Arch Womens Ment Health (2012) 15:139–143
DOI 10.1007/s00737-012-0264-4

SHORT COMMUNICATION

Mindful pregnancy and childbirth: effects of a mindfulness-based intervention on women's psychological distress and well-being in the perinatal period

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Received: 16 June 2011 / Accepted: 14 February 2012 / Published online: 1 March 2012

Abstract This pilot study explored the effects of an 8-week mindfulness-based cognitive therapy group on pregnant women. Participants reported a decline in measures of depression, stress and anxiety; with these improvements continuing into the postnatal period. Increases in mindfulness and self-compassion scores were also observed over time. Themes identified from interviews describing the experience of participants were: 'stop and think', 'prior experience or expectations', 'embracing the present', 'acceptance' and 'shared experience'. Childbirth preparation classes might benefit from incorporating training in mindfulness.

Keywords Mindfulness · Pregnancy · Stress · Anxiety · Depression · Intervention

Introduction

Preliminary evidence for the efficacy of mindfulness-based interventions during pregnancy is emerging (Dimidjian and Goodman 2009; Duncan and Bardacke 2009; Vieten and Astin 2008). Recurring themes emerging from qualitative investigations into participants' experience of the change processes in mindfulness-based interventions include the value of a shared group experience, living in the moment and adopting an accepting attitude (Mason and Hargreave 2001).

The current pilot study aimed to further explore the effects of a mindfulness-based intervention on the psychological distress and well-being of pregnant women. It is important to note that mindfulness-based interventions do not target symptom reduction as a goal, but rather their primary aim is to increase people's 'psychological flexibility'. Psychological flexibility refers to an individual's capacity to make choices in accordance with their authentic values, despite the symptoms they may be experiencing (Hayes et al. 1999). Paradoxically, research continues to demonstrate that often as a result of improved psychological flexibility there is a reduction in symptoms (Hayes et al. 1999; William et al. 2007). Therefore, it was hypothesised that women participating in an 8-week mindfulness-based cognitive therapy (MBCT) class would experience reduced stress, depression and anxiety as well as increased mindfulness and self-compassion. The use of semi-structured interviews to elicit personal accounts of participants' experience of the group aimed to provide insight into the mechanisms by which change occurred.

Methods

Treatment group participants were outpatients receiving antenatal care at a large metropolitan Women's and Children's Hospital in Australia. They were between 12 and 28 weeks gestation at the commencement of the 8-week

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course. Exclusion criteria were (1) inability to attend at least seven of the eight sessions and (2) current psychosis or active substance abuse. At the commencement of the programme, there were 14 registered participants; however, three women did not attend the first or any subsequent sessions. Of the 11 women who did commence the 8-week programme, ten consented to participate in the research. The mean age of the ten participants was 35.33 years (SD=4.53). Nine of the ten participants reported being in a committed relationship and five women had at least one other child. While the class was not promoted as a therapeutic intervention, nine out of the ten participants reported a history of anxiety and/or depression.

The control group participants were also pregnant women receiving outpatient antenatal care at the Women's and Children's Hospital. The control group participants were between 17 and 29 weeks gestation when baseline measures were taken. At baseline, there were nine control participants. The mean age of the control group participants was 27.67 years (SD=5.34). All women indicated they were in a relationship and one had another child. No control group participants reported a history of anxiety or depression.

The eight-session programme undertaken by treatment group participants was based on the MBCT programme first developed by Segal et al. (2002). Modifications were made to the mindful movement component of the programme to ensure they were appropriate for pregnant women. Due to the group not being promoted as a treatment for mental illness, some sections of the programme that focused specifically on depression were omitted from the programme. See Table 1 for a description of programme content. The class was facilitated by a consultant psychiatrist, along with a counsellor, both of whom are accredited facilitators of the MBCT programme.

Table 1 Programme content of the Mindfulness-Based Cognitive Therapy (MBCT) programme

Session number	Focus of session
1	Automatic pilot: committing to learning how to become aware of each moment
2	Dealing with barriers and introduction to the cognitive model
3	Learning to take awareness intentionally to the breath
4	Staying present, taking a wider perspective and relating differently to experience
5	Fostering an attitude of acceptance to see what if anything needs to be changed
6	Relating to negative thoughts
7	Managing warning signs, mastery and pleasurable activities
8	Review and planning for regular mindfulness practice

This programme is described in detail in Segal et al. (2002) including detailed session agendas, activities and exercise, handouts for participants and homework

The study was approved by the Ethics Committee, Children's Youth and Women's Health Services. All participants gave informed consent. The participants were asked to participate in an interview with the author (CD), during which they were asked to describe their experience of pregnancy, childbirth and life with a new baby, including any perceived benefits of the mindfulness skills they learned during the class. Interviews were recorded and transcripts were coded using a thematic approach.

