Pilot early intervention antenatal group program for pregnant women with anxiety and depression

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Abstract

Objective To examine the acceptability and effectiveness of an antenatal group intervention designed to reduce the severity of depression and anxiety symptoms and improve maternal attachment in pregnant women with current or emerging depression and anxiety.

Methods Women who participated in the program completed pre and post-treatment measures of depression (Centre of Epidemiological Studies Depression Scale) and Edinburgh Postnatal Depression Scale*),* anxiety (State-Trait Anxiety Inventory) and maternal attachment (Condon Maternal Antenatal Attachment Scale). Participants also completed a satisfaction questionnaire and provided general feedback about the group intervention and experience.

Results A total of 48 women (*M*=26 weeks gestation) commenced and 37 (77%) completed at least 80 percent of the six session group intervention. Significant improvements with moderate to large effect sizes were observed for depression as measured on the CES-D Scale ($p<.001$), EPDS ($p<.001$), state-anxiety ($p< .001$) and maternal attachment ($p=.006$). Improvements in post-treatment depression scores on the EPDS were maintained at two months postpartum. Participants reported that the program had met their expectations. Partners (*n*=21) who completed evaluation forms indicated that their attendance had improved their awareness of their partner's mental health issues and resources available to their family, and would recommend the program to other fathers.

Conclusions These preliminary findings suggest that our antenatal group program is an effective and acceptable intervention for a clinical sample of women and partners. It is a feasible addition or alternative treatment option to perinatal mental health care. Future directions could involve a more comprehensive RCT to examine the effectiveness of the group intervention.

Introduction

The perinatal period encompasses both pregnancy and the first 12 months postpartum (Austin 2004). Maternal depression and anxiety are two of the highest reported complications of pregnancy (Lattimore et al. 2005) and by third trimester prevalence rates often mirror those reported in the first weeks post birth. Perinatal anxiety and depression have adverse effects not only on the mother's emotional well-being, but also on her experience of pregnancy, transition to motherhood and her relationship with her infant, partner, other children and larger family system (Letourneau et al. 2012; Lovestone and Kumar 1993; Stewart 2005). Of note, over 10 percent of fathers also experience depression between the first trimester and one year postpartum (Paulson and Bazemore 2010), with the onset of paternal depression often following maternal depression (Goodman 2004).

The costs of perinatal anxiety and depression include both the potential adverse effects on child's emotional, behavioural and cognitive development (Dunkel Schetter and Tanner 2012; Glover 2014), the impact on quality of life, measured in disability adjusted life years (DALYs) as well as direct and indirect financial costs to the health system and the wider community. In Australia, the direct financial costs associated with maternal and paternal perinatal depression in 2012 were estimated to be $78.66 million and the costs due to loss of productivity were estimated to be $310.34 million (Post and Antenatal Depression Association 2012). The same report estimated 20,732 DALYs were attributable to perinatal depression in Australia in 2012. Together these data provide a powerful argument for early intervention with the aim of preventing or at least reducing the prevalence and impact of perinatal depression and anxiety.

To date, research in the perinatal field and psychological interventions (both individual and group-based programs) have largely focused on postpartum depression. Randomised controlled trials (RCTs) of postnatal group interventions employing cognitive-behaviour therapy (CBT), psycho-education and interpersonal psychotherapy (IPT) modalities have generally demonstrated clinical utility in reducing the severity of postnatal depression in treatment compared to control conditions (Goodman and Santangelo 2011). Evidence-based antenatal group interventions targetting women who are depressed in their pregnancy have also shown benefit in reducing or preventing depressive symptoms in the postnatal period (Clatworthy 2012).

Growing consideration in recent years to the antenatal period has created an opportunity to deliver preventative and early intervention programs to women who are deemed to be at risk of developing, or who are currently experiencing, depression and anxiety prior to childbirth (Austin 2004; Heron et al. 2004; Lee et al. 2007). These women include those with a past history of depression, anxiety or postnatal depression (PND), familial history of mental illness, stressful life events in the previous year, instability in the couple relationship, social isolation, unplanned pregnancy, and history of abuse or neglect.

