FACTORS CONTRIBUTING TOWARD VULNERABILITY TO RELAPSE FOR PEOPLE WITH A DIAGNOSIS OF SCHIZOPHRENIA

by

TRACEY WADE

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DECLARATION

I declare that this thesis reports my original work, that no part of it has been previously accepted or presented for the award of any degree or diploma by any university. To the best of my knowledge no material previously published or written by another person is included, except where due acknowledgement is given.

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ABSTRACT

Forty people who have a diagnosis of schizophrenia were followed up over a six month period. During this period they were assessed for relapse in four ways: (1) direct assessment with the Brief Psychiatric Rating Scale (BPRS) every two months, (2) increases in psychotropic medication, (3) psychiatric hospitalisation, and (4) case manager’s perception of relapse occurrence.

The predictor variables were ratings on the Level of Expressed Emotion Scale, ratings on the Perceived Social Support Questionnaire, length of time between first psychiatric hospitalisation and the present (chronicity), age at first psychiatric hospitalisation, medication compliance and family structure.

Predictor variables could discriminate groups defined as relapsed only with the BPRS ratings. The only variable to be significantly different between groups was chronicity (i.e., the greater the chronicity, the less likelihood there was of relapse.

The discussion focusses on the need to (a) further develop consistent and reliable definitions of relapse and (b) utilise more insider-subjective measurements in relapse studies.
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INTRODUCTION

Models of Schizophrenia: The Interaction of Vulnerability and Stress

Research in the area of schizophrenia is necessarily affected and directed by the model or theory of schizophrenia that is adopted by the researcher. Several models or theories exist which have differing implications for the onset, course and treatment of schizophrenia.

From the 1940's to the 1960's, onset of schizophrenia was postulated to arise solely from patterns of family relationships. Fromm-Reichman, in the late 1940's, introduced the term "schizophrenogenic mother" to denote a domineering, cold, rejecting, possessive and guilt-ridden person. It was postulated that when this type of mother was combined with a passive, detached and ineffectual father, the child would feel confused, inadequate and ultimately develop schizophrenia (Goldenberg & Goldenberg, 1980). Speculation that unique patterns of family organisation and relationships led to schizophrenia was continued in the theories of Bateson, Jackson, Haley and Weakland (1956), Lidz, Cornelison, Fleck and Terry (1957), and Bowen (1960). Bowen's work is still being developed in the notion of communication deviance (Wynne, Cole & Perkins, 1987; Rund, 1986; Wynne, Singer, Bartko & Toohey, 1977).

Family therapy based on these models did not cure schizophrenia. Indeed, instead of producing a 'cure', such theory and therapy served to build up an environment of blame and guilt around the families and consequently alienated families from workers in the field and instilled in many families a feeling of paralysis and hopelessness.

A contemporary and less contentious strand of research focussed on factors that effect the course rather than the onset of schizophrenia. This work was pioneered by George Brown and his colleagues in London. The first investigation (Brown, Carstairs & Topping, 1958; Brown, 1959) found that people returning home after hospitalisation to live with parents or a wife were significantly more likely to relapse then were others, and clinical outcome was worse for those returning home to live with a mother, if neither worked outside of the home. For the first time the term 'Expressed Emotion' was used in an attempt to explain that emotional overinvolvement of relatives would lead to more frequent psychiatric readmissions for the individual with schizophrenia (Brown, Monk, Carstairs & Wing, 1962). Brown also
investigated the role of stressful life events in the onset and course of schizophrenia and contended that episodes of acute psychosis were preempted by crises such as role changes for the individual or her/his family, major health changes, change of residence and valued goal fulfilment or disappointment (Birley and Brown, 1970; Brown and Birley, 1968).

The successful use of neuroleptic medication in reducing levels of psychosis ensured that the major focus of the 1970's was on the development of biological and genetic models for the onset of schizophrenia.

There is currently much discussion about the relative influence of psychosocial and biological factors on the onset and course of schizophrenia. Some would view schizophrenia as purely a biological disorder, others suggest that genetic and environmental factors are of equal importance in the management of of schizophrenia (Freeman, 1989; Stein, 1989; Goldstein, 1988; Ciompi, 1988), while others contend that biological influences play no significant role in determining the development of schizophrenia (Herrrman, 1989; Haley, 1989). Other writers would prefer to place emphasis on the attentional functioning and information processing mediators, suggesting that increased symptomatology results in periods of time in which contextual processing is impaired, in turn detrimentally affecting the ability to engage in activities necessary for work (Allen, 1990), independence and communication (Nuechterlein, Goldstein, Ventura, Dawson & Doane, 1989). It has even been suggested that the conventional symptom-based diagnostic systems be abandoned for an information processing/arousal disorder conceptualised diagnostic system (Weiss, 1990).

Research in the last ten years has brought together some of these different theoretical strands to describe the factors influencing the onset and course of schizophrenia in what is often called the vulnerability/stress model. The model includes the following elements (Birchwood & Preston, 1991; Mirsky & Duncan, 1986; Goldstein, 1986):

1. Existence of a genetic diathesis that is expressed in one or more brain abnormalities and cognitive deficits. The hypothesised brain abnormalities can arise as a genetic mutation in the absence of family history of the disorder or develop from the appropriate set of intrauterine and birth complications.

2. The underlying pathology may be viewed as conferring a vulnerability; the person
experiences these deficits particularly when trying to cope with environmental stressors, including life events, institutional environments, sociocultural factors and family environments (Freeman, 1989).

(3) A schizophrenic disorder develops when the combination of diathesis and stress exceeds a threshold level.

(4) The continued expression and development of the schizophrenia will depend largely on successful management of both biological deficits and psychosocial stressors.

The focus of this paper is on the combined effect of various psychosocial stressors on the course of schizophrenia. The rest of this introduction will examine, in some detail, the research studying the impact of a range of psychosocial stressors on the course of schizophrenia - firstly, the contribution of Expressed Emotion to our understanding of schizophrenia; secondly, the impact of a range of other variables on the course of schizophrenia; thirdly, conclusions from the literature will be examined in the context of the development of a research direction for this paper; the final section will present the research questions and hypotheses examined by this research.

**Stressors: Expressed Emotion**

The Formulation of Expressed Emotion

Discussion on the influence of family relationships on the course of psychiatric illness has centred around the concept of Expressed Emotion (EE) for some 30 years. As previously noted, Brown and his colleagues were the first researchers to put a title to the concept. They sought to measure the emotional overinvolvement that they had observed in families by developing the Camberwell Family Interview (CFI) to identify aspects of family life that were associated with post-discharge relapse. Three scales were combined into an index of EE (Brown, Birley & Wing, 1972): the relative's critical comments, hostility and emotional overinvolvement.

A 'critical comment' is defined as an unfavourable comment upon the behaviour or personality of the individual and is judged both by vocal aspects of speech and by the content of the comment alone. 'Hostility' is rated on a four point scale and is scored when a person is
attacked for who he or she is rather than for what he or she does. It is defined by generalisation of criticism and rejecting remarks. 'Emotional overinvolvement' is measured on a six point scale and is rated by assessment of reported behaviour (exaggerated emotional responses, self-sacrificing and devoted behaviour and extremely overprotective behaviour) and interview behaviour (attitudes, emotional display and dramatisation).

Characteristics of low EE relatives (as compared with high EE relatives) have also been suggested, based mainly on interpretations of EE measures and some direct observation of family interactions when the whole family is together. These characteristics include four aspects (Hubschmid & Zemp, 1989; Hahlweg et al., 1989; Vaughn, 1989; Vaughn and Leff, 1981; Kuipers & Bebbington, 1988):

1. level of intrusiveness - low EE relatives show a willingness to respect the person's desire for social distance and autonomy but high EE relatives make repeated attempts to establish contact or to offer unsolicited and frequently critical advice,
2. emotional response - low EE relatives can respond to the illness in a cool, controlled and not overly-anxious manner, whereas high EE relatives respond to the person’s illness with anger and/or acute distress,
3. attitude toward illness - low EE relatives believe that the person is genuinely ill and high EE relatives tend to doubt the validity of the illness and blame the person, and,
4. level of tolerance and expectations - low EE relatives are tolerant of both disturbed behaviour and long-term social impairments and high EE relatives tend to be intolerant of symptomatology and impatient with lack of performance.

A self-report questionnaire, called the Level of Expressed Emotion Scale (LEES) (Cole & Kazarian, 1988) has been developed to measure these four characteristics in the person who has been most influential in the person’s life over the last three months; this will not necessarily be a family member.

The initial format of the CFI took up to 4-5 hours to administer. An abbreviated version (1-2 hours administration time) was developed, and is usually administered to key relatives within a few weeks of the patient's hospital admission. The EE index has recently been further refined and now consists of two main factors, critical comments and emotional overinvolvement.
In a two parent household, the parents are interviewed separately. The cut-off scores for EE assignment have varied between studies. The widespread application of the EE assessment method has been limited by the time required for training in the use of the CFI, the time required for the administration and scoring of the CFI, as well as by the availability of the key relative (Cole & Kazarian, 1988; Parker & Mater, 1986). Shorter assessment procedures are currently being trialled using five minute speech samples and preliminary results suggest that these are as effective in prediction as the CFI (Gottschalk et al., 1988; Magana et al., 1986).

The main results of the study by Brown, Birley and Wing (1972) were replicated in two independent prospective follow-up studies carried out in London (Vaughn & Leff, 1976) and Los Angeles (Vaughn, Snyder, Jones, Freeman & Falloon, 1984) and have since been replicated in about six further independent studies. Some of these studies were carried out in different cultural settings including Mexican-American (Jenkins, Karmo & de la Selva, 1986), Danish (Wig, et al., 1987), French-Swiss (Barrelet et al., 1990) and Indian (Wig et al., 1987). In each of these studies, people returning from hospital to high EE contact (more than 35 hours per week) with family were 3-4 times more likely to relapse during a nine month follow-up period than were people returning to low EE families. In the earlier studies, the relative's EE at the time of admission was the single best predictor of symptomatic relapse - more powerful than any clinical feature of the patient's illness (Vaughn, 1989). Regular medication and reduced contact with relatives were shown to exert a protective influence on patients returning to high EE homes.

In a one- and two-year follow-up of the Chandigarh (Indian) population (Leff et al., 1987; Leff et al., 1990), relapse rates were lower than Anglo-American norms, particularly in the rural areas. The global EE index did not predict relapse; in both studies, hostility was the only component of EE that was significantly related to relapse. In the Barrelet study, global EE index was not predictive of relapse, only the critical comment component was predictive. This was true even when analysed with other variables including emotional overinvolvement, hostility, sex, age, household status and social functioning. This points to there being some sort of cultural difference in the "active element" of EE characteristics. Also of interest is the observation that in a 2 year follow-up of the 1976 cohort (Vaughn & Leff, 1976), the significant level of prediction of EE is entirely accounted for by the relapses observed within the first 9 months. People from low EE homes do relapse with the passage of time, hence low EE does not prevent relapse but delays it (Birchwood & Preston, 1991).
It has not been demonstrated beyond doubt that high EE in families can cause relapse (Kuipers, 1987; Vaughn, 1989; Hooley, 1985). Association does not imply causation. The strongest evidence for a causal relationship comes from the family intervention studies (Goldstein, 1988). In attempting to exhibit a more direct influence of high EE on outcome, recent studies have examined the effect of modifying familial EE on future course of illness (e.g., Leff et al., 1989; Tarrier et al., 1989; Tarrier et al., 1988). In brief, of the seven controlled studies published, six found that family psycho-education sessions reduced relapse rates when compared to control groups (Leff, 1989b). A typical psychoeducational intervention would target a range of inputs, most commonly including (Hogarty et al., 1986):

1. increasing the understanding of the illness by the family,
2. reducing family stress, (3) enhancing social networks, and
3. reducing intrafamilial conflict. Some studies have reported corresponding decreases in EE after such interventions (Doane, Goldstein, Miklowitz & Falloon, 1986), and others have not (Hogarty et al., 1986). A thorough review of this area is available (Kuipers & Bebbington, 1988). Given that lowering of the EE level is not a necessary precursor of relapse reduction, there must be other active ingredients in the intervention. The precise therapeutic aspects of such interventions and the role of EE are unclear (Birchwood & Preston, 1991; Bland, 1989). One study has found that relatives, particularly high EE relatives, do not retain information from the group for more than 2 months, and that the thing most remembered and appreciated is the increased sense of support from the education and treatment team (Cozolino, Goldstein, Nuechterlein, West & Snyder, 1988). Bland (1989) suggests that the high level of success of these interventions is due to the warm empathic skills of the therapist, the reframe of the helping process as education rather than treatment, the focus on the current transactions of the family and a concern for concrete problem solving.

