

Post-partum depression in Kinshasa, Democratic Republic of Congo: Validation of a concept using a mixed-methods cross-cultural approach

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Summary

OBJECTIVE To determine if a post-partum depression syndrome exists among mothers in Kinshasa, Democratic Republic of Congo, by adapting and validating standard screening instruments.

METHODS Using qualitative interviewing techniques, we interviewed a convenience sample of 80 women living in a large peri-urban community to better understand local conceptions of mental illness. We used this information to adapt two standard depression screeners, the Edinburgh Post-partum Depression Scale and the Hopkins Symptom Checklist. In a subsequent quantitative study, we identified another 133 women with and without the local depression syndrome and used this information to validate the adapted screening instruments.

RESULTS Based on the qualitative data, we found a local syndrome that closely approximates the Western model of major depressive disorder. The women we interviewed, representative of the local populace, considered this an important syndrome among new mothers because it negatively affects women and their young children. Women ($n = 41$) identified as suffering from this syndrome had statistically significantly higher depression severity scores on both adapted screeners than women identified as not having this syndrome ($n = 20$; $P < 0.0001$).

CONCLUSIONS When it is unclear or unknown if Western models of psychopathology are appropriate for use in the local context, these models must be validated to ensure cross-cultural applicability. Using a mixed-methods approach we found a local syndrome similar to depression and validated instruments to screen for this disorder. As the importance of compromised mental health in developing world populations becomes recognized, the methods described in this report will be useful more widely.

keywords Democratic Republic of Congo, mental health, maternal, validity

Introduction

Maternal depression negatively affects both the mother and her children (Dybdahl 2001; Anoop *et al.* 2004; Patel *et al.* 2004). Research from Western countries shows that maternal depression is related to poor bonding between mother and child, missing paediatric appointments, missing required vaccinations, and more frequent use of emergency department services (Field *et al.* 1990; Stein *et al.* 1991; Flynn *et al.* 2004). Research from developing countries shows that perinatal depression contributes to infant illness and growth impairment (Black *et al.* 2007; Patel *et al.* 2004; Rahman *et al.* 2002). As rates of perinatal and infant mortality in many developing

countries are high, maternal well-being is especially important in promoting child survival.

What is unclear from these studies is the applicability and utility of the standard Western definition of depression to the perinatal experience of women from non-Western cultures. Recognizing the effect of culture on the understanding and expression of mental illness is an integral part of conducting valid research and programming for mental disorders in the developing world (Bass *et al.* 2007).

We present a multi-method process for validating the presence of a post-partum depression syndrome, a disorder previously not studied among women in the Democratic Republic of Congo. To do this, we developed a locally-valid and reliable mental health assessment tool using an

