A brief group intervention using a cognitive-behavioural approach to reduce postnatal depressive symptoms: a randomised controlled trial

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KEY MESSAGES

1. Postnatal women preferred psychotherapy to pharmacotherapy for reduction of postnatal depression.
2. A brief, cognitive-behavioural, group intervention with 6 weekly sessions significantly reduced depressive symptoms and was well received by postnatal women.
3. This brief group intervention could be further tested as an integral part of postnatal care to complement existing services and reduce waiting time.

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Introduction

According to the World Health Organization in 2005, depression is a major health concern and will be the second highest cause of disability by 2020.[1] Postnatal depression (PND) is a global health issue that affects childbearing families. Many pharmacological and psychosocial interventions have been used to prevent and treat PND. Most postnatal women prefer psychotherapy to pharmacotherapy, particularly breastfeeding mothers who fear the effect of the latter on their infants.[2] Individual cognitive behavioural therapy (CBT) and interpersonal therapy have been recommended by the National Institute for Health and Clinical Excellence guidelines for women with PND in the United Kingdom.[3] Group CBT is equally or even more effective than individual CBT, but the optimal length of CBT intervention for PND remains inconclusive. Group CBT is associated with a lower cost, shorter waiting time, reduced therapy time, and more available places. CBT usually comprises eight to 12 sessions. This study aimed to assess the efficacy of six-sessions of group CBT among postnatal Chinese women in reducing depressive symptoms and the rate of PND at 3 months and 6 months after intervention.

Methods

This randomised controlled trial was conducted from December 2010 to June 2013. Informed consent was obtained from each participant. Hong Kong Chinese postpartum women aged ≥18 years at 6 to 8 weeks after delivery, living with their husband, and able to communicate in Cantonese who had an Edinburgh Postnatal Depression Scale (EPDS) score ≥10 and were assessed by Structured Clinical Interview by DSM-IV were recruited between March 2011 and May 2012 from Kwong Wah Hospital, Tsan Yuk Hospital, and Queen Elizabeth Hospital (Fig). Those with major mental illness who required medication, were referred for psychiatric or psychological therapy, or whose baby had died or required intensive care were excluded.

A total of 164 postnatal women were equally randomised to the brief six-session group intervention or control group. Participants in the control group were provided with a booklet that contained comprehensive information and education material about perinatal depression and a list of community resources.

Each group intervention comprised 10 to 12 participants who received a weekly 2-hour session for 6 weeks. The CBT intervention aimed to change cognitions and subsequently reinforce coping skills to enhance psychological resources and responses. CBT-guided participants to proactively respond to stress by reducing their negative thoughts. Participants learned the common postnatal mood changes and were asked to review their own postnatal events that triggered stress as well as

