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Translation, Validation and Cultural Aspects of Postpartum Depression Screening Scale in Brazilian Portuguese

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Abstract The aim of this study was to determine the validity and reliability of a Portuguese version of the Postpartum Depression Screening Scale (PDSS). A total of 120 new mothers completed the translated version of PDSS and later were interviewed using the Structured Clinical Interview for DSM-IV Axis I Disorders, our gold standard for clinical status. The best cut-off score for the Portuguese version was 102, with a sensibility of 94%, a specificity of 95%, a positive predictive value of 75% and a negative predictive value of 99%. Reliability, measured by the alpha coefficient of internal consistency, was .95. The PDSS is considered ready for use in the screening of Brazilian new mothers for postpartum depression.

Key words Brazilian Portuguese • postpartum depression • rating scales • screening • validation studies

INTRODUCTION

Postpartum depression is experienced by 8–23% of women who have recently given birth (Cooper, Campbell, Day, Kennerley, & Bond, 1988; Cox, Murray, & Chapman, 1993; Hobfoll, Ritter, Lavin, Hulsizer, &

Cameron, 1995). In a meta-analysis of 59 studies, O'Hara and Swain (1996) found an average rate of 13% during the first year after delivery and Cox and colleagues (1993) suggest that around the first month after giving birth the risk of developing depression is increased threefold when compared with other periods of a woman's life. However, only a limited proportion of these women are identified by health professionals as depressed and their quality of life and that of their relatives is severely impaired (Symon, MacDonald, & Ruta, 2002; Zerkowitz & Milet, 1996).

Some studies suggest that there are no significant differences in the prevalence of postpartum depression between ethnic minorities and among patients from developing countries (Wolf, De Andraca, & Lozoff, 2002). Yonkers and colleagues (2001) reported that the rate of postpartum depression among North American women of African American and Latin backgrounds is similar to that among those of European backgrounds. Most of the data published about postpartum depression is produced by western sources and studies from Latin America have been under-represented in scientific literature (Affonso, Horowitz, & Mayberry, 2000).

The DSM-IV-R (American Psychiatric Association [APA], 2002) does not distinguish postpartum depression from another depressive episode occurring in other periods of the patient's life, except by mentioning that this mood disorder occurs with an onset during the 4 weeks after delivery. The ICD-10 (World Health Organization [WHO], 1993) mentions postpartum depression in the section on 'mild mental and behavioral disorders associated with the puerperium, not elsewhere classified,' coded with F53.0 under the designation of 'mental disturbances of the behavior, mild, associated with the postpartum period not classified elsewhere.' Based on the ICD-10, this classification should be limited to the first 6 weeks after the delivery and in absence of other clinical conditions.

The distinctiveness of postpartum depression is still controversial and some authors suggest that there are particularities in depressive episodes after delivery. The term 'postpartum depression' is not officially recognized by DSM-IV and ICD-10 but researchers use it to refer any depressive episode during the first year after delivery (Nonacs & Cohen, 1998, 2000). This definition is in accordance with the one considered by the Marcé Society (2001), an international scientific organization dedicated to the study of postpartum psychiatric conditions.

There is current interest in translating, validating and comparing different postpartum depression screening scales across various countries and ethnical groups. This provides standard clinical tools to compare symptoms and treatment efficacy across different populations of diverse cultural and biological backgrounds. The Edinburgh Postnatal Depression Scale (EPDS), for example, was reported in 1987 and has been translated

and validated in several different populations, including Brazil (Cox, Holden, & Sagovsky, 1987; Eberhard-Gran, Eskild, Tambs, Opjordsmoen, & Samuelsen, 2001; Santos, Martins, & Pasquali, 2000). The EPDS is a self-report instrument with 10 short statements of common depressive symptoms. The main limitation of EPDS is that, although it was designed to screen specifically for postpartum depression, it does not contain items about the context of a woman's experience as a new mother. According to some qualitative studies, important features of this mood disorder are not measured by the EPDS, for example, loss of control, loneliness, unreality, irritability, fear of going crazy, obsessive thinking, concentration difficulty, and loss of self (Beck & Gable, 2000).

