



Research paper

Postpartum anxiety and adjustment disorders in parents of infants with very low birth weight: Cross-sectional results from a controlled multicentre cohort study



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ABSTRACT

Background: Both preterm delivery and survival rates of very low birth weight (VLBW: < 1500 g) infants are increasing. To date, the focus on studies about postpartum mental health after preterm birth has been on depression and on women. There is a paucity of research regarding prevalence, risks, and predictors of postpartum anxiety in parents after VLBW birth.

Methods: Parents with VLBW infants and parents with term infants were recruited into the longitudinal HaFEn-study at the three largest centers of perinatal care in Hamburg, Germany. State anxiety was assessed with the State-Trait-Anxiety Inventory and anxiety and adjustment disorders with a clinical interview one month postpartum. Psychiatric lifetime diagnoses, social support, trait anxiety, stress during birth, socioeconomic status, risks during pregnancy, and mode of delivery were also evaluated. To examine predictors of postpartum state anxiety in both parents simultaneously a multiple random coefficient model was used.

Results: 230 mothers and 173 fathers were included. The risk for minor/major anxiety symptoms and adjustment disorders was higher in parents with VLBW infants compared to the term group. The risk for anxiety disorders was not higher in parents with VLBW infants. The most important predictors for postpartum state anxiety were high trait anxiety, the birth of a VLBW infant, high stress during birth, and low social support.

Limitations: Data reported here are cross-sectional. Thus, temporal relationships cannot be established.

Conclusions: Our results emphasize the importance of early screening for postpartum anxiety in both parents with VLBW infants.

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1. Introduction

Preterm birth rates (< 37 weeks of gestation) are increasing (Blencowe et al., 2013; Howson et al., 2013). While progress in perinatal and neonatal care in high-income countries has improved survival and long-term outcomes, preterm infants with very and extremely low birth weight (Very Low Birth Weight < 1500 g, VLBW, and Extremely Low Birth Weight < 1000 g, ELBW) are still at considerable risk for physical morbidity and impaired child development across all domains (Saigal and Doyle, 2008). For mothers as well as

fathers, the birth of a preterm infant can be stressful (Arockiasamy et al., 2008; Singer et al., 1999) and is associated with both acute and prolonged mental health problems (Treyvaud, 2014). Studies on postpartum mental health in parents with preterm infants have focused on mothers and on depression, neglecting fathers and other conditions such as anxiety (for a review see Treyvaud, 2014), and adjustment disorders. The same is true for parents with term infants (Wynter et al., 2013; Yelland et al., 2010); however, there are two recent studies that assessed postpartum anxiety (Figueiredo and Conde, 2011) and adjustment disorders (Wynter et al., 2013) in both parents. According to the DSM-V (American Psychiatric Association, 2013) the symptoms of an adjustment disorder develop within three months in response to a stressor, are clinically significant, do not meet the criteria for another mental disorder or for normal bereavement, and may not persist for more than six months after the stressor or its

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consequences are removed. Although adjustment disorders are common, they have rarely been investigated (Casey and Bailey, 2011), especially in postpartum populations. Birth of a child with VLBW is distressing for parents (Treyvaud, 2014). Yet, adjustment disorders are underreported in parents of infants with VLBW.

The term “postpartum anxiety” includes both clinical psychiatric disorders like e.g., generalized anxiety disorders or phobias, and a dimensional level of general anxiety. General anxiety is often assessed in two domains, state and trait anxiety (STAI; (Spielberger et al., 1970)). State anxiety assesses the current state of anxiety including feelings of apprehension, nervousness and tension, while trait anxiety measures a relatively stable tendency towards anxious feelings in general (Spielberger et al., 1970).

Postpartum anxiety is common in parents, with prevalence estimates of “any anxiety disorder” in 3.7–20% and of “general anxiety” between 4.7% and 33% in mothers (review by Leach et al. (2015)). Data on paternal postpartum anxiety are limited. A recent study from Australia reported a 6-month period prevalence of anxiety disorders in 4.1% of fathers. 23.8% of new mothers and 13.4% of fathers fulfilled the criteria for adjustment disorders (Wynter et al., 2013). Compared with fathers, mothers reported higher levels of postpartum anxiety (Correia and Linhares, 2007; Figueiredo and Conde, 2011; Wynter et al., 2013).

Low socio-economic status, psychiatric history, complications accompanying pregnancy and birth, and poor relationship satisfaction have all been identified as major risk factors for perinatal anxiety in mothers. In fathers, relationship quality, prior perinatal loss, fetal and delivery complications were found important risk factors that overlap with those in mothers (Leach et al., 2015).

