Validation of the Arabic version of the Edinburgh Postnatal Depression Scale and prevalence of postnatal depression on an Algerian sample

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Summary:

This research is intended to validate the Edinburgh Postnatal Depression Scale (EPDS), to determine the best cut-off and the prevalence of postnatal depression in Laghouatis community. Fifty three women attending vaccination consultation in tow MIP
(Maternal and Infantil Protection) in Laghouat (south of Algeria) completed the EPDS and BDI. The study of its sensitivity, specificity and predictive values, with a BDI as the reference, found that 13 was the best cut-off score. The correlation coefficient of the total score of the Arabic version of EPDS with BDI total score was 0.69, internal consistency and reliability was also good. Factor analysis showed that its internal structure is composed of three subscales (F1, depression), (F2,Sadness), (F3, self-harm).The Arabic version of the EPDS was found to be a self-rating scale with good psychometric characteristics which measures what it claims to measure. And a prevalence of post natal depression in this sample was 28.30% .

Keywords: Scale; Postnatal depression; Algeria; Validation; Factorial analyses; EPDS; Prevalence.

Résumé :

Cette recherche a pour objectif de valider l'Échelle de dépression postnatale d'Edimbourg (EDPS), afin de déterminer le meilleur seuil et la prévalence de la dépression postnatale dans un échantillon de Cinquante-trois femmes de Laghouat. Venant au rendez-vous de vaccination dans les PMI(Centres de Protection de la mère et de l'enfant) .Deux instruments ont étaient appliqués l'EDPS et le BDI. L'étude de sa sensibilité, de sa spécificité et de ses valeurs prédictives de l'EDPS, avec un BDI comme référence, a révélé que le meilleur score seuil était 13 . Le coefficient de corrélation du score total de la version arabe de EDPS avec le score total de BDI était de 0,69, la cohérence interne et la fiabilité étaient également bonnes. L'analyse factorielle a montré que sa structure interne est composée de trois sous-échelles (F1, dépression), (F2, tristesse), (F3, automutilation). La version arabe de l'EDPS s'est révélée être une échelle d'auto-évaluation dotée de bonnes caractéristiques psychométriques et mesure ce qu'elle prétend mesurer.La prévalence de la dépression post-natale dans cet échantillon était de 28,30%.

Mots-clés: échelle; Dépression postnatale; Algérie; Validation; Analyses factorielles; EDPS; Prévalence.

I- Introduction :

The concept of postpartum depression included a situation Where the mother is prone to feelings of sadness, helplessness, inability to motherhood, anxiety, sleeping difficulties, fatigue, a tendency to social withdrawal and isolation. (Gautier, 2007 ; Teissedre & Chabrol, 2004; Tronick, & Weinberg, 1997)

Guedenney and Jeammet (2001) have noticed that there are two peaks of onset, The first was between 6 and 12 weeks of post-partum and named it early post-partum depression, and the second less studied occur in the second semester of post-partum.

It may last to the end of the first year after birth, where is considered to be a serious problem, especially if it is left untreated, the mother was exposed to the failure of her marriage, especially when the husband did not understand her situation and her suffering. (Buist, 1998 ; Holden, 1991; Lovestine & Kumar, 1993) It also poses a threat to the bilateral relationship between the mother and her child . (Beebe & al, 2008; Cazas & Delain,1999; Donovan & al, 1998; Field, 1995) and may lead to harm herself or her baby and cause developmental disorders. (BECK, 1998; Galler, 2000; Goodman & al, 2008; Murray & Cooper, 1997; Sroufe& Rutter, 1984).

It has been shown that some infant of depressed mothers may already exhibit behavioral, physiological, and biochemical deregulations shortly as a psychosomatics effects.(Field, 1998) Making the diagnosis essential.