In addition to addressing antenatal depression and anxiety, early intervention programs can assist the psychological transition to motherhood and promote the development

of sensitive and responsive early parent-infant interactions prior to birth (Pearson et al. 2012). This is imperative given that positive maternal responsiveness is critical to the formation of a secure infant attachment (Ainsworth et al. 1978). Thus, an antenatal group intervention for women at risk of anxiety and depression in the perinatal period, or who are currently experiencing emerging symptoms of anxiety and depression, could have several benefits in addition to simply improving maternal emotional wellbeing. These could include addressing potential interpersonal difficulites and role transitions, supporting the couple relationship, and providing an opportunity for parents to consider their relationship with their unborn baby and their baby's future attachment needs prior to birth.

The aim of the this project was to develop and pilot a novel antenatal group program designed to reduce the severity of depression and anxiety symptoms and improving maternal attachment in pregnant women with current or emerging depression and anxiety. Partners were included in the program for several reasons (1) partners may recognise that the mother is struggling but may not know how to support them or what community services are available for their family; (2) partners can act as protective factors in the early adjustment period if they are well informed of mental health warning signs and know the contingency coping plan to assist their family seek help; (3) partners are at greater risk of mental health problems themselves if their partner has depression or anxiety; (4) recognition of the importance of the father-infant relationship to the infant's development and later trajectory; (5) recognition that the family unit is more than the mother-infant dyad and there is a need to support couples during this early adjustment phase of parenthood. The study reported here examined the acceptability, feasibility and effectiveness of this novel antenatal group intervention

Methods

Setting

The Royal Women's Hospital (RWH) in Melbourne, Australia, was established in 1856 as the Melbourne Lying-In Hospital and Infirmary for Diseases Particular to Women and Children. It is Australia's largest specialist women's hospital. The hospital provides inpatient and outpatient maternity and neonatal care to women with 'high risk' pregnancies as well as to all women living in a local catchment area. Care is delivered by four multidisciplinary teams comprising midwives, obstetricians, social workers, dieticians, physiotherapists, physicians and psychiatrists.

Participants

Women were eligible to participate in the group program if they had current antenatal depression or anxiety or were deemed at risk of developing postnatal depression due to either emerging symptoms of depression or anxiety or by virtue of their past psychiatric history. Participants needed to be in their second or third trimester of pregnancy with an estimated

due date of delivery that was after the last group session. Women were deemed unsuitable for the group program if they had a limited proficiency in English, were unable to commit to regular attendance, were currently using illict drugs or excessive amounts of alcohol, had current psychotic symptoms, or were an acute risk of suicide.

Procedure

Referrals to the group program were received from psychiatrists, social workers and midwives attached to the antenatal clinics. The Clinical Psychologist delivering the intervention contacted all women who were referred to confirm their suitability for inclusion, explain the nature and content of the program and the time commitment required. Pre-treatment (T1) and post-treatment (T2) measures of depression, anxiety, and maternal attachment were completed at the first and final group session. In the final session, participants and their partners who attended the couple session(s) completed an evaluation form aimed to elicit feedback on their experince of the program. Women were also asked to complete the Client Satisfaction Questionnaire at completion of the group.

All participants were contacted by the Clinical Psychologist who faciliated the program at approximately two months after the birth of their baby. During this phone call the Edinburgh Postnatal Depression Scale (EPDS) and follow-up program evaluation form were completed. Maternal attachment was not assessed at two months postpartum given the practicalities of new mothers taking phone calls. As this study was conducted in a real life setting it was not feasible to spend more than 15 minutes on the phone to new mothers given the competing demands on their time. During the follow up call the clinician prioritised readministering the EPDS, checking to see how they were adjusting to new parenthood, their use of the strategies covered in the group program, awareness of community supports and their confidence in being able to monitor their mood and early warning signs of depression and anxiety.

Measures

Centre of Epidemiological Studies Depression Scale (CES-D)

The CES-D (Radloff 1977) is a 20 item scale assessing depressive symptoms over the previous one week period. Items are scored on a four-point scale (score 0-3). The CES-D scores range from 0 to 60, with higher scores representing more severe depressive symptoms. It is widely reported that scores of 19 or higher indicate a clinical level of depression. In the current study, the CES-D showed good internal reliability with Cronbach's alpha ranging from 0.90-0.94 across the two time points (T1 and T2).

