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The Use of the Edinburgh Postpartum Depression Scale in a Population of Teenager Pregnant Women in Mexico: A Validation Study

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Abstract: *Background:* Depression may occur in teenager pregnant women. The use of a validated tool for screening depression is highly recommended. The Edinburgh postnatal depression scale (EPDS) is a screening tool for depression used in women during the postnatal period and pregnancy. However, the EPDS has not been validated in teenager pregnant women. Therefore, we sought to validate a Spanish translated Mexican version of the EPDS in a population of teenager pregnant women. *Methods:* One hundred and twenty teenager pregnant women attending routine prenatal consultations in a public hospital in Durango City, Mexico participated in the study. All participants submitted a revised Spanish translated Mexican version of the EPDS and were examined by a psychiatrist to evaluate the presence of depression by using DSM-IV criteria. *Results:* Of the 120 teenager pregnant women studied, 2 had major depression and 25 had minor depression according to the DSM-IV criteria. The optimal EPDS cut-off for screening combined major and minor depression in teenager pregnant women was 8/9. At this threshold, we found a sensitivity of 70.4%, a specificity of 84.9%, a positive predictive value of 47.6%, a negative predictive value of 91.0%, and an area under the curve of 0.81 (95% confidence interval: 0.56-1.07). *Conclusion:* The EPDS can be used for screening depression in Mexican teenager pregnant women whenever a cut-off score of 8/9 is used.

Keywords: Cut off, depression scale, epidemiology, pregnancy, screening, validation.

INTRODUCTION

Depression during pregnancy may occur in women all around the world [1-3]. The prevalence of depression during pregnancy is estimated between 5% and 15% [4]. Depression during pregnancy may be an important risk factor for preterm birth, small-for-gestational age [5], and decreased breastfeeding initiation [6]. The rate of detection of depression during pregnancy is low, and many depressed women do not receive any support or treatment [7, 8]. Depression during pregnancy has also been found associated with postnatal depression [9]. In addition, the frequency of depression during pregnancy may be higher than that of postnatal depression [10, 11].

There are some validated tools for the diagnosis of depression during pregnancy including the Edinburg postnatal depression scale (EPDS) and the primary care evaluation of mental disorders patient health questionnaire [4]. The EPDS [12] has been used for screening depression in both postnatal period [12, 13] and during pregnancy [10, 11, 14]. The EPDS should be validated in languages other than the original English version to determine the optimal cut-off scores of the instrument before it can be used for screening. Depression in pregnant adolescents is common and may lead to adverse medical outcomes [15, 16]. However, there is not any version of the EPDS that had been validated in teenager pregnant women. Therefore, we sought to validate a Spanish translated Mexican version of the EPDS in a population of teenager pregnant Mexican women.

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MATERIALS AND METHODOLOGY

Women Studied

Teenager pregnant women attending routine prenatal consultations in a public hospital (General Hospital of the Secretary of health) in Durango City, Mexico were studied. Teenager pregnant women attended in the hospital belong to a low socioeconomic status. They were enrolled in the study from January to December 2013. Inclusion criteria for enrollment in the study were pregnant women within their 1-9 month of pregnancy, age 17 years and younger, of any occupation, marital status and who accepted to participate. Selection of participants was performed at random. In total, 120 women were included in the study. The studied women had a mean age of 15.9±1.0 years old (range 13-17 years). Women were evaluated once within their 3-9 months (median: 7 months) of pregnancy. Of the 120 women studied, 99 were in their first pregnancy and 21 were in their 2-3 pregnancy.

Evaluation of the Edinburgh Postnatal Depression Scale in Teenager Pregnant Women

We constructed an instrument from the original English version [12] and a Mexican version [17] of the EPDS. Words currently spoken for the general population in Mexico were

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used. The meaning of the words and the general structure of the Mexican version of EPDS were revised in close agreement with those of the original English version. Only one change from the previous Mexican version [9, 17] was made. In the revised version of the instrument, the word "desgraciada" was replaced with "miserable" in the question number 8, Such change improved the translation from the original version of the instrument [12] and the meaning of the question in the Spanish language currently spoken in Mexico. All teenager pregnant women submitted the revised self-administered Mexican version of the EPDS. All women were also interviewed by a psychiatrist to assess major and minor depression by using the DSM-IV criteria [18]. Both examinations (EPDS and psychiatric interview) were done during the same day to every woman. EPDS scores were blinded to the psychiatrist who assessed depression. Data analysis was performed for a researcher other than the psychiatrist and the gynecologist who applied the EPDS.

Statistical Analysis

We used the SPSS version 15.0 software for the statistical analysis. Sensitivity, specificity, and positive and negative predictive values of the revised Mexican version of the EPDS were obtained. The optimal cut-off score of the evaluated EPDS for screening depression in teenager pregnant women were obtained by drawing a receiver operating characteristic curve.

Ethical Aspects

The purpose and procedures of the study were explained to all teenager pregnant women, and a written informed consent was obtained from all of them and/or their next of kin. This study was approved by the ethical committee of the General Hospital of the Secretary of Health in Durango City, Mexico.

RESULTS

Of the 120 teenager pregnant women studied, 2 had major depression and 25 had minor depression according to the DSM-IV criteria. Results of sensitivity and specificity for EPDS scores found in the 120 women are shown in Table **1**. The receiver operating characteristic curve showed that the optimal sensitivity and specificity of the Mexican version of the EPDS in pregnant women was found at 8/9 score (Fig. **1**). At this threshold, we found a sensitivity of 70.4% and a specificity of 84.9%. The area under the curve was 0.81 (95% confidence interval: 0.56-1.07). Increasing the threshold to 9/10 the sensitivity was reduced to 63.0% but the specificity increased to 89.2%. While lowering the threshold to 7/8 the sensitivity remain in 70.4% but the specificity was reduced to 76.3%. Of the 27 women with depression by the DSM-IV criteria, 20 were positive and 7 negative in the EPDS. While of the 93 women without depression by the DSM-IV criteria, 71 were negative and 22 positive in the EPDS. Thus a positive predictive value of 47.6% and a negative predictive value of 91.0% for the EPDS were obtained. Depressed women were treated either with fluoxetine or psychotherapy.

