Can Technology-Assisted Nursing Intervention Improve Postpartum Mood and Decrease Parenting Stress?

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Purpose:

The hospital length of stay after childbirth varies by country and mode of delivery (Campbell, Cegolon, Macleod, & Benova, 2016) but is generally limited to a few days, and of necessity focused on the recovery and safety of mothers and neonates. After discharge, women often experience unmet needs for support and care. In the United States, as many as 40% of postpartum women never attend the standard 6-week follow-up visit (American College of Obstetricians and Gynecologists (ACOG), 2016), and those who do may still not feel their needs are met (Martin, Horowitz, Balbierz, & Howell, 2014), and they may not be screened for any postpartum depression (Evans, Phillippi, & Gee, 2015). Universal screening and intervention for postpartum depression is even more limited in low and middle-income countries (Rahman et al., 2013).

While infants may be seen regularly for well-baby checks and scheduled immunizations, women may not feel they can disclose depression symptoms to a pediatric provider (Byatt, Biebel, Friedman, Debordes-Jackson, & Ziedonis, 2013). While it is clear that there are multiple adverse effects of untreated depression on mothers, fathers and children (Letourneau et al., 2012) and accurate and valid screening tools for postpartum depression exist (Myers et al., 2013), there is no universal agreement about who is responsible for identifying, referring and supporting women who need treatment for postpartum depression.

There is consensus on the importance of promoting maternal mental health worldwide, but more research is needed to determine the best way to intervene (World Health Organization, 2014). A key focus of nursing care is health promotion (Kempainen, Tossavainen, & Turunen, 2013). The brevity of hospital maternity stays may not allow adequate time for nurses to provide anticipatory guidance and identification of women at risk for postpartum depression. Access to nursing care after discharge may meet women's needs for screening and support while avoiding the stigma and barriers associated with accessing traditional mental health services.

Community home visits may be effective, but may not always be feasible or cost-effective, particularly for families with limited health care resources. However, electronic interventions for outreach and continuity of care exist, and could be integrated into a nursing intervention which facilitates access to maternal-child nurses in the first six months postpartum. Psychosocial support and nursing care for the screening and management of postpartum depression supported by technology may improve access and prevent negative outcomes for mothers and families at risk for untreated depression.

The purpose of this study is to evaluate whether a nurse-led digital messaging intervention reduces symptoms of depression and parenting stress. Feasibility and acceptability of the intervention were evaluated in the first two phases of the study. Effectiveness will be determined by the results of a randomized controlled trial. It is hypothesized that receiving the intervention will reduce parenting stress and improve postpartum mood.

Methods:
Prior to enrollment for the RCT, the intervention was evaluated for acceptability (n=55). The amount of nursing time and expertise required was evaluated, as well as usability of the technology.

Currently underway is a randomized controlled trial (RCT) with three equal groups. Beginning in May of 2016, women (n=547) were enrolled during their maternity hospitalization after which randomization occurred. Participants were eligible if they were at least 18 years old and could respond to surveys in English. Women with normal newborns as well as high-risk infants were included. The control group received the usual care, consisting of a phone call from a hospital nurse during the first month postpartum, regardless of whether they were reached. Intervention I participants receive a standardized electronic message (either by text or email per their preference) four times/week for six months postpartum. Intervention II participants receive the same messages, but additionally twice per week they are given the option to request a call from a nurse, to which they can respond yes or no. A maternity nurse calls them when the request is received, generally within 24-48 hours. Follow-up surveys are sent by email at 3 weeks, 3 months and 6 months postpartum. Symptoms of depression are measured by the Edinburgh Postnatal Depression Scale (EPDS) (Cox, Holden, & Sagovsky, 1987) and parenting stress is measured by response to the Parenting Stress Index-Short Form (Abidin, 2012). Employment and infant feeding data are also collected. Women who score >12 on the EPDS, suggestive of risk of major depression, are contacted by study personnel to ensure safety.

Results:

Baseline demographic information demonstrates that the three groups have similar characteristics. Electronic surveys at 3 weeks, 3 months and 6 months postpartum measure depression symptoms using the Edinburgh Postnatal Depression Scale and parenting stress using the Parenting Stress Index-Short form. Patient satisfaction, nursing time and expertise required for the intervention is also measured. Follow-up will be completed in February 2018. To date, 37 phone calls have been requested from participants in the Intervention II group, and 60 phone calls have been generated by nurses based on EPDS scores provided at follow-up which suggest women may be at high risk for major depression. Nursing time for requested calls ranges from 5-15 minutes, and for calls generate by high EPDS scores, nursing time spent ranges from 5-30 minutes per call.

