

## Letter

# Evidence for missed cases of postpartum depression based on paediatric clinical care screenings

Lauren K. White, Samantha Perlstein, Alesandra Gorgone, Megan M. Himes, Sara L. Kornfield, Sheila Shanmugan, Erica Weitz, Wanjikū F. M. Njoroge, Andrea F. Duncan, Heather H. Burris, Nina Laney, Raquel E. Gur, Rebecca E. Waller and Barbara H. Chaiyachati

**Keywords**

Women's health; postpartum depression; mental health screening; depressive disorders; perinatal psychiatry.

**Copyright and usage**

© The Author(s), 2025. Published by Cambridge University Press on behalf of Royal College of Psychiatrists.

Postpartum depression (PPD) affects nearly one in five childbearing women and is characterised by excessive sadness and anxiety, poor sleep and low motivation within the first year after childbirth.<sup>1</sup> Although screening for PPD at postpartum obstetric visits is recommended, suboptimal rates of postpartum visit attendance leave a large proportion of birthing parents with PPD at risk of not being identified or referred for appropriate treatment. As such, PPD screening within well-child paediatric care, as recommended by the American Academy of Pediatrics at multiple time points during infancy, fills a critical gap in identifying postpartum psychiatric symptoms and supporting connections to appropriate care and treatment.<sup>2</sup> However, the efficacy of this system is predicated on robust disclosure of symptoms, a largely untested assumption in routine paediatric clinic encounters.

A widely used tool for assessing PPD is the Edinburgh Postnatal Depression Scale (EPDS).<sup>3</sup> Relative to depression diagnoses obtained from clinical interviews, the EPDS demonstrates high specificity and sensitivity in detecting PPD.<sup>3</sup> We sought to examine the endorsement and reliability of PPD symptom disclosure in clinic encounters occurring as part of infant well-child care and in research encounters administered as part of a known study, using the EPDS to gain insight into the influence of screening context on symptom disclosure.

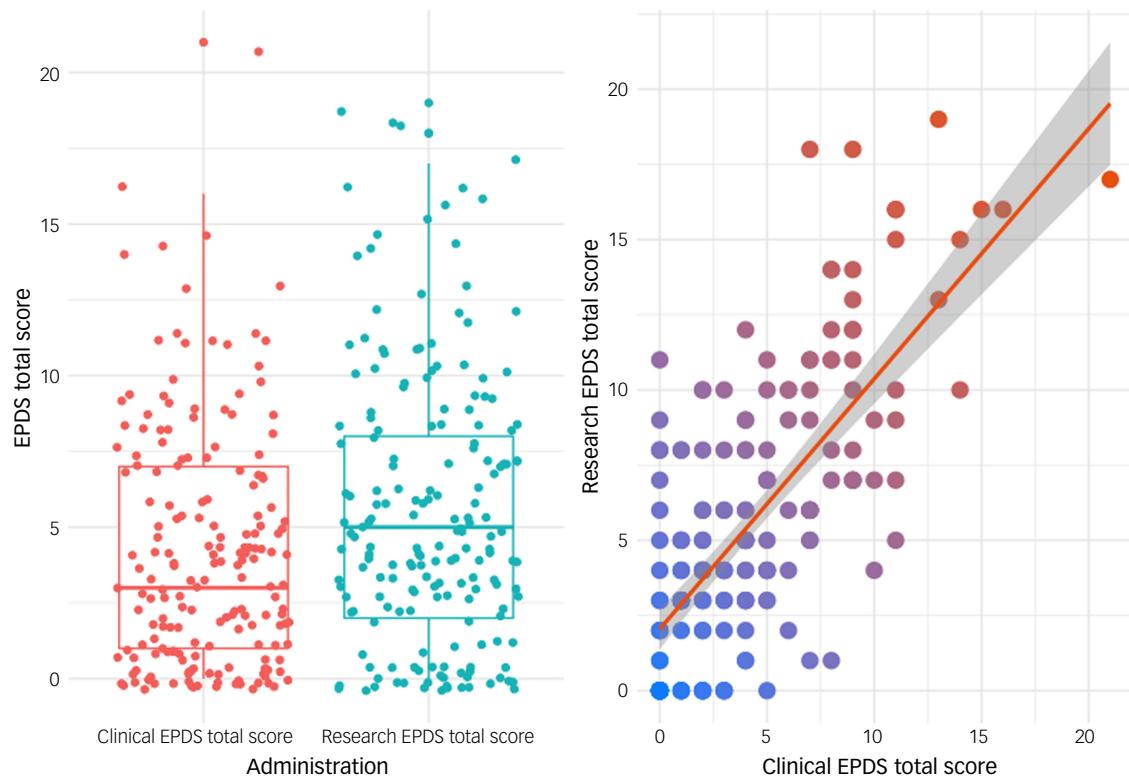
This analysis leveraged EPDS data collected from women taking part in a longitudinal study approved by the institutional review boards at the University of Pennsylvania and the Children's Hospital of Philadelphia.<sup>4,5</sup> Individuals from that study with singleton births and two completed EPDS assessments within any 4-week period in the first year after birth were included ( $n = 183$ ); the clinic encounters occurred at a mean of 10.8 weeks postpartum (s.d. 4.6) and the research encounters at 11.6 weeks (s.d. 3.8), with  $n = 113$  participants (62%) completing the clinic encounter EPDS assessment first. In the research encounter, participants completed the EPDS at any time or place on their phone, tablet or computer. In the clinic encounter, parents completed the EPDS as part of their infant's well-child care, generally on a tablet or phone in the paediatrician's office. Of note, item 10 (thoughts of self-harm) was not administered in the research encounter owing to issues with monitoring self-harm virtually; no participant endorsed (defined as 'yes, quite often' or 'sometimes') this item in the clinic encounter.

