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Research report

How well does the Edinburgh Postnatal Depression Scale identify depression and anxiety in fathers? A validation study in a population based Swedish sample

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ABSTRACT

Background: Fathers are increasingly involved in infant care, and depression in postnatal fathers as well as mothers may have negative effects on child development and behaviour. The EPDS has been validated to identify depression in new mothers, but few validation studies have involved fathers and there is doubt as to whether the EPDS measures the same constructs in men as in women.
Subjects and methods: A population-based sample of 1014 couples were sent the EPDS and the HAD-A subscale 3 months postnatally. All high-scoring fathers and a random sample of fathers scoring low were invited for a diagnostic interview to assess the presence of any depression or anxiety disorder. A factor analysis of the EPDS data was conducted for mothers and fathers.
Findings: A factor analysis of the EPDS data revealed a different factor structure for fathers, implying that the scale picks up more worry, anxiety and unhappiness than depression. The EPDS yields high sensitivity and specificity, but low positive predictive value when screening for probable major depression at the optimal cut-off score of 12 or more. The accuracy of the EPDS, however, is modest for minor depression, and low for anxiety disorders. Neither the EPDS-3A score nor the HAD-A subscale reached acceptable validity in this study.
Conclusions: The EPDS seems to pick up more distress than pure depression in new fathers. It is a valid instrument for screening for probable major depression, but it is questionable if it should be used to screen for minor depression. Neither the EPDS nor the HAD-A subscale can be recommended for screening for anxiety in postnatal fathers.
Limitations: Confidence intervals around the estimates are wide and the interviewed fathers were selected preferentially.

1. Introduction

Research in the field of perinatal depression has been extensive over the past decades, but focus has been mainly on mothers, on the negative consequences for the mother–infant relationship and the subsequent negative impact on child development and behaviour. In most Western societies fathers are increasingly becoming involved in the care of their infants. Sweden stands out as having one of the world's most generous parental and paternity leave policies. In 2010, around 90% of all fathers took some parental leave, and 23% of the total number of parental benefit days was paid to fathers. This can be compared with 1974 when only 3% of fathers took any parental leave, and then only 0.5% of the total days (Försäkringskassan, 2011). Studies on the mental health of new fathers and the effects on child development are, however, scarce. Recent studies have shown that depression symptoms in new fathers may have adverse and persistent impacts on the child's mental health and development, independently of maternal postnatal depression. In a large longitudinal study, depression in the father at 2 months postpartum was found to be associated with a higher risk of behavioural problems in the child at 3½ years (Ramchandani et al., 2005), and an increased risk of a psychiatric disorder, mainly behavioural/conduct disorders and peer relationship difficulties, by the age of 7 (Ramchandani et al., 2008b). The risk was found to be somewhat higher for boys and for children whose fathers had more chronic depressions (Ramchandani et al., 2008a). Depression in the father at 9 months postpartum has also been found to be associated with a poorer expressive vocabulary in the child (Paulson et al., 2009). Moreover, studies have shown significant couple morbidity (Matthey et al., 2000; Pinheiro et al., 2006; Paulson and Bazemore, 2010; Ramchandani et al., 2008b), implying that some children are in a highly adverse situation if both

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parents are depressed (Mezulis et al., 2004). Research on the effects of anxiety disorders postnatally on child development and behaviour is scarcer than research on the effects of depression. For mothers it appears that the subtype of anxiety and degree of challenge in the situation is relevant to subsequent parenting difficulties (Murray et al., 2007, 2012). For fathers no studies concerning the effects of anxiety during the postnatal period were found.

Depression rates among new fathers vary depending on the sample included in the study, measures and cut-off values used, and time point of assessments, but seem to be overall significantly lower than among new mothers. A recent meta-analysis reviewed studies on prevalence rates of prenatal and postnatal depression in fathers but only two of 43 studies were population-based (Paulson and Bazemore, 2010). One of these, a large UK study, found a 4% rate of depression symptoms in a community sample of fathers (Ramchandani et al., 2005). The other study, conducted in Brazil, reported depression symptoms in almost 12% of the fathers, with 4% being estimated as having moderate to severe depression (Pinheiro et al., 2006).

Anxiety and depression are generally known to be highly comorbid in both men and women (Mineka et al., 1998; Kessler et al., 2003), and this is also true in the postnatal period (Figueiredo and Conde, 2011; Matthey et al., 2003). Some studies have shown that anxiety symptoms seem to be a major feature of postnatal depression, even more common than in depression during other periods in life (Ross et al., 2003; Thompson et al., 1998; Hendrick et al., 2000). In one of these studies, nearly 50% of clinically depressed postnatal mothers also scored high on a measure of anxiety symptoms (Ross et al., 2003).

