

Contents lists available at ScienceDirect

## Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Research paper

# Identifying women at risk for sustained postpartum anxiety



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### ARTICLE INFO

Keywords: Anxiety Postpartum Risk factors

## ABSTRACT

Introduction: To describe the prevalence of sustained postpartum anxiety and to develop a multifactorial predictive model to assist in targeted screening procedures.

Methods: In a population-based cohort in a health region near Vancouver, Canada, 522 mothers completed a mailed questionnaire at 1, 4, and 8 weeks postpartum measuring socio-demographic, biological, pregnancyrelated, life stressor, social support, obstetric, and maternal adjustment factors. We undertook a sequential logistic regression analysis to develop a multifactorial predictive model of sustained postpartum anxiety, as measured by a State Trait Anxiety Inventory (STAI) score >40 at 1 week and/or 4 weeks, and 8 weeks postpartum.

Results: The prevalence of sustained postpartum anxiety was 12.6% (95% CI 9.6-16.2). In the multivariable model, predictors of sustained anxiety in the postpartum period were perceived stress at 1 week (1 SD increase; aOR 3.74, 95% CI 2.17-6.44) and partner social support at 1 week (1 SD increase; aOR 0.59, 95% CI 0.40-0.85). Depression symptomatology at 1 week, child care stress, and maternal self-esteem were non-significant.

Limitations: Single women and women from ethnic minority backgrounds were underrepresented in the sample.

Conclusions: A large proportion of women experience sustained postpartum anxiety. High perceived stress and low partner social support can be used to facilitate early identification of women likely to experience persistent anxiety in the postpartum period and suggest the need for urgent access to psychotherapeutic services for these women. These factors may also be potential targets for individual or couples therapy to treat postpartum anxiety.

#### 1. Introduction

The prevalence, risk factors for, and sequelae of postpartum depression are well-established, and recommendations by professional organizations exist for screening (American College of Obstetricians and Gynecologists, 2010). Less clinical and research attention has been paid to postpartum anxiety. This is an important omission given that anxiety disorders are common (Kessler et al., 2010) and often co-occur with other mental health issues such as depression (Reck et al., 2008). Women with postpartum anxiety experience persistent and excessive worry, fear, and tension, as well as difficulty concentrating. Some women experience severe and recurrent intrusive thoughts or images as well as panic-often about their child being harmed. There is growing evidence that postpartum anxiety is associated with negative outcomes for both the mother and her child. Women with postpartum anxiety often experience low levels of self-confidence (Reck et al., 2012; Wenzel et al., 2005a, 2005b) and increased fatigue (Taylor and Johnson, 2013). Excessive anxiety can also lead to impaired maternalinfant interactions (Arteche et al., 2011; Feldman et al., 2009; Tietz et al., 2014) which, among infants, is linked with disturbed sleep (Warren et al., 2006), excessive crying (Petzoldt et al., 2014), poor social engagement (Feldman et al., 2009), distress to novelty (Reck et al., 2013), internalizing difficulties (Barker et al., 2011), and poor cognitive (Keim et al., 2011) and motor development (Pinheiro et al., 2014).

Postpartum anxiety is widespread, with prevalence estimates ranging from 2% to 45% in the first year postpartum, depending on the study's definition of anxiety, timing of assessment, and sample size

http://dx.doi.org/10.1016/j.jad.2017.02.013 Received 2 November 2016; Received in revised form 19 January 2017; Accepted 13 February 2017 Available online 14 February 2017 0165-0327/ © 2017 Published by Elsevier B.V.



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#### Table 1

Factors assessed for association with anxiety symptomatology at 8 weeks postpartum.

