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Review

Pregnancy anxiety: A systematic review of current scales

Robyn J Brunton [a,1], Rachel Dryer [a], Anthony Saliba [a], Jane Kohlhoff [b]

[a] School of Psychology, Charles Sturt University, Bathurst, NSW 2795, Australia
[b] Karitane, Po Box 241 Villawood, NSW 2163, Australia

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ABSTRACT

Background: Depression in pregnancy is a serious health issue; however, anxiety in pregnancy, with a reported higher prevalence, may also be a serious issue. Anxiety symptoms in pregnancy can relate to several anxiety types, such as general anxiety, anxiety disorders, and pregnancy-related anxiety (PrA), anxiety characterised by pregnancy specific fears and worries. Awareness of these distinctions however, is not always widespread. Both general anxiety and PrA are associated with maternal negative outcomes (e.g. increased nausea) however; PrA is more often associated with negative outcomes for the child (e.g. preterm birth). Furthermore, PrA is potentially a risk factor for postnatal depression with assessment of PrA potentially affording important intervention opportunities. Currently several different instruments are used for PrA however their psychometric properties are unclear. To our knowledge a review of current instruments and their psychometric properties is lacking, this paper aims to fill that gap.

Methods: Studies, which assessed PrA, published between 1983 and 2013 in peer-reviewed journals, were identified.

Results: Sixty studies were identified after applying inclusion/exclusion criteria, and classified as: pregnancy-related anxiety specific, scales for other constructs, sub scales of another instrument and general anxiety scales. Each scale's strengths and limitations were discussed.

Limitations: Our findings may be limited by restricting our review to peer-reviewed journals. This was done however as we sought to identify scales with good psychometric properties.

Conclusions: Currently no scales are available for pregnancy-related anxiety with sound theoretical and psychometric properties. Clinically the need for such a scale is highlighted by the potential intervention opportunities this may afford. Future research should be directed towards the development of such a scale.

Contents

1. Introduction

Historically, pregnancy was considered a time of protection from mental health disorders (Spinelli, 1997). There is however increasing recognition that emotional disorders in pregnancy occur more frequently than previously thought (Austin, 2003). For example, the

[1] School of Psychology, Charles Sturt University, Bathurst NSW 2795, Australia. Mailing address: PO Box 1776, Bathurst NSW 2795, Australia.
Tel.: +61 2 6334 4743; Mobile: +61 409 910 598; fax: +61 2 6334 2850.
E-mail address: rbrunton@csu.edu.au (R. Brunton).

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prevalence rate for depression amongst pregnant women is estimated at 13%, leading many authors to consider it a major health issue (Bennett et al., 2004; O'Hara and Swain, 1996). In addition to depression, there is an increasing evidence that anxiety occurs frequently during pregnancy, with prevalence rates indicating that it may be even more common than depression (up to 27%; Heron et al., 2004). Indeed this prevalence of anxiety is greater than the prevalence of Generalised Anxiety Disorder (GAD) in the wider population (up to 3%; American Psychiatric Association, 2000). Furthermore, pregnancy-related anxiety (PrA),[1] anxiety characterised by pregnancy specific fears and worries, may in fact represent a specific type of anxiety response in women (Huizink et al., 2004) with reported prevalence as high as 14.4% (Poikkeus et al., 2006)

Anxiety is a multidimensional construct described as "fundamentally subjective" with a complex nature (Corr, 2011, p. 889). Anxiety symptoms can relate to several differentiable anxiety types, such as general anxiety, Diagnostic and Statistical Manual (DSM) anxiety disorders and specific anxiety types such as PrA. Pregnant women may experience any of these types of anxiety however; awareness of these distinctions is not always widespread. Huizink et al. (2004) examined this distinction by assessing 234 predominantly Caucasian middle class, primipara women (with no foreseeable pregnancy complications) for PrA, general anxiety symptoms and depression. PrA was assessed with the Pregnancy Related Anxiety Questionnaire- Short (PRAQ-S; Huizink, 2000) and general anxiety and depression by the State Trait Anxiety Inventory (STAI; Spielberger et al., 1970) and the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987), respectively. The low to moderate correlations ($r=.28$) between the PRAQ-S factors (relating to fears and worries about birth, the unborn child and the woman's appearance) and the STAI were consistent with the constructs being similar yet still distinct (Mitchell and Jolley, 2007). Furthermore, general anxiety and depression only explained a small amount of the variance in the PRAQ-S scores. For example, in early and mid-pregnancy, general anxiety and depression accounted for only 10% and 8% of the variance (respectively) for the factor *concern about one's appearance*. Therefore, approximately 90% of the variance was unexplained by general anxiety and depression. These low to moderate correlations and low explained variance support Huizink et al.'s (2004, p.89) conclusion that PrA "*is a relatively distinctive syndrome that is different from general indices of anxiety and depression*."

