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Research report

Brief antenatal cognitive behaviour therapy group intervention for the prevention of postnatal depression and anxiety: A randomised controlled trial

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Abstract

Background: The majority of randomised controlled trials examining the effectiveness of antenatal group interventions at preventing postnatal depression in "at risk" women have used a "psychoeducational" intervention. The aim of the present study is to evaluate the effectiveness of an antenatal cognitive behavioural group intervention in a primary care setting for pregnant women identified with mild to moderate symptoms in pregnancy and/or at risk of developing depression or anxiety in the perinatal period.
Method: Subjects were randomised to a CBT group intervention or control condition (information booklet) and administered the EPDS and STAI at pre (Time 1) and post intervention (Time 2), and at 2 months (Time 3) and 4 months postpartum (Time 4). MINIs were administered at Times 1, 3 and 4.
Results: Of the 774 women approached, 277 accepted and were suitable; thus 191 were randomised to the CBT intervention and 86 to the control condition. The subsequent 52% drop-out left 89 women "completing" the CBT groups and 43 in the control group; these two groups were well matched on demographic variables. Intention to treat analyses revealed relatively low mean baseline EPDS scores (means 6.88 -8.16) with no reduction in EPDS scores in either group from Time 1 to Time 4. MINI depression criteria were fulfilled by 19% of all participants at Time 1 but there was no reduction in depression in either group; in contrast those with MINI anxiety diagnoses reduced from 28% in late pregnancy to 16% at four months postpartum in the CBT group with similar reductions in the control group. Analyses on the 132 "completers" showed significant symptomatic improvement over time for both the CBT group and control condition. Depression scores in the most symptomatic women (EPDS > 12; N = 19) decreased steadily by over 50% over the total time course but there were no differences in improvement between the CBT and control groups.
Limitations: A number of methodological factors may have obscured our results including a tendency to natural remission in mildly symptomatic subjects and the possibility that our control condition was therapeutic in itself.

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Conclusion: While a modest reduction in depression scores was noted in study "completers", both the CBT group intervention control condition were equally beneficial. The reasons for this finding include the low symptom level at baseline; the potential effectiveness of the control condition; and the brevity of the intervention.

Keywords: Antenatal; Postnatal; Depression; Anxiety; Prevention; Pregnancy; Cognitive behaviour therapy

1. Introduction

Postnatal depression (PND) is a term used to describe a heterogeneous group of conditions - with features of both depression and anxiety – in women who present postnatally. The reported prevalence of PND is variable, with rates ranging from 5% - 25% depending on measures used. The most recent meta-analysis of 30 studies indicated prevalence rates for both major and minor depression ranging between 6.5% to 12.9% during the first year post-partum (Gaynes et al., 2005). There is a three-fold increase in the incidence of depression in the first five weeks post-partum (Cox et al., 1993) and 75% of cases arise in the first 6 months following birth (Cooper et al., 1988) underlining a major public health problem (Weissman and Olfson, 1995). The consequences for infants are serious and include less secure attachment and poorer emotional, behavioural and cognitive development than for infants of non-depressed mothers (Murray and Cooper, 1997). The antenatal period offers a "window of opportunity" during which a preventative approach to this condition can be instituted, given the prevalence of onset post-partum and the extent of its morbidity, both for mother and infant.

While randomised trials of domiciliary nursing interventions spanning the perinatal period have proven to be useful in "high-risk families" (defined here as those at risk of child neglect/or abuse) in some studies (Olds et al., 1997) this has not proven to always be the case (Armstrong et al., 1999). Similarly, early intervention benefits for women identified as "at risk" for depression and anxiety have so far not been consistently demonstrated (Austin, 2003a).

There have been five randomized controlled trials (RCTs) examining the effectiveness of antenatal group interventions aimed at preventing PND in "at risk" women. The majority of the studies (Elliott et al., 2000; Buist et al., 1999; Stamp et al., 1995; Brugha et al., 2000) used a "psychoeducational" intervention, and although none found the intervention to be effective overall, these studies suffer from a number of methodological limitations. None used a validated psychosocial screening tool or standardised diagnostic criteria to confirm a diagnosis of postnatal depression, and the majority of studies (except Brugha et al., 2000), used small numbers with the potential for false negative results.

