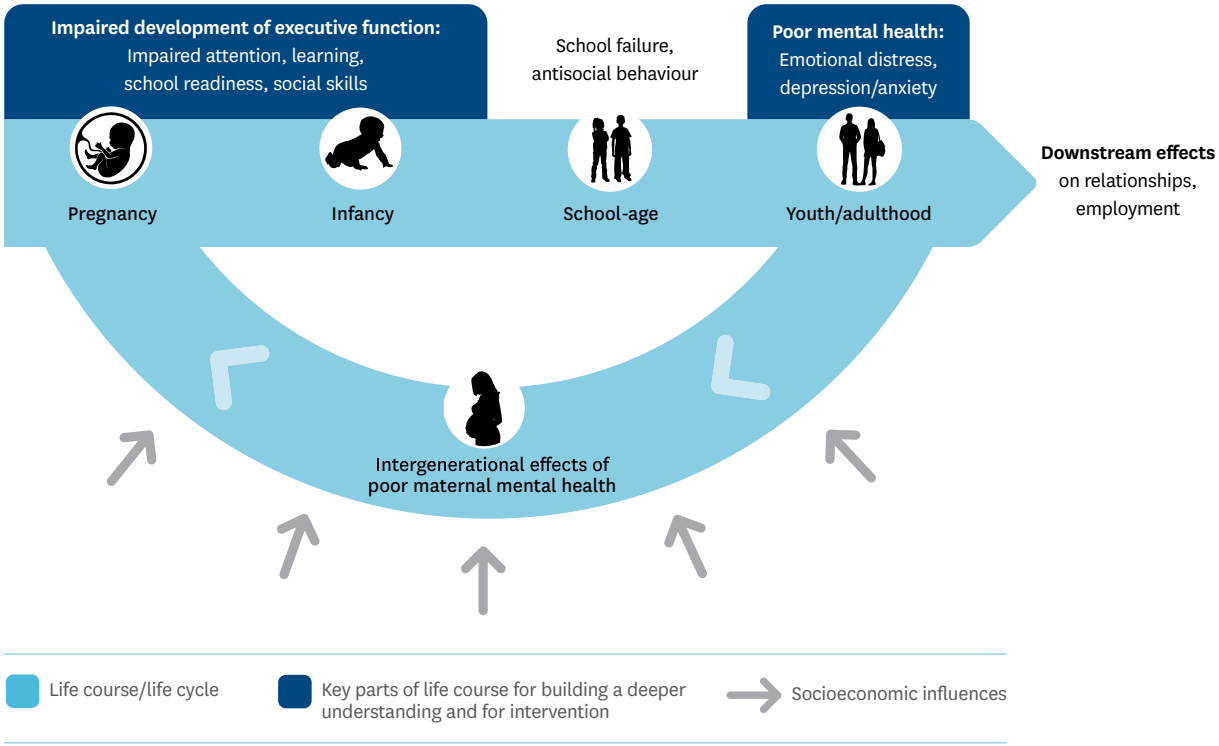

Figure 2: The cycle of intergenerational disadvantage and the contributing roles of poor maternal mental health and impaired executive function. The cycle operates under the broader influences of multiple socioeconomic factors.

In this context, it is troubling to note increasing rates of poor mental health among New Zealand youth, with female youth of all ethnicities more likely to have significant symptoms of depression and less likely to report good emotional wellbeing than male youth (Figure 3).[18]

