Women Whose Mental Illnesses Recur after Childbirth and Partners' Levels of Expressed Emotion During Late Pregnancy

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Expressed emotion (EE) in the partners of 25 pregnant women with a history of psychosis or severe depression and in 13 pregnant control subjects without any previous psychiatric disorder was assessed in the ninth month of pregnancy. At this time, no patient presented as a case according to RDC. Eleven subjects with a history of psychiatric disorder experienced a further episode of illness in the six months following delivery. Partners of women who became ill had made fewer critical and positive comments about their wives during the pregnancy than the partners of women who remained well. Poor self-rated social adjustment in the partners was also predictive of recurrence of illness after delivery.

Women with a history of functional psychosis or severe depression (puerperal or non-puerperal) are at a high risk of relapse after childbirth. Estimates of risk range from 20–30% (Brockington *et al*, 1982) to 50% (Schopf *et al*, 1984; Davidson & Robertson, 1985; Dean *et al*, 1989). Many investigators have commented on a higher incidence of postpartum psychoses in women without partners, i.e., those unmarried (Jones, 1902; Tetlow, 1955; Kendell *et al*, 1981), separated, widowed or divorced (Kendell *et al*, 1987), or whose husbands were absent (at war) during the pregnancy and delivery (Jacobs, 1943). Kendell *et al* (1987) noted that single women were also more likely to make out-patient contacts with psychiatric services, suggesting that the higher admission rates postpartum were not simply a consequence of preferential admissions for single women. It seems therefore that having a partner present can reduce the likelihood of postnatal relapse in otherwise vulnerable women, and the aim of this study was to determine whether certain characteristics of spouses predicted psychiatric outcome after childbirth in women at risk of relapse.

Many studies have reported that high expressed emotion (EE) in key relatives is predictive of psychiatric relapse, in particular in schizophrenia (Vaughn & Leff, 1976; Vaughn *et al*, 1984) but also in bipolar affective disorder (Miklowitz *et al*, 1988) and neurotic depression (Vaughn & Leff, 1976; Hooley *et al*, 1986). In the latter two studies spouses were assessed while their partners were in hospital for depression, and in both studies a further relapse in the nine-month follow-up was associated with high levels of criticism by the spouse during the index episode.

We investigated the partner's EE and also his psychiatric history, emotional stability, and social adjustment. These factors were assessed during the last month of pregnancy, i.e. shortly before the time of greatest likelihood of relapse, but when the women were all well.

Method

The subjects were 25 multiparous, married or cohabiting women and their partners. A woman was defined as having a partner if she had been living with the man for at least 6 months at 36 weeks into her pregnancy, and if the partner said he was the father of the new baby. The women were drawn from a larger sample of 47 pregnant women with a history of affective psychosis or non-psychotic depressive disorder. Nine women did not have partners, and four of the remaining 38 were first-time mothers. They are not included in this report because there were different proportions of first-time mothers in the index and control groups and within the subgroups of women who relapsed and those who did not. Our initial analyses suggested that first-time mothers would be better studied separately from multiparae because their partners tended to make fewer critical comments about them and of course, unlike all but one of the multiparae, none of their previous illnesses were associated with childbirth.

Three multiparae delivered before the interviewer had completed her EE training, three babies were born before the partners could be interviewed, and three partners refused to be interviewed. There were 47 control mothers, and 13 partners of the 23 multiparae in this group agreed to be interviewed; this rate (57%) is too low for our control sample to be regarded as representative but is comparable to rates found in other studies involving couples (for example, in Birtchnell's study (1988) of depression in women in the community, in two samples of couples, 64% and 62% of husbands agreed to an interview). It seems that the control group may be biased to more compliant or interested fathers.

Psychiatric assessments of patients were carried out by the second author, a psychiatrist, who was not involved in spouse interviews. Research Diagnostic Criteria (RDC) diagnoses (Spitzer *et al*, 1978) were made of the woman's

previous psychiatric history, psychiatric condition during the 12 months preceding expected delivery date, at 36 weeks antenatal and from then until six months after delivery. Diagnoses were based on case-notes; SADS (Schedule for Affective Disorder and Schizophrenia; Endicott & Spitzer, 1978) interviews at 36 weeks antenatal and 6 months postpartum; and PSE (Present State Examination; Wing *et al*, 1974) interviews at 36 weeks antenatal and 4 days, 6 weeks, and 6 months postpartum.

