



Effects of mindfulness on maternal stress, depressive symptoms and awareness of present moment experience: A pilot randomised trial



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ARTICLE INFO

Keywords:

Perinatal stress
Depression
Mindfulness
Randomized
Controlled trial
Qualitative research

ABSTRACT

Objective: To determine the feasibility and acceptability and measure the effects of a mindfulness intervention compared to a pregnancy support program on stress, depressive symptoms and awareness of present moment experience.

Design: A pilot randomised trial using mixed methods.

Participants and Setting: Forty-eight women attending a maternity service were randomly allocated to a mindfulness-based or pregnancy support program.

Measures: Perceived Stress Scale, Edinburgh Postnatal Depression Scale, Mindfulness Attention Awareness Scale, and Birth Outcomes. Women's perceptions of the impact of the programs were examined via summative evaluation, interviews, diaries and facilitator field notes.

Findings: Nine women in the mindfulness program and 11 in the pregnancy support program completed post-program measures. There were no statistically significant differences between groups. Of practical significance, was an improvement in measures for both groups with a greater improvement in awareness of present moment experience for the intervention group. The intervention group reported learning how to manage stressors, fear, anxiety, and to regulate their attention to be more present. The control group reported learning how to calm down when stressed which increased their confidence. Intervention group themes were: releasing stress, becoming aware, accepting, having options and choices, connecting and being compassionate. Control group themes were: managing stress, increasing confidence, connecting, focussing, being accepted, preparing.

Key conclusion: The feasibility and acceptability of the intervention was confirmed. Programs decreased women's self-reported stress in different ways. Women in the mindfulness program accepted themselves and their experiences as they arose and passed in the present moment, while those in the control group gained acceptance primarily from external sources such as peers.

Implications for practice: Mindfulness programs can foster an internalised locus of self-acceptance which may result in woman becoming less dependent on others for their wellbeing. Adequately powered RCTs, with an active control, long-term follow up and economic evaluation are recommended.

Introduction

Unmanaged stress can lead to poor health outcomes, including anxiety and depression which have become a major public health issue in contemporary society (Sharma and Rush, 2014). In addition to the effect on quality of life, chronic stress has been linked to a variety of illnesses including autoimmune disease, migraines, obesity, back pain and cardiovascular disease (Sharma and Rush, 2014). Pregnant women are vulnerable to stress and have been found to experience a high

incidence of mental health conditions (Alderdice et al., 2013) which may lead to an increased risk of perinatal anxiety and depression (Chojenta et al., 2012). In addition to the impact on the woman's childbearing experience, stress during pregnancy is associated with a wide variety of poor outcomes including preterm birth, low birth weight (Nkansah-Amankra et al., 2010), unplanned caesarean birth (Saunders et al., 2006), and may be associated with a range of cognitive, behavioural and emotional problems in their children (Glover, 2014; Stein et al., 2014).

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<http://dx.doi.org/10.1016/j.midw.2017.04.006>

Received 29 August 2016; Received in revised form 12 April 2017; Accepted 20 April 2017
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Mental health issues related to stress are sometimes managed with prescription drugs. However, many people are apprehensive about consuming pharmaceuticals and given the limited evidence on their safety during pregnancy, pregnant women are particularly cautious (Austin et al., 2013; Muzik et al., 2012). Indeed, a substantial number of women cease taking antidepressants when they become pregnant (Cohen et al., 2006). Hence, a variety of psychosocial treatments to manage perceived stress are being explored (Sharma and Rush, 2014). Mindfulness training is one such management option that may hold appeal for pregnant women.

Mindfulness is about being able to focus our attention on what we are doing, when we are doing it, which leaves little room for ruminating about the past or worrying about the future; it is also being aware of, paying attention to, and accepting our thoughts, emotions and body sensations, whether uncomfortable or comfortable, and understanding how these affect our actions. Mindfulness may be defined as nonjudgmental attention to experiences in the present moment (Kabat-Zinn, 1990); observing and accepting them as they arise and pass away. Mindfulness is a mental discipline aimed at developing awareness of attention, emotional regulation and compassion for self and others. Mindfulness training fosters self-regulation through increased acceptance, non-attachment and non-reactivity to transitory or passing experiences such as internal thoughts, emotions and body sensations (Hassed and Chambers, 2014) as well as external experiences such as what's happening around us and our interaction with others. Mindfulness training includes activities such as awareness of breathing, body positions and walking, internal body sensations, thoughts and state of mind. The underlying hypothesis of a mindfulness approach is that a greater awareness will improve insight, coping and wellbeing, and reduce negativity; all important for pregnant women and new mothers. When the ability to self-regulate is increased, mental health issues are decreased (Grossman et al., 2004; Khoury et al., 2015).

