# Assessing the Functional Value of Relatives' Knowledge about Schizophrenia: A Preliminary Report

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An instrument for assessing and evaluating what relatives know about schizophrenia was evaluated as both a pre- and a post-test for an educational programme. The Knowledge About Schizophrenia Interview (KASI) places emphasis on the functional value of the reported knowledge rather than on the recall of information; it is quick, easy to administer, can be rated reliably, and has face-validity for the relative. The educational programme increased scores from pre-test to a post-test one week after the programme. Relatives with high criticism ratings on the Camberwell Family Interview had lower scores at both tests. Relatives of less chronic patients showed lower scores at pre-test and acquired significantly more information from the programme, while relatives of more chronic patients were less influenced by the information sessions.

Several recent studies (e.g. Berkowitz *et al*, 1984; McGill *et al*, 1983) have reported on giving information about schizophrenia to relatives, generally as part of larger psychosocial interventions that attempt to reduce relapse rates of patients suffering from schizophrenia who return to live with their families (Goldstein, 1981; Barrowclough & Tarrier, 1984). It can be argued that both relatives and people suffering from schizophrenia should have, as their right, access to information about the condition; but in addition, informing carers about schizophrenia may in fact contribute to an improvement in the condition.

The index of Expressed Emotion (EE) has been important in studying schizophrenics' families and relapse (Leff & Vaughn, 1985). Relatives are measured as being "high-EE" or "low-EE" on the basis of the number of critical comments and the extent of emotional over-involvement or hostility shown to the patient during a recorded, semi-structured Camberwell Family Interview (CFI) (Vaughn & Leff, 1976*b*). A number of studies have found an association between relapse of schizophrenia within nine months of discharge and the EE of the key relative residing with the patient (Brown *et al*, 1972; Vaughn & Leff, 1976*a*; Vaughn *et al*, 1984). Patients returning to live with high-EE relatives had significantly higher relapse rates than those going to low-EE relatives, independent of all other factors assessed.

It has been suggested (Vaughn & Leff, 1981) that high-EE relatives tend to feel that patients could control their symptomatic behaviour, and take a relatively unsympathetic view of the illness, whereas low-EE relatives believe that the patients suffer from a legitimate illness and cannot control certain behaviour. Since Brown *et al* (1972) suggested that a major contribution to high-EE was lack of knowledge by the relative about schizophrenia, it has been hypothesised that educating relatives, by giving them information about schizophrenia, might lead to reduced criticism and hostility and a lowering of EE (Berkowitz *et al*, 1984; McGill *et al*, 1983). However, the study of Berkowitz *et al*, failed to support the hypothesis that high-EE relatives know less about schizophrenia than low-EE relatives.

Tarrier & Barrowclough (1986) have discussed some of the issues involved in giving relatives information about schizophrenia and have questioned the utility of measuring acquired information *per se*. This article describes the development of an instrument designed to assess the *functional value* of the relative's knowledge about schizophrenia, which was part of a larger study investigating the effects of psychological intervention in families, including an educational component.

## Method

### Patients

All patients admitted to the acute wards of a large psychiatric hospital and the psychiatric ward of a general hospital within one health district were screened. Patients were included within the study if they met the following criteria:

1. Having a diagnosis of schizophrenia elicited by use of the Present State Examination (Wing *et al*, 1974) by a trained interviewer (JB, CB, NT, SW, HF).
2. Age on admission 16–65 years.

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3. Residing with someone (e.g. parent, spouse, sibling, friend, partner) for at least three months prior to admission, and returning to this residence on discharge.
4. Having no evidence of an organic condition to explain the psychopathology.

## Relatives

On the patient being recruited into the study, the relatives were contacted and the CFI was carried out and audiotaped by a trained interviewer (CB, NT, SW). Relatives were allocated to the education programme in accordance with the stratified random design of the larger intervention study; 24 relatives (related to 17 patients) were assessed and given the education programme. Relevant characteristics of these relatives and patients can be seen in Table I. All relatives allocated to the education programme received both sessions described below.

