



Research paper

Antenatal depressive symptoms among pregnant women: Evidence from a Southern Brazilian population-based cohort study



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ABSTRACT

Background: Antenatal depression (AD) is a major public health issue but evidence regarding its prevalence and associated factors in low and middle-income countries (LMICs) is limited. The aim of the study was to estimate the prevalence and identify risk factors for AD among Brazilian pregnant women.

Methods: All women living in the urban area of the city of Pelotas, Southern Brazil, with confirmed pregnancy and estimated delivery date in the year 2015, were invited to take part. Eligible pregnant women were recruited from health services. Symptoms of antenatal depression were assessed using the Edinburgh Postnatal Depression Scale (EPDS) by face-to-face interviews. A cutoff-point of 13 or more was used to define probable AD.

Results: EPDS scores were available for 4130 women. The prevalence of AD was 16% (95%CI 14.9–17.1). After adjustment for potential confounders, the factors most strongly associated with higher EPDS scores were a previous history of depression (PR 2.81; 95%CI 2.44–3.25), high parity (PR 1.72; 95%CI 1.38–2.15 - ≥ 2 children vs. 1 child) and maternal education (PR 5.47; 95%CI 4.22–7.09 - 0–4 vs. ≥ 12 years of formal education).

Limitations: EPDS was administered through face-to-face interviews rather than questionnaires and some women may have felt uncomfortable reporting their symptoms leading to underreporting and consequently underestimation of the prevalence found.

Conclusion: AD prevalence is substantially higher in Brazil than in high-income countries (HICs) but similar to other LMICs. Our study identified relevant risk factors that may be potential targets to plan interventions, particularly a history of depression.

1. Background

The transition into motherhood is a challenging period that involves significant changes in the psychological, social and biological domains, and has been considered a window of increased vulnerability for the development of mental illness (Howard et al., 2014). Depression is among the most common disorders affecting women during the perinatal period (Howard et al., 2014). Most of the existing data and policies regarding perinatal mental disorders are centred on postnatal depression and less research has been carried out in relation to depression during pregnancy (Fisher et al., 2012; Howard et al., 2014).

Although antenatal depression research has been received as of lower priority, especially in low and middle-income countries (LMICs),

there is evidence from high-income countries (HICs) studies that the prevalence of depressive symptoms during pregnancy is similar to or even higher than during the postpartum period. (Evans et al., 2001; Heron et al., 2004; Verreault et al., 2014) Furthermore, antenatal depression is a well-recognized predictor of postnatal depression, with almost half of episodes having their onset during pregnancy (Bennett et al., 2004; Howard et al., 2014; Robertson et al., 2004; Tachibana et al., 2015; Wisner et al., 2013). Importantly, antenatal depression has been associated with a range of negative offspring outcomes; higher risks of premature birth, low birth weight, intrauterine growth restriction, child emotional and behavioural problems, cognitive difficulties and later depression (Stein et al., 2014).

The available evidence regarding antenatal depression suggests that

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the point prevalence, including both major and minor depression, is around 10% in HICs (Gavin et al., 2005). Substantially higher rates have been reported in the few studies carried out in LMICs (Biratu and Haile, 2015; Faisal-Cury et al., 2009; Zeng et al., 2015). A recent systematic review on common antenatal mental disorders among women living in LMICs, reported a mean point prevalence of 15.6% (Fisher et al., 2012). However, only 8% of all LMICs had available data, and samples included in the studies were disproportionately composed of women from higher socioeconomic status and better health, limiting the generalizability of the findings.

Factors such as history of mental health problems, low maternal education, low socioeconomic status, unplanned or unwanted pregnancy, present/past pregnancy complications, intimate partner violence, recent adverse life events, lack of a partner and, lack of social support have been shown to be the main determinants of antenatal depression around the world (Howard et al., 2014; Biaggi et al., 2015). In LMICs, although research aimed at identifying women at higher risk for antenatal depression is limited compared to HICs, it is already known that women living in these settings tend to be exposed to multiple risk factors related to poverty and social adversity (Heyningen et al., 2016).

As a result of the increased risks of adverse health outcomes for both mothers and children in relation to antenatal depression, surveillance and prevention research should be a global public health priority in LMICs (Stein et al., 2014; Stewart, 2007). This is important because patterns of associations may differ from those found in HICs and accurate evidence is necessary to develop appropriate practice and policy. In Brazil, population-based estimates of antenatal depression have not been established to date. The aim of the present study is to assess the prevalence of antenatal depressive symptoms and its associated socioeconomic, demographic and health-related factors among pregnant women of a Brazilian population-based cohort study.