Literature Review

Since the 1990s when mindfulness-based stress reduction programs were introduced, there has been an increasing volume of research indicating that these programs are effective in promoting mental health within a variety of populations (Sharma and Rush, 2014). Of particular relevance, Kuyken et al. (2015) found that mindfulness-based cognitive therapy with support to taper or discontinue antidepressant treatment (MBCT-TS) was as effective as maintenance antidepressant treatment in patients with three or more previous major depressive episodes. We recently conducted a systematic review of the literature related to mindfulness and pregnancy (Hall et al., 2016). Eleven publications that reported outcomes for 200 women enrolled in twelve studies were included (ten pre- and post-intervention design and two randomised controlled trials (RCTs), with a variety of aims, mindfulness programs and measurement tools (Hall et al., 2016). This heterogeneity precluded meta-analyses of the findings. Individually, neither of the RCTs and few of the other studies demonstrated any differences in outcomes, although there were reported some small and statistically significant improvements in women's self-reported stress (Woolhouse et al., 2014, pre- and post-intervention component), depression (Goodman et al., 2014; Muzik et al., 2012) and anxiety (Byrne et al., 2014; Duncan and Bardacke, 2010; Goodman et al., 2014; Woolhouse et al., 2014). Given the heterogeneity, the small numbers enrolled in the studies and with only two sufficiently reported randomised controlled trials (Guardino et al., 2014; Woolhouse et al., 2014), there was insufficient evidence on which to base specific recommendations for widespread implementation of mindfulness-based programs in pregnancy. A recommendation from the systematic review included the conduct of RCTs, with active controls.

To address this recommendation for RCTs with an active control group, we conducted a pilot study to determine the feasibility and

acceptability of an 8-week group *Mindfulness in Pregnancy Program* (MiPP) compared to an active control 8-week group *Pregnancy Support Program* (PSP) in reducing perceived stress, depressive symptoms and increased awareness of present moment experience among a group of pregnant women living in Australia.

Methods

Study design

A pilot randomised controlled trial was conducted to determine the feasibility and acceptability of mindfulness training during pregnancy and to measure the effects of the Mindfulness in Pregnancy Program (MiPP) intervention ($n=24$) compared to the active control Pregnancy Support Program (PSP) ($n=24$). An active control group design was chosen for this pilot study rather than a 'care as usual' control group design because we sought to test whether mindfulness practice itself, not simply group support, improves perceived stress and depressive symptoms. In addition, both groups received usual antenatal care. Ethical approval was granted by Monash University (HREC CF14/1361-2014000636) and Monash Health (HREC Ref. 14103B). The study is registered with the Australian New Zealand Clinical Trials Registry, number ACTRN12606000422527.

Site and sample

The programs were conducted at Monash Health, a provider of tertiary health care and maternity services across the state of Victoria, Australia, with approximately 2000 births yearly. Recruitment was carried out at the hospital's off-site antenatal clinic. Women were included if they had a low risk pregnancy between 24 and 28 weeks at the start of the intervention, were 18 years of age or older, able to read and speak English, with a singleton pregnancy. Women were excluded if they had a history of mental illness or known inability to attend more than four sessions. Women were then screened using the Edinburgh Postnatal Depression Scale (EDPS) which is a valid tool for detecting likelihood of depression both during and following pregnancy (Cox et al., 1987) (refer quantitative outcome measures below). A score of 13 or higher indicates an increased risk for depression. Question 10 asks about thoughts of self-harm. We excluded women who scored 13 or higher on this screening test, and/or who answered in the affirmative to question 10 of the EDPS. In such cases and with the woman's permission, the senior midwife was notified of the EDPS screening results so that appropriate referral could be made to support ongoing assessment and care required. A sample size of 24 women in each group (total $n=48$) was needed to replicate the mean change of 3.5 (SD 5.7) from Perceived Stress Scale scores completed prior to and following the mindfulness intervention found by Vietan and Austin (Vietan and Astin, 2008), with 80% power, $p=0.05$ (2-tailed).

Recruitment process

Pregnant women who met the inclusion criteria and attended the off-site antenatal clinic were invited to participate.

Brochures and posters were left in the clinic and on one of the maternity wards. The researchers worked with clinic staff to identify those women who met the inclusion criteria and these women were approached during clinic visits while in the waiting rooms. The study was explained using the participant information and consent forms and questions answered. Verbal consent was gained to complete the EPDS questionnaire. If women met the criteria, the study commitments were explained in more detail, including their ability to attend over an 8-week period, any further questions answered, and written consent gained. Randomisation was then conducted (described further below), with an identification number allocated, and participants were given the dates of their specific program. This was followed by a welcome and

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