



ARTIGOS

Psychometric Evidence of the Brazilian EPDS Version for Screening Depressive Symptoms in Postpartum Women

Evidências Psicométricas da Versão Brasileira da EPDS para Sintomas Depressivos em Mulheres no Pós-parto

Evidencia Psicométrica de la Versión Brasileña de EPDS para de Sintomas Depresivos en Mujeres Posparto

Denise Ruschel

Bandeira¹

orcid.org/0000-0001-9867-2718
bandeira@ufrgs.br

Euclides de José de

Mendonça Filho²

orcid.org/0000-0003-4098-8247
euclidesmendonca.f@usp.br

Adriane X. Arteche³

orcid.org/0000-0002-2586-4900
adriane.artech@pucrs.br

Giana Bitencourt Frizzo¹

orcid.org/0000-0001-8106-4441
gifrizzo@gmail.com

Vera Lúcia Esteves

Mateus⁴

orcid.org/0000-0001-8762-3056
vera.le.mateus@fpce.uc.pt

Vera Lúcia Esteves Mateus⁴

orcid.org/0000-0001-8762-3056
vera.le.mateus@fpce.uc.pt

Adriana Schütz¹

orcid.org/0000-0002-0879-2319
adrianamschutz@gmail.com

Maira Lopes Almeida⁵

orcid.org/0000-0002-6956-9858
maira.lpalmeida@gmail.com

Luciane Piccolo⁶

orcid.org/0000-0003-2826-4561
lucianepiccolo@gmail.com

Daniela Centenaro Levandoski⁷

orcid.org/0000-0002-6338-7287
danielal@ufcspa.edu.br

Mônia Aparecida da Silva⁸

orcid.org/0000-0002-8840-7547
monia@ufsj.edu.br

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Resumo: A depressão pós-parto impacta 15% de mães saudáveis no pós-parto, com consequências para o bebê e a relação mãe-filho. Diagnóstico e intervenção precoces são fundamentais para promover a saúde mental materna e o desenvolvimento infantil saudável. Este estudo investiga as propriedades psicométricas da versão brasileira da Escala de Depressão Pós-Natal de Edimburgo (EPDS). Foram coletados dados de 1.175 mães brasileiras em quatro estudos de forma online e presencial (entre 2011 e 2020). Análises fatoriais confirmatórias de um, dois e três fatores foram realizadas apresentando ajuste e consistência interna satisfatórios. A invariância de medida entre métodos de coleta foi confirmada, apoiando a confiabilidade da EPDS em ambos os formatos. A validade de critério foi avaliada comparando sintomas depressivos antes e durante a pandemia

¹ Universidade Federal do Rio Grande do Sul (UFRGS), Porto Alegre, Rio Grande do Sul, Brasil.

² Universidade de São Paulo (USP), Ribeirão Preto, São Paulo, Brasil.

³ Pontifícia Universidade Católica do Rio Grande do Sul (PUCRS), Porto Alegre, Rio Grande do Sul, Brasil.

⁴ Universidade de Coimbra (UC), Coimbra, Portugal.

⁵ Universidade Federal de Goiás (UFG), Goiânia, Goiás, Brasil.

⁶ Universidade Columbia, Nova York, NY, Estados Unidos.

⁷ Universidade Federal de Ciências da Saúde de Porto Alegre (UFCSPA), Porto Alegre, Rio Grande do Sul, Brasil.

⁸ Universidade Federal de São João del-Rei (UFSJ), São João del-Rei, Minas Gerais, Brasil.

de COVID-19, revelando um aumento significativo nos sintomas. Esses achados validam a EPDS como uma ferramenta clínica e de pesquisa valiosa para a população brasileira.

Palavras-chave: depressão pós-parto; propriedades psicométricas; evidências de validade.

Abstract: Postpartum depression impacts 15% of healthy mothers after childbirth, with lasting consequences for the infant and the mother-child relationship. Early diagnosis and intervention are crucial to enhancing mothers' mental health and promoting a healthy child development. This study investigates the psychometric properties of the Brazilian Edinburgh Postnatal Depression Scale (EPDS). Using a sample of 1,175 Brazilian mothers, data were gathered through online and in-person across four datasets from 2011 to 2020. Confirmatory factor analyses were performed on one-factor, two-factor, and three-factor models, all showing satisfactory fit and internal consistency. Measurement invariance across data collection methods was confirmed, supporting the EPDS's reliability in both formats. Criterion validity was also evaluated by comparing depressive symptoms before and during the COVID-19 pandemic, with results indicating a significant increase in postpartum depression symptoms. These findings validate the EPDS as a valuable tool for clinical and research purposes within the Brazilian population.

Keywords: postpartum depression; psychometric properties; validity evidence.

