Specific and Non-specific Effects of Educational Intervention with Families Living with a Schizophrenic Relative

J. V. SMITH and M. J. BIRCHWOOD

A brief educational intervention with families living with a schizophrenic relative is described and evaluated in terms of benefits for relatives' well-being and patient recovery. Education led to considerable knowledge gains and to reductions in relatives' reported stress symptoms and fear of the patient. There was a trend for relatives to be more optimistic concerning their role in treatment. At 6 months follow-up, only knowledge gains were maintained; however, relatives' perceptions of family burden were significantly reduced. The evidence suggests that family education may be useful both as a cost-effective intervention in its own right and in facilitating a more receptive attitude to subsequent family intervention.

Over the past two decades with the introduction of neuroleptic medication and the emphasis on deinstitutionalisation there has been an increased pressure to discharge patients from hospital into the community. However, lack of adequate community-based medical and social provision has inevitably placed the burden of care on the patient's family; it has been suggested that over 50% of schizophrenic patients return to live with families (Goldman, 1980; Holden & Lewine, 1974). Families are therefore taking on much of the burden of care for their relatives particularly concerning the management of disturbed behaviour, often in the absence of sufficient information, skills and support (Carstairs et al, 1985). For many families the impact of this responsibility can be very distressing, and can lead to a high level of intra-familial tension and individual stress symptoms (Birchwood, 1983; Gibbons et al, 1984).

In addition to the needs of the individual with schizophrenia (not addressed here) there would, therefore, appear to be justification for directing attention to the needs of the supporting family both during the initial crisis and thereafter. There has, until recently, been a general lack of professional awareness and responsiveness to the family's needs in this respect. One significant aspect of this neglect has been the lack of time spent by professionals providing basic information about the illness, its treatment and practical advice concerning home management. Yet the need for, and benefits from, family-education are evident. In addition to meeting family needs, education may have beneficial effects for the schizophrenic member. Non-compliance with medication has been shown to be an important factor in schizophrenic relapse which family- (and patient-) education may help to ameliorate. Family-education has also been a common component in three large-scale family interventions which have reported the successful short-term control of relapse (Goldstein & Kopeikin, 1981; Leff et al, 1982; Falloon et al, 1982).

The specific role of education in these interventions is unclear. Berkowitz et al (1984) reported that in the Leff et al (1982) intervention, education led to their high EE (high relapse risk) group 'knowing more about diagnosis and management' and increased their optimism; other long-term attitude changes were confounded with the later intervention. However, comparisons of high and low EE families prior to the intervention had revealed no differences in these characteristics. McGill et al (1983) reported that their educational intervention led to parents acquiring knowledge 'approximating that of mental health professionals' and these knowledge gains were maintained 9 months after intervention. Non-specific effects other than knowledge acquisition were not assessed.

Education alone could, therefore, meet many of the needs of families (except the important one of in-depth management advice) – however, its function in the context of a large-scale family intervention remains uncertain. The present study was therefore undertaken to examine the efficacy of education alone by observing the specific (knowledge acquisition) and non-specific (stress reduction, attitude change) effects immediately and 6 months after intervention. In order to test whether information per se is important as opposed to its delivery by professional personnel, half of the families received...
information in booklet form through the post. Both groups were required to undertake homework exercises designed to maximise information assimilation and to prompt relatives to apply the information to their own situation.

**Method**

**Subjects**

Twenty-three families who had a schizophrenic relative participated in the study. The families were drawn from a random sample of patients known to the hospital. Of this sample, six patients were in hospital at the time of the study. (Of the original sample, nine families refused to participate in the study and six families dropped out prior to intervention; there were no drop-outs during the intervention period.) Criteria for selection of patients were: evidence of one or more 'first-rank' symptoms of schizophrenia (Schneider, 1959) observed at onset in the case notes; living at home or in close contact with the family (5 or more days per week) and stabilised on depot or oral neuroleptic medication. The sample consisted of 40 family members (28 parents, seven spouses and five other relatives) who were all English speaking. Forty-four per cent of the families were from social class level 3, the remainder being evenly distributed across social class groups 1, 2 and 4; however, only one family was from social class group 5. The schizophrenic sample, consisting of 18 males and five females, were a relatively chronic group with a mean age of 36.4 years (s.d. ± 14), mean illness duration of 7.9 (s.d. ± 6.8) years and mean number of 3.7 (s.d. ± 3.8) admissions. The majority were unmarried (15 of 23).