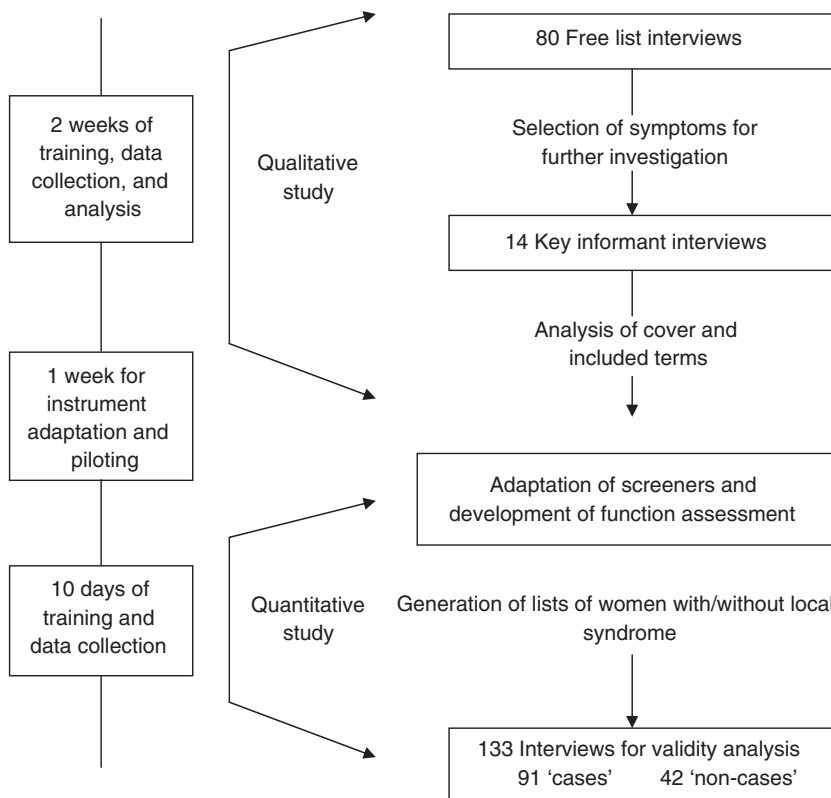


Figure 1 Schema of 5-week study progression.

approach our research team has previously used elsewhere in Africa (Bolton 2001a,b; Wilk & Bolton 2002; Murray *et al.* 2006). We describe the results of an initial qualitative exploration of the Congolese perception on the existence and nature of a local post-partum depression-like syndrome and the use of these data to adapt assessment tools. We then describe a quantitative evaluation of the accuracy and validity of the assessment tools (Figure 1).

Methods

Setting and interviewers

The study was conducted in the catchment area of one of the largest maternity clinics in Kinshasa, Kingasani (population ~2.5 million). The Kingasani Maternity Clinic performs approximately 9000 deliveries annually with approximately 90% of these women seeking antenatal care (generally in late second or third trimester) at the clinic. Ten Congolese women interviewers were trained by the authors (JB and ML) in the qualitative and quantitative interviewing methods used for this research. All interviewers were bilingual in the local language Lingala and French. All qualitative interviews were

conducted by pairs of interviewers with one woman interviewing and the other recording the responses verbatim. At the end of each day the interviewers translated the interviews from Lingala into French. Words and concepts that were difficult to translate were discussed among the interviewers, with consensus driving the final translation. All interviews were reviewed by study staff, which included a Congolese physician fluent in French, Lingala and English.

Qualitative study

Interviewing methods

Using techniques described elsewhere (Wilk & Bolton 2002; Murray *et al.* 2006), we interviewed a convenience sample of 80 mothers who had given birth to a living child within the previous 2 years. These women were interviewed using Free Listing, a method which results in a list of answers in response to a single primary question (Bernard 2005). Each respondent was asked two free lists questions: 'What are the main problems of women with babies less than 1 year of age?' and 'What are the main problems of women that affect their babies and children?'

The first question generated lists of problems that mothers face in first year post-partum; the second generated lists of problems that these women thought had a direct impact on their recently born children. For the second question, respondents were encouraged to respond with problems mentioned previously as well as add new problems. Along with the name of the problems in the local language, respondents were asked for a brief explanation of each problem. The problem names, along with brief explanations, were recorded verbatim in Lingala.

Four additional questions were asked of each respondent to generate lists of activities mothers with newly born babies are expected to engage in. Each question related to a different domain: caring for self, family, newborn baby, and participating in community activities. These data were subsequently used to generate questions for assessing functional impairment.

Once the problem free lists were complete, respondents were asked to provide information about individuals from whom women seek help in resolving problems that were potentially associated with mental health (defined in this study as problems associated with thinking, feeling, or relationships). This probe was used to identify Key Informants (KIs) for further in-depth interviewing. Fourteen KIs were identified, comprising traditional healers, ministers, pastors, marriage counselors, and local older women, referred to as 'mamas.' These KI interviews gathered detailed information about select mental health problems identified in the free lists, including perceived causes, co-occurring symptoms and ways in which local people treat these problems. Rather than conducting in-depth interviews for all identified problems, only those identified as associated with mental health and particularly associated with the perinatal period were explored. This choice was made in discussions with the interviewers and study staff familiar with the population and their mental health. Ten KIs were interviewed twice, because they had more information than could be captured in a single 1-hour interview.