Edinburgh Postnatal Depression Scale (EPDS)

The EPDS (Cox et al. 1987) is a valid and widely used 10 item self-report screening questionnaire of postnatal depression. The four-point scale (0-3) assesses the intensity of depressive symptoms experienced over the previous seven day period. The maximum scale score on the EPDS is 30, with a cut-off score of 13 or more identifying probable depression with a sensitivity of 86% and a specificity of 78% (Cox et al., 1987). In the current study, the scale was significantly correlated ($p<.001$) with the CES-D at T1 ($r=.72$) and T2 ($r=.78$) and demonstrated good internal reliability with Cronbach's alpha values ranging from 0.75-0.81 at T1, T2 and at two months postpartum follow-up (T3).

State-Trait Anxiety Inventory (STAI)

The STAI is a widely used measure of anxiety and has demonstrated reliability and validity (Spielberger et al. 1983). The STAI Form Y comprises two separate 20 item self-report scales measuring transient state anxiety and dispositional trait anxiety (or anxiety proneness). This project collected responses on state-anxiety only (STAI-S scale). On the STAI-S, participants are asked to indicate on a four-point scale how they feel right now, at this moment. Higher scores represent more intense state anxiety. In the current study, the STAI-S showed high internal reliability with Cronbach's alpha ranging from 0.93-0.94 across T1 and T2.

Condon Maternal Antenatal Attachment Scale

The Condon Antenatal Attachment Scale assesses antenatal global maternal attachment (Condon 1993). The scale comprises of 19 self-report items that mothers rate on a five-point scale, with a score of 1 presenting low attachment and 5 indicating high attachment. The total score ranges from 19 to 95. In the current study, the scale demonstrated acceptable levels of internal reliability with Cronbach's alpha ranging from 0.79-0.81 across T1 and T2.

Client Satisfaction Questionnaire (CSQ-8)

The eight-item Client CSQ-8 (Larsen et al. 1979) assesses patient satisfaction with the service provided. Each item on the CSQ-8 has four response options (1 to 4). The overall total score ranges from 8 to 32, with higher scores reflecting high satisfaction with treatment. The CSQ-8 has good validity and high internal consistency (Cronbach's alpha ranging from .92 to .93). The CSQ is moderately correlated with various measures of psychotherapeutic outcome and change in symptoms. In the current study, the scale demonstrated an acceptable level of internal reliability (Cronbach's alpha = 0.79).

Group Evaluation Form

Participants and partners were asked to each complete the Group Evaluation Form that was designed for the purpose of this study. Feedback items asked participants to list their main goals of attending the group, whether their expectations were reached, particularly helpful and unhelpful aspects of the program, if they would they recommend the program to other women with depression and anxiety, and benefits from having their partner attend sessions. A separate form designed for partners asked them to indicate their main goals for attending the group, whether their expectations were met, most helpful and unhelpful aspects of the sessions, possible areas for improvement in future groups and whether they would recommend the program to other expecting fathers.

The Group Intervention

The antenatal group program comprised six 2-hour sessions held on a fortnightly basis, including two sessions with participants and their partners. The program had four core components; (1) several behavioural self-care strategies; (2) a psycho-educational component focusing on mood monitoring, early detection and continguency planning for emerging anxiety and depression in pregnancy and the postpartum (including information regarding community based supports); (3) an interpersonal therapy (IPT) component addressing social support, couple communication, role transitions, and awareenss between the couple of each others mental health warning signs; and (4) a parent-infant relationship component addressing infant attachment needs, positive parental responsiveness, and bonding with infants (including discussing the role of fathers).

Partners attended two sessions (the fourth and sixth session). The first partner session covered (1) adjustment to parenthood and changes across all life domains, (2) psycho-education of maternal and paternal mental health, (3) mood monitoring and detection of early and late warning signs of depression and anxiety, and (4) coping plans to manage emerging and later signs of depression and anxiety and crisis plans. The second partner session addressed two main themes; (1) acknowledging changes in the couple relationship during early parenthood and how to support and communicate with each other during this adjustment phase, and (2) parent-infant component focusing on the involvement of fathers right from the start. These sessions involved information sharing, group brainstorming activities and couple communication exercises.