## The education programme

Relatives were given a hospital appointment to attend an education session during the first week after discharge (Session 1) and another one week later (Session 2). Two relatives preferred the sessions to be given at home; this was arranged.

### Session 1

The relative was interviewed and audiotaped, using the *Knowledge about Schizophrenia Interview* (KASI): if more than one relative of the patient attended, each relative was interviewed separately. All relatives aged 16 years or above who lived with the patient were encouraged to attend.

After the pre-test, relatives were given an information booklet (Barrowclough *et al*, 1986); the content of the booklet was worked through with one of three interviewers (CB, NT, SW). Particular attention was paid to:

(i) areas of information highlighted as being 'incorrect' or not known during the pre-test
(ii) describing the particular patient's psychotic symptoms, elicited by the PSE.

If more than one relative attended, the education part of the session was conducted with all the relatives together. The patient was interviewed simultaneously but separately, and given the same information as the relative(s). Questions from relatives were encouraged and prompted, taking into account information from the pre-test interview and including such questions as: "You said earlier that you thought X might be better off without medication. What do you think about that now?" or "You said earlier that you didn't think stress had anything to do with Y's illness; what do you feel about this now?".

In the latter part of the session, patient and relative(s) were seen together, and further questions encouraged.

At the end of the session, the relatives were given an appointment for Session 2, one week later; they were asked to take the booklet away with them and to read it

thoroughly. (The booklet is written in simple terms and has been assessed by the Flesch reading scale (Flesch, 1948) as being understandable to 75% of the population.) Relatives were told that the main function of the subsequent session was to answer any further questions that they might have.

Thus Session 1 consisted of three stages:

(i) KASI pre-test (relatives tested individually)
(ii) information giving and question/feedback (relatives together, patient separately)
(iii) further questions/feedback (relatives and patient together).

TABLE I

*Characteristics of 17 schizophrenic patients and 24 relatives with whom they lived*

| Patients (n = 17) | |
| --- | --- |
| Male/Female | 7M/10F |
| *Living with:* | |
| Parents | 11 |
| Spouse/partner | 5 |
| Child | 1 |
| *Age (years):* | |
| Mean | 37 |
| Median | 39 |
| Range | 16–60 |
| *Number of previous hospital admissions:* | |
| Mean | 3.2 |
| Median | 3 |
| Range | 0–13 |
| First admission | $n = 2$ |
| *Years since onset:* | |
| Mean | 6.6 |
| Median | 4 |
| Range | 0–24 |
| **Relatives (n = 24)** | |
| *Relationship to patient:* | |
| Mother | 9 |
| Father | 6 |
| Spouse/partner | 6 |
| Daughter | 2 |
| Sibling | 1 |
| EE status | High 20/ Low 4 |
| *Reason for high-EE rating:* | |
| Emotional over-involvement (EOI) | $n = 5$ |
| > 5 critical comments (CC) | $n = 3$ |
| EOI + CC | $n = 3$ |
| EOI + CC + hostility | $n = 3$ |
| CC + hostility | $n = 6$ |
| Current/previous employment | |
| Unskilled | 14 |
| Skilled manual | 2 |
| White-collar | 7 |
| Professional | 1 |

*Session 2*

There were two stages: (i) *Questions/feedback*, during which the relatives and the patient were seen together, and asked if they had any further questions or if there was any further issue they wished to discuss; and (ii) *KASI (post-test)* during which the relative(s) were interviewed individually and audiotaped.

This procedure for the educational programme—two sessions with a one-week interval—was adopted because:

(i) Relatives occasionally became worried, or misunderstood the information they were given. An early second appointment allowed an opportunity to discuss any such problems.
(ii) KASI assessment one week after the education session was thought to be more likely to assess longer-term information retention than a test given immediately after the education session.
(iii) The one-week period allowed relatives and patients time to discuss the information and to read the booklet.
(iv) The possibility of the outcome evaluation (KASI post-test) being affected by factors other than the education programme was minimised.

**The KASI interview**

The KASI and its rating criteria were designed in accordance with the following objectives:

1. Items should assess not just the presence or absence of information about schizophrenia, but the effects of that information on the relative's behaviour.
2. The items should be phrased simply, and the absence of academic or technical knowledge should not be penalised in the scoring.
3. Administration and scoring of the interview should be relatively quick and required the minimum of training.