EE was assessed using the abbreviated version of the Camberwell Family Interview Schedule (Vaughn & Leff, 1976), which was modified to cover issues involving the woman's pregnancy, as well as any previous and current psychiatric illness or symptoms. The initial section of the interview, that concerning episodes of psychiatric illness, was omitted for control partners. Interviews and ratings were carried out by the first author, who had completed the MRC Social Psychiatry Unit (C. Vaughn) EE training course and had achieved inter-rater reliability coefficients of greater than 0.80 on each dimension of EE. On the two dimensions which were important in this study, critical and positive comments, the inter-rater reliability coefficients were greater than 0.90.

EE interviews were carried out in the couple's home at 36 weeks antenatally. Also assessed at this time were the man's psychiatric history and current psychiatric state (RDC diagnoses based on a SADS–Lifetime interview). Social adjustment was measured through the Social Problems Questionnaire (SPQ; Corney & Clare, 1985), which is a 33-item self-report schedule derived from the Social Maladjustment Schedule (Clare & Cairns, 1978), and which assesses the subject's satisfaction with five social domains: housing, work, financial situation, marital relationship, and other interpersonal relationships. The spouse also completed the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975).

Results

Sixteen of the high-risk group had a history of bipolar or schizoaffective disorder, and nine women had a history of major depression. No patient presented as an RDC case at 36 weeks antenatal. Two women were RDC cases during the 12 months preceding their delivery. One was manic (bipolar disorder) during the pregnancy but had recovered by 7 months antenatal, and the other woman had a panic disorder at the very beginning of her pregnancy. All patients were free of psychotropic medication at the 36-week interview and remained so until after the delivery.

A woman was categorised as relapsed if she was an RDC 'case' during the six-month postpartum follow-up. Eleven women (44%) relapsed, nine within the first six weeks postpartum, the remaining two by 13 and 16 weeks, respectively. Of these 11 postnatal illnesses, four were non-psychotic (major depressive disorder, panic disorder, anxiety disorder), and seven psychotic (mania, hypomania, or schizomania). Six (24%) were admitted to hospital. The rate of relapse for women with a previous history of bipolar or schizoaffective disorder was 9/16 (56%), two non-psychotic and seven psychotic; for those with a previous

history of major depressive disorder, it was 2/9 (22%), both relapses non-psychotic. All of the women admitted to a psychiatric hospital after this delivery had a previous history of bipolar or schizoaffective disorder (38% of this group).

There were no statistically significant differences between women who became ill and those who did not in age at delivery; parity; age at first illness; total time admitted to a psychiatric hospital; time since last admitted; time since last on neuroleptic or antidepressant medication; and number of puerperal psychiatric admissions, non-puerperal admissions, and puerperal and non-puerperal admissions combined. There were no differences between index and control subjects in age and parity.

Partners' EE

There were no differences between partners of women who became ill and those of women who remained well and control partners in their occupation, duration of marriage/cohabitation, psychiatric history (RDC diagnosis), and EPQ neuroticism scores at 36 weeks antenatal (see Table 1).

The number of positive comments was the best predictor of outcome. Partners of high-risk women who remained well were most positive and those of high-risk women who became ill were least positive, while the mean for control partners lay between the two index groups. The pattern for critical comments was similar but not statistically significant. The rate of relapse when partners were categorised according to different levels of critical and positive comments is summarised in Table 2. It can be seen that at all cut-off points a high number of positive or critical

Table 1
Characteristics of partners (mean (s.e.m.))

	Well ($n=14$)	Relapsed ($n=11$)	Control ($n=13$)	χ^2 and ANOVAs
Occupation manual : non-manual	5 : 9	5 : 6	5 : 8	NS
Duration of cohabitation	5.9 (0.7)	7.4 (1.4)	7.7 (1.5)	NS
Previous RDC diagnosis	6/14 (43%)	4/11 (36%)	4/13 (31%)	NS
Neuroticism (EPQ)[1]	9.08 (1.41)	10.82 (1.84)	10.17 (1.59)	NS
Social adjustment (SPQ)[1]	0.85 (0.44)	2.55 * (0.90)	0.42 (0.34)	$F(2,33)=3.57$ $P<0.05$
Marital problems (SPQ)[1]	7/13 (54%)	6/11 (55%)	6/12 (50%)	NS
Critical comments	4.07 (0.92)	2.09 (0.50)	2.69 (0.85)	NS
Positive comments	2.50 * (0.64)	0.64 (0.20)	1.69 (0.46)	$F(2,35)=3.32$ $P<0.05$
All (critical + positive) comments	6.57 * (1.16)	2.73 (0.51)	4.39 (1.14)	$F(2,35)=3.43$ $P<0.05$