Criticisms of the EE Research

The research has not been unanimous in endorsing the validity of the EE construct. Six independent studies, with methodology substantially the same as the previous studies (with the exception of the Nithsdale Schizophrenia survey carried out by McCreadie and Phillips), have failed to find that EE had an effect on relapse (McCreadie & Phillips, 1988; Hogarty et al., 1988; Parker, Johnston, & Hayward, 1988b; Dulz & Hand, 1986; MacMillan, Gold, Crow, Johnson
& Johnstone, 1986; Hogarty, 1985). Of these six, one was carried out in Australia, one in Scotland and one in Germany. Whilst these findings have been strongly disputed on methodological and interpretative grounds (Barrelet et al., 1990; Vaughn, 1989; Goldstein, 1988; Mintz, Mintz & Goldstein, 1987) it appears that there are strong reasons to believe that family factors, as defined by EE measures, are of less relevance in influencing the course of schizophrenia than has been believed in the past (Parker, Johnston & Hayward, 1988a). Seven criticisms of the validity of the EE construct will be examined here in depth:

(1) Different measures have been used between different studies, including use of different scales of the CFI to predict relapse, use of different and often arbitrary cut-off scores on the CFI scales to derive EE assignment, inclusion of subjects at different stages of schizophrenia (i.e, first episode vs chronic), and utilisation of a broad array of definitions for relapse. This could suggest that statistical significance is obtained only at the expense of considerable manipulation of the measures. A related problem is that many of the treatment groups are small and thus susceptible to faulty statistical interpretation (Gottschalk et al., 1988).

(2) The measurement and definition of relapse in schizophrenic disorders is a major interpretative problem in EE research, characterised by both methodological and conceptual disarray. Relapse is rarely defined the same in any two EE studies, and has included any combination of the following aspects: admission to a psychiatric hospital, increase of medication, worsening of the florid symptoms of schizophrenia, worsening of any psychiatric symptoms, and threatened clinical exacerbations.

Classically, a notion of relapse refers to the reemergence of a florid episode of illness in a person previously in a state of stable remission. A major methodological problem to the development of a reliable and valid definition of relapse in a schizophrenic disorder is that up to 50% of people with schizophrenia do not attain a stable clinical remission but have persisting symptoms. A more useful definition of this type of relapse should examine outcome - the measure of change in clinical condition from the beginning to the end of a study (Lukoff, Liberman & Nuechterlein, 1986). It is important for a definition to be keyed to the psychotic symptoms that are characteristic of schizophrenia. Many of the definitions in the past have confounded relapse with social factors such as behavioural disturbance and hospitalisation.
Behavioural disturbances are tolerated differently by families of different ethnic backgrounds and a wide variety of social factors that are not related to symptoms affect the likelihood that a given person will be hospitalised. Findings suggest that ill sons are sent to hospital more often and remain in hospital longer than ill daughters, in part due to social norms and expectations of parents associated with gender (Goldstein & Kreisman, 1988). Therefore if relapse is to serve as a useful indicator of the process of schizophrenia, a definition must be based on core psychotic symptoms that specifically characterise schizophrenia, unconfounded by social variables. Moreover, the mere presence of these symptoms does not always designate relapse. Specific symptoms, frequency and intensity criteria, as well as the degree to which the symptoms interfere with social functioning, designate a more satisfactory definition of relapse. Scales used to formulate outcome definitions in previous studies include the Present State Examination (PSE) (Brown, Birley & Wing, 1972); the Psychiatric Assessment Scale (PAS) (Vaughn, Snyder, Jones, Freeman & Falloon, 1984); the Brief Psychiatric Rating Scale (BPRS) (Lukoff et al., 1986); and the Vets Adjustment Scale and the Personal Adjustment and Role Skills Scale (Spiegel & Wissler, 1986).

This classic definition of relapse refers mainly to the intrinsic impairments of schizophrenia including core experiences (hallucinations, delusions, thought disorders), cognitive impairment, vulnerability to emotional blunting, loss of volition and social withdrawal. There are, however, other disabilities and handicaps associated with, though not specific to, schizophrenia that may also usefully be considered when determining relapse (Birchwood & Preston, 1991). This would include level of social and community skills, self-image, depression, risk of suicide, level of distress due to difficulties with residual symptoms, employability, size of social networks, family discord and rejection, and institutionalisation. These aspects of relapse or healthy functioning are often ignored in many relapse studies.

(3) There is a possible confounding of measures of the emotional overinvolvement and critical comments with other factors to which people are vulnerable, factors that are likely to characterise environments beyond the family, such as friendship, therapeutic and vocational environments (Hogarty et al., 1988). Possible confounding of EE with length of episode before admission and medication compliance was suggested by some data (MacMillan et al., 1986; Hogarty, 1985) and has been refuted by other data (Mintz, Nuechterlein, Goldstein, Mintz &
(4) The concept of EE makes our focus too narrow and limits the service implications of research (Kuipers & Bebbington, 1988) as it is biased toward relapse and chronicity, people in contact with families, and possibly is only relevant to young single males living in the family households (Falloon, 1988). The majority of people with schizophrenia do not live with families; of those who do, most do not live in a high contact/high EE family (McCreaddie & Robinson, 1987; MacMillan et al., 1986). Neither is the EE instrument comprehensive enough to measure the rehabilitation potential of the family (El-Islam, 1989).

(5) Few studies investigating the relevance of relationship style to schizophrenia have undertaken multivariate analyses, thus allowing the possibility of spurious associations between predictors and outcome if higher order predictors are not considered (Parker, Johnston & Hayward, 1988a). Researchers are now more likely to investigate a range of variables that may interact to predict vulnerability to relapse and there is growing recognition that:

"Multi-factorial analyses which examine the interaction of different variables promise to be more important for predicting a range of outcomes than any other single variable such as an EE index" (Vaughn, 1989).

(6) The EE literature has been in danger of assuming pathology to reside in the family. There are four major hypotheses as to the role of EE with regards to relapse (Vaughn, 1989): (a) there is a causal relationship between high family EE and relapse, (b) high EE is a reaction to the person's illness, (c) high EE is a result of interaction between the individual and significant others, and (d) EE is a spurious artifact associated with relapse only because of its association with another variable which is in fact the causal agent. Earlier work conveyed the assumption that a causal relationship existed; that is, the family exhibited high EE behaviour and caused relapse in their relative. More EE researchers are rejecting this blaming notion (which is, after all, simply a more sophisticated revision of the 'schizophrenogenic parent') and are taking on a systems approach when thinking about the family relationships (Leff, 1989b; Bland, 1989). A systems approach, in particular a "second cybernetics" approach (Durrant, 1987; White, 1986) does not see problems in terms of cause and effect or simple linear relationships, but rather as a
cyclical pattern. The cycle has no clear beginning or end, and becomes a self-propogating cycle in which it becomes redundant to talk about cause and effect because it is viewed that "cause" and "effect" all mutually determine each other. Some writers have taken a more psychoanalytic viewpoint and suggested that there is a need to deal openly with the family's feelings of guilt instead of using EE education which, through its subtle suggestion of guilt, will actually compound the feelings of blame that the family experience (Hunter, Hoffnung & Ferholt, 1989).

(7) The most perplexing aspect of the research is to what extent the CFI actually describes the ongoing, long-term relationship between significant others and the individual who has a diagnosis of schizophrenia. Early assumptions held that EE was a stable trait and that the attitudes expressed during the CFI, conducted during a time of crisis, without the presence of the identified patient, are representative of long-term, ongoing behaviour on the part of the family. These simplistic notions have been questioned both by supporters and critics of the EE variable. Increasingly research is turning to the question of whether or not the CFI scores are representative of on-going relationships. One line of research suggests that relatives 'fake good' in the CFI interview; that is, people gave low EE answers as the more socially desirable answers that portray a degree of parental competence, but may not actually interact in a low EE manner with their relative (Parker & Johnston, 1988).

In order to gain further insight into the nature of EE, different family assessment methods are being utilised. Family assessment methods can be differentiated broadly by the reporter's frame of reference (insider or outsider) and by the type of data collected (objective or subjective) (Carlson, 1989). Insider-objective methods include behavioural self-reports and insider-subjective methods include self-report tests, projective tests, and the family members' reports of their viewpoints in structured interviews. Outsider-subjective methods include clinical rating scales and judgments based upon observed family interaction and outsider-objective methods refer primarily to observation coding systems of family interactions. Most previous EE studies have adopted a partial objective-outsider view (partial in that the whole family is not observed together) and there has been less work using other methods of research that might give us information from another perspective.

There has been increased attention to use of different modes of outsider-subjective and
outsider-objective assessments to study ongoing relationships, and their relationship to CFI and relapse. Studies are now beginning to observe families relating together, over time and after hospitalisation has passed (Goldstein et al., 1989; Miklowitz et al., 1989; Strachan et al., 1989; Hahlweg et al. 1989). When examining the course of EE over time, results from these studies show that there is a tendency for some high EE families to change to low EE once hospitalisation is past - one researcher has estimated that as many as fifty to eighty percent of high EE families undergo this transition. Low EE relatives were found to be quite stable. The CFI-EE status was not found to predict interactional behaviour 8 weeks after hospital (Hahlweg et al., 1989).

Consistently-high EE families exhibit high rates of reciprocal criticism between the individual and the family, low EE families exhibit minimal criticism and high-to-low EE families have the individual more critical of the family than the reverse. These "unstable high EE" families present the possibility that a cyclical relationship does exist and that individual symptomatology and family EE increase reciprocally. This is further backed up by evidence with disturbed adolescents (Cook, Strachan, Goldstein & Miklowitz, 1989). It was found that high-EE mothers and low-EE mothers reciprocated their adolescents' affect, and that adolescents in a high-EE relationship were more likely to have an emotional tone opposite to that of the mother's emotional tone and that adolescents in a low-EE relationship were more congruent with their mother's emotional tone. If we accept reciprocity as an occurrence in a parent-child system, then relapse would be seen to be relatively independent of the family's emotional attitudes (Leff, 1989b). Given the changing course of EE in some families over time there seems to be some doubt that EE is a stable trait and that it can be taught or in some way passed on to other families.

A "transactional model" (Birchwood & Preston, 1991) would alternatively suggest that the emergence of schizophrenia triggers an ongoing dynamic interaction between the individual and other people around him or her in which the latter is seeking to comprehend and cope with an individual's change in behaviour and circumstances. High EE is therefore construed as an indicator of stress in a particular relationship at a particular point or period of time.

As yet, there appears to be very little insider-objective or insider-subjective family assessment methods being used. Whilst it is generally true that opinions and beliefs expressed through self-report are not paralleled by observed behaviour, research has shown that "insider" versus "outsider" information is more highly correlated when the ratings are based on the same model or theory (Hampson, Beavers & Hulgus, 1989). The lack of this type of assessment
would seem to be a major deficit of the area given the large amount of theory and research suggesting that individual perception determines levels of stress and coping (Lazarus & Folkman, 1984). Psychological stress has been defined as:

- "a relationship between the person and environment that is appraised by the person (cognitive appraisal) as taxing or exceeding her/his resources and endangering her/his well-being." (Lazarus & Folkman, 1984).

They contend that there is no objective way of predicting psychological stress reactions without reference to the properties of the individual. These properties include their commitments (what is important to the person), their beliefs (preexisting notions about reality that determine what is fact for the person and shape the understanding of the meaning of a situation) particularly in relation to personal control and existential issues such as God and fate and the ultimate meaning of life. Coping is postulated to be equally dependent on the individual and is defined as constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person. Lazarus rejects the trait theories of stress and coping (predispositions of people to react in certain ways) but holds to a state approach, which examines how the person actually reacts (instead of usually reacts) in terms of stress and coping in a specific context.

Research from other areas supports such theory and has much relevance to the field of Expressed Emotion. The most well known research is in the area of behavioural and psychosomatic medicine - coping with every day events has been shown to affect health (Lazarus & Folkman, 1984). A specific example is cardiovascular disease. Traditional physical risk factors (e.g., age, sex, blood pressure, smoking) only explain 50% of the variance in the occurrence of coronary heart disease (CHD) (Wright, 1988). In addition to this 50%, factors such as individual coping behaviour, stress, social isolation and troubling emotion (e.g., anger) have been found to account for large amounts of the variance for the incidence of CHD (Krantz, Contrada, Hill & Friedler, 1988). The mechanisms by which individual coping mechanisms affect frequency, intensity, duration and patterning of neurochemical stress reactions is not yet clear.