Positive outcomes were reported by Zlotnick et al. (2001) who randomised 35 socioeconomically deprived and clinically depressed women to either group antenatal interpersonal therapy (IPT) or "treatment as usual" (TAU). The change in Beck Depression Inventory (Beck et al., 1961) depression scores for the women before and after the intervention was significantly greater than for those in the TAU group. The better outcome in this study, in terms of depression postpartum, might be attributable to the fact that a validated, structured intervention (IPT) delivered by a clinical psychologist was used, in contrast to the "psychoeducational" group interventions delivered by non-specialist mental health professionals in the other studies described.

Cognitive behaviour therapy (CBT) is a proven intervention used in the treatment of patients with both depressive and anxiety disorders (Andrews, 1991) which aims to reduce symptoms by targeting and modifying negative patterns of thinking and behaviour. A recent comprehensive review of meta-analyses of treatment outcomes for CBT for a variety of psychiatric disorders concluded that CBT is effective for adult unipolar depression, and furthermore, there was significant evidence for long-term effectiveness following cessation of treatment (Butler et al., 2006). Classically, CBT is administered by clinical psychologists over 16 sessions, however in practice the duration of therapy is very variable (4–20 sessions). A meta-analysis of 10 studies reported no significant effect of CBT duration on treatment response (Dobson, 1989). Importantly, from the perspective of this study it is possible that as few as 3–6 sessions of CBT will have a significant impact on depression (Barkham et al., 1999; Scott et al., 1997) both acutely and at one year follow-up. Furthermore, it appears that targeting the "behavioural" components of CBT (e.g. positive events scheduling, relaxation, physical activity, communication and assertiveness skills, problem solving) may be as effective as modifying the cognitive components of CBT (automatic thoughts or

core schemata) both acutely (Jacobson et al., 1996) and at 2 years follow-up (Gortner et al., 1998). These studies also indicate that a brief, simplified form of CBT may be useful both acutely and prophylactically in those at risk of relapse. While numerous studies have demonstrated the effectiveness of CBT in the treatment of depression, there have been relatively few studies examining efficacy specifically related to PND, or indeed the perinatal area in general. In one study that did report significant results for a CBT intervention, women assigned to a prevention/treatment group had significant reductions in depression compared to a control group (Chabrol et al., 2002). However this intervention focussed on one CBT session antenatally and a follow-up postnatally of between five and eight weekly home visits rather than consisting of CBT antenatal sessions only.

As noted by a number of authors (King and Ollendick, 1998; Andrews, 1999; Wells, 1999) there is a growing awareness that randomised controlled trials using superlative treatment conditions in optimal settings may not reflect the results that would be obtained using equivalent therapies in actual clinical practice. Thus the empirical validation of interventions (efficacy) needs to be extended to a demonstration of effectiveness in the clinical setting. In addition, treatment feasibility issues need to be addressed including patient acceptance and accessibility, and ease of dissemination. Simpler, briefer, cost-effective treatments are more likely to be taken up in the primary health care setting ahead of more complex, extended interventions relying on mental health specialists, and thus be more widely disseminated. In order to make CBT more readily available to, and thus more readily applied in the setting we wish to study, our group and others have advocated the use of a modified, brief standardised intervention based on CBT principles and focusing more on the behavioural rather than on the cognitive components of CBT (Appleby et al., 1997; Prendergast and Austin, 2001).

The primary aim of the present study was to examine whether a brief antenatal CBT group treatment program plus information booklet, compared to an information booklet alone control condition, would result in less depressive and anxiety symptomatology in the postnatal period.