2. Methods

2.1. Research setting

Brazil is a large and complex country that has undergone important and rapid socioeconomic and demographic changes (economic growth, reduction in income disparities between the poorest and wealthiest populations, urbanization, improved education of women, and decreased fertility rates) in the past three decades (Victora et al., 2011). As a result of the improvement in major social determinants of health, socioeconomic inequalities to maternal-health interventions have largely decreased. (Victora et al., 2011) Despite such progress, a considerable amount of women are still living in precarious socioeconomic conditions with restricted access to health care, and many maternal-related health challenges remain. Problems such as higher rates of illegal abortions and violence against women (both emotional and physical abuse) are still very common in the country (Victora et al., 2011; Reichenheim et al., 2011).

This study was carried out in the city of Pelotas, located in the south of Brazil in the state of Rio Grande do Sul, historically one of the most affluent areas in the country. Pelotas is a medium-sized city with a current population of around 340 thousands inhabitants (93% living in the urban area), and with a gross domestic product per capita of about US\$ 5390 (Instituto Brasileiro de Geografia e Estatística, 2013). As a result of European immigration (mainly Portuguese, Italian, Spanish and German), African slavery and inter-mixing of ethnic groups, the population of the city is highly diverse and admixed. However, its proportion of black people is considerably lower compared to cities located in the North and Northeast regions of the country (Instituto Brasileiro de Geografia e Estatística, 2001). In spite of being located in one of the richest states in the country, the per capita household income in the city is less than minimum wage (US\$ 272) for 44.7% of the households (Instituto Brasileiro de Geografia e Estatística, 2013).

In Brazil, antenatal care is almost universal since 2006–07, reaching 98.7% of the pregnant women. Antenatal care visits generally start as soon as the woman goes to the clinic for a pregnancy test; with 83.6% of the women starting prenatal follow-up visits in the first trimester of pregnancy (Victora et al., 2011). In Pelotas, data from the 2004 Birth Cohort Study revealed less than 2% of the women without any prenatal care attendances and a mean number of visits of 8.3 during the gestational period (Barros and Victora, 2008).

2.2. Design and participants

This study analyzed data from the antenatal follow-up of the 2015 Pelotas (Brazil) Birth Cohort Study, a large population-based cohort study of all children born from mothers living in the urban area of the city in the year 2015. All women with confirmed pregnancy and estimated delivery dates between December/2014 and May/2016 were eligible to take part in the antenatal follow-up of the cohort. These dates were estimated taking into account two possible situations: an error range in the calculation of gestational age and preterm births. Health services that women attend for antenatal care (primary health units, university clinics, private doctors' offices and ultrasound clinics) were contacted and visited daily (from May 2014) to identify eligible women. Different recruitment strategies were used according to the average number of women attending each of the recruitment settings monthly.

Following consent to participate, face-to-face interviews were scheduled according to the availability and needs of each participant. Trained interviewers collected data using structured questionnaires. At least one interview was carried out with the women during the pregnancy period. An initial brief interview was conducted prior to the 16th week of gestation where socioeconomic and demographic information were collected. A second and main interview was scheduled for the period between the 16th and 24th week of gestation. On this occasion, information on several maternal health pregnancy-related aspects was assessed, including antenatal depressive symptoms. For pregnant women identified after the 16th week of gestation, all data were collected at the same time.

3. Measures

3.1. Outcome variable

Antenatal depressive symptoms in the preceding week were assessed using the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987). A Portuguese version of the EPDS has been previously validated in a sample of mothers from the 2004 Pelotas Birth Cohort carried out in the same setting of the present study and detailed information on the validation data can be found elsewhere (Santos et al., 2007). We used a threshold of 13 or more to define clinically significant symptoms of antenatal depression. This cutoff point has been shown to have a sensitivity of 59.6% (49.5–69.1) and a specificity of 88.3% (83.9–91.9) for depression diagnosed by clinical interviews, taken as the gold standard (Santos et al., 2007). In our study, questions were posed to the mothers by a trained interviewer, as many mothers had a low educational level and were not familiar with self-administered instruments. The administration of EPDS as an interview format is validated (Cox et al., 1987).

3.2. Covariates

Socioeconomic, demographic and health-related data were collected in the antenatal follow-up of the 2015 Pelotas Birth Cohort Study. Findings from systematic reviews on antenatal depression determinants were used to guide the selection of variables to be considered in our analysis. (Howard et al., 2014; Biaggi et al., 2016) The characteristics evaluated in the present study included: age (< 20,

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