In spite of being criticized by some authors, the EPDS is still considered valid but other scales have been proposed in order to provide a more complete and representative framework for detecting and understanding postpartum depression. In 2000, Beck and Gable presented the Postpartum Depression Screening Scale (PDSS). The PDSS is a 35-item Likert-type self-report scale composed of seven dimensions: sleeping/eating disturbances, anxiety/insecurity, emotional lability, cognitive impairment, loss of self, guilt/shame, and contemplating harming oneself. Each dimension consists of five items describing how a mother may be feeling after the birth of her baby. Women are asked to indicate their degree of disagreement or agreement with each item on a range from 1 (*strongly disagree*) to 5 (*strongly agree*). This instrument is intended to overcome the EPDS limitations cited above and to evaluate more introspective concerns of a woman during the postpartum.

During validation of the PDSS in American women, a sensibility of 94%, specificity of 98%, positive predictive value of 90% and negative predictive value of 99%, with a cut-off of 80 were observed (Beck & Gable, 2001b). It was translated into Spanish and has been validated in Spanish women living in USA. As far as we know, the PDSS has not been translated into Portuguese (Beck & Gable, 2001a).

There are more than 200 million Portuguese speakers all over the world, in locations including Portugal, Brazil, Cape Verde, Guinea-Bissau, Mozambique and Sao Tome and Principe Islands. Portuguese ranks eighth among the most spoken languages in the world. The purpose of this study was to translate and validate a Brazilian Portuguese version of the PDSS. This is part of a major effort to improve detection of women with this condition and eventually to provide better assistance. It also provides data to allow broader transcultural comparisons. During this study we came across several challenges to find the proper substitutes for words, symptoms and states of mind that are part of linguistic and cultural idiosyncrasies. These obstacles are discussed in this article.

METHODS

This project was submitted to the ethics committee of the Federal University of Pernambuco, including a copy of the informed consent to be signed by each subject, according to the Brazilian Health Statute (no. 196/96).

Two bilingual psychiatrists translated the PDSS into Portuguese. No orientation was given to the translators in order to use more literal or colloquial terms. To ensure that the connotative meaning of items was not altered in the translation, it was translated back by two English teachers, one American and the other Brazilian. A third bilingual psychiatrist checked for any significant modifications between the back-translation and the original version in English. For the evaluation of semantic equivalence, both the reference and general meanings of words and items were considered. The reference meaning underlies the ideas and objects of the world in which one or more words refer to. The general meaning takes into account the impact these words assume in the cultural context of the target population. In order to evaluate if the initial translation was properly performed, a pilot analysis was done with five women.

A convenience sample of 120 new mothers was recruited from two medical institutions, during the first routine pediatric evaluations of their newborns, 60 from a public hospital (Clinical Hospital from the Federal University of Pernambuco) and 60 from a private hospital (De Avila Hospital), both located in Recife, Pernambuco, Brazil. This procedure had two main purposes: (1) to avoid an overestimation of postpartum depression that would happen if women were recruited from a mental institution; and (2) to obtain a representative population composed of subjects with different socio-economic backgrounds. The inclusion criteria included women: (1) able to speak, read and understand Portuguese; (2) between 2 and 26 weeks postpartum; (3) who delivered a live, healthy infant that was alive at the time of the interview; and (4) were willing to participate in the study. Demographic data were obtained through an individual questionnaire.

Each subject completed the PDSS. Shortly afterwards, each woman was interviewed separately using the Portuguese version of the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV; Del Ben et al., 2001). The SCID-IV final result was considered the gold standard. The interviewers did not have access to the scores previously obtained by the subjects in the scale.

Data from both scales and clinical interview were analyzed regarding their sensibility, specificity, positive and negative predictive values using the software package EPI-INFO version 6.04D. The Statistical Package for

the Social Science (SPSS version 10) was used to calculate reliability based on the Cronbach's alpha coefficient of internal consistency. This last coefficient was also calculated for each of the seven dimensions of the PDSS. To estimate the ability of the PDSS to discriminate a group of women with postpartum depression from the group without postpartum depression the average scores of both groups were calculated and compared using the Student's *t*-test.

