



Research paper

Factors associated with postpartum depression in women from low socioeconomic level in Argentina: A hierarchical model approach

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ABSTRACT

Purpose: to estimate the prevalence of depression at 4-week postpartum using the Edinburgh postpartum Depression Scale (EPDS) in women who delivered in a public maternity hospital in Argentina.

Methods: This prospective cohort study was carried out from March to August 2016 in northwest Argentina. Eligibility included delivering a singleton live birth 28 weeks of gestational age or over, 18 years or older and resided within 1 h from the maternity hospital. Women were excluded if they or their newborn were in the intensive care unit. We defined a positive screening as an EPDS score of 10 or higher or a positive response to item 10, which indicates thoughts of self-harm.

Results: A total of 587 women were enrolled and 539 women completed the home visit interview and the EPDS. A total of 167 (31.0%, 95% CI 27.1–35.1) mothers screened positive in the EPDS using a score ≥ 10 and 99 (18.4%, 95% CI 15.1–21.6%) using a score ≥ 13 , which indicate increased severity of depressive symptoms. In both cases, the 23 (4.3%) women that responded as having thoughts of self-harm were included.

Conclusion: Nearly a third of women who participated had depressive symptoms at four weeks postpartum in a public hospital in Tucumán, Argentina. Socio-demographic, particularly personal psychiatric history, factors and social and cultural influences can impact results.

Our results highlight the need for improved screening and better diagnostic tool for women with postpartum depression in Argentina and to investigate the impact of postpartum depressive symptoms on women's health and their families.

1. Introduction

Perinatal maternal depression, defined as the onset of a non-psychotic depressive episode of mild to major severity during pregnancy or the first 12 months postpartum (Gavin et al., 2005; Depressive Disorders, 2013), can in turn result in impaired mother-to-child bonding (Beck, 1998; Stein et al., 1991), adverse child development (Beck, 1998), and even suicide (Tabb et al., 2013) or infanticide (Barr and Beck, 2008). Unfortunately, despite its negative impact on maternal and child health, perinatal maternal depression is often under-

diagnosed and under-treated (Gelaye et al., 2016a).

Postpartum depression (PPD) is considered one of the most frequent maternal morbidities after delivery, yet the published prevalence rates of PPD are difficult to compare across studies and countries. Initial reports of the World Health Organization described a prevalence of PPD of 10% for high-income countries (HICs) and 15% for low and middle-income countries (LMICs) (Fisher et al., 2012). A more recent a systematic review of PPD in 23 LMICs showed a pooled prevalence of 19.0% (15.5–23.0) (Gelaye et al., 2016a). However, studies from low to high-income countries show a wide variability that can be attributed to

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multiple factors such as the time of evaluation, the method of assessment, and the different assessment tools with various cutoff points (Halbreich and Karkun, 2006; O'Hara and Swain, 1996). Several literature reviews regarding PPD have shown that socioeconomic and cultural factors, such as dialects, perception and stigma of mental health and the utilization of a “Western” screening tool in a non-Western community, can also be driving forces for the wide range of PPD prevalence rates (Gelaye et al., 2016a; Zubaran et al., 2010; Bashiri and Spielvogel, 1999).

Argentina's healthcare system is comprised of 3 distinct sectors: the labor union, the private, and the public. There are two reported studies estimating PPD, which were conducted in the labor union and private sectors. Mathisen et al. found that 37.2% (27.7–47.7) of the 86 middle-class women interviewed from the labor union sector had depressive symptoms at 6-week postpartum, and the risk factors associated were cesarean section, pregnancy complications, labor complications, multiparity, and incomplete breast feeding (Mathisen et al., 2013). Rozic et al. estimated a prevalence of 17.8% (14.4–21.9) of the 398 women from the private sector at 5 days postpartum, and the risk factors included personal history of PPD or depression, maternal age less than 25 years old, tobacco consumption and complications in the newborn (Rozic et al., 2012).

It is relevant to provide information regarding the prevalence of PPD in the public sector. The public sector serves about 50% of the population, including those who lack formal work or cannot afford private insurance and are not eligible to receive labor union insurance funds. Women who receive care from the public hospitals are more likely to belong to a lower-middle socioeconomic level and prevalence of PPD in the public sector is expected to be higher due to the increased prevalence of risk factors (lower maternal age, multiparity, lower socioeconomic status (SES), and lesser access to health care) (Argentina, 2010; Schwarcz et al., 2008).

