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| Table 3. Intervention Descriptions, Study Design Elements, and PMAD Outcomes Ordered by Perinatal Period | | | |
| Study Details\* | Intervention Description | Design Elements | Outcomes |
| Barber, 2013  *Mindful Motherhood* | Mindfulness theory  Includes psychoeducational modules  The program teaches relaxation and mindfulness via self-help modules and gives biofeedback collected via a fingertip device.  15 sessions over 2-3 months | Quasi-experimental: pre/post testing, single group  PMAD outcomes: anxiety, depression  Spanning perinatal: 32 weeks gestation on average | Depression score had a significant reduction (z = -1.963, p < .05); there was no significant anxiety reduction.  Attrition: 0%  Quality score: 3.5 |
| Barrera, 2015  *Mothers and Babies Internet Course/Curso Internet de Mamás y Bebés (e-MB)* | CBT  Educational modules with text/ informational pages, short audio/video clips, images of infants and pregnant women, and worksheets for participants to enter personalized information in response to the lesson content. The program targeted Spanish-speaking women.  Eight weekly sessions with monthly follow-up for six months  Includes psychoeducational modules | RCT: intervention and TAU  PMAD outcomes: depression  Spanning perinatal: antenatal with follow-up through (up to) 6 months postpartum  Inclusion: current or history of depression or anxiety | A significant effect for prenatal depression symptoms measured by the CES-D emerged (b = 0.066, χ2 (1) = 30.786, p b .01; HR = 1.069 [95% CI: 1.045, 1.095]), suggesting that each unit increase in CES-D before birth was associated with an 8.9% increase in reporting an EPDS score greater than 10. No significant between-group findings however participants receiving the e-MB intervention trended toward lower depression scores and (b = −0.514, χ2 (1) = 3.453, p = .061; HR = 0.598 [95% CI: 0.339, 1.022]).  Attrition: 61.5%  Quality score: 15.5 |
| Jareethum, 2008  *1-way text* | No theoretical basis specified; study background mentions social support  One-way text communication containing information and warnings relating to abnormal symptoms that would indicate the need to consult the doctor. The SMS messages were appropriate to the gestational age.  2 SMS messages per week | RCT  PMAD outcomes: anxiety, depression  Spanning perinatal: 28 weeks gestation to birth plus follow-up postpartum | Depression and anxiety scores were significantly decreased during the antenatal period in favor of the intervention. However, only depression scores remained significantly reduced at postpartum (p = .05).  Attrition: 10.2%  Quality score: 9.0 |
| Kelman, 2018  *Compassionate Mind Training or Cognitive Behavioral Therapy* | Compassionate Mind Training or CBT  Includes psychoeducational modules  Sessions teach personal breathing, visualization, and behavioral practices that seek to stimulate a range of affiliative processing systems and reduce the negative self‐directed emotions commonly set within self‐criticism. Topics: finding ourselves here in the flow of life, old brain and new brain, the three circles of affect regulation and pregnancy, and cultivating the compassionate self.  2-week duration | RT: 2 conditions  PMAD outcomes: anxiety, depression  Spanning periods: intending to be pregnant, antenatal, or postpartum up to 12 months | Subgroup analysis of currently pregnant women's results demonstrated that CMT effects above and beyond CBT on depression scores were maintained even among the pregnant subgroup (p = .05). However, when analyzing the pregnant subgroup, the anxiety scores were no longer significantly different between women in CMT relative to CBT (p = .09). Postpartum results were not analyzed separately.  Attrition: 31.7%  Quality score: 13.0 |
| Dennis-Tiwary, 2017  *Personal Zen* | Attention Bias Modification  Gaming application where characters are placed in a natural environment without threat and trace paths where characters appeared.  One month duration, 10 rounds with 25 trials per round | RCT: intervention and placebo control  PMAD outcomes: anxiety, depression  Antenatal: 19-29weeks gestation | There were non-significant results for anxiety but a significant reduction in training group cortisol (stress) reactivity, F (1, 22) = 4.96, p = 0.037.  Attrition: 12.1%  Quality score: 16.0 |
| Felder, 2017  *Mindful Mood Balance* | Mindfulness-based CBT  Includes psychoeducational modules  Education, self-help, featuring guided mindfulness and yoga practices, cognitive-behavioral strategies, with manualized coaching (individual or group sessions via phone).  8 sessions  Includes formal or informal support | Quasi-experimental: pre/post testing, single group  PMAD outcome: depression  Antenatal: 24.5 weeks gestation on average  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; suicidal thoughts | Participants did not evidence a significant increase in depression symptom severity over the course of the intervention (PHQ-9: F (1, 37) = 0.09, p = .76; EPDS: F (1, 37) = 0.18, p = .67.  Attrition: 43.2%  Quality score: 10.5 |