At baseline, end of treatment and 6 weeks post-partum, the participants completed the depression, anxiety and stress scale (DASS21, Lovibond and Lovibond 1995), the Edinburgh Postnatal Depression Scale (EPDS, Cox et al. 1987), the Mindful Attention and Awareness Scale which measures the extent to which individuals are able to maintain awareness of present moment experience (Brown and Ryan 2003) and the Self-Compassion Scale (Neff 2003) which assesses the ability to be kind and understanding towards oneself in instances of pain or failure, rather than being harshly self-critical.

Results

As the participant groups were small, reliable change indices were used to determine the number of participants in each group who experienced clinically reliable changes in scores from baseline to end of treatment and from baseline to 6 weeks post-partum (Table 2). Notably, three of four treatment group participants (75%) experienced a clinically reliable decrease in stress symptoms from baseline to post-treatment, with at least one participant reporting a reliable change on the majority of measures. In contrast, there was very little change in outcome scores within the control group.

Separate reliable change analyses were used to determine the extent to which these changes were maintained over time by comparing scores at baseline and at 6 weeks post-partum. Post-partum outcomes indicate that as many as 67% of the treatment group participants experienced a positive change in their levels of stress and self-compassion, and half the participants reported a positive change in their depression scores as measured by the EPDS.

All of the women interviewed reported that they continued to use the mindfulness skills either formally or informally, and this was the case regardless of if they had completed the full course. Most reported that they practised mindful breathing at the very least, and many reported still using the CDs from the course to practise formal meditation from time to time.

Table 2 Clinically reliable changes on measures of psychological well-being from baseline to end of treatment and baseline to post-partum for treatment and control group participants

	Reliable improvement (based on RCI analysis)					
	Yes	No	Total	Yes	No	Total
Baseline to end of treatment for treatment	Treatment group (n=4)			Control group (n=5)		
Edinburgh Postnatal Depression Scale (EPDS)	1	3	4	0	5	5
DASS-21:						
• Stress	3	1	4	0	5	5
• Anxiety	1	3	4	0	5	5
• Depression	0	4	4	1	4	5
Mindful Attention and Awareness Scale (MAAS)	1	3	4	0	5	5
Self-Compassion Scale (SCS)	0	4	4	0	5	5
Baseline to post-partum	Treatment group (n=6)			Control group (n=5)		
Edinburgh Postnatal Depression Scale (EPDS)	3	3	6	0	5	5
DASS:						
• Stress	4	2	6	1	4	5
• Anxiety	2	4	6	1	4	5
• Depression	2	4	6	0	5	5
Mindful Attention and Awareness Scale (MAAS)	2	4	6	0	5	5
Self-Compassion Scale (SCS)	4	2	6	0	5	5

Five themes were identified that collectively describe the experience of participants in the course; 'stop and think', 'prior experience or expectations', 'embracing the present', 'acceptance' and 'shared experience' (Table 3).

Discussion

The results of this pilot study demonstrated that pregnant women participating in a mindfulness-based group intervention reported clinically reliable declines in depression, stress and anxiety; with these improvements continuing into the postnatal period, changes not seen in the control group. Similarly, an increase in mindfulness and self-compassion scores were observed over time. These results provide tentative support for the findings of earlier pilot studies, which found mindfulness training during the perinatal period to produce reductions in negative affect and state anxiety (Vieten and Astin 2008), reductions in pregnancy anxiety and improvements in mindfulness (Duncan and Bardacke 2009).

Our limited quantitative results were supported by an in-depth qualitative analysis that allowed for a rich understanding of participant's individual experience of the group. Participants reported that stopping and breathing, developing an attitude of acceptance, and coming into the present moment are all core aspects of mindfulness that they have used to help them cope with pregnancy, childbirth and parenting. Every participant spoke of the benefits they experienced from learning these skills, regardless of how many sessions they attended. Participants' subjective accounts of their experience provide some insight into the possible mechanisms by which mindfulness works to produce improvements in psychological well-being. The overarching themes identified in the current study are consistent with those of earlier qualitative analyses; especially the idea of acceptance, which is common to several recent qualitative studies (e.g., Allen et al. 2009; Mason and Hargreaves 2001). Other researchers have highlighted the value of having a supportive group experience (Mason and Hargreaves 2001); however, this is not an exclusive feature of a mindfulness-based intervention. Future studies using an active control group (for example, receiving social support or education), matched in terms of history of mental health problems, would help us to understand how much of the therapeutic benefit experienced by our participants was due to the intervention, as opposed to any change being due to the time and attention received by group participants.

