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Systematic review

Posttraumatic stress symptoms in mothers of preterm infants

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ABSTRACT

PTS symptoms are a common negative emotional response of mothers of preterm infants. PTS symptoms are one of the least explored emotional responses in postpartum period and in mothers of preterm infants. Malawi has the highest preterm birth in the world, but little is known about PTS symptoms following preterm birth in Malawi. The purpose of this paper is to review evidence on the incidence, prevalence, and impact of PTS symptoms following preterm birth, predictors of PTS symptoms, screening and management, and to identify the gaps and the applicability of the evidence to developing countries such as Malawi. A literature search was conducted using PubMed, PsychINFO, CINAHL, and ERIC databases. Articles were limited to PTS symptoms in mothers after preterm birth and up to 24 months. A total of 23 articles were included in the analysis. Findings showed that most literature was from developed countries. Fifteen instruments were identified and the PPQ was the most commonly used instrument. Time points for measurement varied. Mothers of preterm infants presented with at least one PTS symptom and they had higher PTS symptoms than mothers of healthy full-term infants, but no significant differences were seen with mothers of sick full term infants. Maternal, infant, and external factors predicted the onsets of PTS symptoms. Psychoeducation and counseling significantly reduced PTS symptoms, although mothers were only referred if symptoms were severe. Research in developing or low-income countries like Malawi is needed and researchers need to engage more in longitudinal approaches.

Contents

1. Introduction

Preterm birth (<37 weeks), whether planned or unplanned, is an unexpected experience that may result maternal guilt over failure to deliver a healthy term baby (Holditch-Davis & Miles, 2000). Preterm birth triggers negative maternal emotional responses such as posttraumatic stress (PTS), depressive symptoms, anxiety, and worry symptoms (Brandon et al., 2011; Dudek-Shriber, 2004; Lasiuk, Comeau, & Newburn-Cook, 2013). Mothers also experience feelings of uncertainty about infant outcome, lack information, have financial burdens, and experience miscommunications with providers (Harbaugh & Brandon, 2008). Intensive care supports

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the preterm infant's extrauterine adaptation and prevents complications, but maternal separation from the infant and severity of infants condition increases the risk for maternal PTS, depressive symptoms, anxiety, and worry symptoms (Brandon et al., 2011; Chiu & Anderson, 2009; Holditch-Davis, Cox, Miles, & Belyea, 2003; Holditch-Davis, Schwartz, Black, & Scher, 2007; Muller-Nix et al., 2004).

Posttraumatic stress disorder is an anxiety disorder resulting from directly experiencing, witnessing, learning about a family members' experience, or experiencing first-hand repeated or extreme exposure to a traumatic event (American Psychiatric Association., 2013). Posttraumatic stress disorder presents with three core PTS symptoms; re-experiencing, avoidance, and hyper-arousal about the traumatic experience (Franich-Ray et al., 2013; Nagata et al., 2008). Re-experiencing trauma involves an individual's attempts to make sense of the experience or reactions to reminders of the trauma that brings back the painful experiences as if they are happening all over again (Nagata et al., 2008), for example, frequent dreams, reacting as if the event is occurring, and recollecting the images, thoughts, or the event (Franich-Ray et al., 2013; Nagata et al., 2008). Avoidance is a high-level coping strategy in which a mother deals with memories of the birth experience and tries to numb or block general responsiveness towards those memories (Nagata et al., 2008). The individual denies reality of the event and avoids thinking or talking about it and places, activities, or people associated with the event (Franich-Ray et al., 2013; Nagata et al., 2008). During arousal, the body and mind are alert to future threats (Nagata et al., 2008). Mothers of preterm infants experience some or all these symptoms, which may cause suffering (Habersaat et al., 2014; Holditch-Davis, Bartlett, Blickman, & Miles, 2003).

Globally, research on negative maternal postpartum emotional responses is growing. Anxiety and depressive symptoms have been widely explored and shown to affect the mother-infant relationship (Davies, Slade, Wright, & Stewart, 2008; Korja et al., 2008). Malawi, a low-income country in sub-Saharan region of Africa, faces the highest preterm birth rate in the world, estimated at 18.1 per 100 live births (World Health Organization., 2014). In 2010 alone, 37% of the 18,000 neonates who died did so from complications of preterm birth (Zimba et al., 2012). With limited resources and increased probability of infant loss following preterm birth, Malawian mothers are at a high risk for negative emotional responses. However, little is known about PTS symptoms in Malawian mothers as compared to depressive symptoms. The few studies on perinatal mental health issues have focused on incidence and predictors of depressive symptoms and its impact on pregnancy and infant outcomes in general or in HIV positive mothers (Stewart, 2007; Stewart et al., 2010). Few researchers have explored PTS symptoms in the postpartum period or following preterm birth.