Qualitative data analysis

The problem free list data were subsequently consolidated into a summary list for each question that included how many respondents reported each problem, ranked in decreasing order of number of respondents. These lists provided an overview of major problems, including mental health problems, from the respondents perspective. The in-depth KI data on the selected mental health problems were analysed to identify syndrome terms and signs and symptoms associated with these syndromes. The resulting syndromes were compared across KI interviews for consistency.

Quantitative study

Instrument selection and adaptation

Based on the qualitative study results we felt we had identified depression-like problems that were significant from the respondents' viewpoint. We reviewed standard and post-partum depression screeners to identify ones that most closely reflected the local description and had been previously used cross-culturally. We chose to adapt the Edinburgh Post-partum Depression Scale (EPDS) (Cox *et al.* 1987) and the Hopkins Symptom Checklist depression section (HSCL-D) (Derogatis *et al.* 1974). Adaptation of these screeners included translation by using the qualitative data terminology that best reflected the items in the screeners. In the few cases where the screeners included concepts not reflected in the qualitative data, we used standard translation/back translation methods. Signs and symptoms in the description of the local syndrome that were not part of the screeners were added to the questionnaire as additional questions. The final questionnaire included all of the items from the HSCL-D and the EPDS along with additional signs and symptoms from the local syndrome that were not already part of these screeners (Table 2 includes all of the mental health items in the instrument). Respondents were asked to indicate how often they had experienced each symptom in the previous 2 weeks based on a 4-point Likert scale ranging from '0' indicating 'not at all' to '3' indicating 'extremely often.' After piloting of the instruments, two items were dropped due to respondents' difficulty understanding the symptom in the local context. These were the two positively worded items taken from the EPDS, 'you have been able to laugh when something is funny' and 'you have looked forward to the future with enjoyment.' The final mental health component of the questionnaire included 23 questions.

Psychological disorders are defined both by the presence of signs and symptoms and by impairment in one or more domains of daily function. To assess dysfunction we developed a functional impairment scale based on the four free lists that explored local concepts of regular activities for mothers with newborns (Bolton & Tang 2002). A set of 12 activities selected from the free lists were added to the questionnaire as a measure of functional impairment (Table 3). These items were chosen from among the frequently mentioned tasks across the four domains (caring for self, family, newborn baby and community) reported in the free lists and were confirmed as important during discussions with KIs. Respondents were asked to indicate how much difficulty they had engaging in each activity in the previous fortnight, with responses given on a 5-point Likert scale ranging from '0' for 'no difficulty at

all' to '4' for 'so much difficult that often cannot do the task.' A dysfunction score was generated for each woman by summing the scores for each item, with higher scores indicating greater overall impairment.

Instrument validation

Reliability and validity of the adapted screeners were assessed in a brief quantitative study. To assess the reliability of the instruments, Cronbach alpha scores (Cronbach 1951) and test-retest correlations were analysed. Both convergent and discriminant validity of the scales were investigated. To evaluate convergent validity, we compared depression severity scores with severity in dysfunction. Large, statistically significant correlations between the measures of depression severity and functional impairment would be evidence for convergent validity.

To evaluate discriminant validity, we compared locally identified 'cases' of the local depression syndrome with 'non-cases.' Our hypothesis was that depression severity scores would be able to discriminate between these groups by being significantly greater among 'cases' compared to 'non-cases'. Finally, we conducted sensitivity and specificity analyses using receiver operating curves to test the performance of the different screeners.

Sample selection

To identify 'cases' and 'non-cases' we relied on identification and 'diagnosis' by local non-professionals, given the lack of an appropriate gold standard for evaluating specific mental illnesses among the study population (Bolton 2001b). We asked the KIs from the qualitative study, who had been identified by women in the community as knowledgeable about local depression-like problems, to generate lists of names and contact information of women with recently born babies (live-births only) who they felt were currently suffering from the locally-described syndrome of depression. The KIs were also asked to generate a list of women with recently born babies who they believed did not have this problem. This process resulted in a total list of 140 women, from which we gave each interviewer a subset of women to interview, divided up by location of residence and stripped of the information indicating her KI reported disorder status. The interviewers administered the complete questionnaire, which included the adapted HSCL and EPDS screeners, local symptoms and questions on functioning. At the end of the interview we also asked the respondents whether they thought they were suffering from the locally-defined depression syndrome. For the analysis, 'Caseness' was defined based on agreement between the KI

and the respondent as to whether they both had identified the respondent as having the local syndrome. The Institutional Review Board of University of North Carolina and the Research Ethics Committee at the University of Kinshasa approved this study.