2. Method

All women (approximately 3000/year) booking in at the antenatal clinics at the Royal Hospital for Women filled out the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987) and an Antenatal Risk Questionnaire (ANRQ; Austin, 2003b) late in the first trimester of pregnancy. The ANRQ self-report measure asks about nine psychosocial risk factors known to be associated with the onset of perinatal distress. While the ANRQ itself has not been validated as a screening tool, the fuller version from which it is derived - the PRQ which has reasonable positive predictive value, sensitivity and specificity - has been shown to be useful in terms of identifying women at high and low risk for developing anxiety and depression postpartum (Austin et al., 2005).Women with an EPDS score of >10 and/or a score of >23 on the ANRQ (indicating significant risk factors for perinatal mood disorders), or a reported prior history of depression, were referred for the study. Prior history of depression was assessed on the basis of the ANRQ questions: "*before this pregnancy* did you ever have a period of *2 weeks or more* when you felt particularly miserable or depressed? If so, did being depressed interfere with your ability to get things done or your relationships with friends and family or did it lead you to seek professional help?". Duration of time since the last depressive episode was not recorded.

Further screening within this group of women identified those deemed ineligible for inclusion. These comprised women known to be engaging in substance or alcohol abuse, to have an organic brain disorder, bipolar disorder or schizophrenia, a childhood history of abuse (physical, emotional or sexual), current suicidal ideation, as well as those with a poor command of English. They were also assessed for suitability for CBT in terms of ability to conceptualise CBT principles, willingness to engage in an active therapeutic intervention, command of English, as well as suitability for group rather than individual intervention.

The reason for the brevity of treatment was pragmatic as this was a large trial assessing effectiveness in a clinical setting, rather than efficacy in a tightly controlled research only setting. Furtheremore, in order to obtain the numbers that were required for this type of study (ie. one aiming to prevent a negative outcome in women with a low baseline level of symptoms) we had to allow for a less than perfect attendance at the group intervention (just as would occur in real life group interventions).

Over a period of 3 years all women meeting criteria for inclusion in the study and having given informed written consent to be approached were invited to participate in the study. They were sent a letter saying they were suitable for a group intervention and this was followed up by a phone call by the Research Assistant. Those accepting the invitation to participate were assessed with the depression and anxiety components of the Mini International Neuropsychiatric Interview

(MINI; Lecrubier et al., 1997), the EPDS (Cox et al., 1987) and the state component of the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970. This was followed by randomization (using a randomization table) to one of two conditions: the CBT group program intervention or a booklet control group. We also obtained demographic information (age, parity, and partner status as per Table 1) and information regarding any additional psychological support and current antidepressant medication. At Times 1, 3 and 4, a face to face or telephone interview allowed the completion of subsections of the MINI diagnostic screening tool within the context of a clinical interview. The Research Assistant administering the MINI at Times 3 and 4 was blind to study allocation (whether group intervention or control condition). For the purposes of this study, participants who met four of the five required criteria for major depression on the MINI (including 2 weeks or more of either low mood, or low interest and enjoyment in pleasurable activities) were considered to meet criteria for minor depression.

Women allocated to the control condition were given a booklet which contained comprehensive information regarding risk factors for postnatal anxiety and depression, triggers for postnatal distress, and strategies to prevent and/or manage such problems and a list of local postnatal support services and how to access these services. The contents of the booklet were briefly verbally outlined to each woman and she was urged to consider the information thoroughly. Women who at any time became highly symptomatic were advised to contact their general practitioners, and the general practitioner was also advised by letter.

The CBT group intervention comprised 6 weekly 2-hour sessions (and a later follow-up session) of cognitive behavioural therapy, focusing on the prevention and management of stress, anxiety and low mood in the context of pregnancy and caring for a new baby. This structured program was skills based, largely focused on behavioural strategies and encouraged home task practice each week. Components included education about perinatal anxiety and depression as well as infant needs and behaviour in the first few months of life, pleasant event scheduling, relaxation training, goal setting, problem solving, cognitive strategies to address unhelpful attitudes, assertion skills, and how to develop a broad social support network, including local postnatal support services. To ensure program consistency, the CBT intervention was developed into manual format and led by a clinical psychologist. A midwife who had been specifically trained to deliver this intervention acted as co-therapist.

