

## Community Management of Schizophrenia A Two-Year Follow-Up of a Behavioural Intervention with Families

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The relapse and readmission rates of schizophrenic patients who participated in a controlled trial of a nine-month behavioural family intervention trial based on the EE status of their relatives are presented at two years. The patients who received the behavioural family intervention had lower rates of relapse and readmission than patients from high-EE homes who had received a short educational programme or routine treatment. The relapse rate of the behavioural family intervention group (33%) was the same as that of the low-EE group (33%), and significantly lower than that of the non-intervention high-EE group (59%).

Four controlled studies have reported the efficacy of psychosocial family intervention in reducing schizophrenic relapse in high-risk families (Leff *et al.*, 1982; Falloon *et al.*, 1982; Hogarty *et al.*, 1986; Tarrier *et al.*, 1988). Over 9–12 months, family interventions have reduced relapse rates to 0–19%, compared with 41–53% in control groups. Hogarty *et al.* (1986) reported no relapses over 12 months in a group who received both family psychoeducation and management, and intensive social skills training for the patient, compared with 19%, 20%, and 41% relapse rates in patients who received family psychoeducation alone, social skills training alone, and a control group, respectively.

These groups of workers have also specified two-year follow-up relapse rates. Leff *et al.* (1985) reported a 20% relapse rate in drug-complaint patients who received family intervention, compared with 78% in the control group, although if suicides and medication non-compliers are included, these figures rise to 50% and 83% respectively. Falloon *et al.* (1985) reported a 17% relapse rate in the group who received family intervention compared with 83% in the control group. Hogarty *et al.* (1987) reported two-year relapse rates of 25% (family intervention combined with social skills training), 32% (family intervention alone), 42% (social skills training alone), and 66% (control group).

All of these studies identified returning to live with a relative rated as high on expressed emotion (EE) as a high-risk factor for relapse (see also Leff & Vaughn, 1985; Koenigsberg & Handley, 1986).

In a previous paper we reported the relapse rates of our intervention at nine months (Tarrier *et al.*, 1988). Patients with a high-EE relative were allocated to one of four groups, with the following nine-month relapse rates: behavioural intervention (enactive),

17%; behavioural intervention (symbolic), 8%; education, 43%; and routine treatment, 53%. Patients with low-EE relatives were allocated to two groups with the following rates: education, 22%; routine treatment, 20%. This paper reports the two-year relapse rates.

### Method

#### Patients

Details of the patients and their relatives were given in the original report (Tarrier *et al.*, 1988). Of the 73 patients who participated, one died of natural causes before the two-year follow-up point, and has been excluded from the analysis. Patients are included in the analysis as long as they commenced the intervention, as it was reasoned that if treatment dropouts were excluded from the analysis, the sample could be biased towards a good-outcome group, which would have less relevance for service provision.

During the two years, all patients were managed by their clinical team. Patients were maintained on neuroleptic medication; however, it was not feasible to do detailed monitoring of medication dosage and compliance, as it had been during the first nine months after discharge. The clinical teams endeavoured to maximise compliance, and there was no evidence of extensive or systematic drug non-compliance.

#### Assessment of relapse

In the initial study, assessment of relapse was carried out blind, by the use of the PSE/CATEGO. Unfortunately, as resources were not available to repeat the PSE at two-year follow-up, relapse was assessed by examination of patient admission records and case notes. This was felt to be justified, as all patients were in contact with the psychiatric services, and a major relapse would have a high probability of detection. If a patient who was well for the first nine months of the study was admitted 9–24 months

after discharge from the index admission, then the hospital notes were examined. If the notes indicated that the patient had been admitted because of a recurrence or exacerbation of psychotic symptoms, then this was classified as a relapse. Examination of the records and notes was carried out by volunteers who were blind to the patients' treatment groups. Identified relapses were verified by the first author and confirmed in all cases.

#### In-patient admissions

The number of in-patient admissions, for any reason, of all patients over the two years was calculated for each treatment group.

#### Treatment groups

The original study had included six treatment groups, but relapse rates calculated at nine months suggested that these six groups could be reduced to three, owing to a lack of difference in relapse rates between the pairs of groups. Hence the Enactive and Symbolic groups were combined to form one behavioural intervention group; the high-EE education and routine treatment groups were combined to form a high-EE control group; and the two low-EE groups were combined to form one low-EE group. Details of the treatment groups and interventions are given elsewhere (Barrowclough *et al*, 1987; Barrowclough & Tarrier 1987a, 1987b; Tarrier *et al*, 1988). All families in the behavioural intervention group were offered the continued family intervention after the end of the formal nine-month intervention, through either telephone contact or formal sessions. Of these 24 families, four families requested at least one session, but only one family was seen regularly (once every six months). No families in the control groups received such specialist intervention.

#### Results

The relapse and admission rates are presented in Tables I and II respectively.

$\chi^2$  analyses (one-tailed) were performed on both sets of data, with the following results: relapse rates,  $\chi^2 = 4.46$ ,  $P < 0.05$ ; admission rates,  $\chi^2 = 11.18$ ,  $P < 0.0001$ ; comparison between the relapse rates of the high-EE intervention and control groups,  $\chi^2 = 3.37$ ,  $P < 0.05$ . One-tailed analyses are justified because the treatment effect at two years is the same direction as the significant effect at nine months.