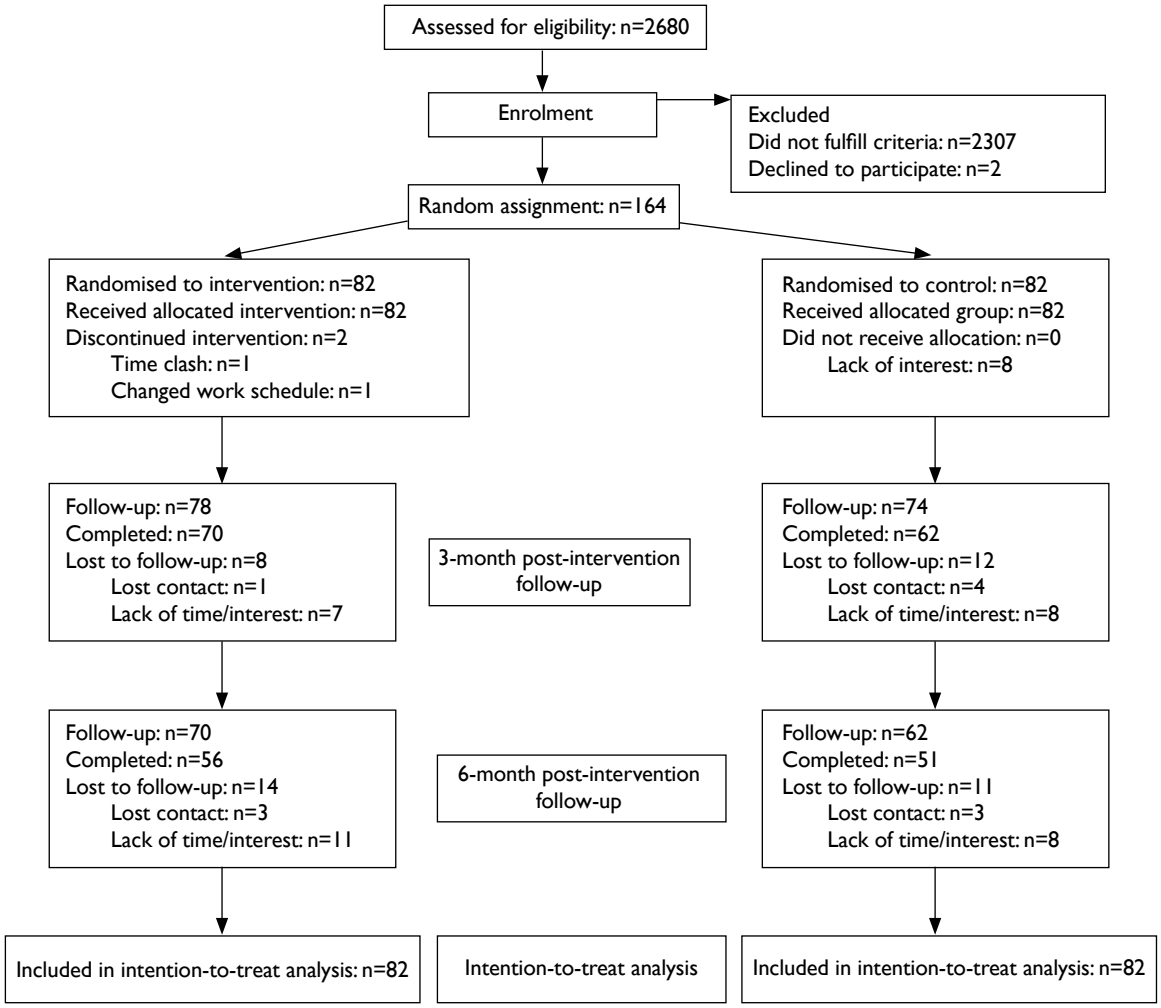

FIG. Flow chart of participants

their emotions and beliefs toward stress. They then learned cognitive techniques such as recognition of automatic thoughts, cognitive re-structuring and scheduling of pleasurable activities. Participants practised replacing their negative or irrational thoughts with positive and rational thoughts. Facilitators assisted them to identify their negative automatic thoughts and to guide them along the cognitive re-structuring process.

In the first session, participants learned the ABC model of CBT. Using the model, participants tried to assess their own physiological, emotional, behavioural, and cognitive responses to activating events. The second session focused on irrational thought patterns. The third session introduced the '5S' coping strategies in applying the cognitive-behavioural model: (1) be alert to the physiological stress signals, (2) stop automatic thoughts immediately, (3) self-questioning for searching positive and rational thoughts to replace the irrational thoughts, (4) use sidetracking small behaviours to divert attention from the stressful event, and (5) create smart card to remind themselves not to fall into the same trap in future stressful situations. The fourth session helped them to identify the underlying restraining beliefs that were linked to the irrational thoughts. In the fifth session, participants learned how to relax those restraining beliefs. In the sixth session, participants consolidated what they had learned and drew up a plan for coping with future emotionally provocative events.

Stressful or conflict scenarios that commonly encountered by postnatal women were identified in the pilot study were used to illustrate and discuss the physiological, emotional, behavioural, and cognitive responses. Group discussion, exercises, and homework assignment were core components of the sessions and emphasised throughout the

six sessions. Participants were assessed at baseline (T1) and at 3 months (T2) and 6 months (T3) after intervention.

The 10-item EPDS was used to measure the level of depressive symptoms after intervention. The 14-item, self-report Hospital Anxiety and Depression Scale (HADS) with two subscales of anxiety and depression was used to assess antenatal anxiety and depression. The 4-item Perceived Stress Scale was used to measure global stress level (how much the respondents find their lives unpredictable, uncontrollable, and overloading). The 40-item Dysfunctional Attitudes Scale (DAS) was used to identify and measure cognitive distortions, particularly distortions that might relate to or cause depression. The items contained seven major value systems based on the Beck's cognitive therapy model: approval, love, achievement, perfectionism, entitlement, omnipotence, and autonomy. The 5-item Family APGAR was used to measure satisfaction with family functioning in five dimensions: adaptation, partnership, growth, affection, and resolve. It was designed to identify individual's perception of the value of the family as a psychosocial resource (high score) or poor social support or possible stressor. The 32-item Dyadic Adjustment Scale was used to measure marital relationship. It comprises four subscales on affectional expression (4 items), dyadic consensus (13 items), dyadic cohesion (5 items), and dyadic satisfaction (10 items).