| Forsell, 2017  *Internet Cognitive Behavior Therapy* | CBT.  Includes psychoeducational modules  Education, self-help materials (readings including information about mood disorders, assessments, and homework); focus on sense-making and de-stigmatization. Web-based follow-up with therapist support.  10 week duration  Includes formal or informal support | RCT: intervention and TAU  PMAD outcomes: anxiety, depression  Antenatal: 12-28 weeks gestation  Inclusion: current or history of depression or anxiety  Exclusion: time restriction for PMAD therapy or medication; schizophrenia, bipolar or psychosis; suicidal thoughts | Significant between-group depression score change favoring the intervention (Fischer's exact p = 0.002, RR = 0.42 (95% CI = 0.23–0.77)). No significant between-group reduction of anxiety scores.  Attrition: 7.1%  Quality Score: 13.5 |
| Kim, 2014  *Good Days Ahead* | CBT.  Includes psychoeducational modules  The program covered basic principles, identifying, labeling, and modifying thoughts, taking action; changing schemas and utilized coping strategy videos, exercises, and homework; all components were followed with a therapist session for agenda setting, mood check, review of the treatment, use of skills, and planning.  8 sessions over 6-8 weeks with 3-month follow-up  Includes formal or informal support | Quasi-experimental: pre/post testing, single group  PMAD outcomes: anxiety, depression  Antenatal: 10-32 weeks gestation  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; time restriction for PMAD therapy or medication; suicidal thoughts | Significant improvement in depression score, 19.6 to 7.8; t (11) = 6.23, p < 0.001 (95% CI = 7.71–16.13); Intent to treat analyses showed significant improvement in depression and anxiety scores (p’s < 0.043) over time. 60% of treatment responders were clinically remitted at the end of the study three month follow up.  Attrition: 16.6%  Quality Score: 12.5 |
| Loughnana, 2018  *MUMentum* | CBT.  Includes psychoeducational modules  Educational web modules presented as an illustrated story and introduction to core therapeutic skills (e.g., thought challenging), lesson summary, action plan, and supplementary resources (e.g., sleep hygiene, FAQs).  6 Sessions over 4 weeks | RCT: intervention and TAU  PMAD outcomes: anxiety, depression  Antenatal: 13-30 weeks gestation  Inclusion: current or history of depression or anxiety  Exclusion: alcohol or substance abuse; schizophrenia, bipolar or psychosis; time restriction for PMAD therapy or medication; suicidal thoughts | No significant group differences for depression. The group by time interactions for psychological distress (F (2, 53.93) = 7.07, p = <0.01) and anxiety (F (2, 54.67) = 6.48, p = <0.01) were significantly favoring the treatment group.  Attrition: 30.1%  Quality Score: 16.0 |
| Matvienko-Sikar, 2017  *Bundle of Joy* | Theoretical basis is not specified-background information on stress, mindfulness, gratitude  A dual component online intervention was used in the current study; a gratitude diary component and a mindfulness listening component (meditation audio, body scan, breathing techniques).  11 sessions over 3 weeks  Includes formal or informal support | RCT: 2 group intervention and TAU  PMAD outcome: depression  Antenatal: 10-22 weeks gestation  Inclusion: current or history of depression or anxiety | Intervention participants (M = 34.53, SD = 3.06) were significantly older than control (M = 32.36, SD = 2.47), F (1, 45) = 5.486, p = .024. No significant between-group reduction in depression.  Attrition: 21.7%  Quality Score: 13.0 |
| Song, 2013  *TuTalk* | Theoretical basis is not specified.  2-way automated text messaging system with a declarative scripting language for understanding and generating text response.  1-month duration | Quasi-experimental: pre/post testing, single group  PMAD outcome: depression  Antenatal: 22 weeks (mean) gestation | Using the text messaging system was found to significantly reduce depression (t (19) = 2.991, p < .01).  Attrition: 13.0%  Quality Score: 7.5 |