Validation of the Arabic version of the Edinburgh Postnatal Depression Scale (P.P .323-336)

Sagovsky, Holden, Cox have developed The Edinburgh Postnatal Depression Scale to assist primary care health professionals to detect mothers suffering from postnatal depression. The EPDS was developed at health centers in Livingston and Edinburgh Called the measure on behalf of the city. It remains the most widely used scale. It consists on a self-administered questionnaire, Fast and easy to use, Time scrolling does not exceed 5 minutes, and scoring as well as does not exceed 5 minutes. It use Does not need formation.

The mother was questioned about what she felt in the previous 7 days and she has given 4 possible responses to 10 items. Response categories are scored 0 to 3 according to the response, with items 3, 5 and 10 reverses recorded making the total score range of 0 – 30, and the method of scrolling, either in writing or by telephone, An oral formula was used for women are illiterate.

Scores 10 indicated probable depression. (Hiscock & Wake, 2001) Original validation with Scottish women at 6 weeks postpartum, has A cut –off 12/13.(Henshaw & al, 2009).

Several studies confirm that the validity of the measure in different countries and cultures. (Matthey & al, 2003) The most widely used screening tool. Which has been translated into 23 languages, It has been translated into Turkish and validate by Aydan N. and al in 2004. Indian version has been done by Banerjee N. & and others in 1999. The Italian version by Benvenutti P. & al in 1999. The French one by Guedeney N. & Fermanian J. in 1998. And it was translated to Arabic by Ghubash Rafia, Abu Saleh Mohammad and Tawfiq DaradKeh in 1997 at the United Arab Emirates. (Henshaw & Elliott, 2005)

The EPDS has been validated for use in pregnancy, some non-childbearing populations, and fathers. (Henshaw & al,2009)

More than 46 studies set up the validity and reliability of the scale in different cultures, canceled 27 of them for her non conformity in methodology, And retained 19 of them which the Arabic version amended by doctors in The United Arab Emirates. (Jardri, 2004)

Arabic study has done on sample of 95 postpartum women were assessed at one week postpartum with the (EPDS) and Using a cut-off score of 12on EPDS and Catego diagnosis as a criterion variable, the sensitivity and specificity of the scale were 73%and 90%, respectively The internal reliability of the scale was 0.84 (αCronbach). (Ghubash & al, 1997) In this validation factor structure not extracted and cut-off not delimited with ROC curve.

This questionnaire helped in determining the rate of postpartum depression. This course, but the ratio remained underestimated due to the denial of the mother, As well as the diversity of the means of measurement, differentiation of measurement periods, different size and methods used for the selection of samples in addition to the different cultures.

Perhaps the current study is the first study on the prevalence of this disorder in Algeria. For the difficulty of getting the Arabic version of EPDS done by Ghubash and al, we decided to conduct this study.

This study aims to find out the validity and reliability of the Arabic version of the EPDS, to determine the optimum cut-off value of post- partum depression in Algerian community and to investigate its prevalence in a childbearing women sample from Laghouat city in Algeria.

II– Methods and Materials:

II -1-Ethics:
The project was funded by the Algeria 2 University Research Council Grant and ethical approval was obtained from.

- Request permission from the designer (his maker) John Cox.

-The Committee for Medical Ethics of Health in Laghouat city approved this study. All participants in the study gave written informed consent. Women in need of psychiatric treatment were referred to treatment.

II -2-Study design and site:

The sample was selected in tow MIP at the time of vaccination in Laghouat (A city situated at 400 in the Southern region of Algeria considered a medium sized municipality. Having approximately 370 thousand inhabitants).

II -3-Study participants and its characteristics:

A random hospital sample, was undertaken, It is comprised (n=53) postpartum women. They were assessed at four weeks to 14 week post- partum. Mother age ranged between 21-47 years. Most of the mothers have a good level of education (see table n1)

Table(1): Personal Characteristics of Women in the study

Characteristics	
Age of mother	Mean=30.01 Standard deviation=4.96 Min= 21 Max=47
Age of babe	Mean=7.39 Standard deviation=3.59 Min=4 Max=14
Degree of the mother	Illiterate=1.88% Elementary=10.37% Middle school=16.98% secondary=32.07% university=39.62%
Marital status	single mother= 0% Married=100% Divorced=0% widow=0%

II -4-Translation:
The EPDS was translated into Arabic by the researcher and retranslated back into English by two teachers of English at the University of Laghouat (South of Algeria), and we found that Arabic and English version was similar at rate 90 percent.