Conclusion:

Preliminary results demonstrate that the intervention is acceptable to women and feasible for nurses. Women in each group designation have been identified during follow-up to be symptomatic of depression. Results will help inform nursing practice and provide evidence to support innovative, cost-effective models for continuity of care after maternity discharge, potentially improving outcomes for mothers experiencing postpartum depression. Such technology could be adapted to meet the needs of women in diverse settings and could reach women otherwise unable to access needed support.

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Keywords:
parenting stress, postpartum depression and technology

References:


Campbell, O.M.R., Cegolon, L., Macleod, D, & Benova, L. (2016). Length of stay after childbirth in 92 countries and associated factors in 30 low- and middle-income countries: Compilation of reported data and a cross-sectional analysis from nationally representative surveys. PLoS Medicine, 13(3), e1001972. doi:10.1371/journal.pmed.1001972


Abstract Summary:
The effectiveness of electronic messages provided to postpartum women for improving mood and decreasing parenting stress is being measured in a randomized controlled trial (RCT). Initial feasibility data demonstrates that participants respond positively to the nursing intervention without significant time burden on nurses. Preliminary outcomes and implications will be addressed.

Content Outline:
1. Introduction
   1. Postpartum depression: definition, incidence worldwide prevalence
   2. Risk factors for depression
   3. Risks of untreated depression to mothers, infants, families, communities and health care systems
   4. Barriers to providing care to postpartum women after discharge from maternity hospitalization
2. Post-discharge nursing care
   1. Unmet needs identified for women during first postpartum year
   2. Nursing interventions in depression screening and care
3. Technology-enhanced care
   1. Uses of technology for care of individuals experiencing depression
   2. Technology extension of nursing care
4. Current randomized controlled trial: Enhancing Follow-up Mechanism for Women at Risk for Postpartum Depression
   1. Results of feasibility and usability trial
      1. Patient satisfaction
      2. Qualitative feedback
      3. Nursing time and expertise required
   2. Current RCT in progress
      1. Description of intervention
      2. Methods
      3. Preliminary findings
         1. Participant outcomes
         2. Nurse-centered outcomes
   4. Potential implications of result

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Author Summary: Deborah McCarter is a professor and nurse researcher at Saint Anselm College in Manchester, NH USA. She teaches childbearing nursing and is certified as a women’s health nurse practitioner and a lactation consultant. She is currently conducting a grant-funded randomized controlled trial of a web-based messaging intervention for the first six months postpartum. She maintains a clinical practice as a per diem nurse on a Labor/Delivery/Recovery/Postpartum unit at Catholic Medical Center in Manchester, NH

Second Author
Professional Experience: Dr. Demidenko carries out collaborative work at the Thayer School of Engineering, Dartmouth College, including nanocancer therapy and electrical impedance tomography for breast cancer detection. Dr. Demidenko is recipient of several awards from the American Statistical Association and has been an invited lecturer at several institutes and academies around the world.

Author Summary: Dr. Demidenko contributes to this research by providing statistical support and expertise. He has helped to determine appropriate analytic techniques, as well as performed the analysis and contributed to the analysis and results section of manuscripts submitted.

Professional Experience: Dr. Hegel is Professor of Psychiatry and Community & Family Medicine at the Dartmouth Geisel School of Medicine in Hanover, NH. He is the Director of Psychological Services and Co-Director of adult outpatient services in the Department of Psychiatry at Dartmouth-Hitchcock Medical Center in Lebanon, NH. He specializes in evidence based psychotherapies for depression and anxiety disorders. His research has focused on the treatment of depression in medical and underserved populations, particularly in primary care and other non-traditional mental health settings. Dr. Hegel has expertise in the design and evaluation of problem solving and behavioral activation therapies. He has focused much of his research on developing and evaluating computer- and internet-based tools and therapies to improve access to evidence-based treatments for depression and to enhance health services delivery models for depression management.

Author Summary: Dr. Hegel has contributed to this research by providing mentoring in the conduct of clinical research as well as the dissemination of results. He has used his expertise to guide the Principal Investigator with support, guidance and instruction during this grant-funded study.