Resumen: La depresión posparto afecta 15% de madres saludables en el posparto, con consecuencias para el bebé y la relación madre-hijo. Diagnóstico e intervención tempranos son fundamentales para promover la salud mental materna y el desarrollo infantil saludable. Este estudio investiga las propiedades psicométricas de la versión brasileña de la Escala de Depresión Postnatal de Edimburgo (EPDS) en una muestra de 1.175 madres brasileñas de cuatro estudios realizados de forma online y presencial (2011 hasta 2020). Se realizaron análisis factoriales confirmatorios de uno, dos y tres factores con ajuste y consistencia interna satisfactorios. Se confirmó la invariancia de la medida entre los métodos de recolección, respaldando la confiabilidad de la EPDS entre ellos. Se evaluó la validez de criterio comparando síntomas depresivos antes y durante la pandemia de COVID-19, con aumento en los síntomas. Estos hallazgos validan la EPDS como una herramienta clínica y de investigación valiosa para la población brasileña.

Palabras clave: depresión posparto; propiedades psicométricas; evidencia de validez.

Introduction

Postpartum depression (PPD) is a mental health condition that affects approximately 15% of healthy postpartum individuals (Gaynes et al., 2005; Ghaedrahmati et al., 2017; Shorey et al., 2018). This number is even higher among those with prior history of depression and other mental health problems (Johansen et al., 2020; O'Hara &

Swain, 1996) as well as those from low-income backgrounds (Guintivano et al., 2018). PPD is a major depressive episode that occurs during the postnatal period, with possible onset of symptoms during pregnancy and persisting for over two weeks (APA, 2022). PPD is characterized by persistent feelings of sadness, fatigue, anxiety, and difficulty bonding with the baby (Patel et al., 2012). The etiology is considered multifactorial and comprises hormonal changes (Mehta et al., 2014), genetic vulnerabilities (Couto et al., 2015), history of depression, stress (Robertson et al., 2004), lack of support (Norhayati et al., 2015), quality of marital relationship (Renner et al., 2023), and difficult childbirth experiences (Dekel et al., 2020). Contextual factors, like the COVID-19 pandemic, may also be detrimental to maternal mental health, both in the emergence and in the worsening of depressive symptoms (Safi-Keykaleh et al., 2022).

The effects of PPD extend beyond the mother, significantly impacting the mother-child relationship and attachment. This dynamic often disrupts the bonding process between mother and child, which can have long-term consequences on the child's physical health, emotional well-being, and overall development (Stein et al., 2014). These long-term consequences underscore the importance of appropriate intervention, making early diagnosis crucial (Slomian et al., 2019). Prompt diagnosis and intervention can help to improve the mother's mental health, strengthen the mother-child bond, and foster a healthier developmental environment for the child (Brockington et al., 2017).

PPD must be assessed by healthcare professionals using standardized screening tools (Saharoy et al., 2023). Various instruments have been developed for this purpose (Ukatu et al., 2018), but one of the most widely used globally is the Edinburgh Postnatal Depression Scale (EPDS; Cox et al., 1987; Park & Kim, 2023). The EPDS is a 10-item self-report scale developed to detect PPD through the assessment of the severity of depression symptoms (Cox et al., 1987). It is widely used by different healthcare profes-

nals, with excellent performance for screening depression in pregnant and postpartum women (Park & Kim, 2023). Several psychometric studies have been carried out in different countries reinforcing the scale usability, with sensitivity and specificity ranging from 49 to 100% (Areias et al., 1996; Benvenuti et al., 1999; Boyce et al., 1993; Eberhard-Gran et al., 2008; Lee et al., 1998). The suggested cutoff point for the detection of PPD varies from 8.5 to 12.5 (Eberhard-Gran et al., 2008). Santos et al. (2007) conducted the first study in Brazil, which suggests 13 as the optimal cutoff point for diagnosis due to its higher predictive values, with 59.5% sensitivity and 88.4% specificity. However, another Brazilian study suggested 10 as a cutoff point, with 86.4 of sensitivity and 91.1 of specificity (Malloy-Diniz et al., 2010).

Despite its widespread use, there are yet doubts about the best factorial structure to analyze EPDS: one general factor (Peng et al., 2024; Santos et al., 2007), a bi-factor structure that considers anxiety as an embedded subscale (Della Vedova et al., 2022; Ratislavová et al., 2023) or a 3-factor structure with depression, anxiety, and anhedonia as subscales (Reichenheim et al., 2011). Besides the debate concerning factorial structure, little is known about the validity of the EPDS when administered online. This fact is particularly relevant as during and post-COVID-19 pandemic, the transitioning of many in-person studies to online surveys became a reality (Frizzo et al., 2022). Thus, this study aimed to investigate psychometric

properties of the Brazilian version of the EPDS. We sought evidence based on internal structure, reliability, and factorial invariance related to the online vs paper-pencil data collection as well as criterion of validity evidence.