*A posteriori comparisons, Tukey's HSD, $P<0.05$.
1. EPQ and SPQs were not obtained from two partners, one index well (reduced $n=13$) and one control (reduced $n=12$).

Table 2
EE category and postnatal outcome

	Well	Relapsed	(%)	
Critical comments				
6+	4	0	(0)	
<6	10	11	(52)	
5+	6	1	(14)	$P=0.06$
<5	8	10	(56)	
4+	6	3	(33)	
<4	8	8	(50)	
3+	8	4	(33)	
<3	6	7	(54)	
2+	9	5	(36)	
<2	5	6	(55)	
Positive comments				
5+	3	0	(0)	
<5	11	11	(50)	
4+	4	0	(0)	
<4	10	11	(52)	
3+	5	0	(0)	
<3	9	11	(55)	
2+	8	1	(11)	$P=0.01$
<2	6	10	(63)	

Table 3
Proportion relapsed as a function of critical and positive comments

Positive	Critical	
	high (3+)	low (<3)
High (2+)	1/5 (20%)	0/4 (0%)
Low (<2)	3/7 (43%)	7/9 (78%)

(2×4) $\chi^2 = 8.48$, d.f. $= 3$, $P < 0.05$.

relapse was less than if the partner was critical and not also positive. The group most at risk comprised the women whose husbands made neither critical nor positive remarks: 78% of these women relapsed as compared to 25% of the remaining subjects ($\chi^2 = 6.51$, $P = 0.01$).

Partners' psychiatric histories and perception of social problems

We then examined measures of the men's emotional adjustment. The fact that a partner had a psychiatric history was not predictive of relapse: partners in each of the three groups were equally likely to have presented as an RDC case (probable or definite) at some time in their lives. The rate of 'caseness' for all partners was 14/38 (37%). Six had a history of major depressive disorder (16%). This rate is comparable to the results of two community studies in which a lifetime RDC diagnosis of major depressive disorder was made in 18–20% of men and women (Weissman & Myers, 1978) and 8–12% of men (Reich *et al*, 1980). Only two partners (one index, one control) had psychiatric illnesses severe enough to warrant contact with a psychiatrist or hospital admission. No spouse presented as an RDC case at 36 weeks antenatal. One man had a generalised anxiety disorder during the second trimester but was no longer a case by seven months.

Following recommendations of the authors of the SPQ (Corney & Clare, 1985), we scored the marital section of the schedule separately and differently from the remaining ones. The SPQ marital score consists of the number of items where a mild, marked or severe problem is indicated. For the social score, only marked or severe problems are counted. One index (well) and one control partner did not complete the SPQ. There were no differences between marital scores or the proportions of partners in each subgroup who expressed dissatisfaction with the marital relationship. With all the other aspects of their social situation taken together, partners of women who subsequently relapsed reported significantly more social problems than did those of women who remained well or normal controls.

Partners ($n = 13$) who perceived themselves as having one or more social problems were nearly three times more likely to have had a previous RDC disorder than those without any problems ($n = 23$). This difference was statistically significant: 8/13 (62%) as compared with 5/23 (22%) ($\chi^2 = 5.70$, $P < 0.02$). They also had significantly higher neuroticism scores ($\bar{x} = 12.62$ v. $\bar{x} = 8.48$, $t = 2.33$, d.f. $= 34$, $P < 0.05$, two-tailed). Whether or not a man indicated social dissatisfaction was independent of his objective social

comments is associated with *not* relapsing. This association between staying well and number of comments is statistically significant at a cut-off of 2 or more for positive comments ($\chi^2 = 6.17$, $P = 0.01$) and approaching significance ($\chi^2 = 3.48$, $P = 0.06$) for five or more critical comments.

