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Edinburgh Postnatal Depression Scale for screening in the public health system

ABSTRACT

OBJECTIVE: To evaluate the utilization of the Edinburgh Postnatal Depression Scale as a screening tool in the public health system.

METHODS: The Scale was administered between the 40th and 90th day after delivery to 245 mothers whose delivery occurred at a private maternity hospital located in the municipality of Belo Horizonte, Southeastern Brazil, from 2005 to 2006. All participants were submitted to a structured psychiatric interview (Mini-Plus 5.0), used as gold standard for postpartum depression diagnosis. The scale's sensitivity and specificity were calculated, and the receiver operating characteristic (ROC) curve was used to find the best cut-off point. Student's t test was employed to compare numeric variables and chi-square was used for the categorical variables. Reliability was calculated by Cronbach's coefficient α of internal consistency.

RESULTS: Postpartum depression was diagnosed in 66 women (26.9% of the total sample). No differences were found between women with and without postpartum depression concerning age, level of schooling, number of prior deliveries, and marital status. Using 10 as the cut-off point, the scale's sensibility was 86.4, the specificity was 91.1, and the positive predictive value, 0.78.

CONCLUSIONS: The psychometric properties of the Scale characterize it as a good screening tool for postpartum depression and its disseminated use in *Sistema Único de Saúde* (SUS – National Health System) could have positive impacts, with a significant increase in the recognition, diagnosis and treatment of postpartum depression.

DESCRIPTORS: Depression, Postpartum. Triage. Psychiatric Status. Rating Scales. Sensitivity and Specificity. Validity of Tests.

INTRODUCTION

Pregnancy and the postpartum are considered periods of high risk for the emergence of psychiatric disorders. According to Vesga-López et al,²³ between 15% and 29% of the women during these phases manifest some psychopathology. Among these, postpartum depression (PPD) is one of the most prevalent, and it may affect one out of eight women after pregnancy.¹⁶ In Brazil, a population-based study indicated an even higher prevalence: 19.1%, which corresponds to almost one puerpera out of five.¹¹

It is likely that PPD has a multifactorial etiology, although it is not completely known. Socioeconomic aspects,^{4,11} presence of psychiatric disorders before the pregnancy,^{4,16} and genetic predisposition²² are among the factors that may contribute to the emergence of PPD.

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The negative impact of PPD is significant not only to the patient and the family, but also to the newborn. PPD may negatively affect the mother-child interaction¹⁴ and potentialize difficulties in the child's neurobiological and psychological development during the first stages of life.¹² In addition, children of depressed mothers may present insufficient weight gain.¹⁸ In relation to other psychiatric disorders during the postpartum, PPD is also associated with greater risk of manifestation of aggressive behaviors, including suicide¹⁷ and infanticide⁸ attempts.

Despite its seriousness and impact on the woman and neonate, PPD is a disorder that has been frequently neglected and, therefore, underdiagnosed.^{5,8} Among other factors, this can be attributed to sociocultural characteristics associated with maternity that make it difficult for the patient and relatives to realize that such depressive symptoms are part of a disease; thus, they are predisposed to minimize and interpret them from the moral point of view.¹ Besides, some occurrences that are frequent in the postpartum period, like sleep and appetite alterations, and also fatigue, are also depressive symptoms that may, many times, hide the PPD diagnosis. Thus, when not diagnosed and treated, PPD may last many months or years, increasing the risk of other depressive episodes in the future.¹³

Among the attempts to develop screening tools to facilitate the identification and treatment of PPD, one of the most used tools is the Edinburgh Postnatal Depression Scale (EPDS).^{6,10,15} Since its development, EPDS has been adapted and validated in many countries, including Brazil.^{20,21} It is a self-administered scale containing ten items, divided into four graduations (0 to 3). EPDS measures the presence and intensity of depressive symptoms in the last seven days. Its administration is quick and simple, and it can be used by health professionals who are not doctors.

Small differences regarding the most indicated cut-off point to identify PPD, as well as its specificity, have been verified in studies conducted in Brazil.^{20,21} These differences may be explained by methodological and inter-regional variations, which suggests the need of studies in other Brazilian regions to enable a better understanding of the applicability of EPDS in the public health field.

