



Review article

Diagnostic performance of major depression disorder case-finding instruments used among mothers of young children in the United States: A systematic review



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ABSTRACT

Introduction: Growing recognition of the interrelated negative outcomes associated with major depression disorder (MDD) among mothers and their children has led to renewed public health interest in the early identification and treatment of maternal MDD. Healthcare providers, however, remain unsure of the validity of existing case-finding instruments. We conducted a systematic review to identify the most valid maternal MDD case-finding instrument used in the United States.

Methods: We identified articles reporting the sensitivity and specificity of MDD case-finding instruments based on *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV)* by systematically searching through three electronic bibliographic databases, PubMed, PsycINFO, and EMBASE, from 1994 to 2014. Study eligibility and quality were evaluated using the Standards for the Reporting of Diagnostic Accuracy studies and Quality Assessment of Diagnostic Accuracy Studies guidelines respectively.

Results: Overall, we retrieved 996 unduplicated articles and selected 74 for full-text review. Of these, 14 articles examining 21 different instruments were included in the systematic review. The 10 item Edinburgh Postnatal Depression Scale and Postpartum Depression Screening Scale had the most stable (lowest variation) and highest diagnostic performance during the antepartum and postpartum periods (sensitivity range: 0.63–0.94 and 0.67–0.95; specificity range: 0.83–0.98 and 0.68–0.97 respectively). Greater variation in diagnostic performance was observed among studies with higher MDD prevalence.

Limitation: Factors that explain greater variation in instrument diagnostic performance in study populations with higher MDD prevalence were not examined.

Discussion: Findings suggest that the diagnostic performance of maternal MDD case-finding instruments is peripartum period-specific.

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1. Background

Major depression disorder (MDD) is a mental health condition characterized by the presence of five or more symptoms that reflect a change in mood or impaired functioning (weight change, insomnia, irritability, loss of energy, worthlessness, diminished concentration and suicidality) including a depressed mood or anhedonia (loss of interest or pleasure) for at least a two week period (American Psychiatric Association, 2000).

In the United States (US), the proportion of mothers with mental health and behavioral issues who get screened for MDD is low due to poor healthcare insurance coverage for such service, lack of treatment training and low prioritization for screening among primary care providers (Horwitz et al., 2007). The low prioritization of screening has been in part due to the lack of empirical evidence on the cost-effectiveness of screening and early treatment on longer term maternal-child outcomes which is underscored by inconsistent recommendations by various stakeholders (i.e. US Preventive Services Task Force, American Congress of Obstetricians and Gynecologists, American Academy of Pediatrics, American Academy of Family Physicians and the American College of Nurse Midwives) (Agency for Healthcare Research and Quality (AHRQ), 2014; Gaynes et al., 2005; Siu, 2016). Nonetheless, the United States Preventive Services Task Force recently recommended that all pregnant and postpartum mothers be screened for maternal MDD, showing that this issue is increasingly becoming a concern for stakeholders (Siu, 2016).

The overall societal and economic costs associated with untreated maternal MDD are likely to be considerable since MDD does not only affect the mother, but also her children (Ammerman et al., 2010; Grupp-Phelan and Ammerman, 2010; Lovejoy, 1991; Surkan et al., 2014, 2012). Depressed women have been shown to have poorer health, psychosocial outcomes and lower quality of life than non-depressed women (Farr et al., 2011; Ertel et al., 2011). Children of depressed mothers suffer from higher levels of difficulty in general functioning, attachment problems, and mood disorders than children of non-depressed mothers (Goodman et al., 2011; Beardslee et al., 1998). These problems among children are also associated with maternal stress, a known risk factor of maternal MDD (Pereira et al., 2014; Marcus and Heringhausen, 2009; Brown and Solchany, 2004; Ammerman et al., 2010). Since the costs and burden associated with these interrelated negative outcomes is substantial, it is essential to determine how well instruments developed to measure maternal MDD perform.

The clinical diagnosis MDD is not objective because it is in part based on subjective patient experiences and perceptions. As a result of its subjective nature, high prevalence and the distress it causes, researchers and clinicians have developed a large number of maternal MDD diagnostic instruments for screening, case-finding, and diagnosis as well as for monitoring patients' progress

through the course of treatment (Agency for Healthcare Research and Quality (AHRQ), 2014; Gaynes et al., 2005). Despite the existence of numerous maternal MDD diagnostic instruments, the few studies that have evaluated their diagnostic validity have shown important variability of results within and among case-finding instruments, making it difficult to choose any particular one for clinical use. In addition, summarizing diagnostic performance of MDD screening and case-finding instruments is challenging because maternal MDD depends on the presence of symptoms that may be perceived and reported differently across cultures and peripartum periods (Horwitz et al., 2007; Pereira et al., 2014). Indeed, MDD may be under or over-diagnosed due to the presence symptoms that mimic those of true MDD especially during the immediate postpartum period (Pereira et al., 2014). There is also heterogeneity among existing maternal MDD diagnostic accuracy studies in terms of settings, study populations, choice of diagnostic thresholds and reference standards used to validate case-finding instrument results (Agency for Healthcare Research and Quality (AHRQ), 2014; Gaynes et al., 2005). In the systematic review conducted by Gaynes et al. (2005), 23 maternal MDD diagnostic accuracy studies published between 1980 and 2004 examined four case-finding instruments: Edinburgh Postnatal Depression Scale, Postpartum Depression Screening Scale, Beck Depression Inventory and the Center for Epidemiological Studies on Depression Scale. An updated review conducted by Myers et al. (2013) included 18 postpartum studies published between 2004 and 2012 that examined three additional instruments: Patient Health Questionnaire, Antenatal Risk Questionnaire and the Hamilton Rating Scale for Depression (Agency for Healthcare Research and Quality (AHRQ), 2014). Of the 41 reviewed studies (Agency for Healthcare Research and Quality (AHRQ), 2014; Gaynes et al., 2005), only eight were conducted in the US. Clearly, this limits the generalizability of overall review findings to US mothers because the cultures and health systems in the other countries differ from that of the US. Additionally, the mixture of mild and severe MDD symptoms may affect the diagnostic performance of case-finding instruments across different countries and study populations. In light of these limitations and gaps in previous systematic reviews, the objective of this study is to identify the most valid MDD case finding-instruments used among mothers of young children in the United States.

2. Methods and procedures

2.1. Data sources and searches

Three electronic databases PubMed, PsycINFO, and EMBASE were searched for studies published from January 1st, 1994 to December 31st, 2014. An experienced search librarian guided all

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