Table 1
Mean differences on pre-program screening scores, partner status and primiparity for those who accepted to take part in the program compared with those who declined

	Program Accepters (N=301) M (S.D.)	Program Refusers (N=473) M (S.D.)
EPDS screener scores	7.84 (4.32)	8.21 (4.19)
ANRQ screener scores	25.44 (6.80)	23.71 (6.71)
Age	31.4 (3.5)	32.1 (4.7)
Partnered	97.3%	98.0%
Primiparous	65.9%	62.0%

All participants were required to complete written questionnaires on four occasions: at the initial interview (Time 1); at the end of the final session of the CBT group program, or approximately 6 weeks after initial interview for booklet control subjects (Time 2); approximately 2 months postpartum (Time 3); and approximately 4 months postpartum (Time 4).

3. Statistical Analysis

Women were randomized on a 2: 1 basis (on the assumption that more women in the intervention than the control condition would drop out as has been shown in other studies). An intention-to-treat analysis was conducted on the 277 participants, whereby all missing data (%) was imputed using the "last observation carried forward" method for all subjects. A repeated measures analysis comparing change over time was conducted for the EPDS and STAI. A repeated measures analysis of the "completers" was also undertaken.

4. Results

Our sample mean age was 31.4 years; 97.3% were partnenred and 65.9% were primiparous. It was a relatively homogenous sample in that the participants were excluded (on the basis of the baseline "screener") if they were needing individual therapy (where there was history of trauma or recent loss) or had a history of psychosis or significant personality dysfunction all of which would be expected to be associated with a poor response to a standard form of group CBT. Rates of participation and follow-up at each stage of the trial are presented in Fig. 1. In total, 774 pregnant women of 14 to 36 weeks' gestation (M=25.7 weeks, SD=5.3 weeks) were approached from January 2002 to November 2004. Of those, 301 (38.9%) accepted and attended an initial one-on-one interview. Most common causes for refusal were a lack of time or interest (66%), and to a lesser extent lack of transport or childcare (13%). Those who

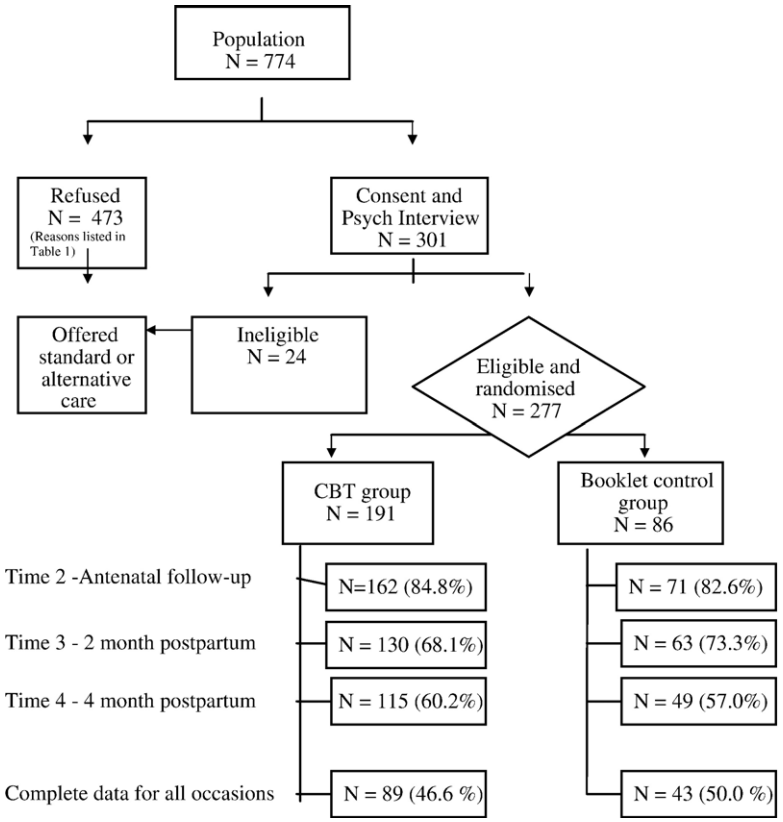

Fig. 1. Participant rates at each stage of the trial.

accepted (N=301) and those who refused (N=473) were compared on initial screening scores, partner relationship status, age and parity (see Table 1). There were no significant differences between study participants and those women who declined participation on any of these measures or demographic details.