As with comparable instruments (e.g. Berkowitz *et al*, 1984; McGill *et al*, 1983) the following aspects of the schizophrenic condition were covered:

1. Diagnosis
2. Symptomatology
3. Aetiology
4. Medication
5. Course and prognosis
6. Management

Each topic was covered in a different section which could be scored independently. Most questions were structured so as to require a "Yes/No/Don't know" choice, but the section, on management contained open questions. In selecting items, the following questions were borne in mind:

1. What information might have a beneficial influence on the relative's behaviour in relation to the patient?
2. Conversely, what perceptions, attitudes, and reported behaviour might have undesirable effects on the relative's behaviour in relation to the patient?

The interview was developed to permit the allocation of the relative's responses for each section to one of four categories:

1. *Negative value*: Relative reports information which may lead to potentially detrimental actions in regard to the patient's management.
2. *Neutral value*: Relative knows very little or nothing, but reports no information which would probably result in detrimental management.
3. *Positive value*: Relative reports information which may lead to potentially valuable actions in regard to the patient's management.
4. *Positive value and additional correct information*: Over and above the information for category 3, the relative demonstrates wider knowledge about the assessed aspect of the condition.

Some examples of how these criteria were applied are given in the Appendix at the end of this paper. Further details of the interview and the scoring criteria may be obtained from the authors (Barrowclough *et al*, 1985).

For each of the six sections of the KASI, the relative's responses were allocated a score on the 1–4 scale described above. Both interviews for all 24 relatives were scored by CB. Ten interviews were then selected randomly and scored independently by NT for reliability calculations.

**Results**

*Reliability*

The degree of inter-rater agreement between the two independent raters (CB and NT) for each of the six sections of the KASI is shown in Table II. These data are based on the two independent raters scoring ten randomly selected audiotaped interviews with ten different relatives (60 sections of interview). It was concluded that the scores obtained were of acceptable reliability and that this finding might be generalised from the random sample to the total population of audiotapes scored by CB.

**1. KASI scores before/after education**

A Wilcoxon matched-pairs test was performed on the data for all 24 subjects, comparing pre-test and post-test scores

TABLE II
*Inter-rater agreement for each of the six sections in the audiotaped KASI*

| Section of interview | Percentage agreement | Weighted κ coefficient |
|---|---|---|
| 1. Diagnosis | 80% | 0.70 ($P < .01$) |
| 2. Symptomatology | 80% | 0.66 ($P < .01$) |
| 3. Aetiology | 100% | 1.00 ($P < .01$) |
| 4. Medication | 80% | 0.64 ($P < .01$) |
| 5. Course and prognosis | 90% | 0.78 ($P < .05$) |
| 6. Management | 80% | 0.66 ($P < .05$) |

TABLE III

KASI scores before and after the educational programme. Relatives' responses were rated as 1(negative), 2(neutral), 3(positive) or 4(positive + well-informed)

| Section of KASI | Pre-Test Scores (n=24) | | | | Post-Test Scores (n=24) | | | | Wilcoxon pairs test (z scores) | McNemar test ($\chi^2$) |
|---|---|---|---|---|---|---|---|---|---|---|
| | Median | Range | Score 1 or 2 | Score 3 or 4 | Median | Range | Score 1 or 2 | Score 3 or 4 | | |
| 1. Diagnosis | 2 | 1–4 | n=16 | n=8 | 3 | 1–4 | n=3 | n=21 | 3.3 ($P<0.0005$) | 15.08 ($P<0.001$) |
| 2. Symptomatology | 2 | 1–3 | n=13 | n=11 | 3 | 1–4 | n=7 | n=17 | 2.4 ($P<0.008$) | 7.2 ($P<0.01$) |
| 3. Aetiology | 2 | 1–2 | n=24 | n=0 | 2 | 2–4 | n=14 | n=10 | 2.93 ($P<0.002$) | 12.1 ($P<0.001$) |
| 4. Medication | 3 | 1–4 | n=6 | n=18 | 3 | 1–4 | n=3 | n=21 | 1.52 ($P<0.06$) | 3.2 ($P<0.08$) |
| 5. Course & prognosis | 2 | 1–4 | n=20 | n=4 | 3 | 1–4 | n=11 | n=13 | 2.93 ($P<0.002$) | 11.11 ($P<0.001$) |
| 6. Management | 3 | 1–4 | n=11 | n=13 | 3 | 1–4 | n=5 | n=19 | 2.4 ($P<0.008$) | 6.13 ($P<0.02$) |
| Total KASI score | 13.5 | 7–18 | n=90 | n=54 | 17 | 8–21 | n=43 | n=101 | 3.85 ($P<0.0001$) | 44.18 ($P<0.001$) |