Methods

Participants

A total of 1,175 mothers took part in the study, with data obtained from four different databases. The data was collected between 2011 and 2020, with 53.2% of the sample assessed in 2020 during the COVID-19 pandemic. Additionally, 66.8% of data was obtained through online surveys. The mean age of the mothers was 30.13 years ($SD = 6.05$), and the mean age of the children was 4 months ($SD = 1.54$).

Table 1 presents the sociodemographic characteristics of the participants. The sample included mothers from all regions of Brazil, predominantly from the South and the Southeast. Mothers were distributed among high school, undergraduate degree, and graduate studies, and the majority was identified as White. Most were first-time mothers, had a partner, and were breastfeeding at the time of data collection. Employment status was similarly distributed among mothers working, unemployed, and on maternity leave during data collection.

Table 1 - Descriptive characteristics of the participants ($n = 1,175$)

	<i>n</i>	%
Region		
North	10	0.9
Northeast	21	1.8
Midwest	28	2.4
Southeast	416	35.4
South	688	58.6
Missing	12	1.0
Education level		
No formal education	2	0.2
Middle school	56	4.8
Complete/incomplete high school	177	15.1
Complete/incomplete undergraduate school	307	26.1

	<i>n</i>	%
Graduate school	221	18.8
Missing	412	35.1
Ethnicity		
White	678	57.7
Black	93	7.9
Mixed race	154	13.1
Asian	13	1.1
Indigenous	3	0.3
Missing	234	19.9
First-time mother		
Yes	646	55.0
No	524	44.6
Missing	5	0.4
Number of children		
1	655	55.7
2	354	30.1
3	113	9.6
More than 3	39	3.4
Missing	14	1.2
Breastfeeding at the time of data collection		
Yes	1000	85.1
No	112	9.5
Missing	63	5.4
Has a partner		
Yes	1046	89.0
No	116	9.9
Missing	13	1.1
Formal employment at the time of data collection		
Yes	409	34.8
No	375	31.9
Maternity leave	388	33.0
Missing	3	0.3

Procedure

This study results from a research partnership and includes four databases from different investigations carried out by different research groups. One of the databases derived from a larger project titled "Impact of Variations in the Perinatal Environment on the Health of Newborns in the First Six Months of Life" (Bernardi et al., 2012). This data comprised 22.4% of the total sample and was collected between 2011 and 2016. Sociodemographic data was collected, and maternal depression was assessed nearly 90 days after delivery.

The SINBEBE/DEPSICO subsample (n=160,

13.6%) was derived from two broader research projects (Frizzo et al., 2012; Levandowski et al., 2012) that investigated children's psychofunctional symptoms and maternal depression between 2013 and 2014. Mothers were mainly approached in public hospitals and primary health care units or were referred to the study by health professionals. Also, they were assessed through colleagues and acquaintances of the research team and through social media advertising. They answered the Edinburgh Postnatal Depression Scale if their infants were up to 12 months old (Cox et al., 1987).

The COVID-19 subsample ($n = 625$, 53.2%) was collected within a larger international research project that aimed to examine mental health in pregnant and postpartum women (with an infant up to 6 months) during the COVID-19 pandemic (Mateus et al., 2022). Recruitment took place through social media advertising, local organizations, and through colleagues and acquaintances of the research team. Participants completed an online survey with several questionnaires, which included the EPDS and sociodemographic information, between June and October 2020.

The GNAT databases ($n=390$, 33.2%) was collected in two projects targeting maternal and paternal postnatal depression and its association with emotion recognition and parent-child interaction. Recruitment took place in health units, via social media and through snowball method. Participants completed questionnaires in the health units or in their houses including the EPDS, sociodemographic information, assessment of parent-child interaction and tasks of emotion recognition.

Data analysis

Descriptive statistics were used to summarize the participants' characteristics. Validity evidence related to internal structure was analyzed using Confirmatory Factor Analysis (CFA) and factorial invariance analysis based on the type of data collection (online and in-person). For the CFA, three models were tested: a unifactorial model, a two-factor model (anxiety and depression), and a three-factor (anhedonia, anxiety, and depression). Model fit tests were conducted according to four indices. The first was the chi-square test (χ^2), in which lower values and statistical significance indicate better model fit. The root mean square error of approximation (RMSEA) test was used to assess the fit of the hypothesized model to the observed data. A key feature of the RMSEA is that it includes a penalty function that adjusts the error value, considering the model's complexity. Values below .06 suggest a good approximate fit, while values above .10 indicate a poor adjustment, suggesting a rejection of the

model. The comparative fit index (CFI) and the Tucker-Lewis Index (TLI) are incremental fit indices that compare a hypothesized model to a more basic and constrained null model. Both indices range from 0 to 1, and values above .90 indicate a good fit (Brown, 2015). Given the skewness in the distribution of the EPDS data, confirmed by the Kolmogorov-Smirnov test ($p < .001$), and its ordinal nature, the Diagonal Weighted Least Squares (DWLS) estimator was applied. It is appropriate for deviations from the normality assumption, providing more robust and valid estimates for variables with asymmetric distributions (Flora & Curran, 2004).