II -5-Instruments used:
-Interview: This interview was done to prepare participants to the study and, to determine characteristics of the sample.

-The Arabic version of EPDS: Ten-item EPDS, a self-report measure of postnatal depression. All are self -administered, except one illiterate woman an interviewer-administered format was used and, they respondent were asked to report on symptoms over the last week**.**

-BDI: Beck Scale for Depression in its condensed and abstract version (BDI). Composed for 13 item instead of 21, Where each item contains a set of 4 ferries dotted from 0 to 3, We have used the degree of cut-off in this measure equal to 8, is the degree obtained from previous studies, a measure was translated to Arabic , its validity and its reliability was counted by several Arab researchers[1].

II -6-Statistical methods:
The concurrent validity of the EPDS was measured by correlating its score with BDI total score. Its predictive validity, sensitivity, specificity value and Receiver Operation Characteristics (ROC) was estimated by the degree of agreement between EPDS classification of subjects , using a cut-off score 12 into depressed and non- depressed women and sum score of BDI using a cut-off score 8. Item (reliability) analysis of the EPDS was carried out to estimate the internal consistency using Cronbach's α and split half method.

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[1] See Ghrib A.(1985) and Ibrahim A. (1998)

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A Principal Component Analysis (PCA) with varimax rotation was performed in order to investigate the factor structure of EPDS. All statistical analyses were carried out manually or using SPSS for windows.

III- Results and discussion :
III -1-Results

Using the Concurrent validity the coefficient of correlation between scores of EPDS and criteria test (BDI) was good r = 0.699 at (p- value 0.05).

The results of Internal and external validity according depressed and non-depressed mothers were: specificity= 0.84, Sensitivity =0.75, Positive predictive value=0.75, Negative predictive value=0.84.

Internal reliability was done by two methods. First by calculating alpha cronbach and, second by using the half- split method.

**Table (2): Depressed and non -depressed women for the two tests.**

	depressed	Non-depressed
Positive test	15a	5b
Negative test	5c	27d

Table (3): Validity indices of the Edinburgh Postnatal Depression Scale.

r	Sp	Se	PPV	NPV	αCronbach	Half-split
0.699	0.84	0.75	0.75	0.84	0.76	0.81

Area under the curve (AUC) was 0.864 (figure 1).The best cut- off score by the new EPDS test is between 12.5 and 13.5.(table 4)

The PCA with Varimax rotation extracted three factors, prime factor accounted for 34.42% of the scale variance, second factor for14.44%, and third factor for12.60 %.(Table5)
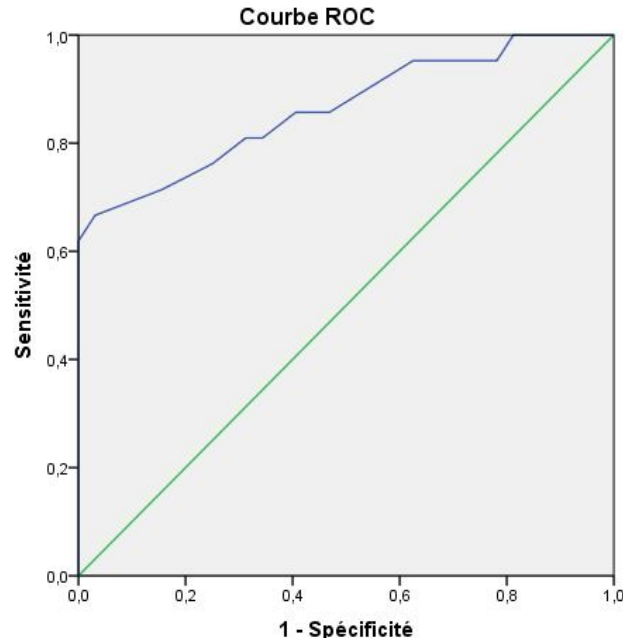
Les segments diagonaux sont générés par des liaisons.