Reassuringly, total EPDS scores were highly correlated across encounter context according to Pearson's correlation ( $r = 0.72$ ,  $P < 0.001$ ), with moderate reliability (intraclass correlation coefficient = 0.71). However, mean scores were significantly lower for EPDS clinic encounters versus research encounters (two-sided  $t$ -test: clinic, mean = 4.2, s.d. = 3.9; research, mean = 5.5, s.d. = 4.5;

$P < 0.001$ ) (Fig. 1). When a screening threshold score of  $\geq 10$  was used to identify likely cases of PPD,<sup>6</sup> two-fold fewer participants screened positive at the clinic encounter ( $n = 17$ , 9%) compared with the research encounter ( $n = 36$ , 20%) on the EPDS ( $\chi^2(1) = 24.05$ ,  $P < 0.001$ ). Thus, using the currently accepted screening threshold of  $\geq 10$ , the EPDS was less likely to suggest PPD when completed during well-child care than when it was completed for research purposes. Concordance in EPDS scores across encounter contexts was higher when a threshold score of  $\geq 8$  for the clinic encounter ( $\kappa = 0.55$ , s.e. = 0.08,  $P < 0.001$ ) was used than when a threshold score of  $\geq 10$  was used ( $\kappa = 0.33$ , s.e. = 0.09,  $P < 0.001$ ).

To increase detection, maternal depression screening is recommended as part of routine paediatric primary care. However, by comparing EPDS reports collected as part of routine paediatric well-child care with EPDS reports collected in a research encounter, we found that many women are likely to underreport PPD symptom burden during well-child visits, and PPD referrals may be missed when solely relying on screening in a paediatric clinical setting with currently accepted referral thresholds. Drivers for incomplete symptom disclosure may include factors such as the caregiver's focus on the child as the patient, or a desire to be seen as a 'good' caregiver or other mental health stigmas.<sup>7</sup> The current findings, coupled with existing known barriers, such as physician training, inadequate staff time, lack of referral plans and availability of mental health services, contribute to existing limitations of depression screening in paediatric clinics.<sup>8</sup> Although implementation of lower threshold scores could increase identification, there would be a trade-off with specificity, and it would require added clinical response and support. Additional work is needed to address insufficient identification, including further elucidation and intervention to address barriers to symptom disclosure and adequately support women's needs.

The current analysis had several notable limitations. First, our results may not be generalisable. The data were drawn from a convenience sample recruited during the COVID-19 pandemic, which represented a unique contextual stressor for pregnant and postpartum women, and the timing of the clinic encounter was not standardised with respect to that of the research encounter. However, the order of EPDS encounters was balanced, and the encounters occurred within 4 weeks of each other, decreasing the likelihood that priming or timing significantly contributed to reported variations in symptoms. The convenience nature also limited analysis to participants accessing well-child care within one paediatric health system, and the sample was notable for having a small proportion (9%) without at least some college education.



**Fig. 1** Postpartum depression Edinburgh Postnatal Depression Scale (EPDS) scores across clinical and research encounters. The graphs show means and distributions of EPDS scores by encounter setting and scatterplots of correlations of scores from the two encounters. Grey shading represents the 95% confidence level interval for predictions from the linear model of the relationship between total scores across the two encounters.

Second, we excluded the suicidality item from the EPDS version used for our research encounter, which reduced the range of possible scores. Notably, no participant endorsed this item during their clinic encounter, suggesting that the difference in our rates of threshold screens may be an underestimate of differential symptom disclosure. Third, we did not collect data on depression symptoms based on diagnostic interviews or alternative measures of PPD against which EPDS symptom disclosure could be compared. Moreover, although the EPDS is commonly used, concerns about high false-positive rates have been raised.<sup>9</sup>

In summary, this work suggests risk of inadequacy in current screening approaches and calls for *a priori* study designs in large, diverse populations to determine how to best support PPD symptom identification across venues in our shared efforts to meaningfully screen, connect and provide care at this vital junction.