Levels of criticism in this study were generally lower than those in studies which have assessed EE during an illness episode, but are comparable to a mean of 2.82 obtained in the one UK study (McCreadie & Robinson, 1987) of spouses assessed while the (schizophrenic) patient was not ill. It is surprising that, overall, index spouses were not more critical about their wives since the former are married to women who are sometimes very disturbed and, moreover, control interviews were shorter than index ones because they did not contain the section which refers to episodes of psychiatric illness.

The three global ratings, emotional overinvolvement (EOI), hostility, and warmth, failed to discriminate between the subgroups. Only four index partners scored on the hostility scale, and three of them were also highly critical anyway. All partners scored lower than 3 on EOI and only five lower than 2 on warmth. In general, the partners were warm and not overinvolved.

Was relapse less likely if critical remarks were also accompanied by positive ones? To avoid a post-hoc decision, we used the median of all 38 scores to place subjects into high and low categories on both positive and critical comments. Scores above the median on critical (3+) and positive (2+) remarks were defined as high on each dimension. The proportion relapsed in each subgroup is shown in Table 3. None of the women whose partners made 2+ positive remarks and fewer than 3 critical ones relapsed. Relapse rates for women whose partners scored high on criticism were intermediate, and if the partner scored high on both critical and positive scales then the likelihood of

situation. For example, the correlation between having or not having problems and social class (manual or non-manual) did not approach statistical significance ($x^2 < 1$). This suggests that the social dimension of the SPQ is a good indicator of the man's social adjustment rather than anything to do with his social situation *per se*.

Multivariate tests

Finally, we carried out a series of multivariate analyses (stepwise discriminant function analyses) to see if we could determine which variables obtained from the partners best predicted relapse. Measures of the woman's past psychiatric illness were included in the analyses because previous illness may have been a partial determinant of the partner's EE responses. Because of the small sample size ($n = 24$; one index partner did not complete an SPQ) and the large number of variables we wished to assess, a technique recommended by Hand (1981) was used; this involved identifying significant contributors to the variance in separate groups of analyses, taking four related variables at a time from this sample size, dropping those variables which appeared to be unimportant, and combining the significant variables from separate subgroups. We examined eight subject illness variables (age of first episode; psychiatric history; bipolar or major depression; total length of previous psychiatric admissions; the elapsed time since last admission; the elapsed time since last on neuroleptic or antidepressant medication; the number of previous episodes of illness, either puerperal or non-puerperal, or the total number of puerperal and non-puerperal combined) and the nine partner variables listed in Table 1.

None of the variables measuring the woman's psychiatric history interacted with the partner variables in predicting relapse. In contrast, a discriminant function consisting of two partner variables predicted psychiatric outcome with an accuracy of 83%: the combined number of positive and critical comments, and whether or not the partner perceived he had a severe or marked social problem. Table 4 shows discriminant function coefficients and the accuracy of the function in predicting relapse category. Women with partners who expressed comments, positive or critical, about them and who were satisfied with their social situation were likely to stay well; those with

inexpressive and socially dissatisfied partners were likely to relapse.

Discussion

The findings of this study are at variance with the generally accepted view that high levels of criticism in the relatives of patients suffering from a variety of psychiatric disorders are associated with a higher risk of relapse.

The level of critical comments reported here is lower than that reported in many other studies, including two studies of neurotic depression in which critical comments of spouses *were* associated with subsequent relapse (Vaughn & Leff, 1976; Hooley *et al*, 1986). This may be because, in both of these studies, as in most others, EE had been assessed while the patient was in hospital for an acute episode. The stability of EE assessed in this way is uncertain. Leff *et al* (1982) reported that criticism in high-EE relatives, in high-contact families, remained high 9 months after relapse, while Brown *et al* (1972) found that in about 33% of relatives it declined. More recently Leff *et al* (1990) showed that it declined dramatically, although this latter study involved Indian families, and these may be different from UK or US ones. Another explanation for the comparatively low levels of criticism in our study may be that we interviewed a partner rather than a parent. Vaughn & Leff (1976) found no difference in the number of critical remarks made by partners as compared to parents. However, in the Nithsdale study (McCreadie & Robinson, 1987), spouses made significantly fewer critical comments than parents (2.82 compared with 5.67). It is also possible that partners of women who are heavily pregnant (36 weeks into the pregnancy) feel less critical of their spouses or less able to express critical feelings about them at such a time.