Figure (1): ROC-curve for the Arabic version of EPDS.

Table (4): Coordinates of the curve.

Positive if greater than or equal to	1. Sensibility	2- Specificity
-1,0000	1,000	1,000
,5000	1,000	,938
1,5000	1,000	,906
2,5000	1,000	,844
3,5000	1,000	,813
4,5000	,952	,781
5,5000	,952	,625
6,5000	,857	,469
7,5000	,857	,406
8,5000	,810	,344
9,5000	,810	,313
10,5000	,762	,250
11,5000	,714	,156
12,5000	,667	,031
13,5000	,619	,000
14,5000	,381	,000
15,5000	,333	,000
17,5000	,190	,000
20,0000	,143	,000
22,5000	,048	,000
25,0000	,000	,000

Table (5): Matrix of components after rotation

	Component		
	1	**2**	**3**
VAR00001	,731	-,303	
VAR00004	,703		
VAR00008	,669	,538	
VAR00002	,608		
VAR00007	,583	,312	
VAR00005	,542		
VAR00003		,858	
VAR00009	,349	,776	
VAR00010			,831
VAR00006	,367		-,731
	Component		
	1	**2**	**3**
VAR00001	,731	-,303	
VAR00004	,703		
VAR00008	,669	,538	
VAR00002	,608		
VAR00007	,583	,312	
VAR00005	,542		
VAR00003		,858	
VAR00009	,349	,776	
VAR00010			,831
VAR00006	,367		-,731

The prevalence of postnatal depression was according to BDI =39.62%, but according to EPDS with a cut-off 12 =39.62%. The rate down with the optimal cut- off score (13) of EPDS to28.30%

III -2-Discussion:

This study describes the psychometrics properties of the Arabic version of EPDS in Algeria and investigated the prevalence of postnatal depression among women from Algeria in Laghouat community.

EPDS has been translated into several languages, including Arabic version done by the Ghobash and others and used in several Arab Studies, including a studies of Ghubash and al (1997), Green (2006) in Emirates, Chaaya & al (2002) in Lebanon, Massmoudi & al (2009) in Tunisia and Agoub (2005) in Maroco. But difficult to acquire and get it. Made us initiate translated and adapted it for our Algerian Arabic community, In order to bring it closer to psychologists and psychiatrists primarily and secondly to researchers to be included as an Appendix followed search.

We have found the value of specificity 0.84 and sensitivity 0.75 at cut-off equal to 12. Many Studies calculates the internal validity of the measure by the coefficient of sensitivity

and specificity found sensitivity values ranged from 0.65 to 1, the values of specificity ranged from 0.71 to 0.97 at the level of statistical significance 0.05. (Jarderi, 2004)

Our Results converge with the study of J .Cox (1987) by 0.78 specificity and 0.86 sensitivity with cut-off 12.5. While Guedeny found (1997) excellent results for internal validity (sp=0.92, se = 0.80). Specificity yielded with Portugais version in a sample of 54 mothers counted at 56 weeks with a cut-off score equal to 10 to 0.96 but sensitivity was clearly lower to 0.65. (Areias,1996) Ghubash reached good sensitivity and specificity of the measure in a sample consisting of 95 women at one week after birth.(Ghubash, R.& al., 1997).However external validity in many studies estimated by calculating the positive predictive value (PPV) ranges between 0.76 and 0.87. (Jardri, 2004)

Where the current study with alpha Cronbach equal to 0.84 was an appropriate result. While the coefficient of half split according to Gutman was high (0.81) is not far the findings of the study of Cox (1987) with 0.88.