Cronbach's alpha and McDonald's omega coefficients were employed to assess reliability estimates. These indicators evaluate the internal consistency of the scale by measuring the degree to which items are interrelated, thus providing an estimate of the reliability of the EPDS. In line with classical recommendations, values above .70 indicate acceptable reliability for the EPDS (Kalkbrenner, 2021).

Factorial invariance of the EPDS across different data collection modes was tested using multi-group CFA models. Three invariance levels were assessed: configural, to test whether the internal structure is equivalent between groups (unconstrained model); metric, to verify the equivalence of factor loadings (constrained model, in which items' loadings are set to be equal across groups); and scalar, to check the equivalence of the intercepts (constrained model, in which items' loadings and intercepts are set to be equal across groups). Model fit was tested through the following indices: χ^2 , RMSEA, CFI, and TLI, with $\Delta CFI < .01$ as an indicator of invariance (Cheung & Rensvold, 2001).

Mann-Whitney test was used to investigate evidence of criterion validity, comparing the data collection groups before and after the pandemic. Additionally, the effect size (r) was calculated to assess the magnitude through the Z provided by the analysis, using the formula $r = Z/\sqrt{N}$, considering: .1, small, .3, moderate, .5 and higher, large effects (Cohen, 1988).

Results

Table 2 presents the distribution characteristics of EPDS items. Higher mean values are seen in items 3 (*Eu tenho me culpado sem necessidade quando as coisas saem erradas*) [I have blamed myself unnecessarily when things went wrong], 4 (*Eu tenho me sentido ansiosa ou preocupada sem*

uma boa razão) [I have been anxious or worried for no good reason], and 8 (*Eu tenho me sentido triste ou arrasada*) [I have felt sad or miserable]. The lowest mean value is seen in item 10 (*A ideia de fazer mal a mim mesma passou por minha cabeça*) [The thought of harming myself has occurred to me].

Table 2 - Distribution characteristics of individual EPDS items

Item	M	SD	Min	Max	Skewness	Kurtosis	SE
EPDS 1	0.62	0.77	0	3	0.91	-0.21	0.02
EPDS 2	0.72	0.83	0	3	0.96	0.18	0.03
EPDS 3	1.58	1.03	0	3	-0.25	-1.09	0.03
EPDS 4	1.50	1.00	0	3	-0.09	-1.07	0.03
EPDS 5	0.82	0.96	0	3	0.80	-0.59	0.03
EPDS 6	1.83	0.96	0	3	-0.45	-0.72	0.03
EPDS 7	0.73	0.94	0	3	0.94	-0.38	0.03
EPDS 8	1.07	0.97	0	3	0.45	-0.87	0.03
EPDS 9	0.89	0.84	0	3	0.67	-0.26	0.03
EPDS 10	0.20	0.58	0	3	3.15	9.69	0.02

Evidence of validity based on internal structure and reliability

CFA was conducted on three EPDS models extensively revisited in the literature, considering the unifactorial, two-factor, and three-factor structures (Figures 1, 2, and 3, respectively). Fit indices estimates were adequate for all factorial structures tested, with statistical fit indices across the tested models. Multidimensional models also showed strong correlations between factors, with correlation coefficients higher than .79.

The internal consistency analysis showed that all alpha and omega values exceeded .70, indicating acceptable reliability for the EPDS. A comparison of the three models showed slightly lower reliability indices for the three-factor model, with the anhedonia factor nearing .70. Nevertheless, all dimensional configurations met the established reliability standards.