Of the 301 accepters, data for 24 participants were removed after the Time 1 initial interview (reasons include infant loss, past history of abuse or severity of symptoms). Consequently, 277 (35.8%) participants comprised the ongoing sample. Random allocation resulted in 191 CBT group members (69.0%) and 86 booklet control subjects (31.0%), approaching the projected 2:1 ratio. After 145 women dropped out, we had 132 "completers" - i.e. women who returned all questionnaires to Time 4 and, in the case of the intervention group (N=89), attended four or more CBT group sessions including at least the first session which focussed on cognitive strategies, thus receiving both the behavioural and cognitive elements of the program.

There was missing data from a number of different sources including those dropping out at baseline and then not attending a minimum of 4 sessions; there were also those not filling out all MINIs or EPDS at all time intervals. Thus of the original 277 participants at Time 1, we had 234 left at Time 2; 192 at Time 3; and 162 at Time 4 with 132/162 having completed all self-report questionnaires at all 4 collection times. Of these 132, 25% did not fill out a MINI at Time 3.

4.1. Intention to treat analyses

Comparison between CBT and Booklet conditions on a range of demographic data is described in Table 2. When chi-square analyses were performed, no significant difference in demographic profile was found between CBT group and booklet control group, reflecting two similar samples. EPDS scores at Time 1 were higher in the group intervention women than for the booklet control group (see Table 2). This initial difference prior to intervention is addressed in later analyses. Subsequent EPDS scores were not significantly different between the two groups.

The main effect for time was significant. In particular, a significant overall linear reduction of about two EPDS points over time was found for the

Table 2
Demographic and clinical data comparing control and CBT group participants (N=277)

	CBT Group N=191	Booklet control N=86 (%)	Total sample N=277 (%)	χ^2 ($\alpha<0.05$)
Primiparous	63.9%	68.6%	65.3%	NS
Partner	97.4%	98.8%	97.8%	NS
English speaking background	88.5%	87.2%	88.1%	NS
Combined family income <$40 K	9.4%	10.5%	9.7%	NS
Drug and alcohol history	3.1%	2.3%	2.9%	NS
Past history of Depression	81.7%	83.5%	82.2%	NS
Current support from counsellor/social work	9.9%	7.0%	9.0%	NS
Currently taking medication SSRI	2.1%	4 (4.7%)	2.9%	NS
Mean EPDS Time 1 (S.D.)	8.16 (4.47)	6.88 (4.43)	7.76 (4.49)	Sig (F=4.84; p<0.05).

two conditions combined (F=28.95, p<.05), however when examining differences in trend between the two conditions (condition by time interactions), no significant difference was found (F=3.80, p>0.50).

Mean scores on the STAI state anxiety scale declined slightly over time for the CBT group (from 35.1 to 32.7) but remained stable at about 32 at all time points for the control group.

Table 3 shows numbers of subjects that fulfilled MINI criteria for a diagnosis of depression and/or anxiety at pre-intervention, at two months and at four months post-partum. Overall, 19% of all participants were depressed at Time 1. When differences between groups was examined, the percentage of depressed members remained relatively stable over time for the CBT condition while the rate of postnatal depression increased somewhat for the Control condition, however this difference was not found to be significant. Overall, 26% of all women participating in the study fulfilled criteria for a MINI diagnosis of anxiety pre-intervention. This reduced quite substantially to 18% at two months post-partum and fell further to approximately 16% at four months postpartum, though this reduction was not statistically significant, nor was there a significant difference between the two group conditions.

