Journal of Affective Disorders 204 (2016) 214–218

Contents lists available at ScienceDirect

Journal of Affective Disorders

journal homepage: www.elsevier.com/locate/jad

Short communication

Postpartum depression symptoms among Amazonian and Northeast Brazilian women

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ARTICLE INFO

Article history:
Received 15 April 2016
Received in revised form
6 June 2016
Accepted 11 June 2016
Available online 23 June 2016

Keywords:
Postpartum depression
Affective symptoms
Epidemiology
EPDS

ABSTRACT

Background: Studies analyzing the prevalence of postpartum depression in Brazil have recently increased. However, few studies have examined the Northeast region of Brazil, and no studies have investigated the Amazon region. Therefore, the aim of this study was to investigate postpartum depression in these two regions.
Methods: We administered the Edinburgh Postnatal Depression Scale to a total of 3060 women who used the Brazilian public health system and had given birth between one and three months prior to the interview. A cut-off score ≥ 11 was used to indicate symptoms of postpartum depression. After calculating the prevalence, univariate logistic regressions were performed separately for several possible risk factors ($p < 0.05$).
Results: The overall rate of reported symptoms of postpartum depression was 19.5%. The prevalence in the northeast region and Amazon region were 19.0% and 20.3%, respectively ($p=0.36$). In the univariate logistic regression, low education level (<7 years: $p<0.001$; 8–10 years: $p=0.003$), ethnicity (Black: $p=0.02$; Pardo: $p=0.02$), few prenatal visits (1 or 2 visits: $p=0.04$), prenatal care self-assessed as "not very good" ($p<0.001$) and the prenatal care adequacy index of partially suitable ($p=0.01$) or not suitable ($p<0.001$) were identified as significant risk factors for postpartum depression symptoms.
Limitations: Mothers who did not bring their children for immunization. The cross-sectional study does not allow for causality to be established. Conclusion: the prevalence rates of postpartum depression were similar to the rates observed for developing countries and higher than the rates observed in developed countries. Based on these findings, we recommend that screening and treatment of pregnant women should be considered a public health priority.

1. Introduction

Postpartum depression (PPD) is a frequently observed condition that can be devastating for the entire family (mother, father and offspring); therefore, adequate screening for new mothers should be a public health priority (Milgrom et al., 2011).

Studies using the EPDS to estimate the prevalence of PPD symptoms in developed countries have shown smaller prevalence rates compared with developing countries (Norhayati et al., 2015). According to results using the EPDS, the prevalence rate of PPD symptoms in developing countries ranges from 12.9% to 50.7% in less than four weeks (time after birth), 4.9 to 50.8% in four to eight weeks, 8.2 to 38.2% in six months and 21.0 to 33.2% in the first year postpartum (Norhayati et al., 2015).

In Brazil, a meta-analysis of 14 studies conducted between 1998 and 2010 resulted in 3 studies assessing PPD prevalence and 11 evaluating PPD symptoms prevalence through clinical interview and scales, respectively,. It revealed a prevalence of PPD symptoms between 7.8% and 39.4% (Lobato et al., 2011). All of these 11 studies assessed the prevalence of PPD symptoms in the southern and southeast regions of Brazil, none assessed the Amazonian or northeast regions. Only, Melo et al. (2012) conducted a study in the northeast (specifically in the city of Recife) that found a 10.8% prevalence of PPD symptoms.

The southern and southeast Brazilian regions are very different from the Amazonian and northeast regions not only in socio-cultural aspects (as is expected in a multicultural and multiethnic country that is 5th in the world in terms of area) but also

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http://dx.doi.org/10.1016/j.jad.2016.06.026
0165-0327/

economic factors. According to data from the 2010 Brazilian Socio-Demographic Census, the Amazonian and the northeast regions, which comprise 74% of Brazil's area, had 38% of the Brazilian population (18.9 and 53 million inhabitants, respectively), with a per capita income of 282 and 261 dollars, respectively (in 2010 dollars). Conversely, the richest regions of Brazil (the southern and southeast regions) make up 17.5% of Brazil's area and 56.4% of the Brazilian population (27.3 and 80.3 million inhabitants, respectively) and have an approximately two-fold per capita income of 525 and 538 dollars, respectively (in 2010 dollars).

The importance of addressing this economic gap by our paper is highlighted by previous studies conducted in the southern region of Brazil that found poverty as one of the principal risk factors for PPD symptoms (Moraes et al., 2006; Silva et al., 2012; Tannous et al., 2008). Not living with a partner, previous psychological and/or psychiatric disorders, familial psychiatric disorder, tobacco use during pregnancy and the presence of antenatal depression symptoms also increased the risk for relevant postpartum depressive symptoms (Silva et al., 2012). Finally, the correlation between socioeconomic status and PPD symptoms could be seen either in prevalence (Moraes et al., 2006; Silva et al., 2012; Tannous et al., 2008) or incidence rates (Silva et al., 2012).

Considering that socio-cultural and economic differences could influence the prevalence of PPD symptoms (Halbreich and Karkun, 2006) between the Brazilian regions and considering that the most widely used screening scale for PPD, the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) was used in most of the PPD studies in the developed countries (Halbreich and Karkun, 2006), we aimed to determine the prevalence of PPD symptoms in the poorest regions of Brazil (northeast and Amazon) using this scale.