The reason that EE research has, on the whole, ignored the importance of investigating
the role of individual perception of a stressful environment in determining relapse may be in part due to a supposition that self-report procedures and individual accounts will covary with level of symptomatology and therefore lead to spurious associations between self-reports and illness; that is, there will be an error in recall due to illness factors. Brown (1974) suggested that one would expect over-reporting of event occurrence and impact when there is some sort of psychological disturbance of the reporter as the individual will feel a need to attribute symptomatology to a 'cause'. However the evidence suggests that state anxiety does not significantly affect the accurate recall of life event data (Byrne, 1983; Henderson, Byrne & Duncan-Jones, 1981). Of interest here are findings that suggest that people who have a diagnosis of schizophrenia have a less highly elaborated concept of self when compared to a normal population, but are no different in their ability to organise complex perceptions of other people (Robey, Cohen & Gara, 1989). Also of interest are the findings that, for people with a unipolar depression, the person's perceptions of criticism from spouses was a better predictor of relapse than the measured EE or marital distress (as measured by the Dyadic Adjustment Scale) (Hooley & Teasdale, 1989). In conclusion, there exists no empirical support of the notion that psychological disturbance constitutes a serious threat to accurate recall. It would seem precipitous to ignore the value of gaining insider-subjective data and worthwhile to investigate the role of individual perception of an environment in determining relapse.

Stressors: A General Examination of the Literature

Multivariate Studies

There are numerous studies that examine the role of other factors on the course of schizophrenia. Once again, a problem in comparing these different findings exists because relapse and outcome variables are defined differently between the studies. An Australian study (Parker, Johnston & Hayward, 1988b), using a multivariate analysis, suggested that a poor course of schizophrenia was best predicted by poor course before admission (brief period between index admission and any previous admission) and living in a one parent household. High household EE status was a predictor only in combination with course of illness, one-parent household status and age at first hospitalisation (the younger the age the greater the risk for relapse). Elimination of variables with significantly incomplete data (compliance with medication, hours of face-to-face contact and life events 9 months after discharge) in a
discriminant function provided five variables that predicted group membership in the relapse group: (a) poor course before admission, (b) living in a one-parent household, (c) higher Present State Examination (PSE) total score at one month follow-up, (d) to not have first admission status at the index assessment and (e) younger age at first hospitalisation. High EE failed to contribute to the ability of the discriminant function to predict group membership.

Duration of illness prior to first admission (the longer the time between onset and admission the worse the outcome) and adherence to neuroleptic medication following discharge were also found to predict relapse over EE ratings (MacMillan et al., 1986; Parker & Johnston, 1987; Hogarty, 1985). A German study (Straube, Wagner, Foerster & Heimann, 1989) examined the relative contributions of psychobiological, psychopathological and clinical psychological variables to outcome of schizophrenia. The psychobiological variables included autonomic nervous system (ANS) measurements such as skin conductance rates and heart rate as well as a CT scan examining brain atrophy. The psychopathological variables included use of the PSE ratings and the effects of test doses of Haloperidol. The clinical psychological variables included the CFI-EE index; measures of attention disorder and susceptibility to be disturbed by external stimuli; attitude toward admission, drug treatment and staff; ward activity by the person and reaction times in a simple reaction time task. The overall findings, after a two-year follow-up, suggested that attention disorder, susceptibility to be disturbed by external stimuli, ANS activity, brain atrophy and EE of a key relative best differentiated between poor and good outcome.

An Indian study found that a multivariate consideration of relapse indicated that there were three variables that significantly discriminated between a relapsed and non-relapsed group. These were self neglect, social contacts during follow-up and regularity of follow-up: greater self neglect, less regular follow-up and fewer social contacts were associated with higher probability of relapse (Rajkumar & Thara, 1989). Good and poor outcome, examined by using progress towards more independent housing and work situations, found that the best outcomes were not predicted by diagnostic subgroups or psychopathological symptoms but by good initial work behaviour; positive expectations by the patient, family and staff; less than 5 years being unemployed; a certain social competence; and dissatisfaction with the initial situation (Ciompi, 1988).
Perception by the Individual of Family Relationships

The Parental Bonding Instrument (PBI) (Parker, Tupling & Brown, 1979), which has been found to measure care (i.e., affection, emotional warmth, empathy and closeness) and protection (control, overprotection, intrusion, excessive contact and prevention of independent behaviours) factors (Cubis, Lewin & Dawes, 1989; Kazarian, Baker & Helmes, 1987; Parker, Tupling & Brown, 1979), has been used with Australian samples of people with schizophrenia (Parker, Fairley, Greenwood, Jurd & Silove, 1982; Parker & Mater, 1986; Parker, Johnston & Hayward, 1988a). The PBI is seen to be a subjective measure of two major EE components (positive affect and overinvolvement) during the subject's early development. Subjects who assigned one or both parents to low care/overprotection had an earlier age of initial hospitalisation and were more likely to be readmitted to hospital in the nine months following last admission. When compared to a control population, people with schizophrenia reported less parental care and greater parental overprotection; differences were only significant in relation to fathers. Further studies, however, only supported a weak relationship between the constructs measured by the PBI and the CFI. PBI defined constructs (as for EE measures) failed to qualify for entry in a step-wise discriminant function analysis that predicted relapse. An independent study found that PBI scores, age, age of onset, and medication compliance correctly classified about 90% of subjects into a good/poor outcome (Warner & Atkinson, 1988).

Qualities of the Family Environment

Following up on the hypothesis that high EE relatives may provide a cognitively more complex home environment thus making it harder for individuals to identify or respond to significant parts of communication, MacCarthy and Hemsley (1986) examined unpredictability in the families. The only significant correlation was between the critical comments component of EE and relative's variability of response to problems such that the individual could never predict the relative's behaviour with confidence. Using the Moos Family Environment Scale with people who had been hospitalised on a psychiatric ward (Spiegel & Wissler, 1986), higher ratings of family expressiveness (the extent to which family members are encouraged to act openly and to express their feelings directly) were found to predict fewer days of rehospitalisation (especially amongst people with schizophrenia).
The cohesion and adaptability of the family has also been examined (Olson, 1986). Cohesion refers to the emotional bonding members have with one another and adaptability refers to the ability of a family system to change its power structure, role relationships and relationship rules in response to situational and developmental stress. Olson suggests that families that appear very high or very low on both dimensions appear dysfunctional whereas families that are more balanced seem to function more adequately. A study comparing families who had members with schizophrenia or neurosis with control families found a very high level of extreme families in the first two groups (neurosis, 64%; schizophrenia, 56%; control, 7%) and low numbers of balanced families in these same groups (neurosis, 8%; schizophrenia, 12%; control, 48%). Higher family cohesion scores predicted better family-rated patient adjustment and patients were more likely to rate themselves as better adjusted if they had higher incomes, lived with parents rather than spouses, and came from families with less emphasis on independence. More rigid and controlling families are marginally associated with poorer outcomes for the individual (McCarrick, Hunt & Sobal, 1988).

Perception of Self and Illness

Some studies have looked at different aspects of the person's perception of their illness and how this can affect outcome. The individual's attitudes toward the schizophrenia were analysed and divided into three types: isolating (identifying illness with self, evaluating it negatively and rejecting any self-reflection), integrating (identifying illness with self, evaluating it positively and accepting self-reflection) and undecided (responded to topics in an undecided, vague and incoherent manner) (Wciorka, 1988). It was found that integrating attitudes were most often associated with better outcome. Insight and interpretation of illness has been proposed as being important in recovery from psychosis (Greenfield et al., 1989); insight here is defined as views about symptoms, existence of an illness, etiology, vulnerability to reoccurrence and the value of treatment. People who stated that they perceived themselves to be mentally ill had a shorter duration of most recent hospitalisation, a smaller number of previous hospitalisations and a greater compliance to treatment (Walker & Rossiter, 1989). "Grip on life" is an increasingly popular concept for research. Many of the definitions are vague and assessment of this concept is not easily reproducible as it involves relatively unstructured interviews. A definition used by Salokangas, Rakkolainen and Alanen (1989) characterises grip on life as the person's efforts, at least in thoughts pertaining to the future, to achieve the goals
and modes of satisfaction normally associated with the interpersonal relationship and the social life of an adult human being. A subjective five point rating scale accompanies this concept: good grip on goals, grip mainly retained, considerable part of grip lost, total abandonment of grip, and reliable evaluation not possible. The evaluation of grip was found to predict the psychosocial status of individuals two years later. Grip on life was examined in another study (Keinanen, Virtanen & Kaljonen, 1989), defined here as clarity of professional aims (even if one did not have a total working capacity) and the presence of interpersonal relations outside of the home. There were no conclusions presented as to the utility of the variable in predicting outcome. Grip on life also seems somewhat related to the process of engulfment as researched by Lally (1989). Engulfment refers to a process by which a part-time or periodically psychotic person can become a full-time crazy person in identity and being. Frequency and duration of exposure to psychiatric hospitals, as well as past history of hallucinations, seem to be important variables in influencing engulfment. These concepts seem to be in a development phase and not ready to use empirically in outcome studies but will be of interest in the future, particularly with respect to informing psychotherapy.

Another group of studies of interest are those that examine the role of control-related beliefs as predictors of goal attainment (e.g., Weisz, 1986; Yalom, 1980; Flannery, 1986). Personal control includes
(i) outcome expectations or the belief that the environment will be responsive to individual coping efforts (locus of control), and
(ii) expectations of self efficacy i.e., the individual's belief of her/his own ability to perform the life tasks necessary for effective coping (Flannery, 1986). Several theoretical models suggest that efforts to achieve a goal depend partly on the perceived controllability of that goal. There is some evidence to suggest that general self-efficacy moderates individual differences in perception to and response to stressful life events: that is, the greater the self-efficacy experienced, the less stressful situations are perceived to be (Morgan, Owen, Miller & Watts, 1986).

Life Events
While reviews of the literature conclude that there is not enough evidence to suggest that life stress is causally related to episodes of schizophrenia (Tennant, 1986; Goldstein, 1986), most evidence would indicate the possibility that life events may sometimes trigger psychotic
episodes. A comparison of people with schizophrenia who relapsed while taking or not taking neuroleptic medication found that people who relapsed on medication experienced significantly more stressful life events (mainly involving relationship losses and family conflict) than those who received no maintenance medication (Bartko, Maylath & Herczeg, 1987). Threatening life events were significantly related to the occurrence of schizophreniform psychosis (stressful events are six times more likely in such patients than in age and sex matched controls) (Chung, Langeluddecke & Tennant, 1986). A World Health Organisation study (Day et al., 1987) of eight different countries found that there was a significant increase in the number of people experiencing stressful life events two to three weeks before illness. A prospective, longitudinal study found that relapsing was connected with a significantly higher number of independent stressful life events (those not the result of symptoms or personal influence) in the month preceding relapse (Ventura, Nuechterlein, Lukoff & Hardesty, 1989). All of the people in the study were on standardised maintenance medication.

Social Support and Employment

Social factors can be divided into two concepts: social networks (the numbers of friends and relatives in a network) and social support (the way in which an individual perceives her or his interpersonal relationships). Of these two concepts, it appears that support (quality of relationships) is more important and this is based on two major bodies of findings. First, given that the course of schizophrenia seems to be more favourable in developing rather than industrialised countries, it has been suggested that social isolation and support may be implicated in course of illness (Lin & Kleinman, 1988). Most developing countries are 'sociocentric' and place an emphasis on social relations and conventions that formalise and sustain long-term relationships. In contrast, western industrialised society can be viewed as 'egocentric' in which individuality is prized and people, particularly people with a disability, can find themselves rejected, isolated and unsupported. This individualistic and self-reliant orientation fosters fierce competition, frequent life changes and instability, and this has a profound effect on the work environment. Work becomes harder to find for disabled people, and presents an atmosphere of marginal acceptance and insecurity.

The second body of findings can be found in population surveys. Such surveys have indicated that good social relationships help maintain mental health and better adaptational
outcomes (Erickson, Beiser, Iacono, Fleming & Lin, 1989), especially if people believe that they will receive social support when it is needed in a crisis (Lazarus & Folkman, 1984; Henderson, Byrne & Duncan-Jones, 1981). In the stress literature the social environment is not only viewed as a major source of stress but also a source of vital resources that the individual must draw upon in order to survive and flourish.