The present study aimed to evaluate the psychometric properties of the Edinburgh Postnatal Depression Scale in order to use it as a screening tool in the public health system.

METHODS

The sample was composed of 245 women who were randomly selected from the hospitalization records.

They corresponded to 20% of all women whose delivery occurred in a private maternity hospital in the city of Belo Horizonte, Southeastern Brazil, between August 2005 and December 2006.

Mini-Plus 5.0³ was utilized as gold standard for depression diagnosis. All the participants answered the Mini-Plus, which is based on the criteria of the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (2000) (DSM-IV)² and was administered by a trained psychiatrist. All the interviews were conducted by the same professional who had access to the patients in their residences. Mini-Plus was administered right after EDPS. In the administration of EDPS, the Brazilian adaptation of the scale, carried out by Santos et al,²¹ was used and consisted of a nurse's visit to the interviewees' homes. Besides the administration of this scale, a semi-structured interview was also conducted to obtain demographic data. Each evaluator of the tools remained blind in relation to the results obtained by the other until the end of the study. The interviews were conducted between the 40th and the 90th day of the postpartum.

To evaluate the discriminating validity of EPDS, the participants were divided into two groups according to the presence (or not) of the PPD diagnosis obtained by Mini-Plus. The two groups were compared in relation to EPDS score, age, level of schooling, number of gestations, and marital status. Student's t test was employed to compare the groups in the numeric variables and the chi-square was used for the categorical

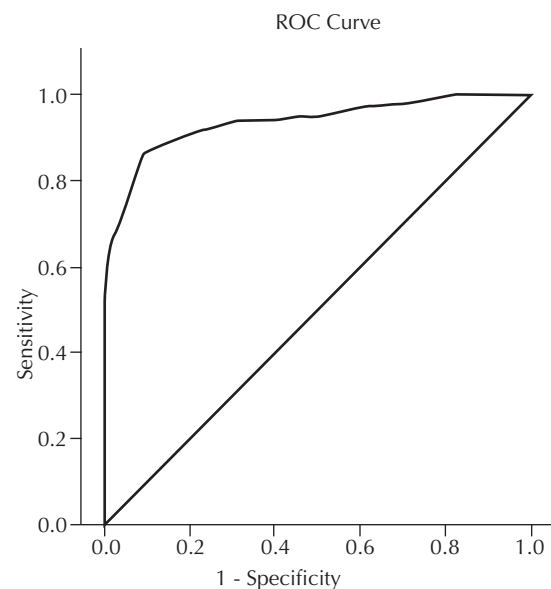


Figure 1. ROC curve for performance in EPDS in comparison to the postpartum depression diagnosis based on DSM-IV criteria (gold standard). Municipality of Belo Horizonte, Southeastern Brazil, 2005-2006.

variables. The psychometric properties of EPDS were evaluated based on sensitivity and specificity. To define the best cut-off point, the receiver operating characteristic (ROC) curve was used. The scale's reliability was calculated by means of Cronbach's coefficient α of internal consistency.

The study was approved by the Research Ethics Committee of *Universidade Federal de Minas Gerais* (Process 227/05). All the participants signed an informed consent form.

RESULTS

The participants' age (mean=30.7; standard deviation=5.8) ranged from 16 to 50 years. All the participants had at least eight years of formal schooling, and the majority of them completed the higher education level (n=130; 53.1%). In relation to marital status, 48 women were single (19.6%), 191 were married (78.0%), four lived with their partners (1.6%) and two were separated (0.8%).

Sixty-six women (26.9% of the sample) were diagnosed with PPD. No differences were observed between groups in relation to age, level of schooling, number of previous deliveries and marital status (Table 1).

Concerning the properties of EPDS, Cronbach's coefficient alpha was 0.87, indicating that the tool has high internal consistency. The Figure shows the results of the analysis of the ROC curve for the total score of EPDS. The total area of the ROC curve was 0.937 (standard error = 0.20; $p < 0.001$), indicating that EPDS has excellent capacity to discriminate women with PPD. Table 2 presents the results of specificity and sensitivity, positive predictive value and negative predictive value of EPDS for the cut-off points 9, 10, 11, 12 and 13.