**Design**

Families were randomly assigned to either a group or a postal intervention condition. The education package was delivered in both intervention conditions at weekly intervals over a 4-week period.

**Intervention**

The aims of the intervention were to:

(a) improve relatives understanding of schizophrenia, its nature, symptoms and treatment

(b) improve relatives 'cognitive mastery' of their own situation by encouraging relatives to apply the information to their own circumstances (mainly through an instrumental component in the form of homework assignments).

(c) improve the quality of the relationship and reduce alienation between patient and relative by changing relatives' attitudes towards, and improving understanding of, schizophrenia

(d) emphasise the importance of maintaining relatives' personal well-being.

The intervention did not cover issues relating to behavioural management except in very broad terms.

The information given to relatives in both conditions was divided into four separate sections covering:

(a) concepts of schizophrenia, epidemiological data and possible causal factors.

(b) the symptoms of schizophrenia

(c) treatments and outcome

(d) hospital and community resources available and basic management guidelines.

(See Appendix for a more detailed description of the information covered in each of these sections.)

This information was presented in the form of four typed booklets corresponding to the four information sections outlined. The information was written in simple English and tailored as far as possible, to be comprehensible to the average family. A readability analysis (Flesch, 1948) showed that the booklets could be understood by individuals of average IQ (overall reading ease score = 56.75; IQ > 103).

**Group condition**

Those family members assigned to the group intervention participated in four weekly educational sessions conducted by the primary therapist (J.S.). The sessions were in a semi-structured seminar format involving oral presentation of the information as well as audiovisual aids. A video film entitled *Coping with Schizophrenia* (Birchwood, 1983) was used to illustrate common schizophrenic symptoms and behaviours. The content of the four sessions corresponded to the four information sections previously described. Family participation was encouraged through general question and answer discussion – each session lasting 60–90 minutes. At the end of the session, each family member received a booklet corresponding to the material covered in that particular session and a written homework exercise which they were invited to complete. These were designed to encourage families to apply the information they had received to their own situation.

**Postal condition**

Family members assigned to the postal intervention received a typed information booklet (corresponding to each of the information sections described previously and to that received in the group intervention condition) through the post at weekly intervals over a 4-week period. A covering letter accompanied each of the booklets which briefly outlined the information booklet and invited the family members to complete the corresponding 'homework' exercise attached.

**Measures**

All family members were assessed before and immediately after the educational intervention and at 6 months follow-up. The assessment instrument comprised a six-part paper and pencil questionnaire designed to assess:

**Knowledge acquisition**

This consisted of an 18-item multiple choice questionnaire designed to assess family knowledge and understanding
about schizophrenia – in particular it concerned demography, aetiology, symptoms, medication and relevant hospital procedures.

**Beliefs about schizophrenia and its treatment**
This consisted of four 5-point scales separately assessing the family's beliefs and expectations about their role in treatment, effectiveness of medical treatment, likelihood of improvement and the control that the patient has over his symptoms.

**Worry and fear**
This consisted of two 5-point scales assessing aspects of the family's perception of the individual in terms of the amount of worry and fear about the 'individual and his behaviour'.

**Behavioural disturbance**
The symptom-related behavioural disturbance scale (SBDS) developed by Birchwood (1983) was employed. This is a 22-item measure of severity of patient disturbance. The reliability of this measure has been demonstrated in terms of inter-rater reliability ($r=0.90$) and internal coherence (Chronbach's $\alpha =0.84$). The scale correlates $r=0.6$ with scales derived from the PSE.

**Stress**
This was measured using the symptom rating test (SRT) developed by Kellner & Sheffield (1973), modified and validated by Cochrane (1980), a 30-item measure of stress symptoms in the relatives incorporating anxiety, depression, somatic and inadequacy subscales.