To ensure consistency across group programs, the intervention was manualized and all programs were facilitated by the same Clinical Psychologist who had experience in both CBT and IPT and parent-infant intervention. The group was co-facilitated by different parent-infant mental health clinicians over the course of the study who had either a graduate diploma in parent-infant mental health, or psychology or psychiatry background. No formal measure of fidelity was used. However after each group session the facilitators discussed whether all of the manualized content of the session was covered. When it was deemed that topics had not been covered thoroughly they were added to the agenda of the following session.

The content and format of the group program was developed using established therapy components (CBT and IPT, parent-infant interventions) and refined with consumer participation from past patients of the service who had received psychological intervention for postnatal depression. The content of the draft program was reviewed by consumers who were also asked to reflect upon what information and resources they would have found helpful having in their pregnancy. The initial group program comprised five sessions (including one partner session), which was later extended to six sessions (including two partner sessions) based on feedback from participants and their partners.

Results

Referral outcomes and study participation

Women were informed of the option to participate in the antenatal group program during their outpatient hospital appointments with the antenatal clinic psychiatrist. The group program was suggested to them if they had current or past anxiety or depression. Referrals were offered at the treating clinicians discretion and were based upon whether the woman was seeking early intervention or wished to gain additional support and coping strategies to their risk of becoming unwell in this perinatal period.

A total of 112 women were referred to the group program over the three year period, and 55 (49%) confirmed their intention to participate. The women who subsequently declined to participate cited the following reasons for their decision: work commitments, unsuitable time of day or day of the week, childcare issues, lack of interest, or clash with other antenatal appointments. Of those who confirmed their participation, only seven women did not attend the first session or any subsequent sessions. Eight groups were delivered between June 2011 and September 2013 and groups ranged in size from four to eight participants. The earlier programs comprised of only five sessions (including one partner session) whilst the last four programs had six sessions (two partner sessions).

A total of 48 women started the group and 37 (77%) attended at least 80% of the program. Participants were classified as "completers" if they attended at least 80% of sessions offered and "non-completers" if they attended less than 80%. Fifteen women (31%) attended all sessions offered. With the exception of age, there were no differences on socio-demographic, psychiatric history and obstetric indices between the 37 completers and the non-completers (n=11). The completers were significantly older (p=.004) than the non-completers (M=34.5 years, SD=4.6 compared to M=29.7 years, SD=4.7, respectively). Of the non-completers, the majority dropped out as their baby was born before their expected due date, they were currently hospital inpatients, or travel to the hospital with their newborn was not feasible. Twenty-eight partners attended at least one of the partner sessions offered.

Sample characteristics

The 48 women who participated in the program ranged in age from 21 to 45 years (*M*=33.4, *SD*=5.0). At the first session, participants ranged in gestation from 13 to 34 weeks (*M*=26 weeks). The majority of the sample was either married or in a defacto relationship (85%), had a tertiary education or higher degree (63%), and were Caucasian (88%). Thirty (63%) participants were pregnant for the first time, 25 women had had at least one prior early pregnancy loss (miscarriage or termination), and 2 women had a previous stillborn or neonatal loss.

The majority of participants (83%) had a current diagnosis or symptoms of depression or anxiety, 80% were experiencing a relapse of a past psychiatric diagnosis, and 21 (44%) were taking psychotropic medication. The majority of participants (98%) were currently engaged in either psychiatry or individual psychology care through the hospital's mental health service.

The majority of the sample had a past diagnosis of mental health problems (92%), most commonly depression (63%); 83% had received formal treatment in the past (i.e., medication and/or psychological therapy); and 70% of participants with a past diagnosis had at least one other co-morbid diagnosis. Four participants had prior inpatient psychiatric admissions.