			Weeks		
Domain	Risk factor	Measure	1	4	8
Socio-demographic	Age	Maternal age	х		
	Parity	Primiparous vs. multiparous (>1 child)	Х		
	Ethnicity	Caucasian vs. other	х		
	Born in Canada	Yes vs. no	Х		
	Immigrant status	Immigrated in past 5 years vs. other	Х		
	Marital status	Married/common-law vs. single	х		
	Education	Postsecondary vs. high school or less	х		
	Income	Increments of $20,000$ to $\geq 80,000$ CAD	х		
	Ability to manage on current household	Easy, not too bad, sometimes difficult, always difficult	Х		
	Income Access to transportation	Yes sometimes no	x		
	Suitable housing	Ves vs no	x		
Biological	Maternal psychiatric history	Ves vs. no depression bipolar disorder anxiety disorders and schizophrenia	x		
Lioiogicui	Family psychiatric history	Ves vs. no: depression, bipolar disorder, anxiety disorders and schizophrenia	x		
	History of depression	Ves vs no	x		
	Vulnerable personality	Total score: Vulnerable Personality Scale (Boyce et al. 2001)	x		
	Premenstrual symptoms	Total number of symptoms: bloating, breast tenderness, irritability, difficulty concentrating, anxiety, feeling sad, tiredness	x		
Pregnancy	Infertility problems	Yes vs. no	Х		
	Planned pregnancy	Yes, not exactly at this time, no definitely not	Х		
	Maternal feelings about pregnancy	Very happy, happy in some ways but not in others, unhappy, very unhappy	Х		
	Paternal feelings about pregnancy	Very happy, happy in some ways but not in others, unhappy, very unhappy	Х		
	Coping with pregnancy	Yes vs. no	Х		
	Exercise in pregnancy	Once per week vs. less than once per week	Х		
	Pregnancy complications	Yes vs. no: threatened miscarriage, preterm labour, excessive nausea, excessive vomiting, urinary tract infection, preeclampsia, diabetes	Х		
Life stressors	Life events	Total score: Tennant and Andrews Life Events Scale (Tennant and Andrews, 1976)	Х		
	Psychosocial risk score	Score on the ALPHA form: substance use/family violence items (Reid et al., 1998)	Х		
	Job stress	Yes, all of the time, sometimes, no, not at all (women not employed outside the home were coded as "not at all")	Х		
	Worrying about returning to work	Yes, sometimes, no (women not employed outside the home were coded as "no")	Х		
	Satisfaction with job	Very satisfied, satisfied, ok, unsatisfied, very unsatisfied	Х		
	Childcare stress	Total score: Childcare Stress Checklist (Dennis, 2003)	Х	Х	Х
Social support	Global support	Total score: Social Provisions Scale (Cutrona and Russell, 1987)	Х	Х	Х
	Relationship-specific support	Total score: Social Provisions Checklist for partner, mother, mother-in-law, women friends with children (Davis et al., 1998)	Х	Х	Х
	Marital status	Married vs. divorced/never married	Х		
	Relationship with parents	Close vs. not close/no relationship: each parent	Х		
Obstetric	Induction of labour	Yes vs. no	Х		
	Mode of delivery	Vaginal vs. caesarean section	Х		
	Satisfied with pain management	Very satisfied, satisfied, okay, unsatisfied, very unsatisfied	X		
<b>N 1 1 1 1</b>	Control during labour	Total score: Labour Agentry Scale (Hodnett and Simmons-Tropea, 1987)	X		
Maternal adjustment	Ready for hospital discharge	Yes vs. no	X		
	Infant feeding method	Exclusive breast-feeding, almost exclusive breast-feeding, high breast-feeding, partial breast-feeding, token breast-feeding, bottle-feeding	Х	Х	х
	Breastfeeding self-efficacy	Total score: Breastfeeding Self-Efficacy Scale (Dennis and Faux, 1999)	х		
	Self-esteem	Total score: Rosenberg's Self-esteem Scale (Rosenberg, 1965)	х		
	Anxiety	Total score: State Trait Anxiety Inventory (Spielberger, 2010)	Х	X	Х
	Depression at	Total score: Edinburgh Postnatal Depression Scale (Cox et al., 1987)	Х	Х	Х

(Enatescu et al., 2014; Martini et al., 2013). In a systematic review and meta-analysis that included over 100 studies from over 30 different countries, we reported that the prevalence of postpartum anxiety decreases from approximately 18% at 1-4 weeks postpartum to 15% at 5-12 weeks postpartum (Dennis, In press). In most studies, only one administration of a self-reported or clinical anxiety measure is used to identify the prevalence of postpartum anxiety. While anxiety disorders are treatable (Craske and Stein, 2016), many new mothers experience transient anxiety as a result of the normal stresses of childbirth and the adjustment to parenthood. Many of these mother-infant dyads are not at increased risk for negative outcomes and do not require formal psychotherapeutic or psychopharmacological treatment (Dennis et al., 2013; Matthey and Ross-Hamid, 2012). Increased knowledge about the prevalence of, and factors associated with, sustained (i.e., ongoing) anxiety in the postpartum period will inform treatment and secondary prevention planning (Britton, 2008).

Risk factors for postpartum anxiety identified at a single time point include previous diagnosis of anxiety or depression (Britton, 2008; Engleet et al., 1990; Grant et al., 2008; Reck et al., 2008), reproductive history (Giannandrea et al., 2013), socio-demographic variables (Britton, 2008; Martini et al., 2015; Wenzel et al., 2005b), unwanted pregnancy (Engle et al., 1990), prenatal care dissatisfaction (Barnett and Parker, 1986), pregnancy and delivery complications (Barnett and Parker, 1986; Engle et al., 1990), maternity blues (Reck et al., 2009), poor social support (Martini et al., 2015), stress (Britton, 2008), low self-efficacy (Martini et al., 2015), and bottle-feeding (Barnett and Parker, 1986; Wenzel et al., 2005b). To our knowledge, no previous studies have examined risk factors for sustained postpartum anxiety.

#### 1.1. Aim of the study

In a large cohort sampled from a health region in British Columbia, Canada, our aims were to identify the prevalence of sustained postpartum anxiety symptomatology and to develop a multifactorial predictive model of sustained postpartum anxiety symptomatology.

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