**Family distress**
The family distress scale (FDS) developed by Pasamanick et al (1967), was employed. This is a 22-item scale which measures the impact of having a schizophrenic relative in the family in terms of the extent of disruption on family life, embarrassment and the concern of self and others. (Chronbach's $\alpha =0.91$ using data from this study).

**Results**
Three (intervention style x test occasion) factorial analyses of variance with test occasions as a repeated measure were carried out on the pre-education, post-education and 6 months follow-up scores. There were no significant differences in any of the variables measures between group and postal relatives at baseline, except that postal relatives were significantly more worried ($t=2.47$, d.f. = 38; $P<0.01$).

**Knowledge acquisition**
The knowledge scores of both sets of relatives significantly increased from baseline to post-education ($F=51.80$, d.f. = 1,38, $P<0.001$). These improvements in knowledge from baseline were maintained at 6 months follow-up ($F=51.38$, d.f. = 1,38, $P<0.001$). 'Group' relatives acquired significantly more knowledge than 'postal' relatives ($F=5.22$, d.f. = 1,38, $P=0.05$). This significant difference in knowledge between the two sets of relatives remained at 6 months follow-up ($F=14.50$, d.f. = 1,38, $P<0.01$). (See Table I, Fig. 1).

In the group relatives there was a mean improvement in knowledge on the questionnaire of 27% (from 58% to 85% following education) while in the postal group there was a mean improvement in knowledge on the questionnaire of 16.5% (from 52% to 68.5% following education.) These gains were maintained at a 6 month follow-up. Immediately following the educational intervention, 90% of the group relatives possessed relatively sophisticated knowledge about schizophrenia (i.e. more than 70% correct) compared with only 60% of the postal relatives. This difference in degree of knowledge remained at 6 months follow-up.

Information acquired was evenly spread across the five main areas; demographic data, aetiology, illness (course and symptoms) hospital procedures and medication. Interestingly, 75% of families had little understanding about the function of medication prior to education. Post-education, 67% of families possessed a good knowledge about the effects of medication (score >3 out of 4).

**Belief systems of relatives about schizophrenia**
There were no significant differences between baseline scores and either post-education or follow-up scores for either group on any of their beliefs concerning the effectiveness of treatment, the likelihood of improvement or the control that the patient possessed over his symptoms. However, the two sets of relatives did differ in their belief concerning the family's role in treatment following education which was revealed in a significant interaction effect ($F=5.37$, d.f. = 1,38, $P<0.05$) (See Table I, Fig. 2).
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**Table 1**

Mean scores with standard deviations on each of the variables for group and postal intervention

<table>
<thead>
<tr>
<th>Variables</th>
<th>Before Mean s.d.</th>
<th>After Mean s.d.</th>
<th>Follow-up Mean s.d.</th>
<th>Before Mean s.d.</th>
<th>After Mean s.d.</th>
<th>Follow-up Mean s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>13.20</td>
<td>19.55</td>
<td>19.10</td>
<td>12.00</td>
<td>4.08</td>
<td>15.75</td>
</tr>
<tr>
<td>Belief: family's role</td>
<td>2.55</td>
<td>3.00</td>
<td>2.95</td>
<td>2.95</td>
<td>1.05</td>
<td>2.70</td>
</tr>
<tr>
<td>Fear</td>
<td>0.95</td>
<td>0.70</td>
<td>1.05</td>
<td>1.25</td>
<td>1.16</td>
<td>0.90</td>
</tr>
<tr>
<td>SRT</td>
<td>14.00</td>
<td>11.95</td>
<td>15.35</td>
<td>15.95</td>
<td>8.50</td>
<td>15.15</td>
</tr>
<tr>
<td>FDS</td>
<td>9.20</td>
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<td>6.60</td>
<td>14.05</td>
<td>11.33</td>
<td>11.95</td>
</tr>
<tr>
<td>SBDS</td>
<td>22.50</td>
<td>21.20</td>
<td>17.35</td>
<td>24.50</td>
<td>10.90</td>
<td>25.00</td>
</tr>
</tbody>
</table>

**Fig. 2** Mean belief scale score concerning the family's role in treatment for group and postal relatives across test occasions.