Our primary objective is to estimate the prevalence of PPD using the Edinburgh Postpartum Depression Scale (EPDS) at 4-week postpartum in women who delivered in a public maternity hospital in Tucumán, Argentina and to examine the association between PPD and socio-demographic, medical and obstetric factors.

2. Materials and methods

2.1. Study design and participants

This observational prospective cohort study was carried out from March to August 2016 in San Miguel de Tucumán at the Instituto Maternidad Provincial Nuestra Señora de las Mercedes, a public maternity hospital that serves as the referral ward for northwest Argentina with approximately 7000 deliveries per year (Cormick et al., 2015).

Eligible women were those that had delivered a singleton live birth 28 weeks of gestational age or over, were 18 years or older, could provide at least 2 sources of contact information and resided within 1 h from the maternity hospital. Women were excluded if they were in the intensive care unit (ICU) or had a newborn in the neonatal ICU (NICU) or with congenital abnormalities.

2.2. Procedures

Trained research personnel reviewed the Labor and Delivery book Mondays to Saturdays, with the exception of national holidays, to identify eligible candidates and inform them about the study's objectives. Those agreeing to participate signed a written informed consent and completed a baseline survey. Medical and obstetric factors were collected from the participants' clinical records.

Approximately four weeks after delivery, a trained social worker conducted a follow-up home visit to complete the survey, including administering the EPDS. Participants were considered lost to follow-up if they could not be located after two home visits and/or three phone

calls. Women who screened “positive” or had thoughts of self-harm were then referred to the hospital mental health professional.

2.3. Instrument and study variables

2.3.1. Edinburg Postnatal Depression Scale (EPDS)

Our primary outcome was PPD, as measured by the Edinburgh Postnatal Depression Scale (EPDS) (Cox et al., 1987) at 4-week postpartum. The EPDS is a 10-item self-reported questionnaire that measures depressive symptoms in the past 7 days. Each item is scored on a 4-point scale (0–3), with higher scores reflecting increasing severity of depressive symptoms. We defined a positive screening of PPD as an EPDS score of 10 or higher or a positive response to item 10, which indicates thoughts of self-harm. This definition was used in the two previous studies in Argentina, which permits their comparison with our results (Rozic et al., 2012, Matisen et al., 2013). The EPDS version validated in Chile showed that a cutoff point of 10 or 11 has a good accuracy; however, we also report the cutoff point of 13 or higher, as the EPDS accuracy was maximized with a cutoff point of 12 or 13 (Alvarado et al., 2015a; Victora et al., 1994).

The 4-week postpartum follow-up was chosen based on the DSM-IV definition (Diagnostic and Statistical Manual of Mental Disorders) of the postpartum period. A study by Cox et al. also demonstrated a threefold increase in the rate of onset of depression one month after delivery (Cox and Chapman, 1993).

2.4. Baseline characteristics

Self-reported variables collected at baseline included socio-demographic characteristics (education, birthplace, occupation, and with whom the mother lives), self-reported maternal and familial psychiatric history, family planning (Mosher et al., 2012), and pregnancy birth experience (hospitalization during pregnancy, if the woman heard her baby's first cry at delivery and skin to skin contact with the mother).

Information extracted from clinical records included: gestational history, history of chronic diseases, first prenatal screening, number of prenatal visits, complications during pregnancy, delivery mode and indications for cesarean delivery, Apgar scores, newborn resuscitation requirements, gestational age at birth, birth weight and sex of the baby.

2.5. Postpartum experience at 4 weeks

Data collected regarding maternal experience after birth included: help with the baby's care, breastfeeding, complications with the baby or the mother immediately after delivery or after discharge, and experience of disrespect from a healthcare professional during delivery (defined as someone who made ironic, disqualifying or sarcastic comments to the woman or if the way the woman was attended to make her feel vulnerable, guilty or insecure).

2.6. Statistical analysis

2.6.1. Sample size

Taking into account a prior Argentine study (Rozic et al., 2012) which found a prevalence of PPD of 17.8%, we determined the sample size required to estimate the prevalence of PPD with a desired precision of 5% at $\alpha = 0.05$ was 227 women. However, due to our strong interest in the secondary outcome of assessing the relationship between sociodemographic, medical and obstetric factors and PPD, we increased the sample size to have sufficient power to address this objective. A total of 516 participants was required to include in a multivariate model up to four factors described to be associated with PPD (age, education, parity and history of depression) with a power of 80%. After adjusting for potential loss to follow up (10%), we targeted a sample size of 570 participants. (<http://sampsize.sourceforge.net/iface/>).

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