and using a one-tailed test of probability (we made the *a priori* assumption that there would be either an increase or no change in knowledge). The results ($z$ scores) are shown in Table III. Scores for sections 1,2,3,5, and 6 increased significantly between tests, as did the total score (the sum of all the section scores). Scores on section 4 (medication) showed an increase which approached statistical significance.

A McNemar test was also performed to compare scores on pre- and post-test, for each section and for total scores; change from a score of 1 or 2 to 3 or 4 was tested. The results are presented in Table III, which shows a significant change from category 1 or 2 to 3 or 4 for total scores and for all sections except medication. Whereas 31 sections received a rating of 1 at pre-test, only 11 were rated 1 at post-test; 15 relatives had at least one section given a score of 1 at pre-test, compared to only seven at post-test.

## 2. Relatives' characteristics and KASI scores

### (a) Critical/non-critical relatives

For the purposes of this analysis, ratings of hostility and emotional over-involvement were ignored. Relatives were divided into those who expressed six or more critical comments during the CFI, and so were rated 'high-EE' ($n=15$); and those who expressed five or less critical comments ($n=9$). Three Mann–Whitney U tests were carried out to compare total scores between the two groups at pre-test and at post-test, and change scores:

| Comparison | $z$ | P (two-tailed) |
|---|---|---|
| Pre-test total score | 1.99 | 0.05 |
| Post-test total score | 2.28 | 0.02 |
| Change scores | 0.64 | NS |

At pre-test, relatives with fewer critical comments had a significantly higher total score (median 14, range 10–18) than those with more critical comments (median 12, range 7–17). Similarly at post-test, scores were significantly higher for the less critical group (median 19, range 12–21) than for the more critical group (median 17, range 8–18).

### (b) Emotional over-involvement (EOI)

Relatives were divided into those who scored 3 or more on EOI ($n=11$) and those who scored 2 or less ($n=13$). Hostility and critical comments were ignored for this analysis. Mann–Whitney U tests were carried out to compare the two groups on total scores (pre- and post-tests) and on change scores. No significant differences were found between the two groups.

### (c) Hostile/non-hostile relatives

Relatives were divided into two groups, according to their

hostility rating (hostile $n=9$, non-hostile $n=15$). EOI and critical comments were ignored for this analysis. Mann-Whitney U tests were carried out on the total scores for pre-test and post-test, and on change scores. No significant differences were found between the two groups.

### (d) Relationship with patient

Relatives were divided into two groups according to whether they were the parents of the patient ($n=15$) or were related in another way (e.g. spouse, child, sibling: see Table I) ($n=9$). Mann-Whitney U tests were carried out on total scores at pre-test and post-test and on change scores. No significant differences were found.

### 3. Patients' characteristics and KASI scores

#### (a) Duration of illness

Relatives were divided into two groups, based on a median split of the number of years since the onset of the patient's illness (calculated from the first hospital admission). For the 'less chronic' patient–relative group, the median number of years since onset was 2.5, with a range of 0–3 years. For the 'more chronic group', the median was 7, with a range of 4–24 years. A Mann-Whitney U test was carried out on total scores at pre-test and post-test and on change scores:

| Comparison | z | P (two-tailed) |
|---|---|---|
| Pre-test total scores | 1.76 | 0.08 |
| Post-test total scores | 1.91 | 0.06 |
| Change scores | 2.71 | 0.007 |

Relatives of 'less chronic' patients had significantly higher change scores (median 6, range 0–10) than relatives of 'more chronic' patients (median 3, range $-1-+10$)

At pre-test, relatives of 'less chronic' patients had lower scores (median 13, range 7–18) than those of 'more chronic' patients (median 14, range 12–17); but at post-test, the position was reversed (less chronic: median 17.5, range 8–21; more chronic: median 15.5, range 12–18). These pre-test and post-tests comparisons just failed to reach significance.