Results of t-tests revealed that there was a trend for group relatives to be more optimistic concerning the family's role in treatment ($t=1.40$, d.f. = 38, $P<0.10$). The scores of postal relatives did not significantly differ from baseline. This interaction effect disappeared at 6 month follow-up.

**Worry and fear**

Fear scores reflecting fear concerning safety of self, others and property were significantly reduced across both sets of relatives from pre to post as a result of education ($F=5.63$, d.f. = 1,38, $P<0.05$). Group relatives were not significantly different from postal relatives. However, the sets of relatives differed in their fear scores at 6 months follow-up compared to post-education reflected in a significant interaction effect ($F=6.4$, d.f. = 1,38, $P<0.05$). (See Table 1, Fig. 3).

**Psychological distress in the relatives**

Stress scores on the Symptom Rating Test were significantly reduced across both groups of relatives from baseline to post-education ($F=5.28$, d.f. = 1,38, $P<0.05$). Neither set of relatives showed a significantly greater reduction...
in stress symptoms than the other. Reduction in stress symptoms was consistent across all four symptom rating test subscales: anxiety, depression, somatic and inadequacy. Those relatives who had the highest stress scores at baseline showed the biggest reduction in stress symptoms following education ($r = 0.39$, d.f. = 38, $P < 0.01$). The reductions observed at post-education were not maintained at 6 months follow-up where scores had returned to baseline levels. (See Table 1, Fig. 4). The return to baseline level was consistent across all four subscales.

**Burden on the family**

There were no significant differences from baseline scores in reported burden (FDS) following education for either set of relatives. However, there were significant reductions in reported burden across both groups from the baseline score to follow-up ($F = 21.08$, d.f. = 1,38, $P < 0.001$) and post-education scores to follow-up ($F = 7.4$, d.f. = 1,38, $P < 0.01$). (See Table 1, Fig. 5).

**Symptom related behavioural disturbance (SBDS)**

Where ratings of level of patient disturbance were made by two members of the same family the ratings were found to be significantly correlated ($r = 0.70$, d.f. = 14, $P < 0.01$). Ratings for relatives from the same family were therefore combined for the purposes of analysis.

There were no significant differences from baseline scores in level of patients' disturbance following education or at 6 months follow-up for either group. Level of patient disturbance as indexed by scores on the SBDS were found to be significantly correlated with family burden scores on the FDS ($r = 0.72$, d.f. = 38, $P < 0.01$).

**Correlational analyses**

**Between knowledge acquired and attitude change, stress and burden**

The change in knowledge scores was not found to be significantly correlated with either the change in fear scores or the change in stress symptom scores observed following education. The change in knowledge scores was also not found to be significantly correlated with the change in perceived family burden observed at 6 months follow-up.

**Between social class and knowledge scores**

Social class was found to be significantly negatively correlated with initial knowledge scores ($r = 0.35$, d.f. = 38, $P < 0.05$) i.e. relatives from social class groups 1–3 had more knowledge concerning schizophrenia compared with groups 4 and 5, prior to the education course. Social class group was not significantly correlated with any of the specific or non-specific effects observed following education.

**Between duration of illness and change in attitude, stress and burden**

Correlational analysis revealed that duration of illness was not significantly correlated with any of the specific or non-specific effects observed following education.

**Discussion**

The four session education course led to considerable acquisition and retention of information across all
participants and to actual reductions in relatives' stress symptoms and fear of the patient. Significantly, there was no correlation found between amount of knowledge acquired and these non-specific effects. Group relatives recalled more information about schizophrenia than postal relatives and there was a trend for the former to be more optimistic about the family's role in exerting control over the situation. At 6 months follow-up, only knowledge gains were maintained across all participants; all non-specific effects had disappeared, with the exception that postal relatives remained less fearful. However, it was noted that all relatives were reporting significantly less burden on the family. Similarly, no correlation was found between the amount of knowledge acquired following education and the reduction in perceived burden observed from baseline to follow-up.

