

Micronutrients might help both women with antenatal depression and their babies: Study

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Antenatal depression affects [15% to 21% of pregnant women worldwide](#). It can influence [birth outcomes](#) and [children's development](#), as well as [increase the risk of post-natal depression](#).

Current treatments like therapy can be [inaccessible](#) and antidepressants can carry [risks](#) for developing infants.

Over the past two decades, research has highlighted that poor nutrition is a [contributing risk factor to mental health challenges](#). Most [pregnant women](#) in New Zealand aren't adhering to nutritional guidelines, according to a [longitudinal study](#). Only 3% met the recommendations for all food groups.

Another cohort study carried out in Brazil shows that ultra-processed foods (UPF) accounted for at least [30% of daily dietary energy](#) during pregnancy, [displacing healthier options](#).

UPFs are [chemically manufactured](#) and contain additives to improve shelf life, as well as added sugar and salt. Importantly, they are low in essential micronutrients (vitamins and minerals).

The consumption of these foods is concerning because a nutrient-poor diet during pregnancy has been linked to poorer mental health outcomes in children. This includes [depression, anxiety, hyperactivity, and inattention](#).

Increasing nutrients in maternal diets and reducing consumption of UPFs could improve the mental health of the mother and the next generation. Good nutrition can have lifelong benefits for the [offspring](#).

However, there are multiple factors that mean diet change alone may not

in itself be [sufficient](#) to address [mental health challenges](#). Supplementing with additional nutrients may also be important to address nutritional needs during pregnancy.

Micronutrients as treatment for depression

Our [earlier research](#) suggests micronutrient supplements for [depression](#) have benefits outside pregnancy.

But until now there have been no published randomized controlled trials specifically designed to assess the efficacy and safety of broad-spectrum micronutrients on antenatal depression and overall functioning.

The [NUTRIMUM trial](#), which ran between 2017 and 2022, recruited 88 women in their second trimester of pregnancy who reported moderate depressive symptoms. They were randomly allocated to receive either 12 capsules (four pills, three times a day) of a broad-spectrum micronutrient supplement or an active placebo containing iodine and riboflavin for a 12-week period.

Micronutrient doses were generally between the recommended dietary allowance and the tolerable upper level.

Based on clinician ratings, micronutrients [significantly improved overall psychological functioning](#) compared to the placebo. The findings took into account all noted changes based on self-assessment and clinician observations. This includes sleep, mood regulation, coping, anxiety and side effects.

Both groups reported similar reductions in symptoms of depression. More than three quarters of participants were in remission at the end of the trial. But 69% of participants in the micronutrient group rated themselves as "much" or "very much" improved, compared to 39% in

the placebo group.

Participants taking the micronutrients also experienced significantly greater improvements in sleep and overall day-to-day functioning, compared to participants taking the placebo. There were no group differences on measures of stress, anxiety and quality of life.

Importantly, there were no group differences in reported side effects, and reports of suicidal thoughts dropped over the course of the study for both groups. Blood tests confirmed increased vitamin levels (vitamin C, D, B12) and fewer [deficiencies](#) in the micronutrient group.

Micronutrients were particularly helpful for women with chronic mental health challenges and those who had taken psychiatric medications in the past. Those with milder symptoms improved with or without the micronutrients, suggesting general care and monitoring might suffice for some women.

The benefits of micronutrients were [comparable to psychotherapy](#) but with less contact. There are no randomized controlled trials of antidepressant medication to compare these results.

Retention in the study was good (81%) and compliance excellent (90%).

Beyond maternal mental health

We followed the infants of mothers enrolled in the NUTRIMUM trial (who were therefore exposed to micronutrients during pregnancy) for 12 months, alongside infants from the general population of Aotearoa New Zealand.

This second group of infants from the general population contained a smaller sub-group who were exposed to antidepressant medication for

the treatment of antenatal depression.

We assessed the neuro-behavioral development of each infant within the first four weeks of life, and temperament up to one year after birth.

These observational follow-ups showed [positive effects](#) of micronutrients on the infants' ability to regulate their behavior. These results were on par with or better than typical pregnancies, and better than treatments with antidepressants.

Infants exposed to micronutrients during pregnancy were significantly better at attending to external stimuli. They were also better able to block out external stimuli during sleep. They showed fewer signs of stress and had better muscle tone compared to infants not exposed to micronutrients.

They also displayed greater ability to interact with their environment. They were better at regulating their emotional state and had fewer abnormal muscle reflexes than infants exposed to antidepressant medication in pregnancy.

Reassuringly, micronutrients had no negative impact on infant [temperament](#).

These findings highlight the potential of micronutrients as a safe and effective alternative to traditional medication treatments for antenatal depression.

The prenatal environment [sets the foundation](#) for a child's future. Further investigation into the benefits of [micronutrient](#) supplementation would give us more confidence in their use for other perinatal (from the start of pregnancy to a year after birth) mental health issues. This could provide future generations with a better start to life.

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