TABLE I  
Relapse rates at two-year follow-up

	Relapses	
Behavioural intervention group (high-EE)	8/24	(33%)
Control group (high-EE)	17/29	(59%)
Low-EE group	6/18	(33%)

TABLE II  
In-patient admissions over two years

	No. of admissions	Ratio (admissions: patients)
Behavioural intervention group (high-EE)	17	0.71:1
Control group (high-EE)	27	0.93:1
Low-EE group	9	0.5:1

#### Discussion

It must be acknowledged that readmission rates are a weak representation of relapse rates, and this must temper our conclusions, although blind assessments should restrain any systematic bias.

Our results are close to those of the other English study (Leff *et al*, 1985), in which there was a 33% difference between the relapse rates of the intervention and control group at two years when suicides and medication non-compliers are included. This can be compared to the North American studies of Falloon *et al* (1985), in which there was a 66% difference between the intervention and control groups, and Hogarty *et al* (1987), who reported a 34% difference between family intervention and the control group, and a 41% difference between combined family intervention and social skills training and the control group.

Patients in our control group appeared to do rather better between 9 and 24 months than those in two other studies, with 59% relapses in two years compared with 83% found by both Falloon *et al* (1985) and Leff *et al* (1985), but were approximately equivalent to the 66% reported by Hogarty *et al* (1987). The relapse rate of our high-EE control group at nine months was 48%, and the increase to 59% at two years was due to the relapse of only a further three patients during the subsequent 15 months.

It is apparent that the short education programme does not significantly reduce relapse rates. Within the high-EE control group, the education-only group had 8/14 (57%) relapses compared with 9/15 (60%) in the routine treatment group. Two of the three relapses in the high-EE control group between 9 and 24 months were in the education-only group. This failure of an education programme to prevent relapse needs to be emphasised so as to discourage the implementation of education programmes in isolation as an alternative to long-term family management as a clinical service. These results suggest that the behavioural family intervention may have merely delayed relapse as opposed to preventing it, since the

proportion of relapses in the intervention group increased after the first nine months. Five of the eight (63%) relapses in the intervention group occurred after the first nine months, compared with 18% in the control group. Other studies of family intervention (Leff *et al*, 1985; Hogarty *et al*, 1987), social skills programmes (Wallace & Liberman, 1985), and out-patient family crisis therapy (Langsley *et al*, 1971) have also indicated this delay of relapse.

A variant of this explanation is that relapse risk was reduced only while the intervention was being implemented. Once the behavioural intervention was terminated, the risk of relapse was again increased. Test & Stern (1978), in a review of mainly North American studies on the community treatment of chronic psychiatric patients, concluded that positive results were maintained only as long as special community treatment programmes were in effect.

Unfortunately it was not possible to reassess EE at two years, and all patients were analysed on the basis of their original group allocation. There is evidence that some high-EE relatives will change to low-EE over time (e.g. Brown *et al*, 1972), which may reduce their relative risk; in this study, in the initial nine months, 38% of high-EE relatives in the education and routine treatment groups did in fact change from high-EE to low-EE (TARRIER *et al*, 1988). If changes from high-EE to low-EE explain the lower relapse in the intervention group, a similar change would be expected in the high-EE control group. Relapse rates between these two groups, however, are significantly different.

The most probable explanation for these results is that in some vulnerable patients, the family intervention delayed relapse, but without continued intervention the risk of relapse is high. Psychophysiological data (TARRIER & BARROWCLOUGH, 1987; TARRIER, 1989) suggest that even in families in which relatives have changed from high to low EE, the arousal levels and reactivity of the patient remain high. This could indicate a continued high risk of relapse, which could last for some months after the relatives have changed EE status. The effect of life events on arousal levels and relapse could also be influential. Although the occurrence of life events between 9 and 24 months is unknown, during the first nine months the behavioural intervention group experienced significantly more independent life events than the other two groups (TARRIER & BARROWCLOUGH, 1989). Since these life events were independent of the patients' behaviour, this result is difficult to explain, but the intervention may have resulted in the patients becoming more active, and hence more likely to experience life events, even if their behaviour had not directly caused the event.

There is also evidence that life events increase the arousal reactivity towards the relative (TARRIER *et al*, 1979). It is interesting to speculate that the proliferation of relapses in the behavioural intervention group after nine months could have been mediated through elevated arousal levels, caused in part by the high frequency of life events. The relationship between interventions, frequency of life events, and arousal levels needs further investigation.

Patients in the high-EE control group had a greater readmission rate compared with the intervention group and low-EE group, although it is probable that the low number of relapses in the latter two groups contributes greatly to this result. However, of the 17 admissions from the intervention groups, five were for one patient; this patient and her husband had dropped out of treatment at an early stage of the intervention and she had repeatedly relapsed over the subsequent months.

The nine-month and two-year results of this family intervention study strongly argue for routine family intervention in the community management of schizophrenia. This is supported by the results of similar studies (Leff *et al*, 1982, 1985; Falloon *et al*, 1982, 1985; Hogarty *et al*, 1986, 1987). The two-year follow-up results presented in this paper suggest that to prevent a proliferation of relapses after nine months, intervention should not be time limited, and many patients and their relatives may need continued intervention or 'booster' sessions, as recommended by Wallace & Liberman (1985). This will have implications for staff training and resource allocation. There are also strong suggestions, both from this project and from a DHSS-sponsored project also carried out in Salford Health Authority on the co-ordination of after-care for people with schizophrenia (Whitehead, 1987), that new methods of team work and case management need to be implemented for the effective community care of people with schizophrenia.

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