| Scherer, 2016  *Internet-based Cognitive Behavioral Stress Management* | Cognitive-Behavioral Stress Management  Includes psychoeducational modules  Modules consisted of psychoeducational information, relaxation exercises, stress coping strategies and problem-solving protocols, an activity diary, and a regular written exchange with a therapist.  6 modules, duration unknown | RCT: intervention and TAU  PMAD outcomes: anxiety  Antenatal: 18-32 weeks gestation  Inclusion: minority, SES measure, or living alone  Exclusion: alcohol or substance abuse; schizophrenia, bipolar or psychosis | No significant group by time effects between-groups for anxiety outcome. Significant correlations of the working alliance inventory subscale task and goal and the stress/anxiety outcome (p's <.05).  Attrition: 37.6%  Quality Score: 15.5 |
| Ayers, 2015  *Brief Online Self-help Postnatal Intervention for Mood* | CBT  Challenge negative beliefs with self-awareness, consolidation of learning and cognitive change, focus upon strengths, developing positive self-perceptions and reflection, and behavior identification. Focus on one's perception of being a good mother. Time management exercises and strategies included.  Unknown duration | RT: Intervention and an active comparison group  PMAD outcomes: anxiety, depression  Postpartum: birth to 18 months | Anxiety and depression were not measured post study  but total mood score significantly improved (F (1, 77) = 57.91, p <.001, g2 = .43) and the intervention group significantly greater improvement (F (1, 77) = 20.20, p,.001, g2 = .21).  Attrition: 1.2%  Quality Score: 13.5 |
| Horsch, 2017  *Visuospatial Cognitive Task-Tetris* | Informed by cognitive science of emotional memory  Engage in a cognitive task, the computer game Tetris (move and rotate geometrical shapes under time pressure) for 15 minutes. Participants kept a tic mark count, short description, time/date in the daily diary of intrusive traumatic memories (defined to participants) related to their emergency cesarean section for one week following birth.  15-minute game and 1-week diary, with 1-month follow-up | RCT: intervention and TAU  PMAD outcomes: anxiety, depression, posttraumatic stress disorder  Postpartum: birth to 1 week | The posttraumatic stress disorder diagnostic criteria are significant between-groups using the protocol analysis in favor of the intervention group (p = 0.039) but not the intent to treat analysis (p = .092). Neither depression nor anxiety scores were significantly reduced at one week or one-month follow-up.  Attrition: 12.5%  Quality Score: 17.5 |
| Ahmed, 2015  *Interactive Breastfeeding Monitoring System* | Social Cognitive Theory  Interactive breastfeeding intervention. Monitoring breastfeeding activities and journaling. Support with a lactation consultant.  1-month duration  Includes formal or informal support | RCT: intervention and TAU  PMAD outcomes: depression  Postpartum: immediately following birth | No significant between-group improvement in depression scores.  Attrition: 9.4%  Quality Score: 18.0 |
| Baumel, 2018  *7Cups* | Acceptance and Commitment Therapy.  Includes psychoeducational modules  Self-help tools and 24/7 emotional support (trained volunteers) through an app or web-based system. Participants could also join moderated support groups. The program includes a tailored, personalized growth path, coping strategies, and mindfulness components.  2-month duration  Includes formal or informal support | Quasi-experimental: pre/post testing, a single group with retrospective control comparison  PMAD outcomes: anxiety, depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety | No significant difference between-groups for depression score, yet the effect size was medium: t = 1.67, p = .05, Cohen d = 0.58. No significant between-group difference in anxiety scores.  Attrition: 5%  Quality Score: 9.0 |
| Danaher, 2013  *MomMoodBooster* | CBT  Includes psychoeducational modules  This is an adaptation of the *Coping with Depression Course* (Danaher, 2012). Three associated websites are used for coaching, partner-support site, administrative. Session topics include managing mood, pleasant activities, managing thoughts, and planning.  Unknown duration; 6-month follow-up  Includes formal or informal support | Quasi-experimental: pre/post testing, 2-site  PMAD outcome: depression  Postpartum: birth to 9 months  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; alcohol or substance abuse; time restriction for PMAD therapy or medication; suicidal thoughts | Depression scores significantly decreased from pretest to posttest (p' s<.05) with large effects at posttest (partial r = .77) and 6-month follow-up (partial r = .82).  Attrition: 16.9%  Quality Score: 11.5 |
| Hudson, 2012  *New Mothers Network* | Social Support Theory  For mothers in the intervention group, MSNTV™ was installed in subjects' homes and connected to the internet. Psychological (nurse and peer support) and informational resources (caring for themselves and their infants), offered to mothers both through the New Mothers Network and through their relationships with advanced practice nurses.  6-month duration  Includes formal or informal support | RTC: intervention and TAU  PMAD outcome: depression  Postpartum: birth to 6 months  Inclusion: minority, SES measure, or living alone | No significant differences were found between-groups for depression scores.  Attrition: 17%  Quality Score: 13.5 |