#### (b) Number of hospital admissions

Relatives were divided into two groups, based on a median split of the number of times the patient had been admitted to hospital. A Mann-Whitney U test was carried out on total scores at pre-test and post-test and on change scores: no significant differences were found between the two groups.

#### (c) Remission of symptoms

Relatives were divided into two groups, depending on whether the patient experienced positive schizophrenic symptoms continuously, or had had remission of symptoms

in between episodes of illness. Mann-Whitney U tests were carried out on the total scores for pre-test and post-test and change scores, and showed no significant differences between the groups.

### 4. Summary of results

(a) There was a significant increase in individual scores between tests. Total scores showed a significant increase, as did scores on all the different sections of the KASI except section 4 (medication), where the increase in scores closely approached significance. There was a significant change from responses of negative or neutral value to the patient to those of positive value, for all sections except medication.

(b) Relatives who were rated 'low on criticism' had significantly higher test scores at both pre-test and post-test. Relatives rated 'low' on hostility or emotional over-involvement did not show significant differences in test scores from those rated 'high'.

(c) Relatives of patients with more recent onset of illness showed lower scores at pre-test and higher scores at post-test: these differences closely approached significance. The change scores of these relatives were significantly higher.

(d) No significant differences in scores were found when relatives were grouped according to the patient's number of hospital admissions, the pattern of remissions, or the relative's familial relationship to the patient.

## Discussion

This paper has described a method of assessing what relatives know about schizophrenia, and how this knowledge might be improved or changed through a relatively brief educational intervention. It is important, however, to emphasise the nature of the assessment: our concern was to categorise relatives' responses to questions about schizophrenia in terms of what significance those responses might have in either assisting or hindering the patient's recovery. In other words, our interest was in the functional value that the information potentially held, so that the relatives' responses were allocated either a negative, neutral, or positive functional value.

The results from this initial trial appear to be encouraging: relatives' knowledge (as assessed by the KASI) improved significantly after the information session. Moreover, there was a significant change in their responses, from functionally negative or neutral before the education sessions to positive afterwards. This result applied to five of the six different aspects of schizophrenia assessed and to the total score derived from all six sections of the KASI; in the case of the other section (Medication) there was improvement which closely approached statistical significance. This is evidence of the success of brief intervention in giving relatives information which

might be used to assist the patients. Conversely, information which might lead to actions detrimental to the patients' recovery was significantly reduced.

A closer examination of the questions in the medication section, and relatives' responses to them, may explain why the trend towards improvement there did not reach significance. To receive a positive-value score (3), relatives were required to know some practical details about the administration of the medication; e.g. when, where and for how long it was to be given. They were also required to advocate that the patient remain on medication for as long as the doctor prescribed, when presented with other choices such as "for as long as the patient thinks she/he needs it" or "for as long as you think she/he needs it". Since most relatives had this knowledge already at pre-test, any improvement was probably limited by their initial scores. Questions about the prophylactic nature of medication (e.g. "If your relative seemed and felt completely better and decided to stop having the medication, what do you think would happen?") were contained in Section 5 of the interview ('Course and prognosis'), which showed significant improvement at post-test. Relatives could therefore agree that the doctor should decide how long the patient should receive the medication, yet make clear from their responses in Section 5 that they actually believed that the patient would be better off without it. According to the KASI, such negative responses were reduced at post-test.