The distinctiveness of PrA is further evidenced by its consistent association with negative birth outcomes (i.e. preterm birth), an association not generally consistent for general anxiety. A recent review of links between pregnancy anxiety and pregnancy outcomes (e.g. preterm birth and low birth weight) included evidence from six studies (Alder et al., 2007). All studies used general anxiety measures (e.g. STAI, General Health Questionnaire; GHQ, Hospital Anxiety Depression Scale; HADS) to assess anxiety in pregnancy and for all but one, no association with preterm birth/ low birth weight was evident (Berle et al., 2005; Copper et al., 1996; Dayan et al., 2002; Lobel et al., 1992; Perkin et al., 1993). In the remaining study (Ponirakis et al., 1998), anxiety was assessed as part of a wider construct encompassing both depression and anger, which may account for this divergent finding (see Davalos et al., 2012 for a review). Notwithstanding this, in a recent systematic review and meta-analysis, maternal anxiety (during pregnancy) was associated with increased risk of preterm birth/low birth weight (Ding et al., 2014). However, given the heterogeneous mix of scales (general anxiety, pregnancy specific, Anxiety Disorders; ADs) within this meta-analysis it is difficult to state with certainty that general anxiety alone is associated with these negative outcomes. In contrast, Roesch et al. (2004) examined PrA, state anxiety and perceived stress, as components of pregnancy stress. Using a latent trait-state model of stress, they investigated the relationship between these specific components and gestational age. For this study only PrA was predictive of gestational age consistent with similar findings (Wadhwa et al., 1993). Admittedly, in the Roesch et al. study the Pregnancy Specific Anxiety Scale (PSAS) used to assess PrA was narrow in scope; however, this limitation would most likely only underestimate the occurrence of PrA. These disparate findings, where consistent associations of negative outcomes and PrA are evident yet when general anxiety measures are used it is not, provides further support of the distinctiveness of the two anxiety types.

Finally, additional evidence of PrA's distinctiveness is the fact that some women experience PrA yet do not meet the DSM criteria for ADs. Ross et al. (2003) assessed anxiety in perinatal women using the Brief Symptom Inventory (BSI) anxiety subscale. Of those scoring high prenatally (36–40 weeks) a large proportion did not meet the DSM criteria despite experiencing sub-syndromal symptoms of anxiety. Ross et al. theorised that this may be due to anxiety about childbirth and health of the infant, all common concerns for pregnant women in the latter weeks of pregnancy, and concerns not acknowledged in the DSM. Consistent with Ross et al. examining this distinction in perinatal women, most research has tended to focus on the postnatal period. Postnatal evidence however does provide some support for this argument as in some areas the foci of the anxiety is similar. For example, in a sample of postnatal women with unsettled infants ($n=167$), Phillips et al. (2009) diagnosed approximately 50% with an AD and a further 11%, experiencing significant functional impact and/or distress, with *Maternally Focused Worry* (i.e. pathological worry about maternal topics). The women with *Maternally Focussed Worry* were indistinguishable from those diagnosed with GAD in terms of symptom severity, functional impairment, and associated risk factors, but they did not meet criteria for GAD because the focus of their worry was limited to the topic of motherhood and the baby. Similarly, Wenzel et al. (2003) found that approximately 30% of the women assessed in their sample did not meet the DSM criteria for an AD despite experiencing generalised anxiety and uncontrollable worry (i.e. finances, appearance, and baby concerns).These studies were conducted in postnatal populations, but similar things could be found antenatally. That is, a significant number of women may be distressed and/or impaired by pregnancy-related worry, yet not meet the criteria for an existing AD.

Anxiety in pregnancy whether general or pregnancy specific (PrA) has often been seen as a feature of depression rather than a syndrome in its own right (Hendrick et al., 2000). This is not surprising considering that comorbidity between depression and anxiety has been estimated to be as high as 85% (see Gorman (1997) for a review). However, there is increasing evidence that anxiety can exist independent of depression. Faisal-Cury and Menezes (2007) noted a higher prevalence of antenatal anxiety (59.5%) than antenatal depression (19.6%) in 432 community dwelling pregnant women. In another study in Bangladesh ($n=720$), 18.3% of pregnant women had depression, 29.4% anxiety, yet only 3.4% were co-morbid (Nasreen et al., 2011). Both of these studies provide evidence that anxiety is more likely to exist independent of depression than exist co-morbidly. Admittedly these studies examined general anxiety (STAI); however Huizink et al. (2004) findings that general anxiety and depression only explain a small amount of the variance in PrA scores (discussed earlier) provide further support of PrA's independence from depression.

Pregnancy presents a time of intense physical, physiological and psychological change potentially increasing a woman's vulnerability to anxiety (Wenzel, 2011). This vulnerability is recognised in Australia by recommendations for antenatal screening for anxiety[2] and depression (NSW Department of Health, 2009). However there is less wider recognition with no formal screening procedures in place

[1] Researchers have used varying labels for PrA including maternal anxiety, antenatal anxiety, and pregnancy-specific anxiety. For the sake of parsimony and unless otherwise indicated, we will refer to this anxiety as PrA.

[2] This screening encompasses any anxiety experienced during pregnancy. This may include PrA, general anxiety symptoms, or diagnosable anxiety disorders.