A five-year follow-up of 100 people with schizophrenia admitted to hospital for breakdown found that 49% had good symptomatic outcome (defined as type, severity and duration of symptoms) and 42% had a good social outcome (occupational functioning, social functioning and housing status). Poor social functioning was predictive of poor symptomatic outcome (Prudo & Blum, 1987). Illness history (mental illness in the family, history of physical illness in the subject, obvious precipitating events, prior psychiatric history and episode preceded by lengthy symptoms), occupational functioning, social relationship functioning, negative non-specific symptoms at initial evaluation and their interaction with sex and race accounted for 32% of the 5 year symptomatic outcome variance. Another study found that long-term prognosis was correlated less with clinical than socially determined factors (Marinow, 1988). Good prognosis was associated with marital status, work ability, neuroleptic treatment and not with history of the illness, the number of readmissions and length of previous hospitalisations. A prospective study in the course of schizophrenia had similar findings (Gaebel & Pietzcker, 1987) and results suggested that social outcome (employment and social contacts) showed the highest prognostic validity. Another study found that people with schizophrenia had fewer and less satisfactory social relationships before their illness than people in a matched 'normal' control group and a group of people diagnosed as having affective psychosis (Erickson, et al., 1989). The size of a social network seems to be adversely affected by the negative symptoms of schizophrenia and relatively unaffected by the positive symptoms (Hamilton, Ponzoha, Cutler & Weigel, 1989). The number of kin in the network and family involvement was negatively associated with outcome and greater availability of acquaintances was positively associated with outcome. Of interest here is the finding that physiological arousal of the individual is not increased by a high EE relative but rather decreased by a low EE relative (Falloon, 1988; Leff, 1989a). It seems that the presence of warmth and regard from a relative exerts a more powerful affect on the arousal of the individual than the presence of negative expressions, and hypothetically, is thus more influential on the mental state of the individual.
Social support for caretakers has also been associated with reduced patient hospitalisation (Jed, 1989). A larger number of supporters, a larger number of advisers and a smaller proportion of conflicted support for the family is associated with fewer days in hospital for the person with schizophrenia.

Chronicity

Results of long-term follow-up studies would suggest that the longer the person has had a diagnosis of schizophrenia, the better their functioning becomes (Ciompi, 1988; Harding & Brooks, 1984; Huber, Gross, Schuttler & Linz, 1980; Bleuler, 1968). Follow-up in these studies stretched over 20 to 40 years, and in total examined more than 1300 people. Using different methodological approaches, these different studies came to similar conclusions, namely: between 20% and 29% of the samples completely recovered and an additional 24% to 33% of the samples showed significant improvement and were able to re-enter a normal lifestyle. Only 14% to 24% of the samples were said to be severely chronic i.e., heavily disabled by disorders affecting thinking, speaking and behaving. Therefore over half of the different samples were able to resume normal lifestyles over time. Examining Ciompi's sample more closely revealed 96% of his subjects were hospitalised and treated before neuroleptics were available, little directional influence of mortality on the final results, and narrow use of diagnostic criteria that are congruent with the DSMIII diagnosed schizophrenia. In other words, there seems to be a genuine trend for people diagnosed as having schizophrenia to return to a close approximation of pre-morbid functioning (Haley, 1989).

Conclusions from the Literature Review and Direction of Research

Expressed emotion is a term coined to explain that high levels of family critical comments and emotional overinvolvement have some role in increasing the probability of relapse for the individual who has a diagnosis of schizophrenia. Follow-up studies would suggest that low EE delays but does not prevent relapse.

Seven criticisms of the EE research are: (1) different measures are used between studies thus limiting comparisons, (2) different measures of relapse have been used between studies, (3) confounding of measures, (4) concentration on high EE limits service implications, (5) too few
multivariate studies, (6) the potential of EE to be used in the attribution of blame, and (7) the need to widen the types of family assessment measures used so that we can describe how the ongoing long-term relationship between people affects relapse.

Other studies have shown a range of factors to influence relapse including: (1) living in a one parent household, (2) course of illness previous to admission, (3) age at first hospitalisation, (4) self neglect, (5) less regular professional follow-up, (6) perception of the family relationships by the individual, (7) qualities of the family environment, (8) perception of self and illness, (9) life events, (10) social support, (11) sociocultural environment and (12) length of illness (chronicity).

In trying to take the above criticisms into account when examining factors determining relapse, this study represents an exploratory attempt at a more naturalistic examination of a range of people attached to a community psychiatric service in Canberra, Australia. In this respect this study will more closely represent the design used by Mc Creadie and Phillips (1988). The following aspects will be incorporated:

(1) use of a specific, detailed and reliable relapse measure that examines the level of psychopathology, as well as using relapse measures that can be effected by factors other than core psychotic symptomatology (eg., hospitalisation).

(2) use of a diverse sample of people, representative of a community psychiatric service client group. Such a sample would be selected on the basis of having family contact but will differ in terms of residential setting, length and severity of illness, and may experience a variety of significant relationships outside of the family circle. The results from such a sample would have wide service implications.

(3) use of a multivariate study.

(4) adoption of an "interactional approach" when considering the role of EE in significant relationships rather than a trait approach.

(5) use of an insider-subjective measure (the LEES) instead of the CFI, in order to examine the ongoing, long-term relationships that are of current importance to the person: this will not necessarily be a family relationship. Once again, this is similar to the Nithsdale study, in which EE was assessed for either family or friends, depending on the most appropriate and significant relationships.
Research Questions and Hypotheses

**Question 1:** Which combination of variables best predicts relapse in a diverse sample of people who are diagnosed as having schizophrenia?

**Hypothesis 1:** Given previous research findings, variables that have been shown to have predictive power (i.e., if present, increase the probability of relapse) and that will examined in this study are:

1. perceiving significant others to be high in overprotection, criticism, hostility and control (Warner & Atkinson, 1988),
2. presence of only one parent (Parker, Johnston & Hayward, 1988b),
3. younger age at first hospitalisation (Parker, Johnston & Hayward, 1988b),
4. less time between age at first hospitalisation and current age (Ciompi, 1988),
5. less compliance with medication (Vaughn & Leff, 1976),
6. less perceived social support from friends (Rajkumar & Thara, 1989) and
7. less perceived social support from family (Lin & Kleinman, 1988).

It is proposed that in such a diverse population the most important predictors will be (in order of importance): chronicity, medication compliance, social support from friends, perception of significant other's expression of EE characteristics and age at first hospitalisation. It is expected that in for a sample who may not have intense contact with family that relapse will be less effected by (in order of importance) social support from family and existence of only one parent.

**Question 2:**

(a) What overlap is there between a relapse measure that examines the frequency and intensity of core psychiatric symptomatology characterising schizophrenia and other commonly used measures of relapse, namely hospitalisation, increased prescribed psychotropic medication and a brief, unstructured professional assessment of increase in psychotropic symptomatology? and

(b) How does use of different relapse measures effect the significance of the results?
Hypothesis 2:

(a) There will not be high correlation between the relapse measure and other commonly used measures of relapse (i.e., greater than 0.7). The relapse measure will best be correlated with (in order) a brief professional assessment, medication increase and hospitalisation. The overlap decreases as these other indicators of relapse become more open to influence from factors apart from escalation of core psychotic symptoms.

(b) Use of different relapse measures will give different results thus portraying four different interpretations of the data.
METHOD

Subjects

The Problems of Diagnosis

The first major problem to overcome when setting out to choose subjects is the method of diagnosis to be adopted in the research. In the last few years there has been much progress in constructing diagnostic interviews, based on evolvement of the Feighner criteria, thus largely solving the problem of reliability. Comparisons carried out on 4 diagnostic criteria (DSM-III, ICD-9, Research Diagnostic Criteria (RDC) and the original Feighner criteria) found that ICD-9 and Feighner criteria respectively generated two and three times as many diagnoses for schizophrenia as DSM-III for the same population (Beiser, Iacono & Erickson, 1989). Over a nine- and eighteen-month follow-up, 5% of RDC, 5% of ICD-9 and 37% of Feighner classifications were classified as some other diagnosis. The DSM-III classifications remained the most reliable over time.

Now the major question is whether these diagnoses that we can make reliably are worth making at all. There is concern that there has been an over-emphasis on reliability at the expense of validity (McGorry, Copolov & Singh, 1989). For example, despite the stability and demonstrable homogeneity of the DSM-III schizophrenia classification, there is concern that it may be an overly restrictive diagnosis that identifies only a subcategory of schizophrenia - that sort with a uniformly poor prognosis. There is also debate over the DSM-III separation of schizophrenia from schizophreniform disorder. Some researchers suggest that there is a recognisable division in terms of diagnosis among first-degree relatives (Robins & Guze, 1970), premorbid work history, amount of involvement with friends, and pattern of symptoms (long lasting vs recovery and regular recurrence) (Beiser et al., 1989). Other researchers point to the fact that there are no differences between symptoms of the two disorders and that the difference may only reflect rapidity with which treatment is sought (George, Blazer, Woodbury & Manton, 1989). The issue is further confused as some writers believe that schizophrenia may be a syndrome that subsumes different sub-entities which may have different aetiological bases and thus require separate theoretical models to discuss issues such as onset and course of illness.
As yet, few psychiatric disorders have been adequately validated - it is still an open issue as to whether there are genuine boundaries between clinical syndromes and normality (Kendell, 1989). In the long term, to have confidence that we are reliably describing 'real' disorders, we need to find specific etiology, biological defects or changes in physical structures or physiology. This still seems a far off goal for many of the psychiatric disorders, including schizophrenia. In the mean time, suggestions have been made for increasing validity of diagnosis (McGorry, et al., 1989), including using a multi-diagnostic approach which incorporates broad diagnostic concepts, both in terms of culture and theoretical schools; using multiple information sources including the individual, family and other carers; and using trained workers to carry out diagnostic interviews (e.g., psychologists, psychiatric social workers, psychiatric nurses and psychiatrists).

The use of different diagnostic systems poses a major problem for allowing meaningful comparisons of course and outcome of schizophrenia between different studies. This is particularly true for cross-cultural studies (Angst, 1988). American researchers may use any one of DSM-III, ICD-9, RDC or the Feighner criteria, and European studies tend to follow diagnostic criteria laid down by Kraepelin, Bleuler and Schneider. The European criteria is much wider than DSM-III and consequently use quite different populations in their studies than is presented in American studies. Thus a huge pool of worldwide data is unable to provide us with valid and generalisable data on course and outcome of schizophrenia. A problem of meaningful comparison also exists between different versions of the same diagnostic classification. Studies using DSM-II diagnosed many more people as having schizophrenia than studies using DSM-III, and it seems possible that DSM-III-R may further reduce the numbers of people diagnosed with schizophrenia by 10% (Fenton, McGlashan & Heinssen, 1988) although this claim is currently being debated (Viewig, Hundley & Godleski, 1989). As the EE research has spanned several versions of the DSM, there is a tendency to combine diagnoses of schizophrenia and schizophreniform disorder when using DSM-III, so that studies may more easily be compared.

Given the narrowness of the current DSM-III definition of schizophrenia and the
tendency of current western EE research to use subjects who have been given either a diagnosis of schizophrenia or schizophreniform disorder, this study will include people with a DSM-III diagnosis (American Psychiatric Association, 1980) of either schizophrenia or schizophreniform disorder.

Description of People Participating in this Study

The 40 people participating in this study were drawn from Canberra in the Australian Capital Territory (A.C.T.) and Queanbeyan, a town in New South Wales that borders the A.C.T. The number of subjects gained from different services was 5 (12.5%) from acute psychiatric wards of two different hospitals, 13 (32.5%) from three different hostels (providing short- and long-term accommodation), 12 (30%) from three different supported group house accommodation programmes, and 10 (25%) from three different day centres. During the course of a six month follow-up, 10 people (25%) shifted into different types of accommodation: 3 shifted from houses in the community into hostels, 5 shifted from hostels to houses in the community, 1 shifted from a community house to hospital, and 1 shifted from a supported group home into an independent house.

All the participants had contact with family, either face-to-face, correspondence or 'phone contact at least once a fortnight. At the beginning of this study only 27.5% (N = 11) lived with family - this would seem to reflect the general state of living arrangements in the A.C.T. An accommodation survey carried out in the A.C.T. in 1988 found that out of 43 people surveyed, 28% lived with family (Knight, Christie, Cross, Ivers & Vivian, 1988). All people in this study had face-to-face contact at least once a fortnight with the person that they considered had been the most influential person in their life during the last three months. Over the follow-up period only 7 (17.5%) of the 11 continued to live with family. Another 6 people spent some time living with family (at least three months).

Of the 40 people who agreed to participate in this study, only two did not have some form of case worker or professional worker (not including a psychiatrist) that met with them at least once a fortnight. The usual title given to this worker was "case manager", and this person was expected to help their client plan and co-ordinate the various aspects of their life, such as medication, work, leisure or negotiating the Social Security system. Of the total population,
65% (N = 26) were males and 35% (N = 14) were females. The mean age was 34.5 years (SD = 11.4 years), ranging from 19 years to 63 years. Most participants had never been married: 82.5% (N = 33) were single, 10% (N = 4) were married or involved in a de facto relationship, and 7.5% (N = 3) were divorced. Education levels could be divided into four categories: 52.5% (N = 21) did not complete secondary school, 27.5% (N = 11) completed secondary school, 15% (N = 6) began but did not complete tertiary education, and 5% (N = 2) completed tertiary education. Only 22.5% (N = 9) had held a job or were working. These employment categories included 2 public servants, 3 professionals (e.g. teacher), 2 labourers and 2 artists. For the other 31 participants in the study, a parent's occupation was recorded. These included tradesperson (32%, N = 10), small business owners (16%, N = 5), farmers (16%, N = 5), public servants (13%, N = 4), labourers (13%, N = 4), professionals (7%, N = 2), and houseparent (3%, N = 1).