Concurrent validity is calculated against different Diagnostics criteria and reference instruments (S.P.I. de Goldberg, P.S.E., M.I.N.I., DSM4…) Ghubash finds A moderate agreement between EPDS and Catego diagnosis of depression was also found (Kappa = 0.52). Using a cut-off score of 12 on EPDS and Catego diagnosis as a criterion variable. (Ghubash & al, 1997)

The correlation coefficient of the total score of the Persian version of EPDS with the GHQ-12 total score was 0.76 (P < 0.001). (Mazhari & al, 2007)

ROC curve is a graphical representation of the relationship existing between the sensitivity and specificity of a test, calculated for all possible threshold values. It allows the determination and comparison of diagnostic performance of several tests using the area assessment under the curve. It is also used to estimate the optimal threshold value of a test. (Delacour & al, 2005) The ROC results indicate that EPDS has very good psychometric properties in discriminating between cases and non-cases. And we have found that 12.5/13.5 was the optimal cut-off score.

The goal when developing the EPDS was to create an instrument that identifies the factor 'depression 'and omits 'non-depression' factors such as irritability.(Cox & al, 1987) In spite of that, only two studies have shown presence of one factor. (Berlea & al,2003; Bruin & al, 2004) While most studies have found more than that, Where Guedeney & Fermanian (1998) reported in their study with a sample consisting of 87 Parisians women and using PCA as the method of extraction to two factors explaining 40.6 and 12.7% of the variance, respectively and reflating depression and anxiety.

The Dutch study, using LISREL to conduct a confirmatory factor analysis, reported two factors also, explaining 38.5 %and16.8% of the variance, respectively reflecting depressive symptoms and cognitive anxiety. (Pop & al, 1992)

N.M.C. Glangeaud-Freudenthal conducted another study in French and found also two factors. (Adouard & al, 2005)

In our study we found three factors.(The major of items loading prime factor

(items1.4.8.2.7.5.9.6) reflating depressives symptoms, second factor reflating sadness
(items1.8.7.3.9) and third factor (items 10, 6) linked to self –harm.

Kumar, in 1994 in a critical review of the literature on transcultural aspects of postpartum psychiatric illness has noted the scarcity of studies conducted outside Western Europe and North America (Ghubash & al, 1997). But studies have doubled since that time, to include many countries and continents.

Nicole Guedeney considers that prevalence of post-natal depression does not differ essentially between peoples, if we used appropriate measurement and adapted to these peoples. And with that, the impact of cultural traditions that surround the birth, have an impact on the ratios as shown by studies. (Guedeney, 2001)

According to meta-analyses of O'Hara & Swain (1996) for fifty-nine study using interviews resulting from taxonomic manuals for DSM and CIM and used measures like JUNG (1965) , BECK (1961), EPDS (1987) have found that the prevalence of postnatal depression was 13 %. (Ferreri & al, 2003)

Gautier shows that unfortunately 30 to 50% of mothers with depression are undiagnosed and untreated. (Gautier, 2007)

Studies have shown that rates of postpartum depression are high in the low-income people from 23 to 52 percent. (Clark & al, 2008) Forty-eight percent of Chilian women in the twelfth week after birth recorded in the scale of Edinburgh as a result more than nine points. (Rondon,2004)

Also,   two   prospectives
studies on pregnant women, in the states of Goa and rural South India, detected depressive disorder in 23% and 16% respectively, with depression persisting six months after child birth in 11–14% of women.(Chandra, 2004)

In the Arab countries moderates ratios heave founded, in the United Arab Emirates they have founded 18 percent by administering EPDS on the seventh day after birth.(Abou-saleh & Ghubash, 1997) K.Green & al reported in a recent study in the UAE accounted for 22 percent of depressives women in the third month following the birth. (Green, 2009)