| Milgrom, 2016  *MumMoodBooster* | CBT  Includes psychoeducational modules  Online components focus on teaching about pleasant activities and goals, learning self-monitoring tools for mood and activities, strategies, and activities to increase self-management. Peer support chats and partner resource websites. Telephone coaching by therapists.  6-session  Includes formal or informal support | RCT: intervention and TAU  PMAD outcomes: anxiety, depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; alcohol or substance abuse; time restriction for; PMAD therapy or medication; suicidal thoughts | Depression scores were significantly reduced in favor of the treatment group with a large effect size (d = .83, 95% CI 0.20-1.45), but there was not a significant reduction between-groups for anxiety.  Attrition: 6.9%  Quality Score: 16.0 |
| O'Mahen, 2013  *Netmums* | CBT  Includes psychoeducational modules  Treatment aims to achieve balance in valued activities in the context of unpredictable demands. Activities include scheduling and working to reduce negatively reinforced avoidant behaviors. Weekly, in person, peer support is arranged. Professionally moderated online chat rooms with peers.  11 sessions  Includes formal or informal support | RCT: intervention and TAU  PMAD outcome: depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis | At the 15-week follow-up, completing participants had a decrease in depression scores in favor of the intervention (p = .001) with treatment group odds of being depressed significantly reduced (OR = 1.78; 95% CI = 1.28-2.49) and treatment group had significantly more people categorized as non-depressed (p = .05).  Attrition: 62.3%  Quality Score: 17.0 |
| O'Mahen, 2014  *Netmums Helping with Depression (HWD)* | CBT with behavioral activation  Telephone coaching by therapists guided sessions for postnatal specific concerns (functional analysis of the infant-mother play, breaking down goals, brainstorming solutions). Peer support in chat rooms.  12 sessions with six months of follow-up  Includes formal or informal support | RCT: intervention and TAU  PMAD outcomes: anxiety, depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; alcohol or Substance abuse | There was a significant between-group difference with large effect sizes for anxiety (−0.59, 95% CI −1.11 to −0.07) and depression (−0.87, 95% CI −0.42 to −1.32) scores in favor of the intervention. At 17 weeks post-intervention, the scores remained in favor of the intervention.  Attrition: 28.9%  Quality Score: 17.5 |
| O'Mahen, 2017  *NetmumsHWD* | CBT with concrete therapist focus  Assess sudden gains and depression spikes (a change of 4 points in the EPDS score) and shifts in the therapeutic process.  Includes formal or informal support | Secondary Analysis of O'Mahen (2014)  PMAD outcomes: depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; alcohol or Substance abuse | A concrete therapist focus was associated with sudden gains. Signiﬁcant linear decrease in depressive symptoms from a baseline mean score, and participants with higher baseline scores had a faster linear decrease (p's < 0.01). The sudden gain group had fewer depressive symptoms at 17 weeks post-randomization than those who did not have sudden gains (p = 0.04), a medium effect size (Cohen's d = 0.66).  Quality Score: 16.5 |
| Pugh, 2016  *Therapist-assisted, internet-delivered CBT* | CBT  Original content and adapted work based on Milgrom et al., (1999) and O'Mahen et al., (2014) postpartum depression treatment program. Multimedia components and homework were assigned. Nutrition and mindfulness content was removed. Online therapists offered support, encouragement, and answered questions via email.  Seven sessions with 4-week follow up  Includes formal or informal support | RCT: intervention and waitlist control  PMAD outcomes: depression  Postpartum: birth to 1 year  Inclusion: current or history of depression or anxiety  Exclusion: schizophrenia, bipolar or psychosis; time restriction for PMAD therapy or medication; suicidal thoughts | No significant between-group differences for reduction of anxiety or depression.  Attrition: 28%  Quality Score: 18.5 |

Abbreviations: CBT, Cognitive Behavioral Therapy; PMAD, Perinatal Mood, and Anxiety Disorder; RT, Randomized Trial; RCT, Randomized Control Trial.

\* Study1st author listed alphabetically with year published; the intervention name is italicized.