In at least three studies high EE was unrelated to relapse when other contributing factors such as treatment and duration of illness were taken into account (MacMillan *et al*, 1986; McCreadie & Phillips, 1988; Parker *et al*, 1988). In some instances high EE was even negatively associated with relapse. In the study by Parker *et al* (1988), there was a "consistent nonsignificant trend for those exposed to fewer critical comments to have higher relapse rates" and in a study of agoraphobics, Peter & Hand (1988) have reported a positive correlation between spouses' criticism and patients' behavioural resistance to phobic symptoms. In addition, patients with high-EE spouses showed fewer agoraphobic symptoms at follow-up than those with low-EE partners. The authors of this study suggest that perhaps high-EE

Table 4
Prediction of postnatal relapse by partner's antenatal EE and social adjustment scores

Actual		Predicted	
		well	relapsed
Well	($n = 13$)	10 (77%)	3 (23%)
Relapsed	($n = 11$)	1 (9%)	10 (91%)

Standardised canonical discriminant function coefficients: $x^2 = 10.77$, d.f. = 2, $P < 0.005$.

EE, number of comments (critical and positive)	-0.918
Social adjustment (with or without social problems)	$+0.577$.

couples have more open communication and that in low-EE couples symptoms may be covering marriages at risk – the non-critical partners being content with the status quo and their wives therefore having less incentive to modify their agorophobic behaviour.

The concept of expressed emotion was derived from studies by Brown *et al* (1962, 1972), who were interested in the expression of any emotion, positive or negative. But because the expression of positive emotion appeared to be unrelated to outcome, this dimension of EE has been omitted from more recent studies. In our sample, positive comment scores alone distinguished relapsers from non-relapsers. Parker *et al* (1989) examined the construct validity of the EE scales by comparing the EE scores of parents of male schizophrenics with ratings from interview assessments and their Parental Bonding Instrument (PBI). They failed to find any link between critical comment scores and the parental attributes assessed. Positive comments, however, correlated significantly with PBI ratings of paternal care ($r = 0.46$) but had no association ($r = 0$) with maternal care. This finding suggests that a different underlying trait may be assessed by the positive-comments variable in fathers, and perhaps husbands too, as compared to mothers. It also points to a possible explanation of the failure to demonstrate any connection between positive comments and not relapsing in earlier studies. Mothers have been the relative most often interviewed, and perhaps positive comments in male relatives, and not female ones, are predictive of outcome.

The data also suggested that any effect of criticism was ameliorated by accompanying positive remarks and furthermore that criticism on its own was associated with better outcome than no comment at all. Any comment, critical or positive, was associated with a lowered relapse rate. It seems reasonable to assume that interactions in the marital couples we have studied are rather different from those in couples when one partner is acutely ill; and different, too, from the parental relationship, perhaps less intense and intrusive. The extent to which the partner's style of expression, as measured by the EE interview in this study, was a reflection of his ongoing communication within the marital relationship is of course uncertain and requires future research. However, it is possible that his EE score is an indicator of the extent to which the partner is emotionally engaged with his wife and can express that interest within their marital relationship.

The association between partners' psychiatric adjustment and relapse was indirect, slight, and unrelated to EE. In general, the men were relatively normal from a psychiatric point of view. However,

men whose wives relapsed after delivery were less well adjusted to their social situation before the delivery than were the partners of index women who remained well or partners of control women. That this variable correlated with other measures of the men's psychological adjustment, and not with measures of the women's psychiatric history, suggests that their dissatisfaction was not a consequence of the severity of the woman's illness but something inherent in the men themselves.

Finally, the question of causality remains open. The effect we have found may be related to some underlying mechanism, for example, assortative mating, which may occur in depressive disorders, with depressed patients frequently married to a depressed spouse (Merikangas, 1984). It is possible that the more vulnerable women in this study, perhaps as a consequence of a personal history which may have contributed to their vulnerability in the first place, chose less communicative and/or less well adjusted partners, or vice versa. Alternatively, the reluctance of some partners to speak critically or well of their wives may have been a reflection of anxieties about their wives' vulnerability.

Acknowledgements

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