**Lauren K. White** , PhD, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; **Samantha Perlstein**, MA, Department of Psychology, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Alessandra Gorgone**, BS, Graduate Nursing, Drexel University College of Nursing and Health Professions, Philadelphia, Pennsylvania, USA; **Megan M. Himes**, MS, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; **Sara L. Kornfield**, Penn Center for Women's Behavioral Wellness, Department of Psychiatry/Perelman School of Medicine, University of Pennsylvania/Philadelphia, Pennsylvania, USA; **Sheila Shanmugan**, MD, PhD, Penn Center for Women's Behavioral Wellness, Department of Psychiatry/Perelman School of Medicine, University of Pennsylvania/Philadelphia, Pennsylvania, USA; Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; Department of Obstetrics and Gynecology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; and Department of Radiology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Erica Weitz**, PhD, Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Wanjiku F. M. Njoroge**, MD, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; Department of

Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; Policy Lab, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA; and Department of Child and Adolescent Psychiatry and Behavioral Sciences, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA; **Andrea F. Duncan**, MD, MSCR, Department of Pediatrics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Heather H. Burris**, MD, MPH, Department of Obstetrics and Gynecology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; Department of Pediatrics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; ClinicalFutures, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA; and Leonard Davis Institute, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Nina Laney**, MEd, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; **Raquel E. Gur**, MD, PhD, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; Department of Psychiatry, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; and Department of Child and Adolescent Psychiatry and Behavioral Sciences, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA; **Rebecca E. Waller**, PhD, Department of Psychology, University of Pennsylvania, Philadelphia, Pennsylvania, USA; **Barbara H. Chaiyachati**, MD, PhD, Lifespan Brain Institute of Children's Hospital of Philadelphia and Penn Medicine, Philadelphia, Pennsylvania, USA; Policy Lab, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA; Department of Pediatrics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA; and ClinicalFutures, Children's Hospital of Philadelphia, Philadelphia, Pennsylvania, USA

**Correspondence:** Lauren K. White. Email: [whitelk@chop.edu](mailto:whitelk@chop.edu)

First received 27 Sep 2024, final revision 7 Feb 2025, accepted 23 Feb 2025

### Data availability

The data that support the findings of this study are available from the corresponding author, L.K.W., upon reasonable request.

### Funding

All phases of this study were supported by the Lifespan Brain Institute at the Children's Hospital of Philadelphia and Penn Medicine, University of Pennsylvania. L.K.W., R.E.W., W.F.M.N., and R.E.G. received support from National Institute of Mental Health (NIMH) R01MH138428. B.H.C. reports grants from NIMH K08 career development award MH129657

during the conduct of the work. R.E.W., W.F.M.N., S.L.K. and R.E.G. received support from NIMH R01MH128593. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

### Declaration of interest

None.

### References

- 1 Shorey S, Chee CYI, Ng ED, Chan YH, Tam WWS, Chong YS. Prevalence and incidence of postpartum depression among healthy mothers: a systematic review and meta-analysis. *J Psychiatr Res* 2018; **104**: 235–48.
- 2 Rafferty J, Mattson G, Earls MF, Committee on Psychosocial Aspects of Child and Family Health. Incorporating recognition and management of perinatal depression into pediatric practice. *Pediatrics* 2019; **143**: e20183260.
- 3 Levis B, Negeri Z, Sun Y, Benedetti A, Thombs BD. DEPRESSION Screening Data (DEPRESSD) EPDS Group. Accuracy of the Edinburgh Postnatal Depression Scale (EPDS) for screening to detect major depression among pregnant and postpartum women: systematic review and meta-analysis of individual participant data. *BMJ* 2020; **371**: m4022.
- 4 Gur RE, White LK, Waller R, Barzilay R, Moore TM, Kornfield S, et al. The disproportionate burden of the COVID-19 pandemic among pregnant black women. *Psychiatry Res* 2020; **293**: 113475.
- 5 Kornfield SL, White LK, Waller R, Njoroge W, Barzilay R, Chaiyachati BH, et al. Risk and resilience factors influencing postpartum depression and mother-infant bonding during COVID-19. *Health Aff* 2021; **40**: 1566–74.
- 6 Cox JL, Holden JM, Sagovsky R. Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 1987; **150**: 782–6.
- 7 Thornicroft G, Sunkel C, Alikhon Aliev A, Baker S, Brohan E, El Chammay R, et al. The Lancet Commission on ending stigma and discrimination in mental health. *Lancet* 2022; **400**: 1438–80.
- 8 Hunt AM, Uthirasamy N, Porter S, Jimenez ME. Parental depression screening in pediatric health care settings: a scoping review. *Pediatrics* 2022; **150**: e2021055804.
- 9 Matthey S, Agostini F. Using the Edinburgh Postnatal Depression Scale for women and men 2014; some cautionary thoughts. *Arch Womens Ment Health* 2017; **20**: 345–54.