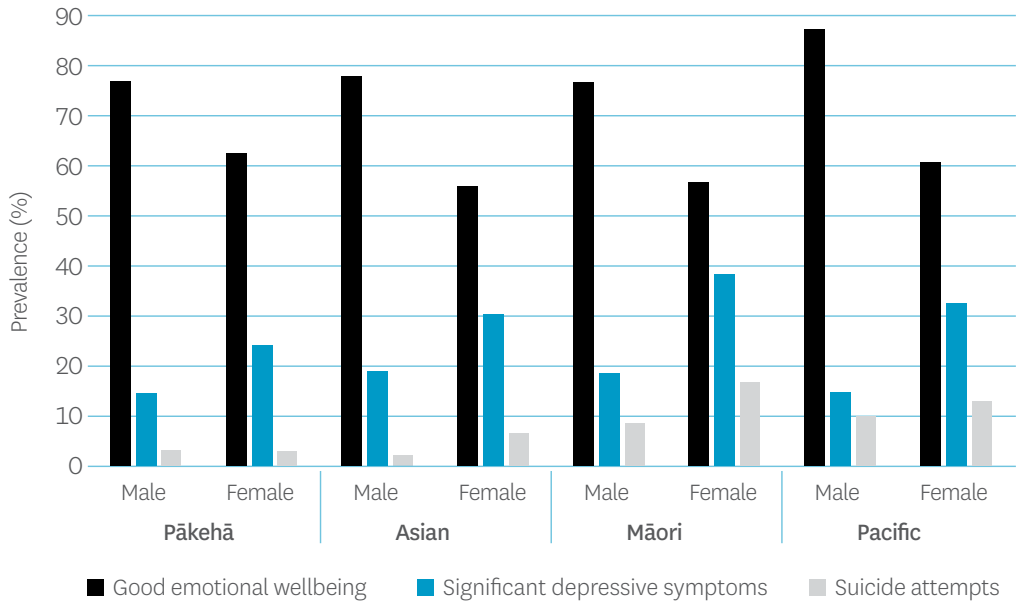

Figure 3: Indicators of mental health by sex and ethnicity, 2019. Data compiled from Fleming et al 2020.[18]

Studies show that anxiety or depression before pregnancy is a key risk factor for antenatal mood disorders.[19, 20] Therefore, the current explosion of mental health concerns in young New Zealanders is likely to give rise to the prospect of new generations of women who are at greater risk of poor mood during pregnancy, further exacerbating the rates of intergenerational disadvantage.

Implications for policy and for service provision

Given the biological basis for how intergenerational disadvantage can become embedded, there are very clear implications for when in the life cycle preventive interventions could be most effectively carried out to break the cycle: the focus must be on women's mental wellbeing from **before pregnancy through to after birth**.

Appropriate supportive interventions should therefore span pre-conceptional services through to peripartum and early infancy support. Specifically, all pregnant women should be formally screened for their mood state, and in particular for depression/anxiety. Those whose symptoms fall within the sub-clinical range should not be ignored; they merit support to alleviate whatever is contributing to that state. Such strategies are justified given the vast sums now expended without success in addressing intergenerational disadvantage.

Remarkably, there is currently no formal screening programme for depression in the perinatal period in New Zealand,[21] with mothers dependent on being proactively screened and referred to mental health services by their healthcare provider. This tends to focus largely on those who need formal psychological assistance.

There are concerns at the grassroots level that pregnant women with mild to moderate mood disorders face barriers to accessing available services, as they tend to be considered lower priority than those with more severe conditions.[22] It is now becoming evident that it is equally important for this group of women to receive mental health services too.[23]

Beyond these measures, there are many other ways society could assist in reducing stress of vulnerable women during pregnancy. While psychiatric interventions have their place, they tend to be best suited to individual treatment and need not be the primary approach. Instead, scalable, population-based

approaches such as social, educational and fiscal support to help reduce emotional and psychological stresses on women, especially those of lower socioeconomic status, should be emphasised. Where appropriate, fiscal assistance, mentorship, community/whānau support, and extended leave might all be part of a comprehensive toolbox. This shift in priority requires a considerable reassessment of how maternal health care should be approached.

New Zealand and international research strongly suggests that population segments at potential risk of contributing to a large economic burden later in life may be identified in early childhood, and that effective interventions could have very large returns on investment.[6] From an economic standpoint, it is indisputable that investing in disadvantaged young children benefits not only the children, but also successive generations and society at large.[24] Strengthening the foundations for the optimal development of executive function by improving maternal mental health is, arguably, the most logically, morally and economically sound way of breaking the cycle of intergenerational disadvantage and advancing New Zealand society.

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