Figure 1 - Confirmatory factor analysis of single-, two- and three-factor models

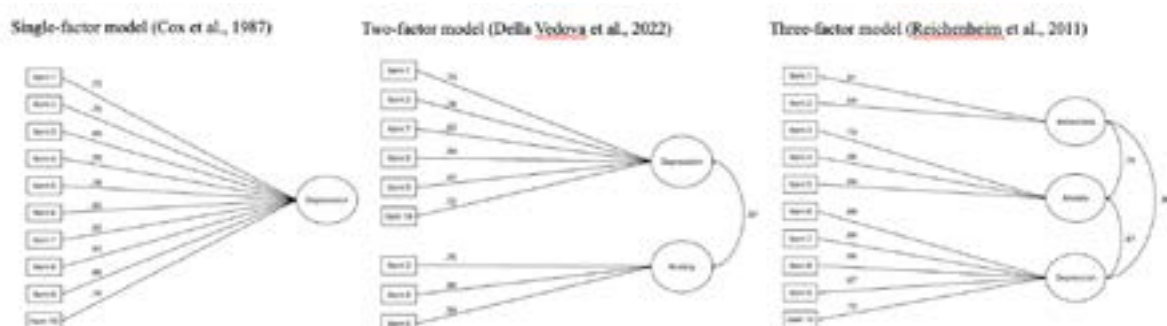


Table 3 - Fit indices of each factorial model

Factorial model	Factorial structure	X ²	gl	CFI	TLI	RMSEA	RMSEA CI 95%	Internal consistency
Cox et al. (1987)	Single factor	208.054*	35	0.995	0.993	0.068	0.059 0.077	$\alpha = .90$ $\Omega = .91$
Della Vedova et al. (2022)	F1. 1, 2, 7, 8, 9, 10 (Depression) F2. 3,4,5 (Anxiety)	98.21**	26	0.997	0.997	0.051	0.041 0.062	F1. $\alpha = .91$ $\Omega = .88$ F2. $\alpha = .84$ $\Omega = .80$
Reichenheim et al. (2011)	F1. 1, 2, 6 (Anhedonia) F2. 3,4,5 (Anxiety) F3. 7,8,9,10 (Depression)	50.62**	32	0.999	0.999	0.046	0.010 0.035	F1. $\alpha = .72$ $\Omega = .73$ F2. $\alpha = .78$ $\Omega = .80$ F3. $\alpha = .83$ $\Omega = .86$

* p < 0,05; **p < 0,001

A factorial invariance analysis was performed to examine whether the EPDS structure was consistent across both online and in-person data collection. This test employed a multi-group CFA, comparing both administration methods. Three invariance levels were tested: configural, metric, and scalar. The configural invariance model (factor loadings and intercepts not constrained by group), which verifies whether the factorial

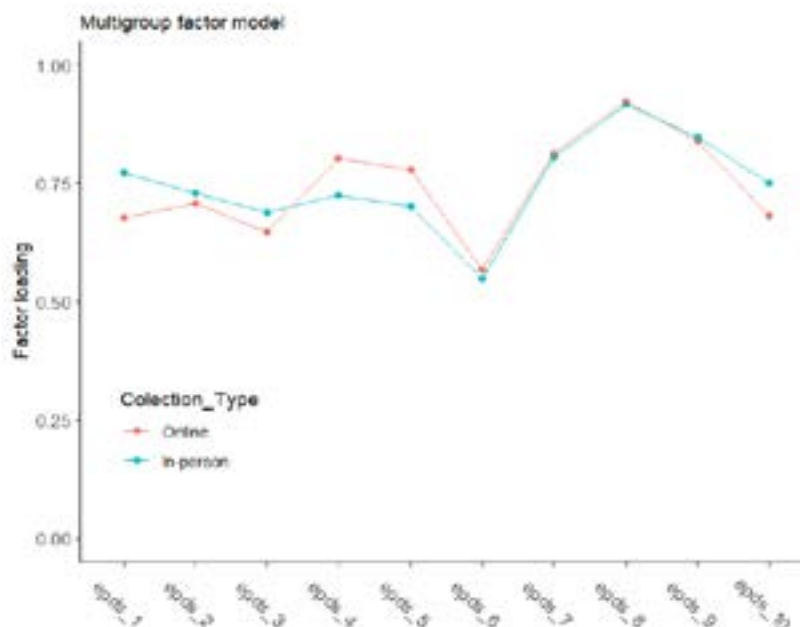
structure is consistent across the two collection methods, showed an adequate fit to the data, according to data in Table 4. These indices indicated that the factor structure configuration was equivalent across groups, suggesting that the same factor loading pattern was replicated online and in-person. Factor loadings from the configural invariance model for each group are presented in Figure 4.