The independent variables can be divided up into 'content' and 'context' of delivery. It is important to try to distinguish those effects which are influenced by content and those by contextual variables from a therapeutic viewpoint. The postal delivery of information served as partial control for certain 'placebo' elements in the group education package. In the group condition, there were certain additional elements, specifically, the presence of a therapist, other group members and repetition with clarification of the information being conveyed. The majority of specific and non-specific effects obtained were the same across both conditions with the exception that group relatives acquired significantly more knowledge and showed a trend towards being more optimistic concerning the family's role in treatment.

It seems likely that 'context' as well as 'content' contributes to knowledge acquisition. Pure information content common to both groups is clearly the crucial element in knowledge acquisition per se. However, contextual factors would appear to have a role in further enhancing knowledge assimilation conceivably through the combined effects of repetition and clarification of information - and the opportunity to listen to and discuss views with the therapist and other group members.

Since all non-specific effects observed were the same across postal and group conditions they could only be accounted for by information content or by placebo elements common to both conditions such as relatives' expectations, motivation and attention to problem. (However, group context may have played a significant role in further encouraging optimism through the opportunity provided to meet and listen to a therapist and other group members). It is difficult if not impossible to tease out the specific contributions of information content from these general 'placebo' effects. If contextual factors are crucial to the non-specific effects observed, the question is raised as to whether, aside from academic interest, one should be looking for ways to encourage rather than to eliminate such effects. Given the well-documented lack of information currently given or available to patients and their families (as the preknowledge scores demonstrate), information courses would appear to be a useful and cost-effective measure to disseminate information widely and easily. However, it must be borne in mind that these knowledge gains were observed in a general sample drawn from the community containing only six patients at acute admission. It is difficult without further study to assess whether the results are generalisable to families receiving education during the acute phase.

The value of patient education is an important but separate issue (not addressed here). In the authors' experience, it is advisable that patient and family education are kept separate since the presence of the individual with schizophrenia can inhibit the relative's freedom to air sensitive issues and concerns and can be potentially disruptive in circumstances where the individual lacks insight into the illness. The impact of patient education is currently being addressed in other work by the authors.

It is interesting to note that 75¾% of the families possessed little understanding about the function of medication prior to education, a factor which may contribute to the widespread problem of medication non-compliance. Thus the provision of information about medication to the patient and his family holds out the prospect of encouraging compliance to medication regimes.

Education, however, is not purely an academic exercise to increase knowledge. In fact, the value of education would not seem to lie solely in knowledge acquisition per se, since information gained was not correlated with any of the non-specific effects. It may be argued that since no correlation emerged between information retained and non-specific effects, content is irrelevant as a medium of change. However, what may be important is the subjective effect of being or feeling more knowledgeable rather than the degree of improvement in knowledge itself. The subjective effect may act to improve relatives' 'cognitive mastery' and perceived ability to influence the situation and thereby reduce their feelings of uncertainty and helplessness (cf. reductions in fear and the trend towards increased optimism). There may also be hidden direct effects of being more knowledgeable by filling in idiosyncratic knowledge gaps about their patient which
in turn may serve to reduce feelings of stress and increase feelings of control over the situation. For example, in one case the family did not understand the relationship between the individual talking to himself and hearing voices; in another, the patient's refusal to eat meals cooked by his parents was initially viewed as a comment on their cooking rather than a behavioural sequel to a delusion of persecution.

These effects are clinically important because they may serve to reduce alienation of the family from the individual and encourage more positive relative-patient interaction and willingness to help the patient, factors which may mitigate against intra-familial tension. Education also served to improve relatives' level of stress and perceived burden which may otherwise constrain the family's ability to provide a supporting rehabilitative environment. Specifically, a reduction in stress may enable relatives to become more tolerant and accepting, characteristics which again have been noted in low risk family environments (Greenley, 1979; Kuipers, 1979). Unfortunately, these effects were transient and their therapeutic impact limited, although the intervention was sufficient to reduce perceived family burden over 6 months. We would hesitate to suggest therefore that a brief educational intervention could substitute for more intensive management-focused interventions since the majority of benefits were short-term and insufficient in themselves to satisfy relatives' needs for specific management advice. (Many relatives requested specific advice about how best to manage problems at home following education.) Overall, the results suggest that a brief educational intervention may serve to 'prepare the ground' in terms of enabling assimilation and adherence to subsequent intervention of a management kind, although the latter must be undertaken promptly to capitalise upon the short-term changes observed (Birchwood & Smith, 1987). It seems likely that the potential contribution of an initial education phase in family intervention programmes may be in its enabling effect, encouraging factors which facilitate and removing practices which constrain effective management and communication (Birchwood & Smith, 1987).