Each person had previously been given a DSM-III diagnosis by a psychiatrist of either schizophrenia or schizophreniform disorder (any one of 9 psychiatrists were responsible for making the diagnosis). In all cases, the diagnosis was backed up by another worker (mainly psychiatric nurses). All were using some form of prescribed psychotropic medication. Length of contact with psychiatric services ranged from 1 year to 47 years, with an average of 12.6 years contact (SD = 11.4 years). The number of psychiatric hospitalisations was calculated for the last seven years (since 1983) because some of the participants had long psychiatric histories and it was felt that accuracy could not be guaranteed if the total number of hospitalisations was recorded. The number of hospitalisations ranged from 0 to 21 and were divided into 4 categories: no hospitalisations (15%, N = 6), 1-5 hospitalisations (50%, N = 20), 6-9 hospitalisations (25%, N = 10) and 10 or more hospitalisations (10%, N = 4).

**Questionnaires**

**The Level of Expressed Emotion Scale**

In order to gain an insider-subjective view of the experiences of a significant relationship, and one that was consistent with the theory and model of EE, a self-report measure called the Level of Expressed Emotion Scale (LEES) (Cole & Kazarian, 1988) was selected. The LEES defines the four measures that were suggested to correspond to the EE construct
(Vaughn et al., 1981): a high level of intrusiveness; a highly emotional response to the individual's illness; a negative attitude towards the person's illness; and a low level of tolerance for illness and high level of expectations for the person performance and achievements. The respondent is asked to fill out the questionnaire on the person most influential in their life in the past 3 months. This is left up to the person to determine and it does not need to be a family member. In this study, 26 people (65%) selected a parent (i.e., either a mother or a father) as being the most influential person in their life, 5 (12.5%) chose a spouse, 3 (7.5%) chose a professional worker with whom they had regular contact, and 6 (15%) chose a sibling.

The overall internal consistency of the LEES is .95 (using the Kuder-Richardson Formula 20) and the 4 scales respectively had internal consistency at .88, .86, .84 and .89. Test-retest reliability for the overall scale and the subscales were: \( r = .82, p < .01 \) (total scale); \( r = .76, p < .01 \) (intrusiveness scale); \( r = .67, p < .05 \) (emotional response); \( r = .74, p < .01 \) (attitude toward illness) and \( r = .81, p < .01 \) (tolerance/expectations). When the LEES was compared with the Influential Relationships Questionnaire, a questionnaire originally designed to measure EE in personal relationships, the overall scales correlation was \( r = .86 \). Age, sex and amount of contact time with relatives was not found to effect the overall LEES score. As yet, the LEES has not undergone construct validation with the CFI-EE index and its power in predicting relapse has not been measured.

The Perceived Social Support from Friends and from Family

In the area of perceived social support there are a number of measures available, measuring both qualitative and quantitative aspects of social support (Orth-Gomer & Unden, 1987). Many qualitative instruments have good psychometric properties but their illness predictive capacity has not been well examined. The Perceived Social Support (PSS) questionnaire (Procidano & Heller, 1983) was selected for use in this study because (a) it was short, taking about 15 minutes to complete, (b) it separated perceived social support from family and perceived social support from friends thus yielding two separate, and quite likely very different, measures, (c) it had adequate reliability and validity data, (d) it had been used previously with people having a diagnosis of schizophrenia and (e) it seemed to appear in the literature more frequently than many other social support scales. The PSS is divided into two parts - Perceived Social Support from Friends (PSSFr) and Perceived Social Support from
Family (PSSF). Each part has 20 items with a yes/no/don't know answering format; the higher the score, the greater the perceived support. The instrument is designed to measure the extent to which friends and family fulfil an individual's need for support, information and feedback, and includes items addressing quality of support in times of crisis. It has a .83 test-retest reliability over 1 month and internal consistency of .90 (Cronbach's alpha). It has been validated against the Social Network Questionnaire with 222 tertiary students and correlated at $r = .33$ to .43. Both sections, particularly the PSSF, have been found to predict symptoms of distress and psychopathology in a normal population. Low scores on the PSSFr was more closely correlated with poor social competence, high trait anxiety and lack of self-confidence. An independent study has compared PSS scores with three populations: people diagnosed as having schizophrenia, people having diabetes and a normal undergraduate population (Lyons, Perrotta & Hancher-Kuam, 1988). Results of the study supported the use of the PSS as a reliable, valid and generalisable method of assessing an individual's perception of social support.

The Social Support Questionnaire, Interpersonal Support Evaluation List and the PSS appear to measure a similar construct of social support, and all appear to adequately tap the core of this construct (Sarason et al., 1987). Elucidation of the construct suggests that perceived available support generally assesses the extent to which an individual is accepted, loved and involved in relationships in which communication is open.

**The Brief Psychiatric Rating Scale**

The Brief Psychiatric Rating Scale (BPRS) was formulated to provide an efficient, rapid evaluation procedure for use in assessing treatment change in psychiatric patients while at the same time covering a comprehensive description of major symptom characteristics (Overall & Gorham, 1962). The BPRS was originally only applied to people with a diagnosis of schizophrenia and contained 16 items but it is contended that only six to nine of the items are specific to schizophrenia. Inter-rater reliability of the individual items ranged from .56 to .90 and the concurrent validity, when compared to the Multidimensional Scale for Rating Psychiatric Patients was .93. In 1974 the BPRS was enlarged to contain 18 items in order to cover other psychiatric states, and this has increased the potential problem in using the total score as a statistic of severity of schizophrenic states. It is, however, still the most widely used scale in drug trials for schizophrenia. The major problem of the scale is that of inter-rater reliability. The
rater is asked to compare the degree of the severity of symptoms in the person on a seven point scale (not present, very mild, mild, moderate, moderately severe, severe, extremely severe) to the population of people who do have the symptom in question, thus introducing a large element of subjectivity.

Subsequent researchers have tried to overcome this fault. Andersen and colleagues (1989) focussed on 10 BPRS items said by Overall to be the most discriminating for the rating of severity of schizophrenic states. They gained an inter-rater reliability of $r = .83$ when using experienced raters. The validity analysis showed that the ten BPRS items were a sufficient statistic for the measurement of the severity of schizophrenic states. Much of the work on increasing the reliability of the BPRS has been carried out by Keith Nuechterlein and his associates (Nuechterlein, Miklowitz, Ventura, Stoddard & Lukoff, 1990; Lukoff, Liberman & Nuechterlein, 1986; Lukoff, Nuechterlein & Ventura, 1986). I will describe their scoring system in some detail as I have adapted it for use as my major measure of outcome. This scoring system was chosen because of its good interrater reliability, both for individual symptoms and the overall assessment of relapse. They have published an expanded version of the BPRS including a total of 24 items (Lukoff, Nuechterlein & Ventura, 1986) which introduces three major additions: (1) a behavioural definition of each item, (2) a list of questions attached to 14 items to elicit a description of symptoms from the individual (ten items are based on the person's behaviour during interview) and (3) a description of each behavioural state on the seven point scale for every item. Ratings on the seven point scale signify the intensity of the symptom: a '1' means that the symptom is not present, a '2' is very mild, '3' is mild, '4' is moderate, '5' is moderately severe, '6' is severe, and '7' is extremely severe.

Using scoring from the questionnaire, they have developed operational criteria for two types of relapse: (1) psychotic relapse, which is based on the items measuring hallucinations (inter-rater reliability = .93), unusual thought content ($r = .97$) and conceptual disorganisation ($r = .73$) and (2) other types of relapse which are not clearly connected to schizophrenic psychotic processes but which signal gross impairment in thinking and functioning, based on the items measuring depression ($r = .90$), suicidality ($r = .97$), self-neglect ($r = .78$), bizarre behaviour ($r = .84$) and hostility ($r = .89$). In a later paper the 'other types of relapse' category is changed to relapse in people with a manic diagnosis and two items are added, namely elated mood and
motor hyperactivity.

In one study (Subotnik & Nuechterlein, 1989), psychotic relapse was defined as a rating of 6 or 7 on the three psychotic relapse scales as long as the symptom had been at a 4 or lower for at least three months. In a separate 12 month follow-up study of 26 people discharged from hospital and diagnosed as having schizophrenia for no more than 2 years, the BPRS was administered every 2 weeks (Nuechterlein et al., 1990). Outcome criteria were divided into three broad categories, relapse, no-relapse and unchanged. Within the relapse category there were three subcategories (the number in brackets after each subcategory title refers to the number of people in this category after follow-up):

(1) remission-relapse (N = 4, 15%). The person maintained a 3 or below on all BPRS scales for at least one month and a score of 6 or 7 was noted on one or more of these scales following this one month period.

(2) remission-significant exacerbation (N = 3, 12%). The person maintains a 3 or below on relapse scales for at least one month and scores 5 on one relapse scale following this period and an increase of 2 points on another scale, or scores 5 on one of the relapse scales for more than one month.

(3) persisting symptoms-significant exacerbation (N = 0). The person scores at 4 or above on one of the relapse scales during one month after discharge, maintains this state throughout follow-up, and also shows a 1- or 2-point increase to a 6 or 7 on this scale and an accompanying 2-point increase on another relapse scale.

Within the no-relapse category there are five subcategories:

(1) remission-remission (N = 16, 62%); (2) high-persisting symptoms then improvement occurs (0); (3) persisting symptoms-remission (N = 2, 8%); (4) persisting symptoms-persisting symptoms (0); (5) remission-mild exacerbation (N = 1, 4%). The unchanged category includes high-persisting symptoms-high-persisting symptoms in which the person is rated at 5 for at least two thirds of the follow-up period and never meets remission criteria for 3 consecutive months. None of the 26 subjects fell into this category.

Inter-rater reliability for placement of the 26 subjects into 9 categories was 93% and 100% for placement into relapse or no-relapse categories. They also found that EE was strongly
predictive of the relapse ratings; there was a 37% relapse rate among people from high EE homes and a 0% relapse rate from low EE homes. A concurrent study on people diagnosed as having bi-polar manic disorder found that BPRS assessment every 3 months still produced a reliable and valid result and the authors contend that people can recall their functioning during periods that preceded the interview by up to 6 months.

In terms of numbers of people that can be expected to relapse, studies give variable figures as can be expected from using different definitions of relapse. The above study suggests that 27% of recently-diagnosed people relapse after one year. A two-year follow-up of first-episode schizophrenia among people in Scotland found that 37% had good outcome and 63% had a poor outcome (McCreadie et al., 1989). A nine-month follow-up of first-episode schizophrenia in Geneva found that 24% of people relapsed (Barrelet, 1990). A retrospective survey of all people with a diagnosis of schizophrenia identified in Nithsdale, Scotland (N = 142), found that over 1 year 48% of that population was hospitalised for psychotic breakdown (McCreadie & Robinson, 1987). This latter figure is representative of a population in various stages of course of schizophrenia and thus is more closely related to what can be expected in the Canberra population.

**Procedure**

**Obtaining Subjects**

The initial contact was made to the various psychiatric services in the A.C.T. and Queanbeyan via a letter explaining the purpose of the study (appendix 1). This letter was then followed up by a visit and further specific discussion of how subjects could be approached within each service. In most cases a worker attached to the service approached individuals using the service, explained the study using the consent form (appendix 2), and then passed on names of people who were willing to participate in the study. Possibility of response bias can not be ruled out in this setting, but it is difficult to suggest which way it could have worked - perhaps only the better functioning people bothered to volunteer for the study; perhaps the people who were more immersed in the sick role wanted more attention paid to their symptomatology; perhaps only the worst functioning people were sampled because the study drew people from psychiatric services which are only meant to service the most chronically and acutely ill people.
Interviewing Schedules

An initial appointment with each subject was made over the telephone. At the initial appointment the study was explained once more to the person and they signed the consent form. Then the LEE and the PSS were completed; in most cases the person was given a copy of the questionnaire to follow while the questions were read out. This allowed people to clarify the meaning of questions and to discuss answers if they did not feel clear as to how the question was relevant to their relationships. The person was then asked about who was in the family and how old they were at first hospitalisation and compliance to medication over the previous two months. These were later checked with case workers and case notes. Finally the BPRS was administered. These initial interviews usually took no more than an hour. For those people first assessed from an acute psychiatric ward, their assessment was delayed until they were considered to be ready for discharge.

