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The Validation of the Edinburgh Post-natal Depression Scale on a Community Sample

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The Edinburgh Post-natal Depression Scale (EPDS) was validated on a community sample of 702 women at six weeks post-partum using Research Diagnostic Criteria for depression. The estimates of sensitivity, specificity and positive predictive value, being based on a large random sample, offer improved guidelines for the use of the EPDS by the primary care team.

Recent epidemiological studies have consistently reported that 10–15% of women suffer from a new onset of depressive illness in the early months following childbirth (e.g. Cooper *et al*, 1988). However, only a small proportion of these cases are identified as depressed by primary health care teams (Cox *et al*, 1987). This failure of detection arises despite considerable input of medical resources for the benefit of mothers and their infants following delivery.

In order to address the problem of the poor detection rate of post-partum psychiatric disorder, Cox *et al* (1987) developed a 10-item self-report questionnaire to identify depression in post-natal samples, the Edinburgh Post-natal Depression Scale (EPDS). This measure was intended for use by health visitors or other primary care workers in the course of their routine contacts. The questionnaire was validated on a post-natal sample and measures of sensitivity, specificity and positive prediction established. However, the sample used for validation was small ($n = 84$). It was also not randomly constituted in that the large majority had already been identified by their health visitors as potentially depressed. A further study has recently been reported in which the EPDS was administered together with a psychiatric interview, and sensitivity and specificity rates calculated using DSM–III criteria (American Psychiatric Association, 1980) for major depression (Harris *et al*, 1989). However, the findings of this study are difficult to interpret because of certain methodological limitations. As in the original validation exercise of Cox *et al* (1987), the sample was not randomly selected: almost half were included because of hyperthyroidism, a condition which invariably presents with psychological symptoms common to anxiety and depression (Gelder *et al*, 1989). Furthermore, the EPDS was completed only *after* a full psychiatric interview which is very likely to have sensitised the women to depressive symptoms that might not otherwise have been acknowledged.

The usefulness of the EPDS as a screen for post-partum psychiatric disorder therefore remains uncertain. The two published validation studies do not give a clear indication of its utility because their findings are likely to have been influenced by both the particular configuration of symptoms and the base rate of disorders in the populations studied (Williams *et al*, 1980, 1983). To ascertain the accuracy with which the EPDS can identify psychiatric disorder in post-partum community populations, specificity, sensitivity and predictive values need to be established on a large representative sample. A study with this aim was therefore conducted.

Method

Women presenting on the post-natal wards of the Rosie Maternity Hospital, Cambridge, during the period February 1986 to February 1988 were approached with a view to possible recruitment into a study of factors influencing infant development. They were included if they fulfilled the following criteria: married or cohabiting, primiparous, aged 20–40 years, having had a 37–42 week pregnancy, and living in the Cambridge City area. Additionally, the baby was required to have had a birthweight of at least 2.5 kg, no gross congenital abnormality, and not to have been admitted to the special-care baby unit. A total of 702 women satisfied these criteria and were approached. Only nine (1.3%) refused to take part in the study.

When the infants were six weeks old the mothers were sent the EPDS together with a stamped addressed envelope for reply. Six hundred and seventy-four (97.3%) returned completed questionnaires, 28 (4%) of whom expressed inability or unwillingness to continue in the study. Of the remaining 646 (92% of the original sample), all those with an EPDS score ≥ 13 and a random sample of those scoring 10–12 ($n = 142$) were interviewed either by a psychiatrist or a psychologist using the Standardised Psychiatric Interview (SPI; Goldberg *et al*, 1970). Additional items concerning weight loss and appetite were incorporated into the SPI in order to give conformity with Research Diagnostic Criteria (Spitzer *et al*, 1975) for at least a minor definite depressive episode. Approximately one in ten of those with an EPDS score < 10 and with no indication of

TABLE I

Range of EPDS thresholds and the corresponding values of specificity, sensitivity and positive predictive value (all values expressed as percentages)