4.2. Analyses of "completers"

We were also interested in examining results for subjects for whom we had complete data sets at every point of measure. Comparison of demographics for the 'completers' (N=132), and 'non-completers' (N=145, the remaining subjects of the original N=277 sample) revealed no significant differences. Study completers were, however, found to be significantly lower on EPDS scores at Time 1 (M=7.13, S.D.=4.49, N=132) than were the noncompleters (M=8.34, S.D.=4.43; N=145) (F=5.09, p<0.05). While we would also have been interested in a post-hoc analysis looking at those women attending all CBT group sessions, this was not *possible as numbers were too low.*

Of the 132 subjects with complete data sets, 89 were CBT group and 43 were booklet condition participants. Repeated measures analyses of variance of EPDS and STAI scores were conducted for these "completers". The mean EPDS scores for each group at Time 1 to Time 4 are graphed in Fig. 2. Analysis examining between groups change over time was conducted, there was no significant main effects or interactions. However a repeated measures analysis was conducted comparing change over time in EPDS scores for the CBT group completers and the booklet control completers, a significant difference across time was detected. There was a significant difference in the linear trend between groups (F=5.81; p<0.05), as well as for the quadratic trend (F=4.24; p<0.05). As can be seen in Fig. 2, EPDS scores for the control group deviated only slightly over time, whereas the CBT group participants showed an improvement that continued over time. To control for the fact that the CBT group EPDS scores were slightly higher at Time 1 than controls, the repeated measures

Table 3
Number of group participants with a diagnosis of depression, anxiety and Depression *or* Anxiety on the MINI (N=277)

	CBT Group N=191 (%)	Booklet Control N=86 (%)	Total N=277 (%)
DEPRESSION			
Pre-intervention	19.9	17.4	19.1
2-month PP	17.8	17.4	17.7
4-month PP	19.9	20.9	20.2
ANXIETY			
Pre-intervention	27.7	22.1	26.0
2-month PP	18.3	17.4	18.1
4-month PP	16.2	16.3	16.2
DEPRESSION or ANXIETY			
Pre-Intervention	35.6	31.4	32.5
2 month p-p	28.8	30.2	29.5
4 month p-p	27.7	26.7	27.2

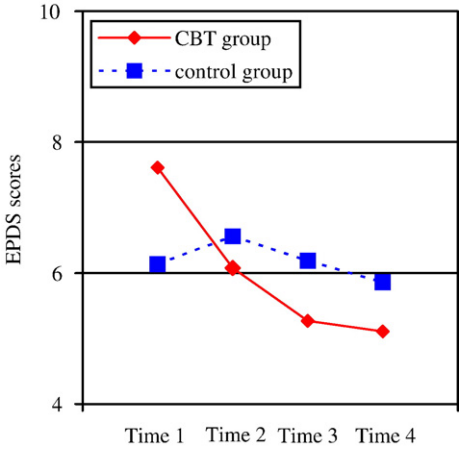

Fig. 2. Comparison of EPDS scores over time for CBT and control program completers (N=132).

design was reapplied to assess change from Time 2 to Time 4 between groups, using Time 1 as a covariate. The group difference from Time 2 to 4 holding the group difference at Time 1 constant was not found to be significant on either the linear or quadratic trend ($F=0.008$, $p>0.05$; $F=0.23$, $p>0.05$ respectively).

4.3. Analyses of high scorers (EPDS score>12)

It is difficult to demonstrate significant improvement over time when baseline scores are low, thus we examined change over time for those subjects whose EPDS at Time 1 was greater than 12 and who had completed the program, in order to examine whether women who are higher in symptoms at baseline would benefit most from the intervention. Only 19 subjects, however, from the 132 completers (14.3%) had an EPDS score greater than 12 at Time 1. These analyses are thus exploratory in nature given the reduction in pwer with such small numbers. A repeated measures analysis of variance comparing group change over time was conducted for this small subset, where change over time for CBT group participants (N=14) was compared with booklet controls (N=5) (see Fig. 3). No significant difference between groups was found on either the linear or quadratic trend ($F=0.05$, $p>0.05$; $F=0.09$, $p>0.05$ respectively). However a significant decrease in reported symptoms over time for the total subset (N=19) was found independent of group allocation for both linear and quadratic trends ($F=115.72$, $p<0.001$; $F=9.27$, $p<0.01$). There was a large improvement over time for these highly symptomatic subjects irrespective of group allocation.