There were three subsequent interviews with each subject, at two monthly intervals, for the purpose of repeating the administration of the BPRS and the 'compliance to medication' question. Hence the follow-up period of the study was 6 months.

The second, third and fourth face-to-face interviews were organised by 'phone contact. At these interviews the BPRS was used to gain information on how the last two months had been for the person. At these interviews the person was also asked about compliance to medication over the previous two months (and this was again checked later with case workers and case notes). The line of questioning followed for this variable was:

"Have you taken your medication all the times you were meant to over the last 2 months?"

If the answer was "no" then the next question was:

"Have you taken your medication most of the time, let's say more than 50 percent of the time?"

If the answer was "no" then the next questions were:

"Have you taken your medication less than 50 percent of the time?" and "Have you taken it at all over the last two months?"

Deliberate compliance with medication was measured on a four point scale: '1' indicated no compliance, '2' indicated compliance some of the time (e.g., between 0 and 50% of the time),
'3' indicated compliance most of the time (e.g., between 51 and 99% of the time) and '4' indicated total compliance. Calculation of overall compliance was carried out by obtaining the mean of the four compliance measures.

BPRS and medication compliance ratings for all except seven individuals were carried out by the author (a total of 132 BPRS assessments). Three of the seven individuals were followed through by their common caseworker, the other three were followed through by another caseworker, and the remaining one was followed through by another case worker. These three caseworkers viewed a video of the author administering the BPRS to a subject and were asked to follow the detailed questioning set out in the BPRS as specified by Nuechterlein et al (1990). All the scoring of the BPRS was carried out by the author so the caseworkers were blind to the relapse/non relapse outcome on the BPRS. Unfortunately, due to lack of resources it was not possible to have inter-rater reliability checks but as the version of the BPRS used in this study has very good inter-rater reliability, it was not considered to be a major problem.

Calculation of Relapse

For the purpose of this study, in which the BPRS was administered every two months rather than every two weeks, it was accepted that people could accurately recall their functioning over the previous two months. The definition of relapse as outlined by Nuechterlein et al. (1990) was adapted for the time frame of this study and is:

(1) remission-relapse. The person maintains a 3 or below on all the psychotic relapse scales for at least a two month period, and subsequently scores 6 or 7 on one of these scales.

(2) remission-significant exacerbation. The person maintains a 3 or below on all the relapse scales for a two month period and scores 5 or more on one relapse scale following this period and a simultaneous increase of 2 points on another scale, or scores 5 or more on one of the relapse scales for more than two months.

(3) persisting symptoms-significant exacerbation. The person maintains a score at 4 or above on one of the relapse scales for at least two months and then shows a 1- or 2-point increase to a 6 or 7 on this scale with an accompanying 2-point increase on another relapse scale.

In addition to this calculation of relapse, data was also collected for the same six month period concerning (a) any psychiatric hospitalisations over the six month period, (b) significant
increases in psychotropic medication over the six month period, and (c) the case manager's subjective impressions of whether a psychotic relapse had occurred. The question asked of the case manager was "has X had a psychotic relapse e.g., a significant and disabling increase in hallucinations (reports of perceptual experiences in the absence of external stimuli), unusual thought content (unusual, odd, strange or bizarre thought content), or conceptual disorganisation (degree to which speech is confused, disconnected or disorganised)?". This data was collected not only to measure relapse, but to see if the BPRS measure of relapse correlated with any of these other indicators of relapse.

Summary

* people with a DSM-III diagnosis of schizophrenia or schizophreniform disorder were included in this study.
* there were 40 participants in this study, all in regular (i.e., at least once a fortnight) contact with family but not all saw their family members as the most influential people in their lives.
* a description of people participating in the study is provided, including characteristics such as gender, age, marital status, education, profession, length of contact with psychiatric services, number of hospitalisations and residential status.
* three formal questionnaires are incorporated as variables in this study - the LEES, PSSFF and the BPRS (Nuechterlein, 1990) (chosen for its inter-rater reliability).
* interviewing schedules, and calculation of relapse and medication compliance are explained in detail.
RESULTS

Relapse

Of the 40 people who participated in the study, 40% (N = 16) were classified on their BPRS ratings as having relapsed. The types of relapse are shown in table 1.

Table 1
Types of Relapse Measured on the BPRS

<table>
<thead>
<tr>
<th>type of relapse</th>
<th>N</th>
<th>percentage of total relapse</th>
</tr>
</thead>
<tbody>
<tr>
<td>remission-relapse</td>
<td>4</td>
<td>25%</td>
</tr>
<tr>
<td>remission-significant exacerbation</td>
<td>3</td>
<td>19%</td>
</tr>
<tr>
<td>persisting symptoms-significant exacerbation</td>
<td>9</td>
<td>56%</td>
</tr>
</tbody>
</table>

An example of each type of relapse from the population studied is summarised on the next page in figures 1, 2 and 3.
Figure 1: Remission-Relapse

Figure 2: Remission-Significant Exacerbation

Figure 3: Persisting Symptoms-Significant Exacerbation
The number of people who had a significant psychotropic medication increase was 12 (30%); the number assessed by case managers to have undergone a psychotic relapse was 17 (43%) and the number of people who were hospitalised was 9 (23%). Of the 7 people who had lived with family throughout the study, 43% (N = 3) were judged by the BPRS to have relapsed. Only 29% (N = 2) were judged by case managers to have relapsed, only 14% (N = 1) was hospitalised and 29% (N = 2) were given significant psychotropic medication increases. These seven people had a mean chronicity of 4.7 years (SD = 2.63). Of the 6 people who had spent some time living with family, all relapsed. This group all had difficult behaviour problems which resulted in them being asked to leave various areas of accommodation during the study.

**Hypothesis One**

*Given previous research findings, variables that would be predicted to influence relapse, in order of importance, are chronicity, medication compliance, social support from friends, perception of significant other's expression of EE characteristics, age at first hospitalisation, social support from the family and existence of only one parent.*

**BPRS Relapse as the Dependent Variable**

A discriminant analysis was carried out using the BPRS relapse data as the grouping variable. The linear discriminant function minimises the probability of misclassification if two assumptions are met (Norusis, 1985): (1) in each group the variables are from multivariate normal distributions and (2) the covariance matrices for each group are equal. Using normal probability plots, detrended normal plots and stem and leaf plots to examine multivariate normality (Norusis, 1985), it was found that the only variables to meet this assumption were the LEE attitude toward illness, perceived family support, perceived support from friends, household status and medication compliance. An inverse transformation to the age at first hospitalisation variable and square root transformations to the remaining LEE scales and chronicity resulted in improved normal distributions. The second assumption is tested by using the Box's $M$ test and it was found that, statistically, the group covariance matrices were equal (Box's $M = 2.7188$, df = 3, $p = 0.4658$).

The means of the predictor variables for the BPRS relapse and non relapse groups are
summarised in table 2. Significance was determined using an one-way analysis of variance.

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>relapse mean</th>
<th>SD</th>
<th>non relapse mean</th>
<th>SD</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE total</td>
<td>3.49</td>
<td>1.48</td>
<td>3.45</td>
<td>1.38</td>
<td>.9173</td>
</tr>
<tr>
<td>level of intrusiveness</td>
<td>1.79</td>
<td>0.99</td>
<td>1.71</td>
<td>1.00</td>
<td>.7933</td>
</tr>
<tr>
<td>emotional response</td>
<td>1.67</td>
<td>1.04</td>
<td>1.50</td>
<td>1.08</td>
<td>.6286</td>
</tr>
<tr>
<td>attitude toward illness</td>
<td>2.56</td>
<td>2.00</td>
<td>2.88</td>
<td>2.42</td>
<td>.6711</td>
</tr>
<tr>
<td>level of tolerance/expectations</td>
<td>2.13</td>
<td>1.19</td>
<td>1.59</td>
<td>1.01</td>
<td>.1281</td>
</tr>
<tr>
<td>support from friends</td>
<td>10.94</td>
<td>4.27</td>
<td>10.21</td>
<td>5.06</td>
<td>.6377</td>
</tr>
<tr>
<td>support from family</td>
<td>11.25</td>
<td>5.68</td>
<td>12.75</td>
<td>3.95</td>
<td>.3296</td>
</tr>
<tr>
<td>household status</td>
<td>1.75</td>
<td>1.07</td>
<td>2.38</td>
<td>1.47</td>
<td>.1518</td>
</tr>
<tr>
<td>age at first hospitalisation</td>
<td>.047</td>
<td>.014</td>
<td>.048</td>
<td>.009</td>
<td>.7615</td>
</tr>
<tr>
<td>chronicity</td>
<td>2.66</td>
<td>1.34</td>
<td>3.61</td>
<td>1.47</td>
<td>.0457</td>
</tr>
<tr>
<td>medication compliance</td>
<td>3.55</td>
<td>0.43</td>
<td>3.63</td>
<td>0.55</td>
<td>.6338</td>
</tr>
</tbody>
</table>

The only variable that is significantly different between the two groups is chronicity - those who have had a diagnosis of schizophrenia for a shorter time are more likely to relapse.

For the discriminant analysis the predictive variables were selected with a stepwise method that minimises Wilks' lambda. At the first step the only variable to be entered was chronicity ($\lambda = 0.74810, p < .05$). After a two step analysis, the variables that were entered into the equation were chronicity ($\lambda = 0.8991, p < .05$) and perceived support from family ($\lambda = 0.8481, p < .05$). At this stage there were no other variables eligible for inclusion and the variable selection process ceased. In other words, these two variables best discriminated between the relapse and non relapse groups and accounted for 15% of the variance of the relapse variable. A significant separation between groups was clearly indicated ($\chi^2 (2, N = 40) = 6.0945, p < .05$). The function correctly classifies 65% of the cases, though it must be remembered that this is an inflated estimate of the true performance in the population (Bartko, Carpenter & McGlashan, 1988). Of the 16 cases in the relapse group, 75% were identified correctly by the discriminant function to be members of the relapse group. Of the 24 cases in the non-relapse group, 58.3% were assigned correctly to the non-relapse group. However, it can be noted that inclusion of the perceived support from family did not significantly increase the discriminant function's separation of the groups.
Hypothesis Two

(a) There will not be high (> 0.7) correlation between the BPRS relapse measure and other commonly used measures of relapse.

Correlations between the different types of relapse are summarised in table 3.

<table>
<thead>
<tr>
<th>types of assessment</th>
<th>Pearson r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>BPRS rating &amp; case manager assessment</td>
<td>0.640</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>BPRS rating &amp; medication increase</td>
<td>0.356</td>
<td>&lt;.012</td>
</tr>
<tr>
<td>BPRS rating &amp; psychiatric hospitalisation</td>
<td>0.171</td>
<td>&lt;.146</td>
</tr>
</tbody>
</table>

As psychiatric hospitalisations can occur for many reasons other than a psychotic relapse (Nuechterlein et al, 1990) and people who relapse are often cared for in the community, it can be predicted that psychiatric hospitalisation will have the lowest correlation with a core symptomatology measure of relapse. Of those people who were rated as having a psychotic relapse on the BPRS, only 31% (N = 5) were hospitalised. Of those people who were rated by a case manager as having relapsed, only 41% (N = 7) were hospitalised. Of those people who went to hospital, 44% (N = 4) were not rated as having a psychotic relapse on the BPRS and 22% (N = 2) were not rated as having relapsed by their case manager.

The most significantly correlated relapse ratings are the BPRS ratings and the case manager assessments. There was a total of 7 disagreements between the two types of rating: three of these disagreements included a relapse on the BPRS but not on the case manager's assessment, and four included relapse assessed by the case manager but not the BPRS. After studying the cases of disagreement, it seemed that probable reasons for disagreement included: (1) differences in training, and thus understanding of definitions, between the BPRS assessor and the case manager, (2) relapse occurring near the time of first assessment with the BPRS, thus being rated as relapse by the case manager but not the BPRS and (3) the subjectivity of the case manager's rating compared to the numerical reckoning of the BPRS relapses. It can not be ruled out that people were not willing to disclose information or acknowledge certain symptoms,
but this could have been equally true for either the BPRS rater or the case manager. In the cases of these disagreements, the BPRS ratings were re-examined and the ratings were found to be reliable and match interview records and thus the ratings present a satisfactory distinction between the relapse and non-relapse groups.

The other significantly correlated measures are the BPRS ratings and the increase of psychotropic medication. One would not expect a high correlation between the two as medication increase will often occur in the build up to a possible relapse and may avert such an event. The significant correlation would suggest that medication increases are usually only prescribed to control core psychotic symptomatology and that either (a) pre-empting an episode is not usually met with much success or (b) medication increases are usually only prescribed after a relapse has occurred.

(b) Use of different relapse measures will give different results for a discriminant analysis.