Primary outcomes

Of the 37 completers, 30 women returned both T1 and T2 questionnaires. The distribution of scores on T1 and T2 outcome measures were normal so parametric tests were used. Paired sample *t*-tests were performed on the four primary outcome variables for the 30 women.

As shown in Table 1, there were significant reductions in participants' level of depression as measured on the CES-D ($p<.001$), significant reduction in state-anxiety ($p<.001$) and significant improvement in maternal attachment ($p=.006$) at the completion (T2) compared to the beginning of the program (T1).

Acceptability and satisfaction with the intervention

Participants

The total mean score on the CSQ-8 was 30.4 (range 24 to 32), suggestive of high satisfaction with the intervention received. All participants reported that the program had met their expectations, with 90% indicating that they 'definitely' (69%) or 'generally' received the desired service. The quality of service was rated as 'excellent' by 83%, and 79% were 'very satisfied' with the service provided.

Partners

Of the 28 partners who attended the sessions, 21 (75%) returned their feedback forms. Of these, 100% indicated that the sessions had met their expectations, 81% indicated that their attendance to the session(s) had improved their understanding of mental health issues and 67% said they would recommend the program to other fathers. Fifty-eight percent reported that the most useful aspects of the program were learning about the emotional continuum from wellness to becoming unwell and about the early warning signs of becoming unwell.

Discussion

The purpose of this study was to evaluate the acceptability and effectiveness of a novel antenatal group program that comprised behavioural, psycho-educational and IPT components and also addressed the parent-infant relationship prior to birth. The pilot antenatal group intervention was developed for a clinical sample of women with current depression or anxiety who were receiving antenatal maternity care at a large tertiary Victorian hospital.

The antenatal group program was found to be acceptable to the expectant mothers and fathers. All participants (women and their partners) reported that the program had met their expectations, and the majority of participants highly endorsed the quality, usefulness and benefit of the intervention they had received. The acceptability of the program to participants was mirrored in the high retention rate that was better than previous psycho-educational antenatal group interventions (Lara et al. 2010; Stamp et al. 1995) and similar to other IPT programs (Crockett et al. 2008; Zlotnick et al. 2001).

The effectiveness of the program was demonstrated by the significant improvements, with large to moderate effect sizes, in maternal depression, state-anxiety and attachment to their unborn baby. Improvements in post-treatment depression scores were maintained at two months postpartum. Partners who attended the couple session(s) indicated that their attendance had improved their awareness of mental health issues and would recommend the program to other fathers. A group-based antenatal model of care has several advantages over individual therapy. Provision of a group based intervention also considers the social needs of mothers and fathers, and provides an avenue for potentially isolated people to receive social support, positive modelling, and have their experience normalised.

The feasibility of the program is noteworthy given its purpose was to enhance the range of mental health interventions women could access in a real life clinical setting. In the context of a busy clinical environment, determining the suitability and motivation to attend of the women referred to the program was time consuming with only half of the referrals translating to confirmed attendees. This could be improved if the referrer assessed the woman's motivation to commit to attend all the sessions and suitability of the time and day of the program. Nevertheless the time taken to assess suitability and to confirm participants' attendance prior to the beginning of the first session needs to be factored into the facilitators workload. In determining the resources required to provide a program of this type it is

important to note that the time needed to provide the six-sessions of therapy is only one component of the time required to recruit, coordinate and hold the group. Despite this, given its low attrition rate, the group format was a feasible and cost effective treatment that could be provided in addition to, or as an alternative option, to regular individual psychiatric or psychological intervention

The pilot study has several strengths despite its small sample size. Reliable measures of anxiety, depression and maternal attachment that are frequently reported in the literature were employed. The content of the program was developed and delivered in a manualised format to increase between-group consistency, and this was further enhanced by the continuity of the Clinical Psychologist across groups. Unlike the majority of antenatal group interventions to date, this pilot program included partners. These expecting fathers gave positive feedback on the usefulness of the program in assisting them to understand their partner's mental health difficulties and how to access help if needed.

Our pilot study it is not without its limitations. The group included only women who could speak and write in English. This exclusion of women (and their partners) from a diverse range of backgrounds limits the generalizability of our findings, particularly in relation to acceptability of the program. The program was facilitated by an experienced clinical psychologist and an infant mental health clinician potentially limiting the healthcare settings in which the program could be conducted.