Compared with parents of term infants, parents of preterm infants showed higher levels of postpartum anxiety (Brandon et al., 2011; Carter et al., 2005; Gambina et al., 2011; Gungor et al., 2011; Padovani et al., 2009; Zanardo et al., 2003). This is also true in mothers of VLBW infants one month postpartum (Singer et al., 1999), and in parents with VLBW infants three months postpartum (Feeley et al., 2007). More mothers of VLBW infants fulfilled the criteria for anxiety disorders compared with mothers after birth at term (4.7% vs. 0.0%, two weeks postpartum), but none of these groups fulfilled the criteria for an adjustment disorder (Kersting et al., 2009). Predictors for postpartum state anxiety in parents with VLBW infants are mostly unknown. Trait anxiety was a strong predictor for state anxiety in mothers of preterm infants (Melnyk et al., 2008) and in parents of infants admitted to the neonatal intensive care unit (NICU; (Shields-Poe and Pinelli, 1997)). Parental stress was found an important factor associated with state anxiety in both parents of infants in the NICU, educational level in mothers, and perceived morbidity of the infant in fathers of newborns in the NICU (Shields-Poe and Pinelli, 1997).

Postpartum anxiety not only affects the parents but also impacts physical and psychological outcomes in the offspring (Glasheen et al., 2010). Similar associations have been found in VLBW children: More anxious mothers were found to be less sensitive and responsive in interactions with their VLBW infants (Feeley et al., 2005). Postpartum anxiety was an important predictor for internalizing problems and a less favorable cognitive outcome in the VLBW offspring (Zelkowitz et al., 2011).

Up to now, controlled studies of prevalence of and risks for postpartum anxiety and adjustment disorders (including questionnaires and psychiatric interviews) after the birth of a VLBW infant in both parents are rare. Therefore, this study aimed at a) investigating the prevalence of and risk for postpartum anxiety disorders, adjustment disorders and state anxiety four to six weeks postpartum in both parents with a VLBW infant compared to parents with term infants and b) identifying predictors for postpartum state anxiety.

We tested four hypotheses:

- 1) the prevalence of and risk for postpartum anxiety disorders is significantly higher in parents after the birth of a VLBW infant
- 2) the prevalence of and risk for postpartum adjustment disorders is significantly higher in parents after the birth of a VLBW infant, and
- 3) the prevalence of and risk for postpartum state anxiety is significantly higher in parents after the birth of a VLBW infant, and
- 4) VLBW itself as well as trait anxiety and lifetime psychiatric diagnoses are the most important risk factors for postpartum state anxiety (see Section 2.3.2).

2. Methods

2.1. Study design

The data presented here are part of the “Hamburg study of VLBW- and full-term infant development” (HaFEn-Study) which is a larger ongoing longitudinal study of families with preterm VLBW infants and with term infants from the greater Hamburg (Germany) area to analyze associations of parental mental health and child development. Details are reported elsewhere (Helle et al., 2015). Here we report cross-sectional data from the baseline assessment four to six weeks postpartum. Using the same dataset, results on postpartum depression have been published (Helle et al., 2015). The study was conducted according to the ethical principles of the Declaration of Helsinki and approved by the Ethics Committee of the Chamber of Physicians in Hamburg, Germany.

2.2. Participants and procedure

Mothers who gave birth at the three largest centers of Perinatal Medical Care in Hamburg, Germany (Altona, Barmbek, Eppendorf) were eligible for participation. Details about recruitment and the sampling process are reported elsewhere (Helle et al., 2015). Inclusion criteria for the preterm VLBW group were: at least one infant with a birth weight of < 1500 g, and for the control group (called “term”) ≥ 37 weeks of gestation for singletons and ≥ 34 weeks for multiples. Exclusion criteria were: inability to follow study procedures, insufficient German language skills, premature discharge, residing too far from the study center (approximately > 75 km), and child death before the first assessment. The sample selection is shown in Fig. 1. The sample comprised 403 parents from 230 families (230 mothers, 173 fathers). Due to time and organizational constraints, more mothers than fathers agreed to participate in the study. $N=111$ mothers (48.3%) were in the VLBW and $n=119$ (51.7%) in the term group. Of $n=173$ fathers, $n=78$ (45.1%) were in the VLBW and $n=95$ (54.9%) in the term group. All infants in the VLBW group were in hospital during the baseline assessment four to six weeks postpartum. Only families in which at least the mothers completed the questionnaires and participated in the SCID-I were included for the analyses reported here.

2.3. Variables and instruments

2.3.1. Outcome

Postpartum anxiety disorders and adjustment disorders were obtained by a structured clinical interview. The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (SCID-I, (First et al., 1996), German version (Wittchen et al., 1997)) is a widely used interview for current and lifetime diagnoses of DSM-IV Axis I disorders. For the present

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