5. Discussion

The focus of this study was to evaluate the efficacy of a prenatal group CBT intervention aimed at prevention of postnatal anxiety and depression in an "at-risk population" of women with predominantly mild symptoms. Results for the "completers" (N=132) indicate that overall depressive symptoms as measured by the EPDS were significantly reduced from pre-intervention to post-intervention and through the early post-natal period regardless of group allocation. This was the case for those subjects with high initial symptomatology as well as those within the whole group.

When we examined treatment effect on state anxiety as measured by the STAI, the CBT group intervention led to lower anxiety levels and this was maintained through to the postnatal period. In contrast, mean anxiety scores for subjects in the control condition increased slightly from pre to post treatment and this trend continued through the postnatal measurement; however this difference between groups was not significant. Over a quarter of our sample fulfilled criteria for an anxiety disorder at baseline, with a mean STAI score of 35.1 placing them above the normative range (Barnett and Parker, 1985). One of the most interesting findings of this study was the reduction in MINI anxiety diagnosis over time irrespective of group allocation.

The number identified as depressed on the MINI (19%) was greater than that identified using the EPDS (14% with score>12 in completers); this suggests there were a number of false negatives using the EPDS alone in this "at risk" group (as identified by the ANRQ). When we combined women fulfilling criteria for a MINI diagnosis of either depression or anxiety postpartum (total 29.5% and 27.2% at Time 3 and Time 4, respectively) there was no significant difference between

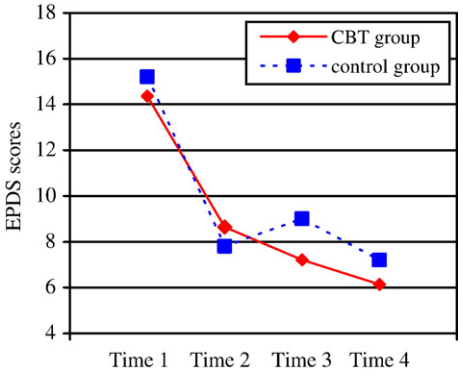

Fig. 3. Comparison of EPDS scores over time for subjects with high symptomatology (EPDS>12) at Time 1; N=19.

treatment and control groups at either time point. Nor was there any significant difference between treatment and control on the amount of change from pre-intervention to either two or four months postpartum.

5.1. Methodological strengths and limitations

This study had a number of methodological strengths. Based on the assumption that tailored interventions in targeted populations are more likely to be effective (Matthey, 1999; Austin, 2003a), we were able, by means of a validated pregnancy risk questionnaire (Austin et al., 2005), our ANRQ "screener" to target a relatively homogeneous group of women in demographic and symptomatic terms. Furthermore, we screened out women with a variety of conditions (eg. past history of abuse, psychoses) that may have impacted on ability to benefit from a brief CBT intervention, thus theoretically maximising the potential response to intervention. Secondly we used a validated, reliable (manualised) CBT intervention, which was administered by the same experienced clinical psychologist throughout the study. Thirdly, although our drop-out rate (52%) was similar to that of other studies, we recruited a much greater number of participants than other studies and thus had reasonable numbers of subjects submitting complete data. While 60% of women approached declined to participate, which is a common finding in the perinatal setting (Austin, 2003a; Carter et al., 2005), our comparison of the refusers to the participants shows they did not differ on key clinical and demographic variables.