RESULTS

The initial back-translated version was considered equivalent to the original version in English (Appendix). The Portuguese version of this scale was well accepted by the new mothers during the pilot analysis, and no one mentioned difficulties understanding any of the items. Some items of the PDSS allowed literal translations of English into Portuguese. For example, the expression 'lost my appetite,' translated as '*perdi meu apetite*,' did not need adaptations to maintain the same meaning. Here, denotative and connotative meanings were equivalent. However, item 11, the expression 'felt like I was losing my mind' could be misunderstood as a memory symptom, not necessarily related to a broader and subjective feeling of losing mental control because the word used to replace 'mind' was the same term used for 'reason.' A literal translation of this sentence presented a denotative equivalence but different connotative meaning.

There were no ideal translations for a few words because of a lack of equivalent concepts in Portuguese. These words allowed various possibilities of partially equivalent semantic expressions. For example, the word 'overwhelmed' (item 9) has no proper translation into Portuguese, so our choice was to use the word '*oprimida*,' which in English would be translated as 'oppressed,' or the word '*sobrecarregada*,' which means 'overloaded.' The translators preferred the former.

Some adaptations were done to use more idiomatic expressions related to Brazilian culture. For example, while the word 'irritable' (item 24), could be translated as '*irritável*,' in Brazil '*irritada*' is more common, but is closer to 'irritated' in English. Other changes were more difficult; for example, with item 33 ('did not feel real'), there was a concern that some patients would not recognize this expression as a feeling equivalent to depersonalization; the expression '*senti que não existia*' (in English, 'felt I didn't exist') was used in an attempt to put forward a clearer idea. We focused on this item especially because recent studies show that this symptom is common in psychiatric populations and has to be increasingly recognized in daily medical practice (Hunter, Phillips, Chalder, Sierra, & David, 2003; Hunter, Sierra, & David, 2004).

After interviewing the first set of five subjects we verified that no major modification was necessary in the first translation and none of the patients mentioned difficulties understanding the scale. The translators were concerned that some subjects would have problems with the idiom 'felt as if my emotions were on a roller coaster.' Some of the patients might have never seen a roller coaster before, but this did not turn out to be a problem and the item seemed to be well understood.

It is also relevant to discuss the use of the terms to quantify the intensity of symptoms, such as: 'strongly disagree,' 'disagree,' 'neither disagree nor agree,' 'agree' and 'strongly agree.' In general, the subjects investigated in this study did not seem familiar with this kind of scale, especially with the terms previously cited used with the purpose of quantifying the intensity of symptoms. This may have caused some misunderstandings. For example, one non-depressed subject obtained one of the highest scores (128). Later we realized that this subject considered that the scale's options were improperly graded and the difference between the expressions 'strongly disagree' (level 1) and 'neither disagree nor agree' (level 3) was confusing. She consistently rated each item at least 'agree' (level 4) when she felt that the sentence could be positive. Overall, 'neither disagree nor agree' was marked less frequently by the subjects when compared with other options.

SAMPLE

The average age of women in the sample was 27.74 years, range 15–45 ($SD \pm 6.4$); 98 were married or lived with the father of the baby (81.7%) and 22 (18.3%) were single; 38.3% had finished or were in college, 37.5% had finished or were in high school, 24.2% had finished or were in junior high school. There was a significant difference between the number of women that had finished college in the samples from the private hospital ($n = 11$) and the public hospital ($n = 1$). The time postpartum varied from 2 to 25 weeks with average of 9.6 weeks ($SD \pm 5.3$); 56.7% were having their first child, 30.8% the second and 12.5% had three or more children. None of the women was receiving psychiatric medications.

RELIABILITY

With this sample of 120 women, the alpha internal consistency reliabilities for the seven dimensions of the PDSS were as follows: anxiety/insecurity, .81; sleeping/eating disturbances, .78; cognitive impairment, .82; guilt/shame, .85; emotional lability, .82; contemplating harming oneself, .76; and loss of self, .76. Each item was positively correlated with

its specific dimension of the scale. The overall Cronbach's alpha coefficient was .95.

