The effectiveness of telemedicine interventions to address maternal depression: a systematic review and meta-analysis

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Rationale

- Complex and important issue with psychological, social and biological changes
- Increased awareness in the media
- MDG and SGD priority
- Far-reaching and long lasting consequences
Background

- 20% of women have been diagnosed with postpartum mood disorders
- Underreported due to many factors including misdiagnosis and stigma
- Previous maternal depression has been associated with future depressive episodes over a 5-year period
- In Melbourne, rates averaged 9% in early pregnancy, 8% in the first 3 months, 10% in the first 6 months and in the first year, and rose to 11% in the first 18 months after delivery
- Efficient and timely interventions are crucial.
Telemedicine as a solution

- Telemedicine encompasses e-health and m-health
- Scalable
- Convenient
- Better resource use
- Non medication based

The Best Telemedicine Apps of 2017
Our aim

Research relating to telemedicine interventions for maternal depression have been reported, however, to the best of our knowledge, this evidence has not been systematically assessed.

Therefore, this review aimed to provide the first overview of telemedicine interventions targeting maternal depression by systematically identifying and incorporating trial results, and including the effectiveness of the interventions in preventing or treating maternal depression globally.
Methods

- We included studies published between January 2000 and March 2018
- Comprehensive text word and MeSH-based searches of PubMed/MEDLINE, EMBASE, PsycINFO and the Cochrane library:
  - mental health, and postpartum, antenatal, perinatal and postnatal depression, telemedicine, mhealth and ehealth
- 4,645 RCTs were identified through the PRISMA guidelines
- Joanna Briggs Institute Critical Appraisal Checklist for RCTs
- Studies that used EDPS were selected for meta-analysis
Methods

Exclusion criteria
- Did not list depression as a main measurable outcome
- Did not include a principle telemedicine intervention
- Women with unsuccessful pregnancies
- Cross-sectional studies, cohort studies and qualitative studies
- Only had abstracts, or were study protocols, or reviews
Results

Demographics

- 1,138 participants from multiple countries, including Australia, the United States, Sweden, Singapore, India and the United Kingdom
- Postpartum, perinatal, postnatal or antenatal women
- Studies targeting treatment and prevention
- 4 studies had follow up between 1 and 9 months
- Mean age of the participants in the studies ranged from 26.3 to 32.6
- Sample sizes ranged from 42 to 852
Intervention

• Mobile applications (n=2), online educational courses (n=2) and online sessions delivering psychotherapy (n=6)
  - This included use of chat rooms and mood tracking
• 5 studies involved some form of therapist contact during the intervention
• Therapist contact was delivered via face-to-face sessions (n=1), over telephone calls (n=3) or through targeted emails (n=1) weekly
• Attrition was positively associated with the length of the study
Intervention

Therapies utilised included:
- Cognitive behavioural therapy
- Behavioural activation
- Mood tracking
- Psychoeducation

8 studies measured depression and anxiety

Control groups used were either:
- Treatment as usual
- Waitlist
- Comparator

Postnatal
(or postpartum or puerperal) psychosis, a severe episode of mental illness after having a baby, occurs in
1 out of every 1,000 new mothers

An estimated
35,000
mothers in England and Wales suffer postnatal depression in silence

1 in 4
mothers with postnatal depression is still depressed when their child is one year old. Most women will get better without treatment in 3 to 6 months

Between 10% and 15% of new mothers suffer from postnatal depression. However, many women suffer in silence and campaigners claim the real number is as high as 30%
Meta-analysis

Between-group pre- and post-treatment effect sizes in a forest plot for the studies that used EPDS

• Small analysis but for generalisability analysis

• Evidence of heterogeneity (I2=74.2%; X2=15.49; df=4; p=0.004).

Note. Area of symbol proportional to number with complete data at follow-up
Discussion

- The results revealed that these interventions significantly improved depressive (n=8) and anxiety (n=6) symptoms of the intervention group compared with those of the control group.
- These studies shed light on the cultural and physiological aspects that need to be taken into consideration when implementing a timeline for telemedicine interventions on maternal depression.
- Meta analysis findings could be a result of the complexity of assessing telemedicine interventions in treating maternal depression.
- Risk of bias was high in 3 studies primarily due to poor blinding.
Noteworthy findings

• Culture vs the advent of postpartum depression
  - Lack of sufficient evidence in other stages

• Cognitive behavioural therapy < Compassionate mind training
  - Complex physiological factors

• Larger impact for patients with higher scores
  - One study showed a dose-response relationship
Conclusion

• Overall, telemedicine interventions implemented for pregnant and new mothers can improve maternal depressive outcomes and anxiety.

• However, there is a need for studies that address the current gaps in knowledge including
  - Research on the perinatal, antenatal and postnatal populations
  - Studies with sufficient blinding
  - Studies that consider the cultural, social and psychological profiles of this population
  - Removing the therapist component from these studies
  - Cost-effectiveness of these studies
  - Longer term follow up
  - Studies surrounding primary use of m-health
Limitations

• Limited studies analysed
• Variety of depression scales and several used several scales at different time points
• Lack of information on outcome blinding
• High attrition
• Lack of information about the acceptability or cost-effectiveness
• Publication bias
Future directions

• Limitation of RCTs to assess this complex issue
• Effect of the partner and family should not be ignored
• Effect and impact across maternal age groups
Thank you

I would like to thank
My supervisors, Dr Sisira Edirippulige, Dr Nigel Armfield and Dr Ruth Crowther
A/Prof Mark Chatfield and A/Prof Anthony Russell
The Journal of Telemedicine and Telecare
SFT 2018

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