Case Manager Assessed Relapse as the Dependent Variable

The means of the predictor variables for the relapse and non relapse groups are summarised in table 4.

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>relapse mean</th>
<th>SD</th>
<th>non relapse mean</th>
<th>SD</th>
<th>significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE total</td>
<td>3.45</td>
<td>1.55</td>
<td>3.47</td>
<td>1.32</td>
<td>.9646</td>
</tr>
<tr>
<td>level of intrusiveness</td>
<td>1.76</td>
<td>.939</td>
<td>1.72</td>
<td>1.04</td>
<td>.8993</td>
</tr>
<tr>
<td>emotional response</td>
<td>1.66</td>
<td>1.07</td>
<td>1.50</td>
<td>1.11</td>
<td>.6507</td>
</tr>
<tr>
<td>attitude toward illness</td>
<td>2.82</td>
<td>2.22</td>
<td>2.70</td>
<td>2.31</td>
<td>.8610</td>
</tr>
<tr>
<td>level of tolerance/expectations</td>
<td>2.01</td>
<td>1.29</td>
<td>1.66</td>
<td>.945</td>
<td>.3340</td>
</tr>
<tr>
<td>support from friends</td>
<td>12.00</td>
<td>4.77</td>
<td>9.39</td>
<td>4.45</td>
<td>.0834</td>
</tr>
<tr>
<td>support from family</td>
<td>11.77</td>
<td>5.20</td>
<td>12.44</td>
<td>4.40</td>
<td>.6619</td>
</tr>
<tr>
<td>household status</td>
<td>2.24</td>
<td>1.52</td>
<td>2.04</td>
<td>1.22</td>
<td>.6611</td>
</tr>
<tr>
<td>age at first hospitalisation</td>
<td>.047</td>
<td>.014</td>
<td>.048</td>
<td>.009</td>
<td>.9088</td>
</tr>
<tr>
<td>chronicity</td>
<td>3.38</td>
<td>1.63</td>
<td>3.11</td>
<td>1.39</td>
<td>.5701</td>
</tr>
<tr>
<td>medication compliance</td>
<td>3.68</td>
<td>.412</td>
<td>3.53</td>
<td>.556</td>
<td>.3742</td>
</tr>
</tbody>
</table>

There were no variables that significantly differed between the two groups.
A discriminant analysis was carried out using the case manager relapse data as the grouping variable. The variables were transformed as in the first analysis. It was found that, statistically, the group covariance matrices were equal (Box's $M = 0.0903$, df = 1, $p = 0.7669$).

The predictive variables were again selected with a stepwise method that minimises Wilks' lambda. After a one step analysis, the variable that remained was perceived support from friends ($t = 0.92319$, $p = 0.0834$). This variable accounted for 8% of the variance of the relapse variable. A good separation between groups was not this time indicated, $x^2 (1, N = 40) = 2.9972$, $p = 0.0834$. The correct classification rate, as measured by the discriminant function, was 60%. Of the 17 cases in the relapse group, 58.8% were identified correctly by the discriminant function to be members of the relapse group. Of the 23 cases in the non-relapse group, 60.9% were assigned correctly to the non-relapse group.

**Medication Increase as the Dependent Variable**

The means of the predictor variables for the relapse and non relapse groups are summarised in table 5.

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>relapse mean</th>
<th>SD</th>
<th>non relapse mean</th>
<th>SD</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE (total score)</td>
<td>3.28</td>
<td>1.62</td>
<td>3.55</td>
<td>1.32</td>
<td>0.5924</td>
</tr>
<tr>
<td>level of intrusiveness</td>
<td>1.53</td>
<td>0.898</td>
<td>1.83</td>
<td>1.02</td>
<td>0.3860</td>
</tr>
<tr>
<td>emotional response</td>
<td>1.54</td>
<td>1.11</td>
<td>1.58</td>
<td>0.92</td>
<td>0.9251</td>
</tr>
<tr>
<td>attitude toward illness</td>
<td>2.75</td>
<td>2.42</td>
<td>2.75</td>
<td>2.21</td>
<td>1.0000</td>
</tr>
<tr>
<td>level of tolerance/expectations</td>
<td>1.67</td>
<td>1.08</td>
<td>1.87</td>
<td>1.13</td>
<td>0.6017</td>
</tr>
<tr>
<td>support from friends</td>
<td>11.50</td>
<td>5.14</td>
<td>10.07</td>
<td>4.55</td>
<td>0.3865</td>
</tr>
<tr>
<td>support from family</td>
<td>10.83</td>
<td>4.22</td>
<td>12.71</td>
<td>4.86</td>
<td>0.2516</td>
</tr>
<tr>
<td>household status</td>
<td>2.58</td>
<td>1.68</td>
<td>1.93</td>
<td>1.15</td>
<td>0.1604</td>
</tr>
<tr>
<td>age at first hospitalisation</td>
<td>0.047</td>
<td>0.016</td>
<td>0.048</td>
<td>0.008</td>
<td>0.9331</td>
</tr>
<tr>
<td>chronicity</td>
<td>3.80</td>
<td>1.58</td>
<td>2.98</td>
<td>1.40</td>
<td>0.1075</td>
</tr>
<tr>
<td>medication compliance</td>
<td>3.75</td>
<td>0.384</td>
<td>3.53</td>
<td>0.533</td>
<td>0.1986</td>
</tr>
</tbody>
</table>

There were no variables that significantly differed between the two groups.

A discriminant analysis was carried out using the medication relapse data as the grouping
The variables were transformed as in the first analysis. The group covariance matrices were equal (Box's $M = 10.416$, df = 6, $p = 0.1604$).

The predictive variables were selected with the stepwise method. After a three step analysis, the variables that remained were medication compliance ($\lambda = 0.88694$, $p = .1087$), perceived family support ($\lambda = 0.85370$, $p = .1233$), and chronicity ($\lambda = 0.93324$, $p = .1075$). These variables accounted for 15% of the variance of the relapse variable. A good separation between groups was not indicated, $\chi^2 (3, N = 40) = 5.7732$, $p = .1232$. The correct classification rate, as measured by the discriminant function, was 67.5%. Of the 12 cases in the relapse group, 66.7% were identified correctly by the discriminant function to be members of the relapse group. Of the 28 cases in the non-relapse group, 67.9% were assigned correctly to the non-relapse group.

**Psychiatric Hospitalisation as the Dependent Variable**

The means of the predictor variables for the relapse and non relapse groups are summarised in table 6.

<table>
<thead>
<tr>
<th>Predictor variables</th>
<th>relapse mean</th>
<th>SD</th>
<th>non relapse mean</th>
<th>SD</th>
<th>significance (p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE (total score)</td>
<td>3.90</td>
<td>1.60</td>
<td>3.34</td>
<td>1.34</td>
<td>.3016</td>
</tr>
<tr>
<td>level of intrusiveness</td>
<td>2.19</td>
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<td>1.61</td>
<td>.996</td>
<td>.1188</td>
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<td>emotional response</td>
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<td>1.08</td>
<td>1.49</td>
<td>1.09</td>
<td>.3839</td>
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<td>attitude toward illness</td>
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<td>2.12</td>
<td>2.68</td>
<td>2.30</td>
<td>.7088</td>
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<td>level of tolerance/expectations</td>
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<td>.08</td>
<td>.046</td>
<td>.012</td>
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<td>3.21</td>
<td>1.41</td>
<td>.9085</td>
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<td>.435</td>
<td>3.59</td>
<td>.523</td>
<td>.9074</td>
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There were no variables that significantly differed between the two groups.

A discriminant analysis was carried out using the hospitalisation relapse data as the grouping variable. The variables were transformed as in the first analysis. The group
covariance matrices were equal (Box's $M = 10.494$, df = 10, p = 0.5899).

After a four step analysis using the stepwise method, the variables that remained were perceived intrusiveness of family ($l = 0.937$, p = .1188), age at first hospitalisation ($l = 0.88327$, p = .1006), perceived tolerance and expectations of the family ($l = 0.8373$, p = .0905), and the family's perceived emotional response to the illness ($l = 0.8117$, p = .1115). These variables accounted for 19% of the variance of the relapse variable. A good separation between groups was not indicated, $\chi^2 (4, N = 40) = 7.51$, p = .1113. The correct classification rate, as measured by the discriminant function, was 72.5%. Of the 9 cases in the relapse group, 67% were identified correctly by the discriminant function to be members of the relapse group. Of the 31 cases in the non-relapse group, 74.2% were assigned correctly to the non-relapse group.

Summary

* Relapse rates as classified by the BPRS, significant psychotropic medication increases, case manager assessment and hospitalisation were 40%, 30%, 43% and 23% respectively.

* One-way analysis of variance revealed that only one variable (chronicity) differed significantly between the relapse and non-relapse groups as defined by the BPRS ratings.

* Only one relapse variable (BPRS ratings) significantly separated the groups in a discriminant analysis. This was achieved by using two variables, chronicity and social support from the family. These two variables only accounted for 15% of the variance.

* Using different relapse measures gave different relapse outcomes and discriminant analysis outcomes but this did not make a significant impact as basically the results were either non significant or type 1 errors.
DISCUSSION

Prediction of Relapse

Chronicity: A Type I Error or a Serious Factor?

Using an one-way analysis of variance with four different measures of relapse, the only variable to differ significantly between a relapse and non-relapse group was chronicity, with relapse status determined by BPRS ratings. Given that across the large number of univariate analyses performed only one significant result was found, this result should be interpreted with caution. The significant result may just be due to chance alone i.e., a type I error. It also needs to be remembered that, though the sample size and number of variables examined are comparable to most previous study samples, a subject/variable ratio of less than or equal to 5 also means that the F’s to enter and the corresponding significance tests should be interpreted with caution.

If the significance is a ‘real’ result then it is in the predicted direction - that is, the longer it has been since a person had their first psychotic hospitalisation, the less likely they are to relapse. General understanding of the effect of chronicity on relapse often assumes that the course of schizophrenia “burns out” a person, leaving them fairly void of the ability to cope in the community. This study is unable to assess quality of life of the non-relapse group but other literature would suggest that, far from burn-out, the person is able to start reintegrating into society (Ciompi, 1988). It remains to be seen what sort of interventions best promote and encourage this trend to ‘wellness’. Previous findings would suggest that it will be useful to place an emphasis on rehabilitation programmes that prepare people for a future normal lifestyle i.e., work skills, social skills, developing social networks, independent living. Therapies that promote dependence and adoption of a ‘sick role’ should be discouraged. Other interpretations of this result can be made, including the possibility that the more severely disturbed patients are institutionalised and not represented in a community sample.

Discriminant Function: Ability to Predict Relapse

Use of a discriminant function to significantly differentiate between the two groups (relapse and non-relapse) was successful for only one of the four measures of relapse, that
involving categorisation by the BPRS. The variables that best separated the two groups in this
discriminant function were chronicity and perceived family support as measured by the FaSS: the
higher the levels of perceived support, the less likelihood of relapse. Again a note of caution
must be sounded. It is important to remember that even though there is a significant separation
between the groups, this provides little information about the effectiveness of the discriminant
analysis in classification of real populations. Small differences may be statistically significant
but still not permit good discrimination amongst the groups. It is more important to note that the
finding is not high in clinical significance, as it accounts for only 15% of the variance of the
relapse/non-relapse distinction. This will limit ability to classify future cases correctly and limit
generalisation across other settings and people.

Looking more closely at the sorts of behaviours the FaSS examines, it involves (1) being
able to talk openly to family about important things without feeling uncomfortable, (2) being able
to count on family for emotional support and understanding about personal problems, (3)
enjoying family's company, and (4) being satisfied with the way the family is. Once again this
supports findings in previous studies that the extent to which an individual feels loved and
accepted and feels involved in a relationship that has open communication relates positively to the
prognosis for that person (Erickson, et al., 1989; Lin & Kleinman, 1988; Spiegel & Wissler,
1986; Lazarus & Folkman, 1984; Henderson, Byrne & Duncan-Jones, 1981). In the context of
the findings in this study about EE it also supports the results of physiological studies that have
found positive support to be a more powerful influence on the person than negative influences.
It may also be related to Ciompi's finding (1988) that positive expectations of the family are
predictive of outcome for the person with schizophrenia. One would expect that it is easier to
offer support when one believes that things will get better. In terms of therapeutic face validity,
it also makes much more sense to look at what a person can do to make a situation better rather
than what they should not do.

Concentrating on Subgroups that can Best Inform Clinical Practice

It is disappointing that there is lack of significant results. It is also surprising given the
evidence of other studies for the role of particular variables in relapse (e.g., medication
compliance). It may be that in attempting to gain results that have a wide applicability to a
general psychiatric population that all possibilities of significance have been lost. If this is so, it

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points to the need for future studies to select specific subgroups of the population for survey, as has been done with some previous EE studies i.e., people hospitalised for the first time, people that live with family. There is a great need, however, to start selecting subgroups that will have a greater relevance to common clinical populations. The group used in this study represent one clinical population that may be typical of others and may provide some indication of subgroups that may usefully be studied in the future.