Table 4 - Fit indices for the factorial invariance analysis for online and in-person collection of EDPS

Factorial model	Factorial structure	X ²	gl	CFI	TLI	RMSEA	RMSEA CI 95%	Internal consistency	Factorial model
Cox et al. (1987)	Unconstrained unidimensional multi-group model	241.84**	70	0.993	0.991	0.068	0.06 0.08	0.08	In person $\alpha = .92$ $\Omega = .88$ Online $\alpha = .92$ $\Omega = .90$
Cox et al. (1987)	Constrained unidimensional multi-group model.	437.30**	98	0.985	0.987	0.081	0.073 0.089	0.089	In person $\alpha = .92$ $\Omega = .90$ Online $\alpha = .82$ $\Omega = .90$

** p < 0,001

Figure 2 - Factor loadings of the model proposed by Cox et al. (1987) by data collection method (online vs. in-person)



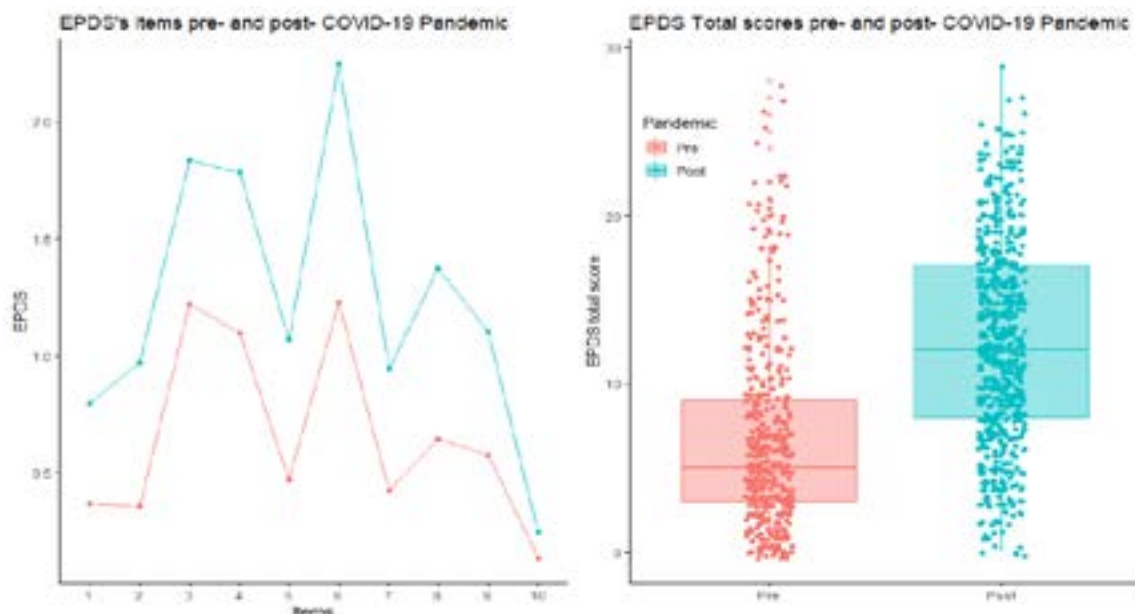
The metric invariance model, which tests for factor loading equivalence across groups (constrained model), resulted in a minimal difference in model fit. CFI value was below .01, confirming that the relationship between items and factors was consistent across both administration methods (see Table 3). This finding suggests that EPDS items measure the same constructs similarly.

The scalar invariance model, which verifies the equivalence of the items' intercepts, was also confirmed. The stability of fit indices across models (with minimal variations in the CFI and TLI values) suggested that the differences in EPDS mean scores across groups can be attributed to the level of the constructs measured rather than the administration method (see Table 3). These results demonstrated that the EPDS maintained an invariant factorial structure regardless of the collection method, enabling score comparisons across online or in-person administration.

Criterion-based validity evidence

Participants' mean scores before and during the pandemic (53.2% of the overall sample) were compared to assess criterion validity. The group assessed before the pandemic showed a mean rank of 410.76, while the one assessed during the pandemic had a mean rank of 740.31. The Mann-Whitney test revealed a significant difference between groups ($U = 267,067.00$, $p < .001$), indicating that participants assessed during the pandemic had significantly higher mean ranks. With $N = 1,172$, the obtained size effect was $r = .49$, reflecting a moderate to large effect.

Figure 5 presents the mean scores for EPDS items before and during the pandemic. The most pronounced difference was observed for item 6 (*Eu tenho me sentido esmagada pelas tarefas e acontecimentos do meu dia-a-dia*) [Things have been getting on top of me]. In contrast, the smallest difference was observed for item 10 (*A ideia de fazer mal a mim mesma passou por minha cabeça*) [The thought of harming myself has occurred to me].

Figure 3 - Mean scores of EPDS items and total scores before and during the pandemic

Discussion

The present study aimed to verify new evidence of validity and reliability of the EPDS in a Brazilian sample. CFA was conducted for three models commonly tested in the literature (unifactorial, two-factor, and three-factor) using a large sample derived from four databases. All models demonstrated satisfactory fit indices and adequate internal consistency, with similar statistical fit indices across models. The strong correlations between factors in the multidimensional models suggest an interrelation between dimensions. Our findings support the statistical suitability of both unifactorial and multidimensional structures for assessing PPD in the Brazilian context. The study by Moyer et al. (2024), which explored the psychometric properties of EPDS in American mothers, also confirmed more than one fitting structure, with results indicating that both one-factor and two-factor models were appropriate.