Results

The participants were aged 21 to 45 (mean±standard deviation, 31.02±4.78) years; 62% and 35.5% had monthly household income of HK$10 000 to $29 999 and HK$30 000 or above, respectively (Table 1). All completed secondary education or above and 40% attended post-graduate school. Demographics between respondents and non-respondents were comparable (all P>0.05).

The intervention group reported a significant reduction in EPDS score at T2 (T2-T1: t=3.86, P=0.03) and T3 (T3-T1: t=4.80, P<0.01), whereas in the control group the reduction in EPDS score was only significant at T3 (T3-T1: t=2.89, P=0.02). Nonetheless, the group differences were not significant ($F_{1, 161}$=3.07, P=0.05 at T2 and 2.71 at T3,

TABLE 1. Demographics of participants at baseline

Demographics	Mean±SD or No. (%) of subjects		t or χ^2 (P value)
	Intervention group (n=82)	Control group (n=82)	
Age (years)	31.56±3.78	30.9±5.7	0.04 (0.97)
Baseline Edinburgh Postnatal Depression Scale score >12	16 (20)	14 (17)	4.80 (0.18)
Education			2.90 (0.36)
Secondary & below	48 (58.5)	50 (61.0)	
Tertiary & above	34 (54.1)	32 (48.7)	
Monthly household income (HK$)			0.76 (0.48)
<20 000	8 (0.05)	18 (15.4)	
20 000-29 999	42 (53.9)	28 (35.9)	
≥30 000	32 (41)	36 (48.7)	
Working status			2.62 (0.70)
Full time work	44 (53.7)	57 (73.1)	
Housewife	22 (28.2)	17 (21.8)	
Other	12 (14.6)	4 (5.1)	
Parity			0.36 (0.93)
Primipara	50 (73)	58 (74)	
Second time	32 (27)	24 (26)	
History of depression			0.47 (0.61)
Yes	14 (17.0)	11 (13.4)	
No	68 (82.9)	71 (86.6)	
Family member had history of depression			0.56 (0.81)
Yes	16 (19.5)	24 (29.3)	
No	70 (85.4)	58 (70.7)	

P>0.05, Table 2). Respectively in the intervention and control group, 20% and 17% at baseline, 12% and 15% at T2, and 10% and 11% at T3 had an EPDS score >12. For the rate of PND, the respective percentages were 10% and 9% at baseline, 7% and 15% at T2, and 10% and 11% at T3.

For the depression subscale of HADS, score reduction in the intervention group was significant at T2 (T2-T1: t=3.00, P=0.04) and T3 (T3-T1: t=3.90, P=0.02), but in the control group the change was not significant at T2 (T2-T1: t=0.87, P=0.06) or T3 (T3-T1: t=0.76, P=0.72). The group differences were not significant ($F_{1, 161}$=1.94 at T2 and 0.23 at T3; P>0.05, Table 2).

The intervention group reported a significant reduction in cognitive distortions at T2 (T2-T1: t=2.79, P=0.03) and T3 (T2-T1: t=2.38, P=0.04), but in the control group, change was not significant at T2 and T3 (P<0.05). The group differences were also not significant ($F_{1, 161}$=3.02 at T2 and 1.33 at T3; P>0.05, Table 2).

The changes at T2 and T3 for both intervention and control groups on perceived stress scores, depression and anxiety scores, satisfaction with family functioning, and marital relationship, as well as the group differences were not significant (Table 2).

In testing the prediction of the depressive

TABLE 2. Outcome measures at baseline (T1), 3-month post-intervention (T2), and 6-month post-intervention (T3)