Table 1. Sensitivity and specificity of the Mexican version of EPDS at different thresholds as compared with DSM-IV results in teenager pregnant women.

EPDS	Sensitivity	Specificity
Score	%	%
0-1	96.3	7.5
1-2	92.6	19.4
2-3	92.6	31.2
3-4	88.9	39.8
4-5	88.9	53.8
5-6	85.2	63.4
6-7	74.1	68.8
7-8	70.4	76.3
8-9	70.4	84.9
9-10	63	89.2
10-11	55.6	93.5
11-12	44.4	95.7
12-13	33.3	96.8
13-14	25.9	98.9
14-15	18.5	100
15-16	14.8	100
16-17	7.4	100
17-18	7.4	100
18-19	7.4	100
19-20	7.4	100
20-21	7.4	100
21-22	3.7	100
22-23	0	100

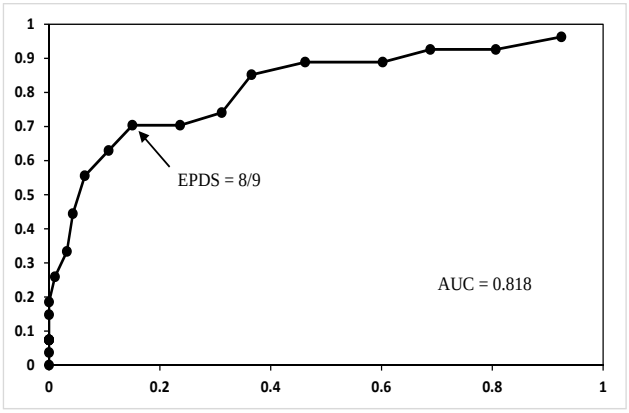

Fig. (1). A receiver operating characteristic curve that shows different cut-off points of the EPDS in teenager pregnant women. Good performance of the Mexican version of the EPDS in these women was found at 8/9 cut-off point.

DISCUSSION

To the best of our knowledge there is not validated EPDS for teenager pregnant women in any language. We performed the present work to validate the EPDS in a population of teenager pregnant women in Mexico. In order to obtain a reliable screening of depression in teenager pregnant women a validation of the screening instrument i.e., EPDS is highly needed. This process allows determining the best score to be used for screening depression. Women likely suffering from depression identified by the EPDS should be further examined by a psychiatrist for confirmation of depression. Our results indicate that the EPDS can be used for screening depression in a Mexican population of teenager pregnant women. For this purpose, the optimal cut-off of the EPDS was 8/9. This cut-off is much lower than the 12/13 cut-off reported in the original EPDS used for postnatal depression [12]. In addition to the marked difference in the cut-offs between the studies, the sensitivity found in our study with cut-off of 8/9 was lower (70.4%) than the one (86%) reported in the original EPDS version with a cut-off of 12/13 [12]. In contrast, the specificity at the best cut-off found in our study (84.9%) is higher than the one (78%) reported in the original EPDS version with its optimal cut-off [12]. Because of the lack of further validation studies in teenager pregnant women we are unable to directly compare our results with others. However, it is noteworthy that the optimal cut-off for screening combined major and minor depression in teenager pregnant women found in our study is low as compared with other reported in other populations. For instance, an optimal EPDS cut-off of ≥13 was found for detecting depression in pregnant women in Sweden [19]. In a previous study in Mexico, we reported an optimal EPDS cut-off score of 11/12 for screening depression at early (less than 4 weeks) postpartum [17]. On the other hand, the optimal cut-off of 8/9 for screening depression in teenager pregnant women found in our study is identical to the one reported for screening major depression in Hungarian women attending routine check-ups at 12 weeks antepartum [20]. In addition, the EPDS cut-off of 8/9 found in the present study is comparable with the 7/8 cut-off found for screening depression in Mexican women within 4 to 13 weeks of postpartum [17].

Screening depression in teenager pregnant women is as important as screening depression in adult pregnant women. However, screening instruments of depression are usually validated in adult pregnant women and it is not clear whether optimal scores for depression in adult women are also valid in teenagers. A number of factors i.e., education, maturity, and socio-economic levels makes teenager pregnant women different from older pregnant women. Psychosocial factors including unemployment and lower educational status have been associated with scoring above 11 on the EPDS screening in pregnant women [21]. The impact of such factors, which are common in teenager pregnant women, on the EPDS scores may suggest that differences in optimal cut-off scores between teenager and adult pregnant women might exists. Therefore, validation of the EPDS in teenager pregnant women is justified and further research to determine the optimal cut-off scores for screening depression in teenager pregnant women in several countries should be conducted.

CONCLUSION

The EPDS can be used for screening depression in Mexican teenager pregnant women whenever a cut-off score of 8/9 is used.

CONFLICT OF INTEREST

The authors confirm that this article content has no conflict of interest.

ACKNOWLEDGEMENTS

CAE conceived and designed the study protocol, participated in the coordination and management of the study, performed the data analysis and wrote the manuscript. ASA helped in the study design, applied the questionnaires and obtained the general data of the participants. CSM performed the clinical evaluation of the participants.

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