It is possible that the failure to demonstrate superiority of the CBT group program over the Booklet control condition was that the control was actually more potent an alternative than was intended. Ideally, a "usual care" control group would be the best design to demonstrate effectiveness of any clinical intervention, however this was not considered to be an ethical alternative for this study, since subjects were drawn from a pool of women either currently symptomatic or considered at high risk of experiencing post-natal problems. Apart from routine antenatal care, the control group had the same clinical interview during pregnancy, were given a booklet containing comprehensive information and education regarding pre and postnatal anxiety and depression and the strategies to prevent or manage symptoms, as well as an extensive list of community resources for seeking support or help if needed. Furthermore, they were referred to appropriate treatment either within or external to the hospital if indicated during the initial session as well as in the two follow-up phone assessments, which can be viewed as offering significant psychosocial support. Indeed, previous studies have suggested that providing some form of psychosocial support to pregnant women at risk of depression may decrease depressive symptoms (Gaynes et al., 2005). Furthermore, providing 'indicated' interventions – to women who have minimal but detectable symptoms without meeting full disorder criteria – makes it more difficult to detect significant change (Austin, 2003a).

It is also possible that there was a lack of significant difference between the two conditons because the group intervention was too short. The reason for the brevity of treatment however was a pragmatic one and belongs to the efficacy versus effectiveness debate (King & Ollendick). It was felt we would have to keep th einterevention in order to obtain the numbers that were requied for this type of study ie. one aiming to prevent a negative outcome in women with a low baseline level of symptoms. The justification for attending a minimum of the first 4 sessions ensured women received both cognitive and behavioural elements of program.

The fact that women in the control condition were referred to appropriate treatment either as needed at any time point, significant psychological support- this may again help to explain the unexpectedly strong findings for this condition. The other factor which may have contributed to the lack of difference between the intervention and control condition outcomes, is the low level of symptoms at baseline (pre-intervention) making change difficult to measure and possibly making both interventions appear to be ineffective as there is little room for improvement. This low symptom baseline may also partly explain the finding that both conditions reduced symptomatology to a limited degree.

6. Conclusions

This is the largest and most methodologically rigorous study of its kind, Overall, there was a significant improvement in depressive and anxious symptomatology for all women, however the CBT intervention was not found to be superior to the control condition. One possible explanation for our lack of a significantly superior outcome for the CBT group could be that the Booklet condition may well be considered an alternative therapeutic intervention, and furthermore, that it presented somewhat similar information to that of the group program, albeit in a different format.

What has been demonstrated in this study is that providing a prenatal intervention - whether "specific" (CBT) or "non-specific" (booklet) - can be effective in reducing symptoms in the perinatal period. That the

education booklet intervention was equally effective is an important finding for several reasons. In terms of cost effectiveness it requires relatively minimal staff hours compared with the group program, and perhaps more importantly, may be more acceptable in that it would require attendance for one rather than several sessions. As noted above, approximately 60% of eligible women declined the offer of the program, many for reasons such as time constraints, lack of child care and transport problems. Women who are minimally symptomatic when initially screened may well reject the notion that they may experience problems postnatally, particularly if they are primiparous (as the majority of women eligible for this study were) and do not know what to expect. A group program such as the one offered here competes with antenatal childbirth education classes, birthing classes, as well as general issues such as lack of child care, pregnancy fatigue and lack of motivation to attend programs at night after a days work. Furthermore, presenting CBT in a group format may not be an optimal preventive strategy. Dennis (2005) suggests that a tailored individual intervention would be more effective. A one-session tailored antenatal intervention that provides specific psychoeducation, some preventative CBT strategies for PND, as well as information about community support services, with telephone follow-up postnatally, as done in our control condition, may in fact be just as beneficial as a brief group program such as that offered to women in this study. Although women were mininimally symptomatic in the antenatal period, they presented with identified risk factors for PND, as outlined above, thus were targeted for an intervention aimed at prevention rather than treatment per se. Although it is possible to identify women at risk, some things are less predictable, particularly birth and post-natal factors. Within a population of 'at risk' women, there is likely to be a complex interaction of biopsychosocial factors along with individual variations that results in some experiencing PND and others not. Targeting "at risk" women for a brief antenatal intervention and then longer group or individual program in the postnatal period, when they are more likely to be experiencing distress, may well be much more effective. Further study in this direction would be strongly recommended.

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