Given the above results in our study, decisions on the preferred factorial structure might consider potential applications of the scale. For screening and diagnosis purposes, as well as for cross-cultural studies, the more parsimonious

structure might be the first choice, given that a unifactorial model allows for cutoff points and comparisons in prevalence between countries. A unifactorial structure was confirmed initially by Cox et al. (1987), who proposed a unidimensional measure related to depression, and later corroborated by Peng et al. (2024), which utilized item response theory and also provided evidence supporting a unifactorial model. Additionally, the sensitivity and specificity tested in previous studies, along with the support for the unifactorial model in the present study, indicated that the EPDS may be an important screening tool for the brief assessment of postpartum depression.

Nevertheless, Zanardo et al. (2019) discuss that, although the EPDS was designed as a unifactorial measure, PPD does not present itself clinically in an absolute manner but encompasses symptoms related to anxiety and anhedonia. In this regard, Lautarescu et al. (2022) caution that, given the inconsistencies associated with the EPDS subscales, it may be beneficial for researchers and clinicians to incorporate measures that screen for a broader range of anxiety disorders when anxiety is the primary outcome or symptom. Thus, for research purposes aimed

at investigating associations between groups of PPD symptoms and other cognitive and emotional outcomes, using a multidimensional structure could be more suitable.

Previous studies have indeed suggested that the EPDS may be better defined by multidimensionality with two or three factors. Models tested through CFA in different populations have found that a two-factor is superior to the unidimensional model (Gollan et al., 2017; Hartley et al., 2014). In agreement, Malloy et al. (2010), in a psychometric Brazilian study of the EPDS, also found that a two-factor solution was appropriate, with one factor related to anxiety and the other to depression. Conversely, another Brazilian study found support for a three-factor model related to anxiety, anhedonia, and depression (Reichenheim, 2011).

Inconsistencies in previous studies regarding the EPDS best-fitting structure may be attributed to a series of methodological limitations (Lautarescu et al., 2021). Among these are the use of Principal Component Analysis, improper use of orthogonal rotations, not reporting cross-loadings, not accounting for non-normally distributed data, and small sample sizes (Lautarescu et al., 2021). Our study overcomes those methodological limitations using a large sample and applying CFA.

Besides our findings regarding factorial structure, we have also demonstrated that the EPDS maintains an equivalent factor structure across both online and in-person administration methods. The confirmation of configural, metric, and scalar invariance indicated that the EPDS items consistently measure the same constructs regardless of the data collection method. This fact is particularly important in the context of the post-COVID-19 pandemic, which has increased the reliance on online tools for psychological assessments (Sugarman & Bush, 2023). The findings ensure the comparability of results across both data collection methods, highlighting that the EPDS can be applied effectively in either mode without affecting its outcomes. The minimal CFI and TLI value variations between the metric and

scalar invariance models further reinforce its reliability across diverse data collection contexts.

Finally, regarding criterion-based validity evidence, the comparison of participant means before and during the pandemic revealed a significant difference. Albeit within the scale items behaved very similarly, the intensity of symptoms was significantly different. The higher mean scores during the pandemic highlight an increase in PPD symptoms, consistent with other studies indicating worsened psychological symptoms during this time (Gao et al., 2022; Safi-Keykaleh et al., 2022). The moderate to large effect size ($r = .49$) further underscores the significance of this difference, suggesting the need for consideration in future analyses.

In addition, the analysis of individual EPDS items revealed notable trends, with feelings of being overwhelmed (Item 6) showing the greatest discrepancy between the two periods, likely due to increased responsibilities during the pandemic. In contrast, thoughts of self-harm (Item 10) exhibited minimal variation, indicating that while overall depression levels rose, the severity of certain symptoms remained relatively stable. These results corroborate a previous study in which Item 6 also showed a substantial increase, while there was no significant variation in Item 10 during the pandemic (Costa et al., 2023).

In summary, the results of this study confirmed the adequacy of the EPDS for the Brazilian context, with a valid factor structure for both in-person and online data collection methods and pointed to a significant increase in depression symptoms during the COVID-19 pandemic. The robustness of the study is supported by a substantial sample size of mothers, collected through both online and on-paper modes, at various postpartum stages, ranging from months to a year after childbirth. The data collection encompassed all regions of Brazil, reinforcing the representativeness and applicability of the psychometric properties for nationwide use. These findings emphasize the importance of continuous assessment of maternal mental health, especially during times of crisis, and highlight the need for

appropriate interventions to mitigate the effects of stressful events on mothers' psychological well-being.