Given that only 17.5% of this sample lived with family it may be more useful to concentrate on people who do not live with family (contrary to the practice of most EE studies). There was 25% of the population who spent some time living with family (up to three months) usually because it was a cheap option whilst waiting for something better to turn up or because other accommodation options had not worked out. People in this second category were not usually welcomed by family and were considered to be short-term residents in the family home. It is of interest that there was no difference between the relapse rates of those who stayed at home throughout the study and those who did not but that there was a difference for the group described above. It may be that this “mobile 25%” are worth concentrating on. It may also be useful to delineate a population that has had a diagnosis of schizophrenia for four years or more and to see which factors are most important for determining relapse in this group. It also seems worthwhile and appropriate to continue looking at EE in the context of a wider network of significant relationships. Appropriate in that most people in this clinical population are over 21 years old, an age that in current western society people are considered to be adults and becoming independent of family. If we limit our investigation of EE in relationships to family relationships we may be missing much relevant information.

**Relapse - An Unsatisfactory Concept in Evaluation**

One of the largest methodological problems in the EE research is that of defining relapse. It has been measured differently in many of the studies. Some of the earlier measures of relapse were gained by assessing the person at the beginning and end of a 9 month period (Brown, Birley & Wing, 1972; Vaughn & Leff, 1976). In further studies, monthly telephone calls were used to assess any relapse over the nine month period and if it was indicated then a face-to-face assessment was carried out (Vaughn et al., 1984). It is much easier to hide signs of relapse over
the phone and thus the cases of relapse may well have been underestimated. Other measures using hospitalisation were likely not be accurate reflections of relapse, as is indicated by this study. Using a definition of relapse that involves increase of medication is also likely to be unsatisfactory as often medication will be given to prevent a threatened relapse and not an actual relapse. As has been previously noted, different studies used different measures of psychopathology and used different criteria for the type and level of psychopathology that constituted relapse. Until recently there was little effort expended to develop a meaningful and rigorous definition of relapse.

Whilst one would not expect a perfect correlation between all four measures of relapse, and in this study different measures of relapse give similar results in that they are all non-significant or likely type 1 errors, it is still apparent that the use of different measures of relapse will change the relapse status of some individuals. This does make it difficult to meaningfully compare results across different relapse studies and it also leaves open the possibility that relapse variables can be manipulated to portray different interpretations of the role of the independent variables.

It seems that there should be considerable work to develop some consensus about the nature of relapse and a definition that can be used reliably in future research. In this work there also needs to be a consideration of the usefulness of the concept developed. It may be that it is more useful and reliable to use functional indicators of coping such as work behaviour, level of meaningful activity, success in independent living, or involvement in social relationships. The literature would suggest that psychopathology does not predict such behaviours (Ciompi, 1988), hence these behaviours present quite different, and perhaps more relevant, measures of "wellness" than the use of measures of psychopathology (Parker, Johnston & Hayward, 1988).

The Significance of EE being Nonsignificant

The insider-subjective measure of Expressed Emotion (EE), based on the hypothesised response styles of people who are trying to cope with a relative or friend who displays disturbed behaviour (Vaughn and Leff, 1981), failed to predict relapse in the life of people who have a diagnosis of schizophrenia. This was true regardless of the type of relapse measure used: Brief
Psychiatric Rating Scale (BPRS) ratings, case manager impressions, medication increases or psychiatric hospitalisation. As this insider-subjective measure has not been used before in similar studies, it is difficult to make any direct comparisons with much of the other literature which examines the role of EE in determining relapse. The closest comparison can be found with the use of the Parental Bonding Instrument (PBI) (Parker, Johnston & Hayward, 1988a), in which the PBI measures also failed to qualify for entry into a stepwise discriminant function predicting course of illness. There could be many reasons for these findings. I will examine four possibilities. Firstly, it may be that EE, as conceptualised by the major researchers and theorists in the field, is not important in the precipitation of relapse. Other factors may be more important such as the severity of illness (McCreadie & Phillips, 1988).

The second explanation is that EE is only relevant to a small number of people who have schizophrenia, maybe young single men living in family households who have more than 35 hours exposure to relatives, as suggested by Falloon (1988). Thus one would not expect the effect to show in such a varied population, most of whom did not have sustained contact with significant others. If this is the case then it is important that this be emphasised in family education. Parents, families and friends are often under the impression that any high EE interaction, no matter how brief, is sufficient to trigger relapse. They feel under pressure to be always relaxed and consequently feel very guilty when hospitalisation occurs, even if they have far less than 35 hours of contact a week.

The third explanation is that EE, as conceptualised by the CFI, is a snapshot of the state of relationships during a crisis. The LEE, which seeks to measure the hypothesised outworking of EE characteristics in ongoing relationships over a three month period, may be measuring a vastly different relationship. This has two implications. Firstly, the LEES is not a valid substitution for the CFI. Measuring different aspects of a relationship and measuring these relationships from a different view (insider-subjective rather than outsider-objective) means that there is no construct validity between the LEES and CFI. Secondly, EE is not a trait but develops in the context of an ongoing relationship. This would mean that there will be no clear association between high EE measured when patients are in remission (as is the case in this study) and relapse rates.
The fourth explanation is that, if the CFI does represent ongoing relationships, then the LEES measure is simply not a good measure and this needs to be ascertained by validity studies.

The idea that EE develops within the context of an ongoing relationship is of increasing interest to researchers. It is useful to continue examining the cycles that occur in the family relationships, or any relationship of significance, in order to start building up an understanding of how to break into unhelpful cycles and how to build up helpful cycles. A possible cycle of interaction appears in figure 4:

**Figure 4: Possible Cycle of Interaction leading to Relapse**

perceived stress of whatever origin for person with schizophrenia increases

stress for person with schizophrenia further increases

significant others react and also become critical

spend more time at home

become increasingly symptomatic, critical of others who are close

The perceived stress postulated above can arise from a number of sources and will rarely be limited to relationships with family or significant others. As can be seen, tensions in the family will contribute to the cycle but do not begin it. Tension from the individual with schizophrenia also feeds into the cycle as do stresses and tensions from outside events; in this conceptualisation it is not possible or meaningful to separate out the cause or effect.

As with any cycle, there are a number of points at which the cycle can be broken into. Firstly, working with the individual who has a diagnosis of schizophrenia and (a) identifying the most potent stressors in their day-to-day life and ones that have in the past led to psychotic relapse, (b) delineating strategies for use when the stressors begin to have an effect on the person, (c) delineating strategies for avoiding the stressors that can be avoided, (d) using cognitive restructuring processes to teach the person to perceive and cope with stress in different ways, and (e) giving the person some extra individual support in the times of stress or potential stress. Secondly, working with the family or significant others to (a) learn to recognise times of
increasing stress and tension, and (b) learn ways of taking avoiding or reacting differently to the
conflicts in the relationship at that time. Most of the effort of the last ten years has been
concentrated in this area. Thirdly, and most often overlooked in the literature on schizophrenia,
is supporting the families or significant others. Given that social support for caretakers has been
found to reduce acute hospitalisation (Jed, 1989), it would indicate that resources from Mental
Health Services should also be going to offering long-term support for families and that families
should spend considerable energy on maintaining and building up large support networks.

Shortcomings of the Present Research

The shortcomings of this research, common to much previous research, is as follows:
(1) Reliability of the diagnosis of each individual is not assured.
(2) Use of a new, unvalidated instrument, the Level of Expressed Emotion Scale, means that we
are not really sure at this stage that it actually measures what it says it measures.
(3) The subject/variable ratio in this study is 5.7, getting close to an unsatisfactory level, in that
later replications with larger populations may not emerge with the same predictor variables.
(4) Bias in the types of people who volunteered for the study can not be ruled out.
(5) It would have been of interest to have included inter-rater reliability checks of the BPRS
ratings given the amount of disagreement between the four measures of relapse used in this
study.
(6) The possibility of a Type I error means that the few significant results must be treated with
extreme caution.
(7) The only discriminant function to significantly separate the two groups would appear to have
limited clinical significance.
(8) In an attempt to redress the previous focus on (i) people living with high EE families, (ii)
significant relationships being limited to within family relationships and (iii) a bias toward
relapse and chronicity, this study may have chosen too general a clinical population for study and
thus missed results of significance for more specific sub-groups.

Implications for Further Research

The results of this study indicate that there are some areas that could benefit from further
research; below is a summary of suggestions for this research.
(1) Given that there is still uncertainty about whether ongoing behaviour is measured by the CFI, there should be more emphasis on actually studying significant relationships to see what is occurring when people are together over a period of time. This can be done in several ways: (i) using further insider-subjective measures - these have been hugely underutilised in the EE literature given the weight of other research emphasising the importance of individual perception in determining the extent of coping and stress, (ii) using insider-objective reports such as behavioural self-reports or diaries over a period of time, or (iii) using further outsider-objective or -subjective methods of observation, both of which would present practical difficulties as the family would have to be observed all together over long periods of time. The emphasis of data collection should be on what part of the relationships are constructive and helpful as well as what aspects are unhelpful.

(2) Further research into chronicity should examine the most helpful elements of treatment that predict a quicker return to a normal lifestyle and the role of family support in this context should be further examined.

(3) Relapse may well be measured more completely by some sort of independent functioning index; however it is important that the same criteria for relapse is adopted between the different studies.

Perhaps the area that is most frequently neglected in terms of research into schizophrenia is that of exploring the person's perception of their environment and their situation (Corrigan, 1989). Even though a diagnosis of schizophrenia is usually associated with a deficit in processing auditory, visual and tactile stimuli (Walker & Rossiter, 1989), it is still does not represent sufficient grounds for ignoring a potentially rich source of information i.e., the person's own subjective impressions. This source of data could add much depth and face validity to future research into schizophrenia.
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APPENDIX 1
Dear

As you may be aware, I am a Psychologist working in the Psychiatric Rehabilitation Services team (Mental Health Services).

As part of my Masters studies I am conducting research in the area of schizophrenia. More specifically, I will be examining the range of factors that contribute to relapse in schizophrenia.

My interest in this aspect of schizophrenia research originated from the "Expressed Emotion" (EE) literature. As you well know, high EE (i.e., high levels of critical comments, hostility and overinvolvement from the family) has been found to increase the rate of relapse. However, more recent literature, such as the studies carried out by Professor Gordon Parker in Sydney, suggest that EE is not a significant predictor of relapse when considered in multivariate analyses.

The variables that I wish to examine include EE (as measured subjectively by the individual), length of periods between hospital admissions, household status (e.g., one parent, two parent), age at first hospitalisation, employment, social support and family cohesion and adaptation (again a subjective measure by the individual). Relapse would be measured using the Brief Psychiatric Rating Scale at two monthly intervals over an eight month period.

I believe that this study offers significant benefits to all participants including:
(a) identifying factors contributing to relapse, leading to the development of strategies to help people live longer and more successfully in the community,
(b) challenging the lingering tendency to blame the family for relapse and promoting a more comprehensive understanding of relapse,
(c) providing data demonstrating the need for resources in psychiatric support services, and,
(d) promoting of ACT research and service agencies

The enthusiastic support of people working in the area is vital to the success of this study. I believe that some clients who attend your service may be willing to be involved in this study, and that it will benefit them and ultimately improve the service. I will be contacting you in the next few weeks to hear your views on the project. I would also like to discuss the process of contacting clients in your area to see if they are interested in participating in this study.

Thankyou for your interest and assistance.

Yours sincerely,

Tracey Wade
(Psychologist, Psychiatric Rehabilitation Services, 454288)

7th July, 1989
APPENDIX 2
CONSENT TO PARTICIPATE IN TRACEY WADE'S RESEARCH

My name is Tracey Wade and I am a psychologist with the Mental Health Services in the A.C.T. I am also completing a research thesis for a Masters degree in Clinical Psychology. The area that I am researching is what sorts of things make people who have a diagnosis of schizophrenia feel disturbed and unwell.

What I am asking you to do is:
1. Be interviewed by me with two questionnaires - the "Level of Expressed Emotion" questionnaire (40 questions, true/false format), and a measure of social support (40 questions, yes/no/don't know format).

2. Permit me to ask your case manager from __________________ about (a) who is in your family, and (b) your age at first hospital admission (if any).

3. Have a 15 - 30 minute interview every two months (over an six month period) with Tracey Wade. This will give me an idea of how you are going with your thoughts and feelings.

All information collected will be confidential and no names will be published in any form.

I understand the information above and I agree to participate in this research.

Signed ________________________________ date ________________