2. Methods

We conducted a cross-sectional survey, called "*Evaluation of the health assistance to prenatal, childbirth and children under one year of age in the Amazon and Northeast regions of Brazil*", in June 2010, during the first round of the National Immunization Day, in 252 towns located in 17 states of the Amazon and northeast regions of Brazil, which had signed the Ministry of Health´s "*Pact for Reducing Infant and Maternal Mortality*".

In Brazil, data collecting during National Immunization Day have been shown to be suitable for the analysis of various health conditions, due to the low cost and low possibility of selection bias, considering the high population coverage of the campaigns (Santos et al., 2008). The 252 tows selected were obtained by the sum of the 17 state capitals, plus 207 provincial tows that had contributed with up to 50% infant mortality in each state and 28 towns of epidemiological/strategic interest for the State Health Departments (Moura et al., 2013).

The sample size was based on a 22% prevalence of "any complication during childbirth (self-referred)", accordingly to the 2006/2007 National Research of Demography and Health (BRASIL, 2009) and a precision level of $\pm 4\%$ around the prevalence rate, with a confidence interval of 95% (Lwanga and Lemeshow, 1991). We identified that 23.399 women should be investigated; however, due to lower demand on the immunization day, we were able to randomly assess 16.863 (more than 70% of the initial target in each region) mothers with children under one year old. In general, the relative difference between the crude and adjusted estimates was less than 10%, except for residence, with a higher demand (overestimation) in the capitals of the two regions. This indicates that the people included in this study did not differ from the population living in each region (Moura et al., 2013).

From that initial sample, we selected a sub-sample who attended SUS (Sistema Único de Saúde, the Brazilian public health system) and had children between one and three months of age to the EPDS interview, comprising 3060 women (Fig. 1). Trained personnel administered the EPDS by reading aloud each question and its statements in a private setting of the primary health care units to circumvent the low education level of the respondents in the studied regions. Administering the EPDS as an interview is accepted by the instrument's authors (Cox et al., 1987). EPDS has been shown to be suitable to screen for PPD in Brazil (Santos and Martins FC, 1999), and the ≥ 11 cut-off we used in this study has a 72% sensibility, 88% specificity and 83% accuracy compared to the gold standard diagnostic test (Santos and Martins FC, 1999).

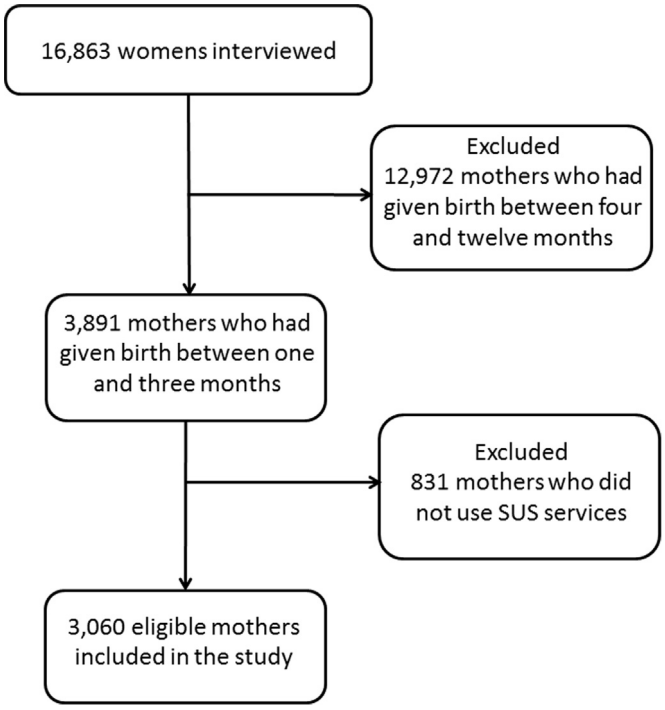

Fig. 1. Flowchart of the participants included in the study.

They were also interviewed to assess socio-demographic variables, the quality of prenatal, labor and postpartum care, and the quality of health care provided to their children. The quality of prenatal care was assessed using two methods: the first was a self-assessment of care by the pregnant women, and the second was an adequacy index based on the mother's answer to 20 specific questions about essential procedures, examinations and laboratory tests during pregnancy. This provided us with both a subjective measure (variable: self-assessment of prenatal care) and an objective measure (variable: adequacy of prenatal). Additional details on the survey report can be found in the published study (Leal et al., 2013).

Statistical analysis was performed in three steps: First, we calculated the relative frequency (%) of the estimated PPD symptoms prevalence in the total sample and in each region. Second, cross-tabulations were computed to estimate the prevalence of PPD according to several risk factors. Finally, univariate logistic regressions were performed separately for the identified possible risk factors. The level of significance was set as 5%. All data analyses were performed using SPSS 20.0.

3. Results

A total of 3060 women were assessed, and 597 (19.5%) reported symptoms of PPD. Of this total, 1150 women were interviewed in