VALIDITY

Of 120 women, 16 (13.3%) were clinically diagnosed with postpartum depression by the SCID-IV (5 in the public hospital and 11 in the private one). The average PDSS score for depressed women was 114.2 (*SD* ± 16.4). The average score for women without depression was 61.5 (*SD* ± 21.2). The Students' *t*-test for independent samples shows that the average score obtained was significantly higher in the group of new mothers with postpartum depression (*p* < .001).

A cut-off of 102 was considered the best to be applied in our sample because it could provide a good balance of sensibility and specificity. Using 102 as the cut-off, 15 of the 16 depressed mothers were detected by the PDSS scale, showing a sensibility of 93.8% (95% CI: 67.7–99.7). Ninety-nine of the 104 non-depressed subjects had scored < 102, yielding a specificity of 95.2% (95% CI: 88.6–98.2). Twenty of 120 (16.7%) women reached scores higher than the cut-off point of the PDSS and 15 of them were actually depressed, so the positive predictive value (PPV) was 75.0% (95% CI: 50.6–90.4). Among 100 subjects identified as non-depressed by the PDSS, there was only one depressed, giving a negative predictive value (NPV) of 99.0% (95%CI: 93.8–99.9).

Table 1 shows these data by means of different values of cut-off points. With a cut-off of 90, the PDSS reaches sensibility of 100%. With a cut-off of 110, the positive predictive value improves (83.3%), however the sensibility drops notably (to 62.5%).

Table 2 compares the values between the patients from public and private clinics. The positive predictive value for the women from the public hospital was 50.0%, whereas this value for those from the private institution was 91.7%.

TABLE 1
Performance of the PDSS at different cut-off scores

<i>Cut-off score</i>	<i>Sensitivity (%)</i>	<i>Specificity (%)</i>	<i>Positive predictive value (%)</i>	<i>Negative predictive value (%)</i>
90	100.0	89.4	59.2	100.0
95	93.8	93.3	68.2	99.0
100	93.8	94.2	71.4	99.0
102	93.8	95.2	75.0	99.0
105	75.0	96.1	75.0	96.1
110	62.5	98.1	83.3	94.4

TABLE 2
Performance of PDSS in public and private institutions

Measure	Public institution (n = 60)		Private institution (n = 60)	
	%	95% CI	%	95% CI
Sensitivity	80.0	28.9–98.8	100	67.9–100
Specificity	92.7	81.6–97.6	98.0	87.8–99.9
Positive predictive value	50.0	17.4–82.6	91.7	59.8–99.6
Negative predictive value	98.1	88.4–99.9	100	90.8–100

DISCUSSION

Issues of linguistic and semantic equivalence are important in preparing instruments for transcultural research (Sen & Mari, 1986; Van Ommeren et al., 1999).

Semantic equivalence involves both denotation and connotation. The former implies a direct link of signification (without derivative or figurative meaning) between a real object and a noun. The latter implies a suggestion of implicit attributes for a given word, beyond the direct connection with the object (Ellis, Minsel, & Becker, 1989; Houaiss & Villar, 2001).

In this translation we were able to achieve equivalence in denotation and connotation for some items; others required choices to achieve greater denotative meaning while changing the connotations. This could be achieved only by focusing on the underlying symptoms or experiences the scale was intended to tap. The wide range in socio-economic status and education in the sample demanded careful attention to the language and the use of appropriate linguistic idioms. We also noted some difficulty among patients in understanding the response categories, particularly ‘*neither agree nor disagree*.’ Proper training or instructions can be critical to avoid false positives in the response to this type of questionnaire. This process requires the clarification of each item.

This study suggests that the Portuguese version of PDSS had excellent reliability and concurrent validity with the clinical interview. The overall Cronbach’s alpha coefficient was .95 and all the dimensions of the PDSS translation were $> .75$, indicating good reliability of the scale. A Cronbach’s alpha coefficient $> .70$ indicates an adequate level of internal consistency, although .80 or higher is recommended for screening tools (Nunnally & Bernstein, 1994). [BT1]

With the SCID-IV clinical interview as a gold standard, a cut-off score of 102 yielded the best profile of sensibility and specificity, 93.8 and 95.2%,

respectively. Researchers who intend to use the PDSS can apply different cut-off points depending on the purpose of the study. For example, if the aim is to select a more homogeneous patient population, more specificity might be obtained with higher cut-off points. However, cut-off scores that are derived from a given sample with ROC analysis may not perform well in other samples and need to be cross-validated in order to be accepted for clinical use. This is because ROC procedures and exploratory and tend to capitalize on chance and maximize sensibility and specificity.