Results

Qualitative study results

Twenty-two problems were mentioned by more than one respondent in response to the first free list question about problems of mothers with young babies. Similarly 19 problems were mentioned by more than one respondent in response to the second question on problems mothers have that affect their children (Table 1). Responses that represent different ways of stating the same concept, according to the interviewers working with the data in the local language, were grouped together. For example, 'worry, torment of the mind and lack of peace' were grouped together as being different ways respondents described mental distress. These problems were frequently mentioned in response to both free list questions. Thus we concluded that this cluster of problems defining mental distress appears to be the most salient mental health problems experienced by mothers who have recently given birth and therefore became the focus of the (KI interviews). In the course of the KI interviews, 10 of the 14 KIs referred to these symptoms of distress as part of a single local syndrome they described with the name Maladi ya Souci (in Lingala, the local language). The reported symptoms of Maladi ya Souci, translated as a syndrome of worry, are shown in the first column of Table 2. Only those symptoms reported by more than one KI are included in the list.

A review of the Diagnostic and Statistical Manual of Mental Disorders (DSM)-IV suggests that the diagnosis that most closely corresponds to this local syndrome is major depressive disorder (MDD) (American Psychiatric Association 1994), as both MDD and the local syndrome include symptoms of sadness, irritability, appetite reduction, sleep disturbance, somatic complaints, tiredness and fatigue, memory difficulties and suicide ideation. Some local symptoms appear to be expressions of irritability, including anger and fighting/disputing with others for no reason. Anxiety symptoms were also part of the local syndrome, including restless/agitated heart, worry and lack of peace. This is consistent with findings in Western populations where depression and anxiety symptoms commonly co-occur, particularly in the diagnosis of post-partum depression (Cox *et al.* 1982; Kumar & Robson 1984; Wenzel *et al.* 2001).

Table 1 Problems of new mothers identified from the free list interviews conducted with mothers with young babies ($n = 80$)*

Problems new mothers have	Problems new mothers have that affect their children
Illness/serious disease/stomach aches	Illness/serious disease/disease of the man
Hunger/malnutrition/difficulty finding food	Parental disputes/domestic violence
Unemployment/lack of work	Lack of food/malnutrition
Lack of money/poverty	Worries/lack of peace/torments
Man wants sexual intercourse too soon after delivery	Sorcery/witchcraft/demons
Caretaking of children/their education	Prostitution
Difficult housing conditions	Mothers who flee the home
Abandonment by husband/husband deserts	Infidelity
Rivalry between co-spouses	Too short interval between pregnancies
Lack of support/aid/assistance	Theft
Sorcery/witchcraft	Lack of money
No one to care for child when mother doing commerce	Neglect of the children
Aches in lower abdomen	Death causes by illness
Cynicism of husband/infidelity/jealousy	Miserable life/difficult life
Lack of proper clothes (for after maternity)	Lack of support
Worries/torments/lack of peace	Lack of employment
Lack of family planning/too rapid pregnancy	Lack of clothes for children
Lack of household equipment/utensils	Parent's separation/divorce
Children's illnesses and diseases	Too much drinking
Death of the father (baby's)	
Difficulties doing household chores	
Bleeding	

*Problems are those mentioned by two or more respondents and are listed in decreasing order of frequency mentioned.