While this study offers valuable insights, it has limitations. First, despite a substantial sample size, it may not represent the diversity of the Brazilian population, particularly regarding socioeconomic status and regional mental health variations. Second, self-reported measures of PPD may introduce bias, as participants could underreport or overreport their symptoms due to social desirability or recall issues. Third, the COVID-19 pandemic context may introduce confounding factors, as unique stressors like social isolation and economic uncertainty could have influenced participants' mental health in ways not fully captured by the EPDS.

Aligned with the AERA et al. (2014) guidelines, this study contributes to the growing body of validity evidence for the EPDS. It provides current evidence regarding the psychometric properties of the EPDS, adding to the previous literature the demonstration of the appropriateness of unifactorial and multidimensional models (two-factor and three-factor). Thus, all three models offer evidence and can be utilized according to the researcher's or clinician's needs. The study also demonstrated invariance in data collection methods, whether online or on paper, as well as criterion validity evidence from studies conducted before and during the pandemic. Furthermore, the EPDS can be an important screening tool for both clinical and research contexts. Future studies may add new validity evidence that contributes to a better understanding of the internal structure of the EPDS.

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Minibiografia

Denise Ruschel Bandeira

Doutora afiliada à Universidade Federal do Rio Grande do Sul e à Universidade Federal de Ciências da Saúde de Porto Alegre.

Euclides de José de Mendonça Filho

Doutor com afiliação institucional na Universidade de São Paulo – Ribeirão Preto.

Adriane X. Arteche

Doutora vinculada à Pontifícia Universidade Católica do Rio Grande do Sul.

Giana Bitencourt Frizzo

Doutora, atua institucionalmente na Universidade Federal do Rio Grande do Sul.

Vera Lúcia Esteves Mateus

Doutora, possui afiliação internacional com a Universidade de Coimbra, em Portugal.

Avenida Ipiranga, 6681 – Prédio 11, sala 925

Partenon, 91619-900

Porto Alegre, RS, Brasil

Adriana Schütz

Doutoranda com afiliação institucional na Universidade Federal do Rio Grande do Sul.

Giana Bitencourt Frizzo

Universidade Federal do Rio Grande do Sul

Instituto de Psicologia, Serviço Social e Comunicação Humana

Rua Ramiro Barcelos, 2600

Santana, 90610-264

Porto Alegre, RS, Brasil

Máira Lopes Almeida

Doutora afiliada à Universidade Federal de Goiás.

Vera Lúcia Esteves Mateus

Universidade de Coimbra

Faculdade de Psicologia e de Ciências da Educação

Rua Colégio Novo

Alta da Cidade, 3000-115

Coimbra, Portugal

Luciane Piccolo

Doutora, atua institucionalmente na Columbia University, nos EUA.

Adriana Schütz

Universidade Federal do Rio Grande do Sul

Instituto de Psicologia, Serviço Social e Comunicação Humana

Rua Ramiro Barcelos, 2600

Santana, 90610-264

Porto Alegre, RS, Brasil

Daniela Centenaro Levandoswki

Doutora com afiliação institucional na Universidade Federal de Ciências da Saúde de Porto Alegre.

Máira Lopes Almeida

Universidade Federal de Goiás

Faculdade de Educação

Rua 235, 307

Setor Leste Universitário, 74605-050

Goiânia, GO, Brasil

Mônia Aparecida da Silva

Doutora vinculada à Universidade Federal de São João del-Rei.

Endereço para correspondência**Denise Ruschel Bandeira**

Universidade Federal do Rio Grande do Sul

Instituto de Psicologia, Serviço Social e Comunicação Humana

Rua Ramiro Barcelos, 2600

Santana, 90610-264

Porto Alegre, RS, Brasil

Euclides de José de Mendonça Filho

Universidade de São Paulo

Faculdade de Filosofia, Ciências e Letras de Ribeirão Preto

Departamento de Psicologia

Avenida Bandeirantes, 3900

Monte Alegre, 14040-901

Ribeirão Preto, SP, Brasil

Luciane Piccolo

Columbia University

West 120th St, 525

10027

Nova York, NY, Estados Unidos

Daniela Centenaro Levandoswki

Universidade Federal de Ciências da Saúde de Porto Alegre

Departamento de Psicologia – sala 207

Rua Sarmento Leite, 245

Adriane X. Arteche

Pontifícia Universidade Católica do Rio Grande do Sul

Centro Histórico, 90050-170

Porto Alegre, RS, Brasil

Mônia Aparecida da Silva

Universidade Federal de São João del-Rei

Campus Dom Bosco

Departamento de Psicologia – Sala 2.17B

Praça Dom Helvécio, 74

Bairro Fábricas, 36301-160

São João del-Rei, MG, Brasil

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