Test–retest of subjects was not used as a parameter of reliability in our study. Patients with postpartum depression often present dynamic mood changes over even a few weeks. However, the repetition of the procedure in a too short interval of time might overestimate the reliability. Therefore, test–retest reliability has not been used recently for self-evaluation scales in postpartum depression (Eberhard-Gran et al., 2001; Menezes & Nascimento, 1998).

The prevalence of postpartum depression in our sample of 120 new mothers (13.3%) is similar to that found in epidemiological studies (O'Hara & Swain, 1996). Notwithstanding the fact that the sensibility and specificity of these scales are usually stable rates, the predictive values are highly influenced by the prevalence of the condition in study (Menezes & Nascimento, 1998). In some validation studies of the EPDS the sample included was previously selected and had a higher chance of having postpartum depression (Cox et al., 1987; Eberhard-Gran et al., 2001). In such samples there is a methodological risk of getting a higher positive predictive value that will not be representative of a real situation in the clinical practice. Thus, when using these scales in the general population, the positive predictive value will decrease and the negative predictive value will increase. The population we studied was not pre-selected and our results are probably closer to what we would be found during the routine use of the PDSS.

The positive predictive value of the PDSS was 75%. In validation studies of EPDS with similar design, the positive predictive value is usually low and this is a common reason to justify the use of additional pre-selective parameters, such as risk factors. Our PPV was comparable with, and even higher than, those of others EPDS validation studies that did not use pre-selected populations (Benvenuti, Ferrara, Niccolai, Valoriani, & Cox, 1999; Eberhard-Gran et al., 2001; Wickberg & Hwang, 1996).

CONCLUSION

The Portuguese version of PDSS has good psychometric properties and may be considered ready for use in screening new mothers for postpartum depression in Brazil. The results presented confirm the validity

and show that it can be especially useful to select women in the postpartum that may need psychiatric assessment.

Of course, screening scales are no substitute for a full psychiatric assessment. In a clinical condition like depression, the empathy of the interviewer is important to fully access subtle aspects of the mental state of the patient. Indeed, previous studies have found that some depressed patients may fake a low score at the EPDS to disguise their symptoms (Holden, 1994). Conceivably, this may occur with the PDSS as well. This is why an extremely low score can be difficult to interpret, especially if there is a suspicion that the woman is truly depressed. Nevertheless, self-report screening measures may facilitate clinical assessment and communication. During this study, several of the subjects expressed an intense feeling of relief at knowing that others could understand their symptoms and they were not the only ones with such feelings.

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APPENDIX

Examples of the translation and back-translation of the PDSS

<i>Item</i>	<i>Portuguese</i> (<i>Nas últimas duas semanas eu. . .</i>)	<i>English</i> (<i>Over the last 2 weeks, I. . .</i>)
1	tive dificuldade para dormir mesmo quando meu bebê estava dormindo	had difficulty to sleep even when my baby was asleep
8	perdi meu apetite	lost my appetite
9	me senti realmente oprimida	felt really oppressed
11	senti que estava perdendo meu juízo	felt I was losing my mind
14	tenho pensado que a morte seria a única saída desse pesadelo	have been thinking that death would be the only way out of this nightmare
16	me senti assustada	felt scared
17	senti como se minhas emoções estivessem numa montanha russa	felt as if my emotions were on a roller coaster
19	tive medo de nunca mais voltar a ser como eu era antes	feared I'd never be as I was before
21	quis me machucar	wanted to hurt myself
24	tenho andado muito irritada	have been very irritated
27	senti como se tivesse que esconder o que eu estava pensando ou sentindo em relação ao bebê	felt as if I had to hide what I thought or felt about the baby
33	senti que não existia	felt I didn't exist

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