Validation study results

One hundred and thirty-three women were administered the complete questionnaire, 91 of whom had been identified by KIs as suffering from Maladi ya Souci and 42 as not (seven women identified by KIs were not found). Cronbach's alpha scores were generated separately for the mental health and function scales. The alpha scores for the 15-item HSCL, eight-item version of the EPDS screener, and 14-item local screener were 0.86, 0.76 and 0.88 respectively. As an indication of internal consistency, Cronbach's alpha scores should be at least 0.7 and ideally greater than 0.8 (Nunnally 1978). The alpha for the scale with all 23 mental health symptoms was 0.92, which did not increase by the removal of any individual symptom, an indication that all items measure the same underlying construct. The alpha score for the scale comprised of the 12 function items was 0.75, which was only marginally improved with the removal of one function task (working in the gardens). As an evaluation of test-retest reliability, a random sample of 33 women was re-interviewed by the same interviewer within 3-days of the first assessment. The correlations between the scale scores from first interview and the re-interview were: 0.59 ($P < 0.001$), 0.53

($P = 0.003$), and 0.42 ($P = 0.02$), for the HSCL, EPDS and total scores respectively, suggesting adequate reliability.

As depression-like syndromes are known to have a significant effect on function (Simon 2003), convergent validity was evaluated by an association between increased syndrome severity and high dysfunction. The correlation between the 23-item total symptom scale and the 12-item dysfunction scale was 0.34 ($P = 0.0001$). To investigate the relationship further, we generated discrete categories of dysfunction using the function scale scores (0, 1–4, 5–7, 8+ points) and compared depression severity across the groups. These categories were selected based on the distribution of the functional impairment scores, with approximately 50% having scores of 4 or less, 25% between 5 and 7, and 25% reporting scores of 8 or greater. Table 4 presents the comparisons of mean severity scores for all three depression scales across these ordinal categories. The consistent increase in depression severity scores with each incremental increase in dysfunction provides additional evidence of convergent validity for these measures.

As a test of discriminant validity, we compared mean syndrome severity scores between 'cases' and 'non-cases' of the local depression syndrome. Of the 91 women who

	Local*	EPDS*	HSCL*
1. Able to laugh when something is funny**		X	
2. Look forward to the future with enjoyment**		X	
3. Restless/agitated heart	X		
4. Low in energy/fatigued/tired	X		X
5. Blame yourself for problems that weren't your fault		X	X
6. Cry easily	X	X	X
7. Loss of sexual interest or pleasure			X
8. Poor appetite/loss of weight	X		X
9. Difficulty falling asleep and sleeping	X	X	X
10. Hopeless about the future			X
11. Sad/lack happiness	X	X	X
12. Lonely			X
13. Thoughts of ending your life	X	X	X
14. Feeling of being trapped or caught			X
15. Worrying too much about things	X	X	X
16. No interest in things that you used to be interested in			X
17. Feel everything is an effort/overwhelmed		X	X
18. Feel worthless			X
19. Scared or panicky for no reason		X	
20. Angry	X		
21. Lack of peace	X		
22. Tormented	X		
23. Self-pity	X		
24. Stomach pains	X		
25. Disputing/arguing for no reason	X		

Table 2 Signs and symptoms included in the assessment of post-partum depression-like problems

EPDS, Edinburgh Post-partum Depression Scale; HSCL, Hopkins Symptom Checklist Depression Scale.

*Indicating source of item: Local – identified by the 14 local key informants during the qualitative study as being salient symptoms of local syndrome of Maladi ya Souci.

**These two items were not included in the final scales as they were not well understood in the local context, so the final EPDS scale included the 8 other items and the total symptom scale included the 23 other items.

had been identified by KIs as suffering from Maladi ya Souci, 41 (45%) self-identified as having the syndrome and were identified as 'cases'. Of the 42 women identified by KIs as not having the local syndrome 20 (48%) self-identified as not suffering from it and were identified as 'non-cases'. Comparing the total symptom scores among these two groups, the mean for the cases, 34.9 points (SE 1.8), and non-cases, 16.9 points (SE 2.4), were substantially and statistically significantly different ($P < 0.0001$). This pattern held for all the depression scale scores (Table 5).