The data from the relatives' responses were analysed according to the important dimensions of EE: frequency of criticism; hostility; and marked emotional over-involvement. Analyses of the data were performed taking each dimension into account independently of the other two. Only one analysis produced significant results: relatives who made six or more critical comments in the CFI tended to have significantly lower KASI scores at both pre-test and post-test. There was no significant difference between the critical and less critical groups in their change scores. These results suggest that the more critical relatives had more negative or neutral-value information about schizophrenia at pre-test, but that they benefitted as much as the less critical relatives from the education sessions. We therefore agree with Vaughn & Leff (1981) that one of the characteristic attitudes or response styles distinguishing high- from low-EE relatives is their attitude to the illness. High-EE relatives tend to doubt that the patient has a legitimate illness, and feel that he or she might do more to control the 'symptoms'. Of particular relevance to this conclusion are the responses of the relatives in our study to questions in Section 2 of the KASI, which refer to symptoms. Relatives were

required to say whether the 'problems' they had reported with the patient were part of the person's illness or were associated with his or her natural self'; they were also required to state whether or not they thought the patient could control these symptoms. All four relatives in our study who were given a 'negative' score in this section (i.e. those who reported believing that most of the symptoms they observed were part of the patient's personality and/or within his or her control) were rated as critical and hostile. A larger group of relatives would be necessary to examine the statistical significance of this finding, however.

No differences were found between KASI scores when relatives were grouped on the basis of hostility or EOI ratings; but there were relatively few subjects, in the group analysis, and further investigation is necessary.

The analysis of relatives' scores in relation to the chronicity of the patients' illness produced some interesting results; chronicity was defined as the number of years since the onset of the illness, and the relatives were divided into two groups on this basis. The relatives of patients with relatively short histories had lower KASI scores at pre-test and greater change scores. These results suggest that the shorter the length of illness the less the relatives know, but the more receptive they are to acquiring information. This is consistent with an interaction model of how relatives take in information about schizophrenia (Tarrier & Barrowclough, 1986), which postulates that relatives develop an individual view of the patient's condition and bring to an education session opinions as to its causes, course, and consequences which affect their acceptance or rejection of alternative information offered to them. The longer the patient's illness, the more time the relative has had to formulate his own lay model of the illness, and the less influenced he is by professional opinion. We found no significant differences in knowledge between relatives of patients with comparatively few past hospital admissions and those with more, so one might speculate that contact with hospital psychiatric services did not influence the development of the relatives' attitudes. It is apparent that early education about the schizophrenic condition is important in influencing relatives' behaviour. Birchwood (1983) has suggested that negative family influences in schizophrenia develop as the condition becomes chronic.

If some relatives have an existing and well developed lay model of schizophrenia, it is not surprising that there may be no change in their views after a relatively brief educational intervention. Although analysis of group data indicated

significant increases in information in the group as a whole, those relatives whose scores did not show improvement are important from both the research and clinical points of view. The scoring system of the KASI may be of particular use in indicating which aspects of schizophrenia are misconstrued by particular relatives; further information and advice may then be given to those most in need, and their responses re-evaluated until acceptable criteria are reached.

Berkowitz *et al* (1984) commented that relatives remembered only a fraction of what they had been told in their educational sessions. The differences in findings between their study and ours may be due to several factors, including differences in educational content and presentation, the assessment procedures used, and the time interval before retesting. Berkowitz *et al*, like McGill *et al* (1983), placed greater emphasis than us on imparting and assessing knowledge about schizophrenia *per se*, in contrast to our assessment of the potential functional value of the information in the context of the particular patient's illness. Although the education sessions reported by McGill *et al* did emphasise the symptomatology of the individual patient, this does not appear to have been reflected in the assessment procedures. Neither McGill *et al* nor Berkowitz *et al* differentiated between negative, neutral and positively valuable information. Consequently, a relative might be assessed as having given the 'correct' answer after an education session, while retaining beliefs which could lead to actions detrimental to the patient's management (see Tarrier & Barrowclough, 1986, for discussion).