Outcome measure	Intervention (n=82)	Mean difference from T1	Control (n=8)	Mean difference from T1	Group mean difference*	Cohen *d*†
	Mean±SD	*t* (P value)	Mean±SD	*t* (P value)	$F_{1,163}$ (P value)	
Edinburgh Postnatal Depression Scale						
T1	12.79±2.25		12.10±2.56			
T2	10.71±3.76	3.86 (0.03)	11.56±2.89	0.89 (0.67)	3.07 (0.05)	0.28
T3	9.40±2.78	4.80 (<0.01)	10.00±3.22	2.87 (0.03)	2.71 (0.08)	0.23
Hospital Anxiety and Depression Scale (HADS)						
T1	16.87±7.56		17.20±8.13			
T2	15.63±6.55	0.94 (0.12)	16.73±7.21	0.87 (0.60)	1.94 (0.21)	0.15
T3	15.40±8.03	1.89 (0.10)	17.00±6.87	0.76 (0.72)	0.23 (0.72)	0.16
Depression subscale of HADS						
T1	8.50±5.18		8.32±4.53			
T2	7.50±5.44	3.00 (0.04)	7.81±5.11	1.38 (0.20)	0.54 (0.44)	0.16
T3	7.20±4.75	3.90 (0.02)	7.90±5.56	1.21 (0.24)	1.32 (0.12)	0.16
Perceived Stress Scale						
T1	31.75±6.74		32.79±6.47			
T2	31.07±6.02	0.38 (0.68)	32.43±5.77	0.20 (0.78)	1.06 (0.17)	0.09
T3	32.35±5.95	0.29 (0.71)	31.57±6.52	0.41 (0.54)	0.94 (0.65)	0.14
Dysfunctional Attitudes Scale						
T1	187.50±19.12		178.62±20.41			
T2	153.36±22.41	2.79 (0.03)	184.26±21.56	0.16 (0.88)	3.02 (0.05)	0.26
T3	169.40±36.67	2.38 (0.04)	168.72±33.48	0.18 (0.86)	1.33 (0.90)	0.17
Family APGAR						
T1	7.35±2.62		7.30±2.50			
T2	7.46±2.48	0.60 (0.81)	7.10±3.06	0.98 (0.72)	0.87 (0.69)	0.10
T3	7.29±2.82	0.87 (0.43)	6.98±2.98	1.48 (0.09)	1.22 (0.25)	0.12
Spanier's Dyadic Adjustment Scale						
T1	107±20.78		116±18.16			
T2	112±21.40	0.46 (0.66)	108±22.34	0.43 (0.69)	0.02 (0.80)	0.09
T3	96±25.36	0.72 (0.48)	100±23.94	0.88 (0.40)	0.33 (0.55)	0.17

* Repeated measures ANCOVA controlled for baseline measure

† Cohen *d* effect sizes: 0.20 (small), 0.50 (medium), and 0.80 (large)

symptoms measured by EPDS, the follow-up depressive symptoms at T2 and T3 were set as dependent variable and the change of dysfunctional thoughts from baseline to post-intervention as predictor. Hierarchical multiple regression was conducted controlling for baseline EPDS depressive symptoms and other baseline measures including cognitive distortions, perceived stress, satisfaction with family functioning, marital satisfaction. The change in cognitive distortion significantly predicted depression at T2 ($F_{5, 164}$=2.12, P=0.04) but not at T3 ($F_{1, 161}$=1.61, P>0.05).

Encouraging feedback was received from post-intervention evaluation. All participants were satisfied with the intervention, with 30% rated as excellent. About 92% reported most of the programme materials useful; 89% agreed or strongly agreed that the programme enabled them to think more rationally; 90% agreed or strongly agreed that the programme enhanced their confidence in managing postnatal stress and that they planned to use new strategies to manage the stress.

Discussion

The brief 6-week postnatal CBT intervention significantly corrected dysfunctional cognition. The change in dysfunctional cognition was predictive of 3-month post-intervention depression. Nonetheless, no significant differences were found between the two groups. The mean Cohen's d of 0.16 was small for the seven outcome measures. The 3-month post-intervention Cohen's d was 0.28 for EPDS and only 0.16 for HADS depression subscore. Both were below the criterion for clinical significance (0.05) recommended by the National Institute for Health and Clinical Excellence guidelines for treatment of depression. This short intervention included exclusively CBT techniques; some studies of CBT intervention have included other components such as structured pharmacology,[4] interpersonal, and psychodynamic strategies.[5]

One limitation of this study was that assessment of a clinical diagnosis of PND was performed by a trained research assistant, not a mental health specialist. Another limitation was the exclusion of postnatal women who could not speak Cantonese or who were not staying in Hong Kong during the postnatal period. Women from Mainland China represented a large proportion of postnatal women in Hong Kong at the time of the study. Although they lived and worked in Hong Kong and many were Hong Kong residents, they often preferred to go back to their hometown for better postnatal care by their parents or extended family. The findings of this study cannot be generalised to this group of women. In addition, a non-directive counselling comparison group and evaluation of the impact on the development of infants was lacking. This affected their participation and hence the impact of the intervention. As CBT demands participants to have a certain level of cognitive ability to reflect their own thoughts and to restructure thinking, their consistent participation is crucial.

Conclusions

This brief group intervention can maximise retention of participants, is of low cost and can be conducted by non-specialists. Although this short intervention was weakly effective, it might enhance clinician efforts to prevent PND. The findings could help inform researchers about further enrichment of the programme content. Rather than focusing mainly on cognitive restructuring, the behavioural component could be further enhanced to include discussion of pleasurable activities with group review. More clinical trials are needed to evaluate the effectiveness of a further enhanced and brief programme. With further enhancement and evaluation, this intervention could be considered complementary to the existing clinical services provided by the Comprehensive Child Development Services. Future studies should include comparison groups with longer follow-up and assessment of infants' health and developmental conditions.

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