



Research Paper

Effect of *Lactobacillus rhamnosus* HN001 in Pregnancy on Postpartum Symptoms of Depression and Anxiety: A Randomised Double-blind Placebo-controlled Trial



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ABSTRACT

Background: Probiotics may help to prevent symptoms of anxiety and depression through several putative mechanisms.

Objective: The aim of this study was to evaluate the effect of *Lactobacillus rhamnosus* HN001 (HN001) given in pregnancy and postpartum on symptoms of maternal depression and anxiety in the postpartum period. This was a secondary outcome, the primary outcome being eczema in the offspring at 12 months of age.

Design, Setting, Participants: A randomised, double-blind, placebo-controlled trial of the effect of HN001 on postnatal mood was conducted in 423 women in Auckland and Wellington, New Zealand. Women were recruited at 14–16 weeks gestation.

Intervention: Women were randomised to receive either placebo or HN001 daily from enrolment until 6 months postpartum if breastfeeding.

Outcome Measures: Modified versions of the Edinburgh Postnatal Depression Scale and State Trait Anxiety Inventory were used to assess symptoms of depression and anxiety postpartum.

Trial Registration: Australia NZ Clinical Trials Registry: ACTRN12612000196842.

Findings: 423 women were recruited between December 2012 and November 2014. 212 women were randomised to HN001 and 211 to placebo. 380 women (89.8%) completed the questionnaire on psychological outcomes, 193 (91.0%) in the treatment group and 187 (88.6%) in the placebo group. Mothers in the probiotic treatment group reported significantly lower depression scores (HN001 mean = 7.7 (SD = 5.4), placebo 9.0 (6.0); effect size -1.2, (95% CI -2.3, -0.1), $p = 0.037$) and anxiety scores (HN001 12.0 (4.0), placebo 13.0 (4.0); effect size -1.0 (-1.9, -0.2), $p = 0.014$) than those in the placebo group. Rates of clinically relevant anxiety on screening (score > 15) were significantly lower in the HN001 treated mothers (OR = 0.44 (0.26, 0.73), $p = 0.002$).

Interpretation: Women who received HN001 had significantly lower depression and anxiety scores in the postpartum period. This probiotic may be useful for the prevention or treatment of symptoms of depression and anxiety postpartum.

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