The finding of Berkowitz *et al* that relatives were particularly lacking in knowledge about the aetiology of schizophrenia, and that they tended to retain their own versions of the causes of the illness, is partly supported by the results of the present study. The Aetiology section of the KASI contains an open question about causation, followed by a series of forced-choice questions regarding possible causes, and enquiries designed to investigate relatives' behaviour. At pre-test, all the relatives' responses were assessed as negative or neutral. Although there was a large and significant increase in scores at post-test, a substantial number remained in the neutral category, indicating that these relatives had learnt little about aetiology.

## Conclusions

This paper has described the development and initial results of an evaluation procedure which aims to examine the information which relatives hold about schizophrenia, with a specific focus on the functional value of that information. The advantages of the instrument include ease of administration and scoring, reliability of evaluation, and sensitivity to change. The effectiveness of the educational programme has been demonstrated, although the longer-term maintenance of any improvement which the relatives showed in their knowledge has yet to be evaluated. The data will be reported when available.

Many relatives bring to the educational session well-developed and systematised knowledge of their own, and the difficulties in changing their beliefs and attitudes should not be under-estimated. Our preliminary results suggest that educational sessions are likely to have more impact on relatives of patients with a fairly short history of illness.

One of the advantages of the KASI may be the identification of relatives with beliefs and attitudes which can result in actions detrimental to the patients' well-being, and who consequently require further advice and support.

## Appendix

As described in the "Method" section of this paper, each relative's knowledge of schizophrenia and his/her corresponding attitude towards the patient was assessed as:

1 negative
2 neutral
3 positive
4 positive and well-informed

This assessment was done for each area of knowledge examined by the KASI interview. Examples to show how such assessments were made with regard to diagnosis and symptomatology are given below.

*Rating relatives' knowledge of diagnosis*

The section of the KASI dealing with diagnosis is concerned only with relatives' knowledge of the name of the condition and the recognition that schizophrenia is a serious mental illness which can affect all aspects of a person's life. The absence of such knowledge is not by itself considered to have direct negative functional value, and so would indicate a rating of 2 (neutral); but such ignorance combined with other erroneous information with potentially negative value would lead to the relative's allocation to category 1 (negative). Examples of negative statements would include "It's not a mental illness, it's just his personality" or "She's not mentally ill, she's a drug addict". It would be logical to suppose that in the first case the relative's denial of the patient's condition could lead to criticism of his behaviour; while the relative's attitude in the second case could lead to a failure to support compliance with prophylactic medication.

Some items in the diagnosis section were later removed because it was found that they were not after all helpful in categorising relatives' behaviour. These items included "Does schizophrenia mean the person has a split personality?" and "Are people with schizophrenia more likely to be violent?". Although strictly speaking, a negative response to these items would indicate knowledge of schizophrenia, it became clear that a positive reply had positive functional value to some relatives: the idea of a "split personality" was useful in distinguishing between the ill person who behaved in a way unlike his usual self and the healthy person. Similarly, the association of violence with schizophrenia was helpful to those people who had experienced their relatives behaving 'violently' while ill, in complete contrast to their normal selves.

### Rating relatives' knowledge of symptoms

Our concern here was with relatives' attribution of the problems or symptoms they had previously reported in the CFI, as well as with their knowledge of the patient's symptoms.

To be allocated a score of 3 (i.e. to be rated 'positive'), the relative was required to attribute 60% or more of the problems or symptoms to the illness rather than to the person's natural self. The same criteria also had to apply to the relative's beliefs concerning the amount of control the patient had over the symptoms. In addition, relatives were required to identify at least *one* of the patient's diagnostic symptoms, and not to attribute this to the patient's personality or to regard it as being under his control.

The relatives' attribution of problems and their beliefs about control over symptoms were assessed through a forced-choice response; e.g. "You have mentioned that X's problems affected him by him talking to himself. Do you think this behaviour is part of X's natural self, or do you think it's part of X's condition?", and "Do you think Y could help or control talking to himself?". The relative was required to reply "Yes", "No" or "Don't know". A response of "don't know" for more than 60% of the items meant allocation to category 2 (neutral). Attribution mainly to the person's 'natural self' and/or 'own control' were allocated to category 1 (negative), on the grounds that such beliefs might have detrimental functional value; the relative might *blame* the patient for unusual or disruptive behaviour.

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