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Review

Validation studies of the Edinburgh Postnatal Depression Scale for the antenatal period

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ABSTRACT

Background: Relatively few studies have focused on the validation of psychometric scales measuring depression during pregnancy. The aim of this review was to critically appraise and review antenatal validation studies of the Edinburgh Postnatal Depression Scale (EPDS).
Methods: A systematic search was performed in MEDLINE, EMBASE, ISI, CINAHL, SCIELO and PsyCINFO for the period 1987–2013.
Results: Eleven validation studies met the inclusion criteria. The study design varied between studies. Sensitivity and specificity estimates also varied between 64–100% and 73–100%, respectively. The confidence interval estimates also showed a high degree of variability. Our estimates suggest lower positive predictive values in the general population than those reported in the validation study samples. The sensitivity values in validation studies of the EPDS show fairly large variability, ranging from good to acceptable.
Limitations: Future studies should have larger sample sizes and include both representative and clinical samples and look at the psychometric performance of the EPDS in each trimester.
Conclusions: Due to differences in study design and variation in the cultural/linguistic adaptation, uncertainty remains regarding the comparability of the sensitivity and specificity estimates of different EPDS versions. Future studies should have larger sample sizes, include both representative and clinical samples, and look at the psychometric performance of the EPDS in each trimester. Reporting quality, especially as regards checks to ensure content validity, should be improved.

Contents

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1. Introduction

Antenatal major depressive disorder is a major health problem with a prevalence ranging from 3.1% to 4.9%. Taken together with the minor forms of the illness the point prevalence rises to 8.5–11.0% during pregnancy (Gaynes et al., 2005, Kuijpens et al., 2001). It is therefore essential that we have a tool to detect this illness effectively in those at risk. The Edinburgh Postnatal Depression Scale (EPDS), a 10-item self-rating scale, was developed by Cox et al. (1987), originally to detect postnatal depression. The EPDS was constructed from the Snaith's Irritability, Depression and Anxiety Scale (Snaith et al., 1978) and the Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983) in addition to items formulated by the constructors (Cox et al., 1987).

Antenatal depression (AND) often remains unnoticed by health professionals, although it could be detected using self-report scales which are economical and do not require extensive rater training. The EPDS is the most widely used screening instrument *perinatally*, and it has also been validated in a non-gestational context showing good psychometric properties amongst men (Matthey et al., 2001), infertile women (Peterson et al., 2006), in the perimenopausal period (Becht et al., 2001), and in women who were not pregnant, apart from its original context, *post-partum* (Cox et al., 1996). Without trying to be exhaustive, the question as to whether the EPDS is a uni- or multidimensional scale has also been studied in both perinatal and non-gestational contexts with Pop et al. (1992), Töreki et al. (2014) and Adouard et al. (2005) identifying 2 dimensions, whereas Bergink et al. (2011) and de Cock et al. (2011) reaching a conclusion of unidimensionality. Before use, a scale devised in another culture, needs to go through cultural validation in order to ensure it is suitable for use in the target population. However, as pointed out by Matthey et al. (2006), the EPDS has often been used, without proper validation, during pregnancy for screening out probable depressive cases with a cut-off defined through a postnatal validation procedure (Kim et al., 2008; Lommatzsch et al., 2006; Doornbos et al., 2009; Schulte-Herbrüggen et al., 2007; de Tychey et al., 2005; Otake et al., 2014; Koutra et al., 2013). Furthermore, it seems that different validation sessions are needed for each trimester of the pregnancy (Bergink et al., 2011; Su et al., 2007; Bunevicius et al., 2009a), suggested by different cut-offs found in three validation studies during the course of pregnancy (Bergink et al., 2011; Su et al., 2007; Bunevicius et al., 2009a). Consequently, it could be methodologically incorrect to recruit women for the validation of the EPDS both before and after giving birth (Tran et al., 2011; Hanlon et al., 2008; Werrett and Clifford, 2006; Areias et al., 1996), that is, to validate the scale in a perinatal sample. The EPDS, with its items retained, has been renamed as the Edinburgh Depression Scale (EDS), to take into consideration its new use in the antenatal period.

Recent studies have repeatedly shown that mental health problems during pregnancy (e.g., depression or anxiety) are associated with impaired obstetric and neonatal outcomes, although some studies found no correlation (Choi et al., 2014; Räisänen et al., 2014). Antenatal stress and depression, for example, have been linked to preterm birth and impaired physical health (Dayan et al., 2006; Suri et al., 2007; Rahman et al., 2004), as well as to future emotional, behavioral, and cognitive problems in the child (Talge et al., 2007; Deave et al., 2008; O'Connor et al., 2002). Although we have little direct evidence available so far to prove that the treatment of perinatal depression improves obstetric outcome (Engelstad et al., 2014; Lindqvist et al., 2014) or good quality evidence that depression screening improves depression outcome (Thombs and Stewart, 2014), there is enough evidence to suggest that maternal depression is linked to poor maternal and infant health outcomes that argues in favor of improving routine screening during pregnancy.

Early screening for antenatal depression is recommended by some national professional bodies, such as the UK's National Institute for Health and Clinical Excellence (NICE, 2007) ("Antenatal and postnatal mental health: clinical management and service guidance"). Therefore, there is a well-defined and expressed need for an easy-to-administer self-report scale that can be used by healthcare professionals, such as midwives, obstetricians, health visitors, and family doctors.

There is a disagreement around whether pregnancy is a risk or a protective factor for mood disorders (Bergink et al., 2011; Cox et al., 1996; Töreki et al., 2013, 2014). Having a cross-culturally valid screening instrument would be very helpful in settling this question.

Investigators using the EPDS to screen for depression should realize that the instrument does not exclusively measure depression but anxiety too (Brouwers et al., 2001; Matthey et al., 2013). This, however, is more of an added benefit rather than a problem, as anxiety disorders, when discovered, can also be effectively treated.

A large review study (Gibson et al., 2009) has previously been published on the validity of the EPDS in both ante- and postnatal depressions; however that review could only include three antenatal studies. Since the publication of the Gibson review (Gibson et al., 2009), four more antenatal studies (Töreki et al., 2014; Bergink et al., 2011; Rubertsson et al., 2011; Stewart et al., 2013; Wang et al., 2009) have been published and the conclusions from these highlight the need for making appropriate recommendations in the light of the newly published material.

1.1. Aims of the study

The primary objective of this study was to identify all published antenatal validation studies on the EPDS and to present their design along with the estimated sensitivity, specificity and positive and negative predictive values. An additional aim was to estimate the 95% confidence intervals of the screening values on the basis of the sample sizes and detected depression cases in each study. In addition, we assessed the association between the prevalence of antenatal depression and the estimates of the positive and negative predictive values of the Edinburgh Postnatal Depression Scale and the interrelation between the true and false positive rates of validation studies.

2. Methods

2.1. Search strategy

Previous validation studies of the EPDS during pregnancy in the English-language literature were identified through the MEDLINE, EMBASE, ISI, CINAHL, SCIELO, Cochrane Library and PsyCINFO databases from 1987 onwards, when the EPDS was launched, until December 2013, using the following search terms: 'Edinburgh Postnatal Depression Scale' OR 'EPDS' OR 'scale' OR 'tool' OR 'inventory' OR 'questionnaire' AND 'valid?' OR 'screen' OR 'Diagnos?' OR 'semi?structured' OR 'interview' OR 'Valid' OR