Threshold, T	*Specificity*	*Sensitivity:*[1]			*Positive predictive value:*[1]		
		minor	*major*	*both*	*minor*	*major*	*both*
6.5	54.7	96.2	99.5	98.0	9.8	11.9	21.7
7.5	65.1	93.2	99.0	96.3	11.6	14.4	26.1
8.5	74.6	88.4	97.8	93.5	13.9	18.0	31.9
9.5	82.3	81.6	95.8	89.3	16.5	22.7	39.2
10.5	88.3	73.2	92.6	83.6	19.3	28.5	47.7
11.5	92.5	63.5	88.0	76.7	21.7	35.1	56.8
12.5	95.7	52.0	81.1	67.7	23.6	43.0	66.7
13.5	97.5	41.5	73.1	58.5	24.6	50.5	75.1
14.5	98.7	30.7	62.7	47.9	24.4	58.3	82.7
15.5	99.3	22.6	53.0	39.0	23.5	64.3	87.8
16.5	99.7	14.5	40.6	28.6	21.6	70.8	92.4

1. Estimates for minor and major depression as well as both categories combined.

previous psychiatric history were also assessed with the SPI ($n = 45$). Both interviewers were blind to the EPDS score at the time the interview took place. Following interview, any episodes of depression that had occurred since delivery were defined according to RDC major (definite and probable) and minor definite episodes. These data were then used to validate the EPDS.

Results

Table I gives a range of EPDS thresholds, along with the corresponding values of the sensitivity (i.e. the proportion of depressed women correctly identified), and specificity (i.e. the proportion of non-depressed women correctly identified) as well as the positive predictive value of the scale (i.e. the proportion of women identified as depressed who are truly depressed). Estimates of sensitivity and positive predictive value are shown for major and minor depression separately, as well as for both categories of depression combined. The values were estimated by logistic regression analysis (see Carothers & Murray, 1990), a method that allows for the fact that at different stratifications of EPDS score, different proportions of women were interviewed. The table shows, for example, that a threshold of 10.5 correctly identifies more than 90% of mothers with major depression and nearly 75% of those with minor depression and it produces a sample with about equal proportions of depressed and non-depressed mothers. Similarly, a threshold of 12.5 correctly identifies over 80% of mothers with major depression and about 50% of those with minor depression; and it produces a sample in which about two-thirds of the women are depressed.

Discussion

The validation data obtained in the present study underline the importance of the EPDS as a tool for the identification of depression in post-partum samples. Furthermore, the high response rate, achieved even with postal administration, is impressive evidence of the scale's acceptability to women in the post-natal period. However, it is of note that estimates of those dimensions that are of most relevance to the health care worker (i.e. sensitivity and positive predictive value) are substantially lower than those reported in the two previously published studies. Using a threshold of 12.5, Cox *et al* (1987) reported a sensitivity of 86% and Harris *et al* (1989) one of 95%. This compares with a sensitivity of 67.7% obtained in the present study. However, in view of the method of sampling in the two earlier studies, their findings are likely to represent overestimates of the true utility of the EPDS. Our data, derived from a large representative community population, are more likely to be an accurate estimate of how the EPDS would perform if used routinely in post-natal clinics, and could therefore serve to provide improved guidelines for its use by health care teams. They could also be relevant to the planning of future studies in which the EPDS is to be used as the principal screening instrument.

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Folie à Trois among Two Soviet-Jewish Immigrant Families to Israel

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In two cases of folie à trois, affecting two Soviet-Jewish families who emigrated to Israel, both elderly parents in both cases shared the paranoid delusional beliefs of an only child. Severe trauma in the past and social maladjustment in the present may be among the precipitating factors for the development of the shared paranoid disorder.

Shared paranoid disorders are relatively rare. Among them cases of folie à trois are even rarer. In 1942 Gralnic reviewed the entire English literature that dealt with what he referred to as 'psychosis of association'. Of the 103 cases reviewed, only 11 were instances of folie à trois (Gralnic, 1942). Since then only several additional cases have been described (e.g. Wolff, 1957; Dewhurst & Eilenberg, 1961; Fernando & Frieze, 1985).

Increased rates of paranoid states are commonly found among migratory and immigrant groups. The stresses of adaption to a new language, new jobs and a different culture, and feelings of alienation may provide a partial explanation (Hitch & Rack, 1980; London, 1986). Gruenberg (1957), in his review of socially shared psychopathology, stressed the importance of social grouping in determining how fantasies are distinguished from reality.

The following report describes two cases of folie à trois among Russian-Jewish families who immigrated to Israel in the early 1970s. They are of interest not only because of the rarity of the phenomena, but also because of the inadequate mechanisms these families employed to assist them in coping with the hardships of resettlement in Israel.

Case 1

Mr M, a 45-year-old single man, born a Russian Jew and still living with his two elderly parents, was referred to our out-patient clinic for the first time in 1984. He explained angrily that 'psychosocial terrorism' was being used against