DISCUSSION

In general, the studies that validated EPDS show high sensitivity and specificity, as well as high predictive value.^{10,15,20,21} A study conducted in Brasília²¹ (Federal District) included 69 women who presented an average time of puerperium of 10.2 weeks. According to the

Table 1. Sociodemographic characteristics of the groups of participants with and without postpartum depression diagnosis. Municipality of Belo Horizonte, Southeastern Brazil 2005-2006.

Variable	Group				chi-square	df	p
	Women with postpartum depression (n = 66)		Women without postpartum depression (n=179)				
	n	Frequency (%)	n	Frequency (%)			
Age group (years)							
16 20	4	6.1	10	5.6			
21 30	29	43.9	73	40.8			
31 40	31	47.0	91	50.8			
41 50	2	3.0	5	2.8	0.289	3	0.962
Level of schooling							
Primary education	7	10.6	6	3.4			
Second education	29	43.9	73	40.8			
Higher education	30	45.5	100	55.9	5.883	2	0.054
Marital status							
Single	13	19.7	35	19.6			
Married	52	78.8	139	77.7			
Others	1	1.5	5	2.8	0.330	2	0.848
Previous number of pregnancies							
1	40	60.6	90	50.3			
2	16	24.2	62	34.6			
3	7	10.6	19	10.6			
4 or more	3	4.5	8	4.5	3.247	3	0.517
Working status							
Does not work outside the home	25	37.9	56	31.3			
Has a part-time job	20	30.3	59	33.0			
Has a full-time job	21	31.8	64	35.7	0.955	2	0.620

Table 2. Sensitivity, specificity, positive predictive value and negative predictive value in the Edinburgh Postnatal Depression Scale. Municipality of Belo Horizonte, Southeastern Brazil 2005-2006.

Score in EPDS (cut-off point)	Sensitivity	Specificity	Positive predictive value	Negative predictive value
9	89.4	84.4	0.68	0.95
10	86.4	91.1	0.78	0.94
11	72.7	95.5	0.85	0.90
12	68.2	97.2	0.91	0.89
13	63.6	98.9	0.94	0.88

authors, the best cut-off point for the scale was 11, with 84% of sensitivity and 82% of specificity. Another study carried out in Pelotas²⁰ included 378 women in the third month after delivery, suggesting ten as the best cut-off point for PPD screening, with 82.6% of sensitivity and 65.4% of specificity.

In our study, besides showing good capacity to discriminate pregnant women with PPD diagnosis, the tool presented good internal consistency. In comparison to the two other studies conducted in Brazil, the sensitivity of EPDS was similar to the previously found ones and the specificity for the different cut-off points was higher. The best cut-off point was ten, like in the study of Pelotas (RS), with 86.4% of sensitivity and 91.1% of specificity.

The prevalence of PPD in our study (26.9%) was within the margin frequently found in the literature, which, according to Vesga-López et al,²³ has ranged between 15% and 29%. However, if compared to other Brazilian studies, the prevalence of PPD found in the present study

was higher: Moraes et al¹¹ (19.1%, Pelotas), Da Silva et al⁷ (12%, Recife, PE) and Santos et al²¹ (13.2%, Federal District). On the other hand, it was lower than the one found by Ruschi et al¹⁹ (39.4%) (Vitória, ES). The differences between studies may have been produced by the methodological aspects related to the method of diagnosis, the subjects' sociodemographic characteristics, as well as the puerperium period in which the woman was evaluated. In addition, possible inter-regional differences should be clarified. Future studies using uniform evaluation procedures in different Brazilian regions may contribute to clarify this question.

Our study corroborates the literature, suggesting that EPDS constitutes an adequate screening tool for postpartum depression, and that it can be implemented in the public health network in view of its easy and quick administration, low cost and the fact that it can be administered by any health professional. The broad use of the scale can be associated with an increase in the indexes of diagnosis and treatment of the disease, thus minimizing its possible harmful effects on mother and child.

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