Ratios ranging in Lebanon between 16 % in Beirut 26% in the Bekaa. (Chaaya & al, 2002)

Agoub & al found in Moroccan sample constituted for 144 women the subsequent point prevalence were 6.9 %, 11.8%, and 5.6% respectively at 6 weeks, 6 and 9 months. (Agoub & al, 2005) In Tunisia, she was 19.2 percent in the first week after birth, and by applying The Edinburgh Postnatal Depression Scale. (Masmoudi & al, 2009)

Not recorded for Algeria (according to our knowledge).There are no study on the prevalence of postpartum depression, except this current study. Through the application of the Edinburgh postnatal depression scale at optimal cut-off score (13) we found 28.30% depressed women of the sample. This ratio Rather high than that we discover in other Arabs studies. Probably, That is resulted for a sense of deficiency and lack in the diagnosis and accompaniment of this disorder. Despite its severity and the suffering of many women and what it has from the harmful effects on the interaction between the infant with his mother and the composition of mental disorders.

IV- Conclusion:

   We conclude that The Arabic version of the EPDS was found to be a self-rating scale with good psychometric characteristics which measures what it claims to measure. And a prevalence of post natal depression in this sample was 28.30%. But it is advisable to set up other studies on larger Algerian samples.

- Appendices:

Arabic Version of the Edinburgh Postnatal Depression Scale (EPDS)

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مقياس إدنبرغ لاكتئاب ما بعد الولادة

الاسم : .... التاريخ :...

سيدتي الرجاء اشطبي على الإجابة التي تتناسب مع إحساسك في السبعة أيام الماضية و ليس اليوم فقط.

6- شعرت بأن الأمور تفوق طاقتي*.   1-كنت قادرة على الضحك والتفاؤل.

□ نعم، في كثير من الأحيان شعرت أنني غير قادرة أن أواجه المواقف.   □ مثلما كنت دائما.

□ نعم، في بعض الأحيان شعرت أنني غير قادرة على المواجهة مثل المعتاد.   □ ليس تماما كالمعتاد.

□ لا، كنت قادرة على مواجهة أغلب المواقف.   □ أقل بكثير هذه الأيام .

□لا، شعرت بأنني فعالة كالمعتاد.   □لا، أبدا.

7- شعرت بالحزن لدرجة أنني عانيت من مشاكل في النوم *.   2- تطلعت للمستقبل بسعادة و ثقة .

□ نعم، في أغلب الأحيان.   □ مثلما هو معتاد.

□ نعم، في بعض الأحيان.   □ نوعا ما أقل من المعتاد.

□ لا، ليس كالمعتاد.   □ أقل بكثير من المعتاد.

□ لا، أبدا.   □ لا، أبدا.

8- شعرت بالحزن وقلة السعادة *.   3- لمت نفسي بدون داع عندما ساءت الأمور*.

□ نعم، في أغلب الأحيان .   □ نعم، في معظم الأحيان .

□ نعم، في كثير من الأحيان .   □ نعم، في بعض الأحيان .

□ ليس غالبا.   □ ليس دائما.

□ لا، أبدا.   □ لا، أبدا.

9- شعرت بالتعاسة حتى أنني بكيت *.   4- شعرت بالقلق و الحيرة دون سبب مقنع.

□ نعم، في غالب الأحيان.   □لا، أبدا.

□ نعم، في كثير من الأحيان .   □ تقريبا أبدا.

□ فقط من حين لأخر.   □ نعم، في بعض الأحيان .

□ لا، أبدا.   □نعم، في كثير من الأحيان .

10- سبق و أن فكرت في إيذاء نفسي*.   5- أحسست بالخوف و الذعر بدون سبب ظاهر*.

□ نعم، في كثير من الأحيان .   □ نعم، في كثير من الأحيان .

□ في بعض المرات .   □ نعم، في بعض المرات .

□ تقريبا أبدا .   □ لا، ليس كثيرا .

□ أبدا   □ لا، أبدا .

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