The most common (Hewitt et al., 2010) instrument used to screen for depression in the postnatal period is the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987). The EPDS has been used extensively in research and primary health care in many countries and has been validated for postnatal mothers in at least 25 countries (Gibson et al., 2009). To our knowledge, only four validation studies of the EPDS have been published concerning fathers: in Australia for depression (major or minor) as well as for distress (depression or anxiety) (Matthey et al., 2001); in the UK for major depression (Edmondson et al., 2010); in Hong Kong for depression (major or minor) (Lai et al., 2010); and in Vietnam for major depression, general anxiety disorder (GAD) or panic disorder (Tran et al., 2012). Three of these studies suggest lower cut-off scores for fathers than for mothers in the same population, the Hong Kong study of Chinese fathers being the exception. One explanation for these differences has been the general assumption that men express emotions differently from women, mainly that they are less expressive with their negative emotions. Therefore, it is important to establish reliable cut-off scores for fathers as well as for mothers in each cultural context.

The EPDS was originally designed to screen for postnatal depression only. However, in studies where the factor structure of the EPDS has been studied for mothers, both a depression factor and an anxiety factor have been identified (Matthey, 2008; Ross et al., 2003; Pop et al., 1992), suggesting that the EPDS could be used to detect anxiety as well. For mothers, items 3, 4 and 5 cluster together as an anxiety factor and it has been suggested that these items can be used as a separate subscale or score "the EPDS-3A score" to screen for anxiety (Matthey, 2008; Swalm et al., 2010). For fathers, however, the only study investigating the factor structure of the EPDS yielded a different factor structure, one depression factor and one factor consisting of various items, both depression and anxiety (Matthey, 2008). It was concluded that further studies were needed to determine whether the factor structure is in fact different in the EPDS for fathers, or if the findings were unique to that particular sample. It has been suggested that the anxiety subscale of the Hospital Anxiety and Depression Scale (HAD) (Zigmond and Snaith, 1983), (the HAD-A), may be better suited than the EPDS to detect anxiety in fathers (Matthey et al., 2001).

Considering the increase in fathers' involvement in their infants' care and evidence showing that depression in fathers also constitutes a risk for the child, there is increasing interest from health professionals in how to detect and support distressed fathers. Universal screening for postnatal depression in mothers is recommended in national guidelines in countries including Australia, the UK, Scotland, and Sweden (Beyondblue, 2011; National Institute for Health and Clinical Excellence (NICE), 2007; Scottish Intercollegiate Guidelines Network (SIGN), 2012; Socialstyrelsen, 2010). As the EPDS is a widespread screening tool for mothers, we wanted to explore how accurately the EPDS identifies depression and anxiety in fathers in the postnatal period.

1.1. Aims

The overall aim of this study was to investigate how accurately the EPDS identifies depression and anxiety in fathers during the postnatal period. More specifically, we wanted to investigate the factor structure of the EPDS for fathers, in comparison with the factor structure for mothers, and to validate the Swedish version of the EPDS in relation to DSM-IV criteria for major and minor depression. In addition, we wanted to see if the EPDS could be useful in detecting anxiety in fathers and to compare it with the anxiety subscale of the HAD scale.

2. Methods

2.1. Participants

This study was the first part of a prospective longitudinal study in Kronoberg County in Sweden, investigating the mental health of a population-based sample of mothers and fathers and their children from the age of 3 months to 30 months. In Sweden, approximately 99% of all families with infants attend the preventive child health services with their infants, making it possible to invite almost all new parents to participate in a population-based study. All 27 child health centres in the county, with a mixed urban and rural population participated in the study. All parents with newborns, living together as a couple and fluent enough in the Swedish language to understand the questionnaires and to take part in an interview in Swedish, were invited to participate in the study. Couples who were not cohabiting at recruitment were excluded as we presumed that it would be difficult to acquire informed consent from the fathers in these cases. The recruitment procedure started gradually in October 2008 and all centres were recruiting by January 2009. Recruitment continued (consecutively) until December 2009 when a total of 1268 eligible couples had been approached for recruitment and 1014 couples (80%) agreed to participate in the study. Written consent from all parents willing to take part was acquired by the child health nurses after giving the parents oral and written information about the study. The participants were not compensated in any way for their participation in the study.

Of the 1014 (80%) couples who agreed to take part in the study, 885 fathers (87%), 926 mothers (91%) and 858 couples (85%) returned the postal questionnaire at 3 months postpartum and 254 couples (20%) declined participation (mother, father or both chose not to participate). Non-participants did not differ from participants concerning age, parity or occupation. There were, however, a significantly higher number of fathers whose