Conclusion

While this study was limited by a small sample size and high attrition rate, it has yielded preliminary data supporting the potential benefits of mindfulness in the perinatal period. Future work with larger samples to provide a more robust test of the effectiveness of MBCT programmes in pregnancy and which further consider attrition is needed. However, based on this and other recent pilot studies (Duncan and Bardacke 2009; Vieten and Astin 2008), we are able to

Table 3 Themes and examples

Theme and description	Examples
Stop and think	
The words 'stop and think' were taken from a direct quote by one of the participants to describe a new way of responding to everyday stressors and relationship difficulties. The ability to notice thoughts, feelings and bodily sensations and consciously choose a response was described by all of the participants in various ways and describes an important skill they learned from the course. Specifically, participants referred to the act of noticing when feelings of frustration or anger arise and choosing not to act on those feelings but to instead 'take a breath' and choose a different response.	'When I have the occasional bad day, I'm able to stop and not let it get on top of me because of what I learned in the course. All those things we learned like just coming up with a list of ways to feel good and being proactive. So that if you're feeling bad, you don't have to stay in the bad stuff, you can do something even if it's just to go out for a walk or have that bit of chocolate.' 'When I get annoyed with them [family], I've learned to take a step back and just breathe and think about what I'm going to say before I open my mouth so that I don't cause any dramas that don't need to be caused.'
Prior experience or expectations	
The theme of having a prior experience that increased one's personal interest in participating in (and persevering with) the course may provide insight into the factors that mediate participants' positive outcomes. A common experience described by many of the participants was one of having experienced emotional difficulties in the past and wanting this pregnancy and birth to be a new, different, and more positive experience.	'I had a lot of reasons to want to continue in the course even though sometimes I thought it was a bit radical and they were trying to get us to do these crazy techniques… I needed to do this not just for me, but for my family.' 'I just wish I'd got all this help that I needed before the first one [when she experienced post natal depression], you know? Things could have been so much different. I didn't enjoy it then and I sort of pushed him away and… I just wish I'd enjoyed him as much as a baby as much as I have these two.'
Embracing the present	
Being fully connected to the present moment is one of the core concepts of mindfulness practice, and so it is perhaps not surprising that this theme emerged particularly strongly from the data. Participants described various ways in which present moment awareness has become an important everyday practice	'It sounds sort of obvious, but keeping myself focused on the present especially in my interactions with the kids, just not being distracted. I'm sure it has benefits for my well-being and keeping me calm and more focused and less stressed.' 'If you've had a bad morning, being able to go 'well that was a bad morning but right now, everything's fine. Right in this moment, I'm well, the kids are fine, everything's ok' whereas before if I'd had a bad morning I would have kept thinking all day about the bad morning and thinking it's never going to end or I'll always be yelling at the kids or whatever.'
Acceptance	
The idea of acceptance or 'surrender' describes participants' reports that they feel more able to let go of the struggle with how they would like things to be and accept things as they are.	'He was a baby who screamed most of the time… I think I clung to what I missed about what life was like before. Just being able to do something by yourself or read a book or put him down. Putting him down doesn't happen very often… I've just had to surrender to that and that's the nature of how life is going to be and try to enjoy it for what it is.' 'Sometimes I suffer from intrusive thoughts like scary thoughts like what if I wanted to hurt him or something and if I experience those thoughts now, I just think of them… well as nothing really. They're just thoughts. And I've been able to detach the emotional 'Oh my god, how could I even think that?' response and because I've been able to detach myself and because there is no emotional response I just don't really focus on it and so I don't get those thoughts at all anymore… I'm not kidding. That has really changed my life.'
Shared experience	
All of the women reported that they greatly valued participating in the group and forming relationships with the other participants. Sharing stories with the group had the benefit of normalising people's own experience.	'It was good to meet other people and know you weren't the only person. Doing group discussions, it was good to know you were in a place where you felt comfortable to talk about it.'

conclude that women who learn mindfulness during pregnancy are likely to use those skills to manage stressful aspects of pregnancy, childbirth and parenting, resulting in reductions in psychological distress and improvements in psychological well-being. Teaching mindfulness in the perinatal period seems to have the effect of broadening women's personal repertoire of coping strategies, and this has potential to improve the developmental

trajectory of parents and infants. Pregnancy is a brief time in a woman's life when she is open to receiving new information and skills to cope with birth and parenting. With this in mind, existing childbirth preparation classes might expand to incorporate some training in mindfulness in order to reach participants who would otherwise not have the opportunity to learn these important skills.

Conflicts of interest The authors declare that they have no conflict of interest.

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