We purposely did not exclude women receiving individual psychology or psychiatry care, nor exclude those on psychotropic medications as the objective of this pilot project was to provide an intervention to a clinical sample of women in a real life setting. Caution must therefore be taken when interpreting the findings as it is not possible to establish if improvements were partly or largely associated with completing the group, their involvement in individual mental health treatment, or time alone. In order to determine this, a randomised controlled trial which compares the antenatal group intervention to a wait-list control condition is required.

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Conflict of Interest

The authors declare no conflict of interest in the production of this manuscript.

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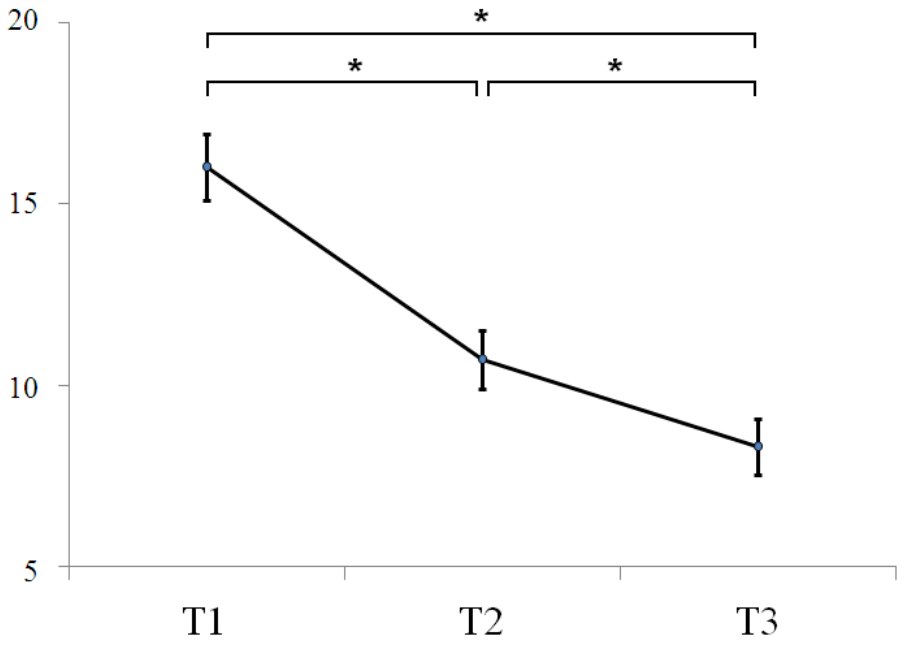

Figure 1

Mean EPDS scores at pre (T1), post (T2) and post-partum follow up (T3) for participants who completed the program

Note. There was a significant change (*) from T1 to T2, from T1 to T3, and from T2 to T3. Error bars=standard error of the mean (SEM)

Table 1

Results of paired sample t-tests showing means and effect sizes on primary outcome variables for participants who completed the program

Measures	**Pre and post intervention scores**			***df***	***p value***	***Effect size (Cohen's d)***
	T1	*T2*	*T3*			
STAI-S- mean ±SD	52.8 ± 10.9	44.5 ± 11.3	-	29	<.001	0.7
CES-D - mean ±SD	33.8 ± 10.6	24.3 ± 12.6	-	29	<.001	0.8
MA - mean ±SD	67.5 ± 8.9	72.2 ± 8.6	-	24	.006	0.5
EPDS - mean ±SD	16.0 ± 5.0	10.7 ± 4.4	-	29	<.001	1.1
EPDS - mean ±SD	16.0 ± 5.0	-	8.3 ± 4.0	25	<.001	1.7
EPDS - mean ±SD	-	10.5 ± 4.0	8.3± 4.2	21	.006	0.5

Note. STAI-S=Spielberger State-Trait Anxiety Inventory-State; CES-D=Centre for Epidemiological Studies Depression Scale; MA=Condon Maternal Attachment scale; EPDS=Edinburgh Postnatal Depression Scale.

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