

LETTERS TO THE EDITORS

Increased depression and anxiety during the COVID-19 pandemic in Brazilian mothers: a longitudinal study

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Data from around the world suggest that the coronavirus disease 2019 (COVID-19) pandemic and its associated social distancing policies are linked to a worrying rise in depression and anxiety, especially in young adults, women, and parents.^{1,2} However, most empirical studies are cross-sectional, and few have followed a longitudinal design that includes pre-pandemic measures.

Given the impact of COVID-19 on the Brazilian economy and support systems, the number of cases and deaths, combined with the lockdown and a context in which women frequently have a higher household and childcare workload, the impact of this pandemic on maternal mental health could be especially severe.³ However, empirical data is still scarce.

We nested two online surveys into the 2019 Rio Grande birth cohort - located in a medium-sized southern Brazilian city. All 2019 hospital deliveries were identified, and the mothers were invited to answer a baseline

questionnaire (n=2,314) including the Edinburgh Postnatal Depression Scale (EPDS)⁴ and the Generalized Anxiety Disorder 7-item (GAD-7) scale.⁵ In 2020, two web-based follow-ups investigated aspects related to COVID-19 and mental health, also using the EPDS and GAD-7. The first wave of data collection occurred between May and July, and the second started in July and will end in December. Thus, the results presented here are still preliminary. We used a cut-off ≥ 13 on the EPDS to define depression, and a cut-off ≥ 10 on the GAD-7 to define anxiety.

For the web-based follow-ups (first and second waves), mothers of liveborn singletons who lived in the urban area of Rio Grande, Brazil we considered eligible to participate (n=2,051). For our analysis we included only mothers with complete information for baseline and both follow-ups, representing 28.8% (n=591) of those eligible. The prevalence of depression rose from 3.1% (95% confidence interval [95%CI] 1.9%-4.8%) at the pre-pandemic assessment to 28.4% (95%CI 24.9%-32.2%) at the first wave of data collection, and then to 30.6% (95%CI 27.0%-34.5%) at the second wave. Anxiety increased from 9.6% (95%CI 7.5%-12.3%) to 26.7% (95%CI 23.3%-30.5%) and then to 28.8% (95%CI 25.3%-32.6%) (Figure 1). Comparing the pre-pandemic and the second wave of data collection, there was a 10-fold increase in the prevalence of depression (prevalence ratio [PR] = 10.1; 95%CI 6.3-16.1), and a 3-fold increase in anxiety (PR = 3.0; 95%CI 2.3-3.9).

The results demonstrate a clear increase in both depression and anxiety in mothers. This scenario is likely to be the same in other similar Brazilian locations, which suggests a mental health crisis. A change of this magnitude in maternal mental health is of huge concern since it will impact not only one, but two generations (mother-child dyad), beyond the COVID-19 pandemic. During this extremely stressful period, access to diagnosis and treatment is more challenging, as are planning treatment

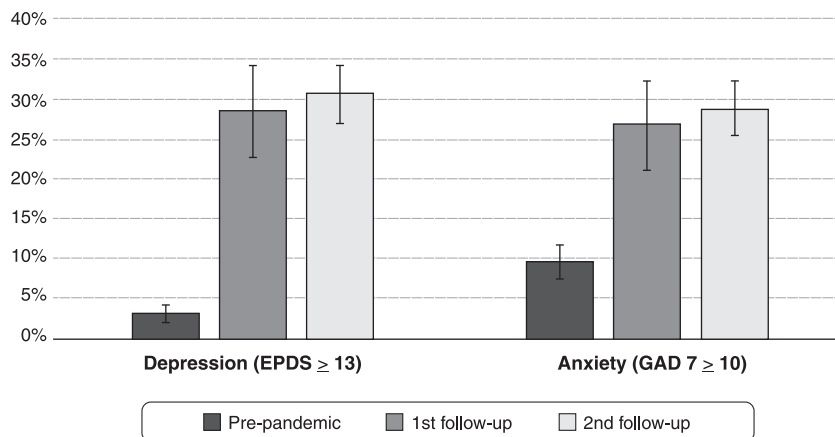


Figure 1 Prevalence of depression and anxiety during and before the COVID-19 pandemic in the 2019 Rio Grande birth cohort, Brazil. EPDS = Edinburgh Postnatal Depression Scale; GAD-7 = Generalized Anxiety Disorder 7-item.

alternatives and avoiding future adverse outcomes. Monitoring the mental health of mothers and children is essential, but it is also fundamental that policy makers have a more active response.

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A Brazilian adaptation of the Affective and Cognitive Measure of Empathy

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This study translated and validated a Brazilian-Portuguese version of the Affective and Cognitive Measure of Empathy (ACME-BP). Whereas most empathy scales measure cognitive empathy and affective empathy, their affective subscale only reflects affective resonance – feeling the same emotion as others. The ACME expands the measurement of affective empathy with a third subscale that measures affective dissonance – feeling an opposing emotion, such as pleasure from others' pain, or pain from others' pleasure. Compared to previous measures of empathy, which predict 1-4% of the variance in aggression and externalizing disorders,¹ the ACME predicts 15-30% of variance in these constructs.²

This study recruited 338 Brazilian community members, who completed the 28-item Interpersonal Reactivity Index (IRI), a traditional measure of empathy,³ and the 36-item ACME-BP. To construct the ACME-BP, the English ACME was first translated by a native Brazilian-Portuguese speaker and then back-translated by a native speaker of English, naive to the ACME. The back-translated version was compared to the original English ACME by one of its authors (Vachon) and two other collaborators who judged if the two versions were equivalent in meaning. A sample of 10 people then evaluated the readability of ACME-BP items, and three experts judged the semantic validity of each item.

After collecting the data, structural equation modeling was used to validate the three-factor model of empathy. The data were suitable for factor extraction, based on a Kaiser-Meyer-Olkin index of 0.90 and Bartlett's test of sphericity ($p < 0.001$). The model had good fit: $\chi^2_{(591)} = 697.46$, $p = 0.002$; comparative fit index = 0.949; Tucker-Lewis index = 0.945; root mean square error of approximation = 0.023.⁴ Factor loadings are presented in Table 1; only items that loaded on a theory-congruent factor and had adequate factor loadings were retained, defined as a factor loading above 0.32.⁵ The factor loadings for ACME and ACME-BP were very similar, differing on average by 0.10. They also showed nearly identical factor correlations: across both measures, cognitive empathy was correlated with affective resonance at 0.32-0.34, cognitive empathy with affective dissonance at 0.16-0.20, and affective resonance with affective dissonance at 0.71-0.75. Taken together, these findings provide evidence of structural generalizability.

Finally, the ACME-BP scales were internally reliable ($0.81 \leq \alpha \leq 0.90$) and had high 6-month test-retest reliability ($0.81 \leq \rho \leq 0.89$). Theoretically similar constructs on the IRI correlated strongly with those of the ACME-BP ($0.40 \leq r \leq 0.66$), providing evidence of