Table 6 presents the results from sensitivity and specificity analyses. The area under the curve for the detection of the local depression-like syndrome ranged from 0.83 to 0.87, depending on the scale used. The optimal cut-off scores for each scale maximized local sensitivity and specificity, all of which were at 80% or greater, except for the specificity of the EPDS cut-off.

Discussion

By using both qualitative and quantitative research strategies we were able to validate the existence of a post-partum depression-like syndrome among women in this part of Africa. From the qualitative study, multiple local informants described a local syndrome, Maladi ya Souci, which included all the diagnostic symptom categories for an episode of DSM-IV defined major depressive disorder. As the study focused on women in the post-partum period, we concluded that this was sufficient evidence supporting the existence of a post-partum depression-like syndrome in this population. From the quantitative study, using locally adapted versions of standard depression screeners and a local diagnosis of Maladi ya Souci as a point of comparison, we were also able to establish local reliability and validity for both the concept of the local syndrome and the adapted screeners.

Table 3 Activities and tasks of new mothers identified from the free list interviews conducted with mothers with young babies*

Commerce
Helping others
Working gardens
Visit the sick
Prepare meals
Take care of the home
Washing clothes
Taking care of one's body
Taking care of one's hair/braids
Bathing in hot water
Washing the diapers
Washing the new baby

*Activities were selected from the frequently mentioned tasks for caring for self, family, the new baby and participating in the community. Only activities mentioned by two or more respondents are included.

The similarity of test characteristics across the scales (Table 6) does not provide any statistically-based reason for selecting one screener over another. The HSCL, which captures the full range of the western construct of depression and is relatively brief (15 questions) could be used for screening purposes, or the total symptom scale could be used as it includes both the standard symptoms of depression as well as the symptoms relevant to the local context.

Normally validity testing is done with a criterion of structured clinical interviews by a mental health professional, as has been done with the EPDS in Turkey (Aydin *et al.* 2004); China (Hawley & Gale 1998); Chile (Jadresic *et al.* 1995); South Africa (Lawrie *et al.* 1998); and Nigeria (Uwakwe & Okonkwo 2003). There are two issues in using this approach across cultures. First, appropriately trained and locally experienced clinicians may be few or unavailable in some resource-poor areas. Second, both the instrument and the clinician's appraisal are based on Western models of mental illness. The Association of

Psychiatrists in Africa has concluded that depression in Africans 'presents certain peculiarities that tend to obstruct its identification' (Uwakwe & Okonkwo 2003). Thus, relying on clinical assessment based on Western medical traditions may not be sufficient to ensure that a measurement tool is locally valid. As we did not rely on standard clinical interviews, we cannot conclude that we have validated the actual DSM-IV defined syndrome of major depressive disorder. Rather, using an alternative approach, we were able to learn about important local concepts of mental illness using qualitative methods and then adapt instruments that best match these concepts. Using this approach enhances the content validity of the instrument and therefore increases the likelihood that the instrument will prove more accurate. We have previously successfully used this approach in studies of depression in Uganda and Rwanda (Bolton *et al.* 2002, 2004; Wilk & Bolton 2002) and among trauma-affected adults in Indonesia (Bass *et al.* 2006).

Study limitations

While one strength of this 'locally-focused' approach is the ability to identify appropriate terminology and descriptions of local syndromes, this method potentially limits our ability to conduct cross-cultural comparison studies. Adapting instruments to each local context results in different screeners being developed even when they are based on the same initial screener. In different contexts the adaptations may be small or large, resulting in the possibility of reduced comparability across populations.