The World Health Organization emphasizes improving psychological wellbeing of postpartum mothers (March of Dimes, Child Health, & World Health Organization, 2012). The purpose of this systematic review was to critique evidence on incidence, prevalence, and impact of PTS symptoms following preterm birth; to examine predictors, screening and management strategies for PTS symptoms; and to identify the gaps and determine the applicability of the literature to Malawi. A systematic review of current literature was necessary to explore what work has been done on PTS symptoms following preterm birth to provide a basis for work on perinatal PTS symptoms research in the Malawian health care system and other low-income countries facing high preterm birth rates. This evidence will be crucial to postpartum health care providers in understanding PTS symptoms in mothers of preterm infants, promoting psychological wellbeing mothers and improving infant outcomes following preterm delivery.

Table 1
Literature search words.

Database	Search words
PubMed	("Mother-Child Relations"[Mesh] OR "mother child"[tiab] OR "maternal-infant"[tiab] OR "mother-infant"[tiab]) AND "Premature Birth"[Mesh] OR "Infant, Premature"[Mesh] OR "premature birth"[tiab] OR "premature births"[tiab] OR "premature infant"[tiab] OR "Premature infants"[tiab] OR "Preterm infant"[tiab] OR "preterm infants"[tiab] AND ("Stress Disorders, Post-Traumatic"[Mesh] OR "post-traumatic stress"[tiab] OR "posttraumatic stress"[tiab])
PsychInfo	(TI "preterm infant" OR AB "preterm infant" OR TI "preterm birth" OR AB "preterm birth" OR TI "premature infant" OR AB "premature infant" OR TI "preterm births" OR AB "preterm births" OR TI "preterm infants" OR AB "preterm infants" OR TI "premature infants" OR AB "premature infants" OR (TI "premature births" OR AB "Premature births") AND (TI "mother-child" OR TI "mother-infant" OR TI "maternal-infant" OR AB "mother-child" OR AB "mother-infant" OR AB "maternal-infant" OR DE "Mother Child Relations" OR DE "Mother Child Communication") AND ("Post-traumatic stress disorder" OR AB "Post-traumatic stress disorder" OR DE "Posttraumatic Stress Disorder")
CINAHL	(TI "preterm infant" OR AB "preterm infant" OR TI "preterm birth" OR AB "preterm birth" OR TI "premature infant" OR AB "premature infant" OR TI "preterm births" OR AB "preterm births" OR TI "preterm infants" OR AB "preterm infants" OR TI "premature infants" OR AB "premature infants" OR MH "Infant, Premature") OR (MH "Childbirth, Premature" OR TI "premature births" OR AB "Premature births") AND (MH "Mother-Child Relations" OR TI "mother-child" OR TI "mother-infant" OR TI "maternal-infant" OR AB "mother-child" OR AB "mother-infant" OR AB "maternal-infant") AND ("Post-traumatic stress disorder" OR AB "Post-traumatic stress disorder" OR MH "Stress Disorders, Post-Traumatic")
ERIC	(TI "preterm infant" OR AB "preterm infant" OR TI "preterm birth" OR AB "preterm birth" OR TI "premature infant" OR AB "premature infant" OR TI "preterm births" OR AB "preterm births" OR TI "preterm infants" OR AB "preterm infants" OR TI "premature infants" OR AB "premature infants" OR (TI "premature births" OR AB "Premature births") AND (TI "mother-child" OR TI "mother-infant" OR TI "maternal-infant" OR AB "mother-child" OR AB "mother-infant" OR AB "maternal-infant" OR DE "Mother Child Relations" OR DE "Mother Child Communication") AND ("Post-traumatic stress disorder" OR AB "Post-traumatic stress disorder" OR DE "Posttraumatic Stress Disorder")

2. Methods

This was systematic review on PTS symptoms following preterm birth. We performed a systematic search of the literature using Public MEDLINE (PubMed), Psychological Information (PsychINFO), Cumulative Index to Nursing and Allied Health (CINAHL), and Education Resource Information Center (ERIC) databases. The search terms used for each database are summarized in Table 1. The search was limited to peer reviewed articles published in English and involving human subjects. As summarized in Fig. 1, ERIC yielded no articles and the others databases yielded a total of 31 articles. Six duplicates were removed leaving 25 articles for further review.

Articles included in the review focused on posttraumatic stress in mothers after preterm birth and up to 24 months corrected age for prematurity. The exclusion criteria were studies focusing on PTS symptoms in mothers of infants with other high-risk conditions or only focusing on full-term infants. Abstracts and titles were scanned and we removed nine articles that focused on other conditions such as jaundice, immunizations, massage therapy, brain disorder, and PTS symptoms before birth. The full texts of the remaining 16 articles were reviewed based on the inclusion criteria and two articles were removed because they were study protocols without data. The bibliographies of the articles were