It is possible that education incorporating basic management guidelines might be a sufficient stimulus in itself for certain families of limited experience (i.e. those families of younger acute patients of more recent onset) to develop their own problem-solving skills and resources to cope with and help their schizophrenic relative. This suggestion draws support from the successful, brief (6-week) intervention study conducted by Goldstein and Kopeikin (1981) which combined initial education aimed at improving understanding of schizophrenia with the development of management strategies to deal with stressful situations in the family. Despite its brief nature this intervention appeared to have had a significant effect on relapse, using a sample two-thirds of whom were first episode patients. The Goldstein study suggests that the period immediately after onset may represent the best time to conduct a family intervention before relatively permanent response characteristics set in.

The nature and method of delivery of education packages to date has been fairly arbitrary and varied widely across intervention studies. The experimental manipulation of method of delivery in the present study underlines the need to consider this more carefully. Although the results would seem to indicate that access to written information per se is as effective as group education and offers itself as a less costly alternative, one would hesitate to advocate 'bibliotherapy' on its own. The weaknesses of this approach lie in the lack of flexibility for information clarification and adaptation to individual needs and the absence of opportunity to listen to and discuss the information with a therapist and other group members, which would appear to be crucial for the full enabling potential of education to be realised. Work is currently underway by the authors to replicate and develop this study, comparing the effects of different methods of information delivery in combination with the experimental manipulation of an instrumental component in the form of homework assignments.

**Appendix**

The four information sections were as follows:

**Section 1**

The first section contained a brief outline as to how the concept of schizophrenia was developed and some epidemiological data about who could develop schizophrenia. Simple explanations of possible causal factors, e.g. the role of genetic and biochemical abnormalities were given, although the lack of conclusive evidence in this area was emphasised. The role of possible environmental stresses including family factors in the development and course of the illness were outlined. Although the families were reassured that they were not responsible for causing the illness, their important role in the recovery process was emphasised. Finally, a guarded but hopeful prognosis for the majority of patients was provided.

**Section 2**

The second section focused on the nature of schizophrenia, describing common symptoms and behaviours in terms of disturbances in thinking, feelings and behaviour as experienced by patients and observed by relatives. Variability in symptom patterns between patients was emphasised. Various familiar terms e.g. 'acute', 'chronic', 'positive symptoms', 'negative symptoms', 'relapse', 'remission', were elucidated. It was also stressed that negative symptoms should not be regarded as inevitable.
Section 3

The third section described the function of the relevant psychiatric services and the role of neuroleptic medication in acute and maintenance phases. Routine hospital procedures were outlined and difficulties in diagnosis were discussed. There was special emphasis on medication describing the various types of drugs usually prescribed, their purpose and their common side-effects. The effectiveness of drug therapy particularly with positive symptoms of schizophrenia and in preventing relapse was emphasised. Relatives were encouraged to discuss any queries or worries about medication with the prescribing doctor.

Section 4

The fourth section was concerned with helping relatives to identify support services in terms of hospital and community resources available. (Local and national branch addresses of various organisations including self help and family support groups were supplied and a short reference list to encourage further reading was provided).

Finally, some very general advice was given to encourage relatives to look after their own needs. This advice encouraged families:

(a) To look after their own needs by carrying on with or taking up activities that they used to do. As part of this, relatives carried out a homework exercise in which they articulated their past and ideal life-styles.

(b) Not to centre their lives around the patient too much.

(c) Not to worry about giving the individual responsibilities around the house e.g. household tasks, but not to overburden him immediately after discharge.

(d) To try to plan and do things with the patient which the whole family enjoyed e.g. trips out.

(e) To map out their social support network and to talk about their problems and difficulties with friends.

(f) To expect bad times when things fail and expect stress, frustration and some unhappiness.

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