Additional limitations of this approach include relying on a small number of KIs to define the syndrome and in the lack of complete agreement on the name used to describe the syndrome. Although only 14 KIs were used to generate syndrome specific information in the present study, this included a wide range of informants – ministers, traditional healers, marriage counselors and local 'wise' women –

Table 4 Evaluation of convergent validity: average syndrome scale scores by different degrees of functional impairment*

	Functional impairment scale scores, categorized				P-value**
	0 (n = 35)	1–4 (n = 34)	5–7 (n = 31)	8+ (n = 33)	
Local syndrome score, mean (SD)	9.8 (9.2)	14.4 (8.9)	15.6 (9.1)	19.2 (9.0)	0.0006
HSCL score, mean (SD)	10.4 (9.4)	13.5 (8.9)	15.0 (9.8)	19.2 (8.9)	0.002
EPDS score, mean (SD)	5.9 (5.1)	7.7 (5.0)	9.0 (5.1)	10.4 (4.6)	0.002
Total symptoms score, mean (SD)	15.9 (14.1)	22.7 (13.5)	24.5 (14.3)	31.2 (14.2)	0.0002

EPDS, Edinburgh Post-partum Depression Scale; HSCL, Hopkins Symptom Checklist Depression Scale.

*The local syndrome scale is made up of 14 items, HSCL scale has 15 items, the EPDS scale has 8 items and the total symptoms scale has 23 items.

**P-value indicating significant difference of means across categories using ANOVA.

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	Caseness as defined by key informant and self identification		P-value**
	Cases (n = 41)	Non-cases (n = 20)	
Local syndrome scale score, mean (SE)	21.8 (1.2)	10.4 (1.6)	<0.0001
HSCL-D scale score, mean (SE)	21.3 (1.2)	10.4 (1.8)	<0.0001
EPDS 8-item scales score, mean (SE)	11.6 (0.7)	5.7 (0.7)	<0.0001
Total symptoms scale score, mean (SE)	34.9 (1.8)	16.9 (2.4)	<0.0001

EPDS, Edinburgh Post-partum Depression Scale; HSCL, Hopkins Symptom Checklist Depression Scale.

*The local syndrome scale is made up of 14 items, HSCL scale has 15 items, the EPDS scale has 8 items and the total symptoms scale has 23 items.

**P-value indicating statistical mean differences between cases and non-cases using paired *t*-test.

	Area under curve (SE), [CI]	Optimal cut-offs*	Correctly classified	SENS	SPEC
Local syndrome scale	0.85, (0.05), [0.75–0.95]	16 points	80.3%	80.5	80.0
HSCL-D scale	0.87, (0.05), [0.76–0.98]	15 points	80.3%	80.5	80.0
EPDS 8-item scales	0.83, (0.05), [0.73–0.94]	8 points	82.0%	85.4	75.0
Total symptoms scale	0.87, (0.05), [0.77–0.97]	25 points	82.0%	80.5	85.0

EPDS, Edinburgh Post-partum Depression Scale; HSCL, Hopkins Symptom Checklist Depression Scale.

*Optimal cut-off selected by highest correctly classified that maximized both sensitivity (SENS) and specificity (SPEC).

among whom there was general agreement on description of Maladi ya Souci.

The lack of complete agreement on the name for the syndrome is not unexpected. Patel and colleagues discuss the general problem of defining depression in developing countries when no direct equivalents exist for the word 'depression'. Often times, one of the primary symptoms is used to define the syndrome, such as 'thinking too much' in Zimbabwe, or 'nerves' in some parts of Latin America (Patel *et al.* 2001). The most often mentioned symptom in the qualitative study was the symptom of worry, so it is not surprising that the syndrome itself is defined by this symptom. While all of the KIs did not identify the syndrome by this name, they all acknowledged that the local population would understand this name as encompassing all the symptoms defined within the syndrome. Maladi ya Souci was therefore the syndrome name chosen to describe the local syndrome of depression in this population of women in Kinshasa.

Conclusion

We found that depression-like problems among women in the post-partum period is a conceptually valid construct in

Table 5 Differences in mean scale scores for cases and non-cases for evaluation of discriminant validity of local and adapted scales*

Table 6 Test characteristics using receiver operating curves for each of the depression-related scales

Kinshasa and that women are aware of this problem and consider it an important impediment for their own well-being as well as for their children's. We were able to develop and test the validity of Western instruments in a low resource environment and found that such testing was necessary to produce an accurate instrument for the local context. Our findings here, and in other low resource environments, suggest that local adaptation and validation is both feasible and warranted.

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